Chapter 5

Namibia: seeking independent power producers

Namibia’s power sector faces some unique challenges. Firstly, it is the only country in this volume that imports more electricity than it generates. This is not necessarily a disadvantage, but the rapidly declining surplus capacity within the Southern African Power Pool has exposed the country to a degree of insecurity in relation to future supply, and costs as Namibia has been unable to enter into long-term contracts with its major supplier, the South African parastatal, Eskom. Secondly, although access to electricity in urban areas is above 75 per cent, the figure for the rural areas is just 10 per cent – a reflection of the deep inequalities in the Namibian economy. Thirdly, retail tariffs have yet to reach cost-reflective levels. And finally, for a relatively small country with a population of around two million, there are over 20 different entities that distribute electricity, mostly municipalities. This complicated arrangement is made even more complex by the fact that each municipality can add a discretionary tax on electricity consumption to fund the provision of other municipal services.

The sector is anchored by a strong state-owned utility, however. NamPower has a solid technical and financial track record, and is arguably the regional leader in this regard. The industry regulator, the Electricity Control Board (ECB) is also building a reputation of being of world-class standard – even international credit-rating agencies have acknowledged this. Despite these significant positive attributes, and the liberalisation of the sector in 2000, private-sector participation in the industry is virtually non-existent. Namibia is the only country in this volume where this is the case. The country’s flagship Kudu gas-to-power project is facing ongoing delays, and the expectation that independent power producers (IPPs) would form an important part of achieving indigenous generation continues to be unfulfilled. The ECB has made much progress in its short history, but more work remains if security of electricity supply is to be obtained.

Power sector overview

Namibia’s Ministry of Mines and Energy is responsible for energy-policy formulation and direction, and the ECB is mandated to regulate the energy sector. As shown in Figure 5.1, the electricity industry is dominated by the state-owned and vertically integrated NamPower, which owns and operates all of the country’s generation and transmission assets as well as some distribution facilities in the rural areas of central and southern Namibia. The bulk of the distribution of electricity is undertaken by the City of Windhoek (the country’s largest distributor). The remainder is managed by two regional electricity distribution companies (REDS) – the Northern RED (Nored) which covers most of the northern part of the country stretching to the Caprivi Strip, and the Erongo RED (Erongored), which covers the central coastal region to the west of the country including Walvis Bay and Swakopmund – and by numerous small municipal distribution operations. Namibia is the only country in this volume that has no private-sector participation in its electricity industry.
Figure 5.1: An overview of Namibia’s electricity sector, 2010

Generation capacity

Total installed generation capacity in Namibia is 393MW. This comprises the Ruacana hydro facility (249MW), the Van Eck (120MW) coal-fired power station located just outside Windhoek, and the Paratus (24MW) diesel plant at Wavis Bay. In 2009, maximum demand experienced was 443MW, which is well in excess of the country’s installed capacity. NamPower has imported a significant proportion of its electricity requirements for many years, mainly from South Africa but also from Zambia, Zimbabwe and Mozambique – thus benefitting from being a member of the Southern African Power Pool (SAPP). In fact, as Figure 5.2 shows, electricity imports have been greater than NamPower’s own generation since 2004.
The rapid increase in the price of coal (see Figure 5.3) and oil since 2003 has meant that NamPower has opted to use power from its Van Eck and Paratus plants quite sparingly. For example, out of total generation into the system in 2009, Ruacana’s contribution was 38 per cent while imports contributed 60 per cent.3

Figure 5.3: Coal costs, per tonne (US$), to Nampower, 1998–2009


Power-sector reform

In 1964, the Industrial Development Corporation of South Africa established the South West Africa Water and Electricity Corporation (Pty) Ltd (SWAWEK) to spearhead the harnessing of the Kunene River for hydropower.5 Soon plans were in place for the development of the Ruacana hydropower plant. Kunene River lies along the border with Angola, however, and the Portuguese government then in power took until 1969 to grant permission for the plant to go ahead. As an interim measure, it was
proposed that a 90MW coal-fired station (comprising three 30MW generators) be built at Van Eck in Windhoek, and by 1972 the first two generators had been commissioned. Angola’s war for independence from Portugal (1961–1975) created further delays for Ruacana, and the third unit at Van Eck was thus installed in 1973.

The fledgling power grid was also being extended at this time. Windhoek, Otjiwarango, Tsumeb, Outjo, Grootfontein, Walvis Bay and Swakopmund had all been connected. With Ruacana still delayed by 1976, a decision to build an additional power station in the interim and four 6MW diesel-fired generators were installed at what would become the Paratus power station. A further 22MW gas turbine was added to Paratus in 1978 (but later decommissioned) and, also in 1978, Ruacana was finally commissioned with a capacity of 249MW. By 1982, however, restrictions were placed on generation at Ruacana. This created a situation of insufficient electricity in the face of rising demand, and a 220kV transmission line was commissioned between Van Eck and Namaqualand in South Africa. In 1996, SWAWEK was renamed NamPower, the same year in which it was announced that a 400kV power line would be constructed from Aries, near Kenhardt in South Africa, to Auas, outside Windhoek. This project was completed in 2000, and with this, 600MW of power was made available to Namibia from South Africa and other countries in the Southern African Power Pool.

One of Namibia’s few experiences of private participation in the power sector occurred in 1996, when Northern Electricity began to operate the distribution system in the north of the country under a concession agreement. Under Northern Electricity’s management, collection rates improved, electricity theft declined, power-system reliability improved and the connections rate increased. Despite the apparent success of the concession, the agreement was not renewed when it lapsed in 2002, ostensibly due to pressure from NamPower, the government department responsible for municipalities (most of which supply electricity) and the local authorities themselves (Clark et al., 2005).

The White Paper on Energy Policy

The 1998 White Paper on Energy Policy signalled Namibia’s first attempt at a more co-ordinated and formal policy for the electricity sector. Relevant to the energy sector as a whole, the goals of the policy were to:

• institute effective governance systems (policy, legislative and regulatory frameworks);
• secure the supply of energy through diversity, competitive and reliable supply, and indigenous sources;
• provide affordable energy supplies to households and communities;
• contribute to the country’s economic competitiveness; and
• ensure the sustainable use of natural resources (Government of Namibia, 1998).

Specifically for the electricity sector, the policy acknowledged that the industry faced the following challenges:

• increasing efficiency,
• improving access, especially in rural areas,
• increasing security of supply;
• taking its place as a key vehicle for investment and growth in the economy;
• ensuring environmental and socio-economic sustainability;
• alleviating primary energy-resource constraints; and
• developing an efficient and appropriate governance framework and structure.

To address these challenges, the White Paper made 12 policy pronouncements:

• Options to improve sector efficiency through restructuring the electricity-supply industry would be investigated.
• An institutional system with both regulatory and policy-making functions, would be introduced to monitor and regulate electricity price developments.
• Electricity tariff structures would be based on sound economic principles, generally and as whole, reflecting the long-run marginal cost of electricity supply.
Licences for the distribution of electricity in urban areas would include provisions for electrification and a fair tariff structure that facilitates increased access among low-income consumers.

The rural electrification programme would be based on transparent planning and evaluation criteria for new projects.

Electricity supply in Namibia would be based on a balance of economically efficient and sustainable electricity sources including gas, hydropower, other renewable energy sources and imported electricity.

Dialogue with private investors and financiers would be promoted with a view to facilitate economically viable and competitive investments in the electricity sector that would also serve to ensure that the necessary legal, regulatory, fiscal and environmental frameworks were established to create a favourable investment climate.

Through co-ordination between government, the electricity-supply industry, the private sector and education institutions, a sufficiently skilled human resource base to sustain the sector would be created.

Economic empowerment would be promoted.

A modern, legal and regulatory framework for the sector would be implemented through the creation and resourcing of a competent institution to regulate the sector’s operations.

Government’s relationship with state-owned companies in the sector would be formalised through performance contracts.

Adequate protection of end-users of electricity and licensees would be provided through the regulatory institution.

Industry restructuring

A year before the White Paper was published, the Ministry of Mines and Energy had been instructed to commission a study into the restructuring of the electricity industry. The White Paper added new impetus to this project. The study was concluded in 2000, and identified the following objectives for the industry:

- to source power supplies in the most cost effective manner, including the optimum use of local generating assets;
- to ensure a reliable supply of power that promotes economic growth and development; and
- to increase diversity of supply and promote the use of local energy resources (SADELEC, 2000).

Prominent in the objectives of the new structure was the attracting of IPPs into the sector. In this respect, the structure provided for IPPs to supply the Namibian power market through the single-buyer and to enter into contracts directly with third parties for exports (see Figure 3.4). To create ‘a level playing field’, it was proposed that NamPower generation, transmission and (at the time) distribution functions be ring-fenced in separate business units. The industry regulator would monitor bulk-sales agreements to ensure that the utility as single-buyer was not favouring its own generation over that of IPPs.

The new structure also called for a fundamental transformation of the country’s electricity distribution industry. The White Paper had recognised that with 46 publicly owned electricity-distribution entities (local authorities) in the country, efficiency gains were likely if some consolidation and rationalisation took place. In fact, the distribution of electricity had long been plagued by a lack of ‘resources and capacity to deliver and extend acceptable levels of service’ (Clark et al., 2005: 17). It was therefore proposed that a gradual transition to regional electricity distributors (REDS) take place, with an emphasis on financial viability and the need to expand electrification. Furthermore, as noted, many local authorities used revenues from the distribution of electricity to underwrite the provision of other municipal services; it was therefore recommended that this be taken into consideration during the restructuring process. From the outset, it was recommended that Nored and Erongored be established, with REDs in other parts of the country to follow.
Figure 3.4: The single-buyer model, for Namibia recommended by the 1998 White Paper

Government accepted the SADELEC proposals, and implementation commenced soon thereafter. In 2001, NamPower reported that it had ring fenced all its business units, and that all of the company’s distribution assets would now be held by a newly formed subsidiary, Premier Electric. The process of creating REDs began with the establishment of Nored in 2002. This was followed by Central RED (Cenored) in 2003, to serve the area around the town of Otjiwarongo and which became operational in 2005, and later in the same year Erongored was established (ECB, 2005). By 2010, the formation of two other REDs remained outstanding. This includes the RED that was expected to include NamPower’s largest customer, the City of Windhoek. And the other was expected to cover the southern part of the country. The City of Windhoek has long questioned the viability of REDs, arguing that, being profit driven, they will raise electricity costs for consumers.

Enabling legislation

Alongside these developments, the government repealed the 1922 Electric Power Proclamation and passed the Electricity Act of 2000. Central to the new legislation was the establishment of the independent regulator, the ECB. The Electricity Act also laid out the first licensing regime for electricity-industry operators. But no sooner had the Act been passed than its deficiencies were identified. Firstly, the Act made no provision for the promulgation of technical codes (such as the grid code), market rules, pricing and other mechanisms that protect private investment. Secondly, it did not facilitate the transfer of assets from the municipalities to the REDs that were being formed. Thirdly, the ECB was not given full regulatory authority over distribution. Instead this was shared with the Ministry of Regional and Local Government and Housing. This meant, for example, that because tariffs were included as part of municipal budgets, the Minister of Regional and Local Government and Housing had the power to approve or veto tariff increases. Fourthly, the Act made no provision for the crucial role that electricity revenues played in the provision of other municipal services, and which would suffer if this income was lost in the restructuring process.

It was deemed prudent that the Act should be flexible enough to allow for the regulation of an evolving market structure, and there were areas around tariff setting and quality of supply that required revisiting in order to make regulation effective (Scholz, 2006). A process to repeal the law was initiated and led to the passing of the Electricity Act of 2007. A detailed examination of the provisions of this Act appears later in this chapter.
 Sector performance

Figure 5.5 shows maximum demand and electricity consumption in Namibia over the period 2002 to 2009. For both of these variables, growth averaged a steady 3.5 per cent per annum, placing ever increasing pressure on the country to secure its future electricity supplies.

Figure 5.5: Maximum demand and consumption, Namibia, 2002–2009

![Maximum demand and consumption, Namibia, 2002–2009 graph]

NamPower’s financial performance over the years has been solid, and in 2005 it was assigned a BBB-investment-grade credit rating by global agency, Fitch Ratings. This rating has been reaffirmed in subsequent years, and this has enabled the company to raise loans on reasonably favourable terms. NamPower’s credit rating has also facilitated its issuance of corporate bonds. The first long-term bond, maturing in 2020, was issued in 2007 on the Namibian Stock Exchange and the Bond Exchange of South Africa raising N$500 million (approximately US$70 million), and in 2009, a further bond was issued for N$250 million (approximately US$30 million) with a maturity date of 2019.

The trends in NamPower’s total revenue, gross profit and cost of electricity and average price per unit are shown in Table 5.1.

Table 5.1: NamPower financial trends, 2002–2009

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue (US$ ’000)</td>
<td>57 760</td>
<td>97 340</td>
<td>138 392</td>
<td>161 096</td>
<td>170 036</td>
<td>184 769</td>
<td>197 735</td>
<td>250 902</td>
</tr>
<tr>
<td>Cost of electricity</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>44 733</td>
<td>48 726</td>
<td>64 118</td>
<td>82 098</td>
</tr>
<tr>
<td>(US$ ’000)</td>
<td>US$ ’000</td>
<td>US$ ’000</td>
<td>US$ ’000</td>
<td>US$ ’000</td>
<td>US$ ’000</td>
<td>US$ ’000</td>
<td>US$ ’000</td>
<td>US$ ’000</td>
</tr>
<tr>
<td>Gross profit (US$ ’000)</td>
<td>10 295</td>
<td>15 499</td>
<td>13 207</td>
<td>12 770</td>
<td>30 673</td>
<td>35 347</td>
<td>92 425</td>
<td>100 936</td>
</tr>
<tr>
<td>Average price per unit</td>
<td>2.06</td>
<td>3.68</td>
<td>4.68</td>
<td>5.32</td>
<td>5.16</td>
<td>5.44</td>
<td>5.31</td>
<td>6.19</td>
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<tr>
<td>(USc/kWh)</td>
<td>USc/kWh</td>
<td>USc/kWh</td>
<td>USc/kWh</td>
<td>USc/kWh</td>
<td>USc/kWh</td>
<td>USc/kWh</td>
<td>USc/kWh</td>
<td>USc/kWh</td>
</tr>
</tbody>
</table>

Note: a. The cost of electricity was not reported as a line item in NamPower’s annual statements until 2006.

Distribution

With tariffs not yet at cost-reflective levels, the distribution sector still faces viability concerns. In 2008, both the City of Windhoek and CENORED emphasised that they were not earning a sufficient return on their assets. In addition, the fact that two REDs have not yet been formed continues to
create problems in relation to economies of scale, efficiency and the viability of distributors in those regions.

**Regulatory governance**

We now turn to a detailed examination of Namibia’s electricity regulatory system. The Electricity Act of 2007, established the independent regulator, the ECB, and provides for its powers and functions, as well as for the requirements and conditions related to obtaining licenses to provide electricity, and for the powers and obligations of licensees.

The law is clearly set out and is unambiguous in its allocation of powers and responsibilities to the various actors in the electricity industry. Crucially, the ECB has the requisite powers for the determination of tariffs. However, this is not so for licensing and the establishment of rules and codes for the power sector. Clause 3(2) of the Electricity Act states that

In order to achieve its objects the Board –

(a) must make recommendations to the Minister with regard to –
   i. the issue, transfer, amendment, renewal, suspension and cancellation of licences; and
   ii. the approval of the conditions on which electricity may be provided by a licensee’

and Clause 3(4) states that

Subject to this Act and the prior approval of the Minister, the Board may by notice in the Gazette make such rules and codes as it considers necessary in order to further its objects mentioned in subsection (1), including, rules and codes relating to –

(a) the establishment, operation and administration of electricity markets, and the licensees and other persons operating on such markets and any other matter relating thereto, which includes the issuing of safety code and a grid code the latter setting out the reciprocal obligations of users of the transmission and distribution networks and the operation of the interconnected power system;

(b) the introduction of market rules, the Board’s market responsibilities, prudential requirements, the establishment and regulation of spot markets, regions and regional reference nodes, network losses and constraints, projected assessment of system adequacy, central dispatch and spot market operation, spot price determination, ancillary services, reliability safety net, market information, administrative price cap and market suspension, settlements, participant compensation fund, software and settlement residue actions, registered bid and offer data, methods for determining loss factors and principles for determining credit limits;

(c) power system security and safety;

(d) network connections;

(e) network and market pricing mechanisms;

(f) metering;

(g) good corporate governance and rules relating to objectivity, transparency and independency;

(h) administrative matters;

(i) any other matter it is authorized in terms of this Act to make rules or codes; and

(j) any matter with regard to which the Minister may prescribe regulations under this Act subject thereto that in the event of any regulation so prescribed conflicting with a rule or code of the Board the regulation prevails.

Through these clauses, a significant proportion of the final decision-making authority that would ordinarily rest with the regulator is retained by the energy minister. This is arguably at variance with the very essence of the independent-regulator model, which seeks to devolve licensing decisions away from the political realm. The ECB has argued that this arrangement is not problematic, and that in any case, the Ministry of Mines and Energy has always performed these roles. In addition, the ECB contended that in the Namibian context there is need for political backing in order to regulate the large monopoly that is NamPower effectively, and that these provisions in the Act allow for this.
Another area that required political backing was the formation of the REDs (given the adverse impact that their creation would have on the revenues of local authorities). And according to the ECB, the political environment with respect to the issue of the REDs was ‘charged’ at the time that the Electricity Act was being drafted, and in that context it would have been ill advised to seek further independence for the regulator. Once the restructuring of the industry has been concluded and reasonable competition achieved, the ECB may seek to increase its level of independence.19

**Board independence**

Legislation relating to regulators should foster an environment that allows for independent thought within the institution and prevent interference from stakeholders, including government. One way of achieving this to make the appointment of Board members transparent and to provide clear grounds on which appointments may be terminated. As in all the other countries discussed in this volume, with the exception of Tanzania, legislation elsewhere. These include resignation, repeated absence from Board meetings without permission, physical or mental incapacitation and death.

The ECB’s Board consists of five part-time members, appointed by the energy minister for terms of four years. These terms can be renewed for a further four years and the number of times such renewal can occur is not capped. The minister appoints both the chairperson and the vice-chairperson. The Electricity Act also identifies the fields in which Board members should have appropriate expertise and experience, namely: the electricity industry, law, economics or the environment. In making appointments to the Board, the Minister is required to pay due regard to Section 15 of the State-owned Enterprises Governance Act. This Act provides for a centralised vetting process for all appointments to boards in the public sector, through the State-Owned Enterprises Governing Council (SOEGC), which is chaired by Namibia’s prime minister.

In an environment that seeks to attract significant capital for the purposes of system expansion, the consistency of regulatory decision making is crucial part of creating a predictable climate for investment and helps to augment the credibility and legitimacy of the regulator. One practical means of promoting consistency is through the staggering of Board appointments. This helps to ensure continuity and that institutional memory is preserved. While the Electricity Act is not explicit in this regard, it has been practised informally in the ECB.

With the raft of responsibilities placed upon them, such as licensing, determination of tariffs, promulgation of rule and codes, adjudication of disputes, administrative and corporate governance matters etc., the Boards of regulatory institutions tend to need to meet much more frequently than those of typical corporate organisations. However, the ECB Board does not meet as often as one might expect, and the reason advanced for this was that the Board is made up of ‘very busy’ individuals.20 While it is to be expected that the Board is made up of individuals whose stature places significant demands on their time, a balance should be sought that ensures that crucial regulatory decisions are not delayed, and that all members of the Board remain fully abreast of decisions that had been made as well as with any matters pending. Board members must also be remunerated at a levels that is consistent with national norms and the effort that is required of them.

**Financial and administrative independence**

The ECB prepares its own budget. While the subsisting Act does not require the budget to be approved by the energy minister, the ECB has maintained the practice for reasons of accountability and transparency.21

The Act provides for the following sources of funds to finance the ECB’s operations:

* appropriations to the Board by Parliament that may be made from time to time;
* fees payable to the Board in terms of this Act;
* levies imposed on the provision or consumption of electricity;
loans raised with the approval of the energy minister and concurrence of the finance minister;
• interest from investments;
• donations or grants made to the Board with the approval of the energy minister and concurrence of the finance minister;
• funds accruing to the Board from any other source.

Of the above means of financing ECB operations, the electricity levy accounted for over 90 per cent of total budgeted income as shown in Table 5.2. The levy, is determined by the ECB and approved by the energy minister in accordance with the Electricity Act. As at 2010, a levy of 0.65¢/kWh (Namibian Dollars) applied on all electricity sales in Namibia. For convenience, and on account of the structure of the electricity industry in Namibia, the levy is billed on sales to NamPower’s ‘single-buyer’. Arguably, the ECB’s reliance on this single source of income presents a potential risk. But as we have seen throughout this volume, this situation is not unique and NamPower’s superior creditworthiness credentials minimise the risk that may exist.

Table 5.2: ECB budgeted income, 2006–2009

<table>
<thead>
<tr>
<th>Income</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total income (US$)</td>
<td>1 536 717.18</td>
<td>1 839 264.89</td>
<td>2 028 739.72</td>
<td>2 314 535.41</td>
</tr>
<tr>
<td>Levy income (US$)</td>
<td>1 486 730.33</td>
<td>1 805 218.23</td>
<td>1 984 530.22</td>
<td>2 173 051.99</td>
</tr>
<tr>
<td>Levy as % of total income</td>
<td>96.75</td>
<td>98.15</td>
<td>97.82</td>
<td>93.89</td>
</tr>
</tbody>
</table>

Staffing

The ECB’s Board has the authority to appoint a Chief Executive Officer (CEO) and to determine the organisational structure of the ECB. The staffing of the ECB in 2010 stood at a lean 20 employees, and the services of external consultants were relied upon extensively for ad-hoc assignments. Although the ECB provided competitive terms and conditions of service, and staff turnover was low, the ECB has lost some key personnel since its establishment, including, the general managers for finance and administration, economic regulation and general regulation, a manager of corporate communication and legal services and a financial analyst. These losses reflect the challenge that regulators face globally in the retention of competent staff.

Accountability

The ECB is indirectly accountable to parliament through the Minister of Mines and Energy. Since its establishment the ECB has not appeared before any committee of Parliament for the purposes of presenting its annual performance or to articulate its position on matters with respect to the electricity industry.22 As in Kenya, appearing before parliament was not usual for such organisations. There is however a mandatory requirement for the annual report, containing audited financial statements carried out by a private firm on behalf of the Auditor General, to be submitted to the legislature via the the energy minister’s office. The ECB has also made numerous representations to Cabinet,23 and the CEO maintained regular informal contact with both the Minister and the Permanent Secretary of the Ministry of Mines and Energy. Beyond the annual report, no independent assessments of the ECB’s performance or regulatory impact had been carried out by 2010. Such assessments could serve to highlight areas where the ECB could enhance regulatory processes and reassure stakeholders that they are indeed getting ‘value-for-money’ from the regulator.

Code of ethics

The ECB’s Corporate Governance Handbook contains the institution’s Code of Ethics, to which Board members and staff must subscribe. The code allows for the acceptance of small personal gifts from external parties ‘where refusal might offend’. With respect to staff that terminate their employment with the ECB there is no ‘cooling off’ provision to prevent their recruitment by a regulated entity. ECB management was of the opinion that such a provision would have to be linked to appropriate compensation for potential loss of income.24
Appeals

If a party to an ECB decision is aggrieved, the Electricity Act permits such a party to approach the courts of law for judicial review. In this instance, the court would rule only on whether the decision was made validly or invalidly through the application of the principles of administrative justice. The court would not consider the facts of the case and try to arrive at its own interpretation as would be the case in a criminal matter, for example. In the event that the judicial review found that the ECB had made a decision that was ultra vires, the court can rule that the ECB reconsider the matter in a manner consistent with the law.

In addition to the provisions provided for under the Electricity Act, the ECB is seeking to develop a complaints procedure whereby an aggrieved party would be able to submit a complaint to the ECB, and this would then be investigated. If this is approved, aggrieved parties would retain the right to approach the courts for judicial review, but the complaints procedure would provide an alternative means for parties to resolve disputes with the regulator.

Transparency

Namibian common law and existing statutory provisions require a degree of transparency and stakeholder consultation in the ECB’s activities. Over and above these requirements, the ECB posts notices of its regulatory meetings on its website (www.ecb.org.na) and on the public notice board at its offices. The public is free to attend Board meetings, although, by 2008, attendance had generally been poor. The ECB’s website also includes minutes of Board meetings, links to relevant legislation, information on the licensing process, approved tariffs and on technical standards, as well as various application forms and a host of other miscellaneous documents and studies.

The ECB also allows licence applications to be viewed by third parties on request though in such instances ‘sensitive commercial information’ is removed. And the Electricity Act requires that public hearings be held in the event of objections to a licence application, or when regulatory action would lead to expropriation. Remarkably, this requirement does not extend to tariff determinations. While in theory the ECB could conduct such hearings within its existing mandate and authority, procedures that would enable this to occur had still not been developed by 2010.

Stakeholders find the ECB to be generally accessible, and seem to be satisfied with the ways in which they are able to interact with the regulator.

Regulatory substance

As stated previously, the core functions of regulators are to facilitate market access through licensing, determine tariffs that are competitive and ensure industry viability, and to set and monitor technical standards. Taking into account the interests of low-income consumers and the adjudication of disputes among industry participants are also important functions.

Licensing

The Electricity Act requires that the generation, trading, transmission, supply, distribution, importing or exporting of electricity be carried out only by parties in possession of a licence issued by the ECB. The Electricity Act however provides exemption for parties that have installations of less than 500kVA.

The ECB’s licensing process is outlined in Figure 5.4. At the time of lodging their applications, potential licensees are required to advertise their applications in the local media to allow potentially aggrieved parties, a chance to air their concerns. Following a 30-day objection period, any objections are reviewed by the ECB and a determination is made on their reasonableness or otherwise. Reasonable objections are subjected to further scrutiny and could lead to the holding of a public hearing on the matter. While it was agreed that the regulator should not encourage frivolous or vexatious objections, the basis on which the reasonableness of objections to applications was judged is not entirely clear.
Of course, the ECB also evaluates applications, using the following broad criteria:

- possible adverse effects on the environment and the rights and operations of others;
- technical viability and competence;
- the adequacy of the applicant’s economic / financial resources to undertake the activity;
- the applicant’s ability to provide effective level of service to customers; and
- public-interest considerations.

The ECB then makes a recommendation to the energy minister on the licence application, based on the technical and financial evaluation carried out, and taking into account objections that may have been received including the outcome of any related public hearings. If ministerial approval is given, the ECB issues a licence containing conditions that detail the obligations and requirements of the licensee. If approval is withheld, the minister informs the applicant that the application has been unsuccessful. The Electricity Act also clearly outlines the criteria for the awarding, amendment or cancellation (revocation) of licences.

In areas where the formation of REDs is pending, the ECB issues distribution licences of particularly short duration, such as one year. Such short licence durations are unlikely to incentivise capital investment, and could lead to inadequate maintenance and refurbishment. The ECB contends however, that these short-term licences are designed to pressurise the remaining distributors to form REDs and that most of them had not been implementing good maintenance practices in any case.28

New generation

Given the generation-capacity crunch experienced in southern Africa over the past five years, coupled with the Namibia’s electricity import requirements, the development of new indigenous generation
capacity is seen as important. This is evidenced by the ECB’s publication of accessible guidelines for the licensing of IPP projects and the publication of the *Namibia IPP and Investment Market Framework* (Core International 2006). The ECB has the authority to approve all power purchase agreements entered into by electricity industry participants. But, as of 2010, there was not a single IPP in Namibia. Various factors have contributed to the lack of IPP development, including the securing of agreements with NamPower, the single-buyer.

Those proposals that have been received for the development of IPP projects in Namibia have mostly been unsolicited. In an environment where the authorities are keen to expedite the development of new generation capacity, one might expect that such proposals, which essentially do away with what could be a lengthy bid process, would be well received. But the potential perils of such bids have been highlighted in previous chapters. International competitive bidding (ICB) has more potential for cost and technological effectiveness and hence a greater likelihood of more favourable tariffs, quality and reliability outcomes. In the event that accepting an unsolicited bid becomes unavoidable, a form of procurement process that mirrors the competitive outcome as much as possible should be developed.

**Electricity trading**

As at 2010, NamPower was the only organisation in Namibia involved in importing and exporting electricity. Although the 2007 Electricity Act requires that this trading function be licensed separately, this had yet to be done. NamPower had been allowed to trade on account of the provisions in its existing transmission and supply licence. The ECB plans to issue a trading licence only once the formal market rules have been developed and accepted by all concerned parties. NamPower does not fully disclose the terms of its electricity import agreements with its foreign partners arguing that parts of these agreements are confidential and could have an adverse impact on its operations if disclosed to third parties. This is unusual and unacceptable, and could distort both the determination of consumer tariffs in Namibia and NamPower’s own revenue requirement.

**Third-party access**

The Electricity Act permits third-party access to the transmission network and hence allows potential choice for bulk consumers. In practice, by 2010, this provision had not been utilised with the exception of a mining operation in the south of the country that sourced electricity from South Africa. In an attempt to make bulk consumers aware of this provision in the legislation, the ECB has increased its awareness activities and is encouraging potential IPPs to consider the possibility as they seek additional off-takers.

**Electricity tariffs and pricing**

Tariff structures and electricity price determinations by the ECB are guided by the White Paper on Energy Policy (Government of Namibia 1998), which states that electricity tariffs in Namibia should:

- be based on sound economic principles;
- be cost reflective as far as possible;
- reflect long-run marginal costs of supply; and
- give existing and potential electricity industry participants a level playing field.

Consistent with the restructuring of the electricity industry in Namibia in 2000, tariffs for generation transmission and distribution are determined separately.

**Generation tariffs**

Generation tariffs in Namibia are determined using an import-parity-pricing methodology. This approach prices generation at the cost of imported electricity, the motivation for which is the fact that a significant proportion of the country’s electricity needs are met through imports from neighbouring countries. This pricing method has the effect of allowing Ruacana Power Station accrue windfall profits on its relatively low cost hydro generation, however. According to the ECB, these profits could be used to subsidise the more expensive operations at the Van Eck and Paratus Power Stations. However, during emergency periods such as low river flow at Ruacana, or times when electricity...
imports are curtailed or limited, and the Van Eck and Paratus power stations run more than intended, the import-parity-pricing regime is suspended, and actual generation costs are taken into account to derive price. The Van Eck and Paratus plants have significantly higher running costs, and these are exacerbated during when global commodity prices are high. When the emergency-pricing regime is in force, under-recoveries can occur due to fluctuations in coal or diesel prices, and these could be treated as allowable costs in the ensuing tariff-review period.

Following recommendations of a study that the ECB commissioned, generation-pricing methodology was under revision, and it is likely that a cost-plus-revenue-requirement approach will be adopted in the short term. With adequate cost oversight and scrutiny by the ECB, such a regime would be better placed to achieve more equitable generation tariffs, particularly when IPPs became a part of the country’s generation mix.

Transmission and distribution tariffs

The ECB uses the widely applied revenue-requirement or cost-plus methodology to determine both transmission and distribution tariffs.\textsuperscript{34} This should allow for full cost-recovery, but at the time of writing, this had not been achieved and cost-reflective tariffs were being phased in. The government had taken a decision that bulk tariffs would reach full cost recovery by 2010 or 2011.\textsuperscript{35} For transmission, and following a 2005 review of the methodology, the ECB intended to continue with the cost-plus approach but move from the post-stamp method to a load-flow one in its derivation of transmission charges for generators. Such a move is likely to coincide with similar changes in the pricing regime used by the Southern African Power Pool.\textsuperscript{36}

Connection charges

All transmission and distribution utilities in Namibia are required to promulgate connection-charge policies that are approved by the ECB. In order to streamline the manner in which these charges are arrived at, the ECB provides guidance on the features that are expected to be common in these policies across all distributors. These are that:

- the shallow connection charge approach should be adopted;
- the insurance, operations and maintenance costs of dedicated connection assets should be included the standard tariff; and
- there should be no additional charges in the event of premature replacement of connection assets.

Cost containment

The revenue-requirement methodology provides few incentives for regulated utilities to improve their efficiency. In order to limit this, the ECB in its scrutiny of operating expenditure made comparisons with previous years while giving maintenance expenditure a generally favourable view. In addition, for the distribution sector, non-technical losses were capped at a stringent 1.25 per cent of revenue requirements or at the level of the previous year (whichever was less) in order to incentivise commercial performance. Furthermore, technical losses were capped at 10 to 15 per cent, depending on distributor type and location. The electricity sectors of the other countries covered in this volume could benefit from such stringent incentives.

Asset valuation and tariffs

Asset values are a crucial component of the revenue-requirement methodology. For transmission and distribution, the ECB has an impressive process in place. In both cases the current replacement value, recalculated every five years, as opposed to the historical cost, is used in the determination. Given the likelihood of significant new investments in Namibia’s electricity industry, this method of asset valuation has the potential to limit the impact of electricity tariff increases as new capital is invested.

Tariffs are renewed on an annual basis and consequently the regulatory asset base (RAB) for transmission and distribution requires annual updating and revaluing. A highly effective customised software tool, known as the Namibia Electricity Network Assets Register (NENA), has streamlined and aided REDs and local authority distributors in the updating and revaluing of all distribution...
assets. Straight-line depreciation is employed in the asset valuations for both transmission and distribution. Electrification assets provided through grants from donors or the government are not permitted to earn a rate of return but are expensed for depreciation (as is consistent with best practice).

The multiplicity of retail tariffs

The ECB approves the tariffs of 32 distribution companies that all have differing tariff structures. While the ECB contends that this was necessary on account of volatile fuel prices and increasing generation prices as the reserve margin in the region diminishes, it places intense pressure on the ECB and is unlikely to be sustainable in the longer term. At the time of writing, the ECB had proposed that the following tariff structure be adopted by all distribution companies:

* a basic charge
* an energy charge
* a capacity charge (small customers)
* a demand charge (large customers)

If adopted, this would also limit the extent of cross-subsidisation across and within different customer groupings.

Local-authority surcharges

Local authorities in Namibia are entitled to tax electricity-service provision through the application of a local-authority surcharge, the proceeds from which are used to contribute to the overall budget requirements for local-government service provision. As this tax is discretionary, it varies widely across the country from less than 10¢/kWh (Namibia $) to in excess of 50¢/kWh (Namibia $). This charge therefore clouds the profitability or otherwise of local-authority distributors, making it difficult to regulate them effectively. Given its significance in the revenue stream of local authorities, it was not surprising that this surcharge was hugely political and is the single most important impediment to the establishment of two the outstanding REDs.

Resource-planning and technical standards

Little new generation capacity has been established in southern Africa over the past 20 years. During the same period, demand growth has depleted the excess generation capacity that existed. The resulting shortfalls have resulted in load shedding in all of the countries that border on Namibia. Given that load shedding creates a drag on economic activity, and that the absence of adequate generation capacity can be attributed to a failure of planning or of co-ordination between planning and procurement, it is crucial that these matters are addressed in a nationally integrated resource plan (NIRP) for Namibia.

Exactly where the responsibility lies for the development of such a plan for Namibia is not entirely clear however. For example, in 2008 NamPower was in the process of developing a plan, but the ECB did not recognise this as a nationally integrated plan and referred to it merely as a ‘NamPower System Expansion Plan’. At the same time, the ECB itself was in the process of commissioning the development of a plan. In our view, the energy ministry should consider allocating clear responsibility for the development of such a plan. Both the ECB and NamPower could play more co-ordinated roles in such a process, and the regulator could oversee a committee of stakeholders that undertakes the task.

As a bare minimum, the plan should be based on a generation-resource adequacy standard that includes measures such as the loss-of-load expectation (from which the appropriate reserve margin for Namibia could be determined), and an assessment of electricity imports versus local generation (including the reliability benefits of interconnectors to neighbouring countries). Such clear and transparent indicators would afford the regulator and policy makers alike a credible tool with which to monitor the status of national electricity-supply security, and to provide timely signals for the need to develop new capacity (in generation, transmission and interconnections) thus limiting power constraints and shortfalls.
Technical standards

In 2004, the ECB published the Quality-of-Supply Standard and the Quality-of-Service Standard. Both standards were adapted from the South African NRS048 and NRS047 standards respectively. The quality-of-supply standard specified the range within which various technical parameters should lie for the supply of electricity in Namibia (across various voltage categories and to varying consumer groups) to ensure system quality and reliability. The quality-of-service standard, on the other hand, defines the service categories provided to consumers by licensees, and the minimum standards that should be adhered to in their provision. The publishing of these standards was aimed at providing an objective means against which the ERB could consider licence-applications, monitor the performance of licensees, and assess consumer complaints.

The standards have yet to be fully applied to the Namibian electricity industry. For the quality-of-supply standard, some of the data-acquisition requirements are onerous and require investments in instrumentation equipment and relevant skills. The ECB had outsourced the process of data collection to the three REDs and the City of Windhoek for a period of two years from 2007 while NamPower had embarked on a similar process internally. This process is expected to lead to the existing electricity quality level being identified prior to the ECB handing out any sanctions for non-compliance. For the quality-of-service standard, there is great scope for a general improvement in the reporting, monitoring and resolution of consumer complaints and in 2008 the ECB hired additional personnel for this purpose.

Some of the measures in the standards have been included as key performance indicators (KPIs) in the Financial and Technical Performance Management and Monitoring Framework for Namibia. The ECB intends to use this framework to ensure that its ongoing regulatory objectives in the sector are met in accordance with the goals of efficiency, security of supply, investment (including growth) and sustainability as set out in the White Paper on Energy Policy. By 2008, when our research was being conducted, it was not yet possible to gauge the likely impact of the monitoring framework as insufficient data had been collected to facilitate the determination of trends.

Grid code

The ECB has initiated a process of developing a Grid Code for the Namibian electricity industry. The Grid Code will specify the technical requirements for connection to the electricity grid by third parties, such as IPPs and independent distribution entities. While a draft document was concluded as early as 2005, by the time of this research in 2008, the code was yet to be published. The delay was attributable to stakeholder consultations that were ongoing in 2008, and to those aspects of the full implementation of the electricity-industry structure, such as the formation of REDs and whether NamPower would formally be allocated the role of single-buyer.

Initiatives for low-income consumers

The government’s central treasury disburses grants annually to the various electricity distributors around the country for electrification purposes. These disbursements are made in accordance with the Rural Electricity Distribution Master Plan and linked to the rural-development initiatives identified in Namibia’s National Development Plan (NDP), which included connection targets. These disbursements have been insufficient to reach the targets set out in the NDP, however. NamPower has also provided a separate subsidy for rural electrification, but surprisingly this is not being recovered in NamPower’s approved tariffs. The ECB stated that ‘NamPower absorbs any cost mismatches within itself’, but the long-term sustainability of such an arrangement is questionable.

Pro-poor tariffs

Namibia is the only country in this volume where tariff structure makes no allowance for low-income consumers. This is surprising in country where poverty continues to present a serious challenge. The ECB is awaiting the results of a study that the Regional Electricity Regulatory Association of Southern Africa (RERA) is undertaking on pro-poor tariff schemes across the region. Also, existing retail tariffs were structured in such a manner that, within REDs, urban areas subsidise rural areas, and
in general, industry subsidises residential areas. These measures do provide some relief for the poor, albeit limited and not necessarily targeted at low-income households exclusively.

**Demand-side management**

A 2006 ECB study identified the following six demand-side management options for Namibia:

- launching a consumer awareness and education campaign;
- introducing time-of-use electricity tariffs;
- distributing compact fluorescent light bulbs;
- encouraging the replacement of electric water heaters with solar water heaters;
- expanding ripple control systems that are able to centrally disconnect electric water heaters; and
- conducting energy audits in the commercial and industrial sectors.

Consequently in 2007, NamPower began distributing compact fluorescent light bulbs. These were free to consumers and cost NamPower N$14.2 million. It was expected that this would reduce peak demand by approximately 20MW. While the benefits of using CFLs are unquestionable, particularly at a time of tight reserve margins, the sustainability of the programme is not guaranteed, especially as the costs were not being recovered through tariffs.

The ECB was in 2008 also in the process of implementing time-of-use tariffs. This requires some piloting in order to ensure that revenue neutrality was achieved. There is also some ripple-control capacity in Namibia and its expansion could provide an additional effective means of demand-side management.

**Renewable energy**

While the use of renewable energy technologies was actively being pursued for various purposes, including rural electrification, as of 2010, there were no explicit targets for renewable energy use. The ECB is not keen to develop feed-in tariffs for renewable-energy technologies as these are viewed as not being economically efficient. A bidding or auction process was the ECB’s preferred option for renewable energy.41

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**Notes**

1 REDs are asset-based companies that are responsible for distributing electricity to consumers within a defined geographical area. REDs are discussed in more detail later in the chapter.

3 NamPower Annual Report, 2009

5 This historical account of the development of NamPower is adapted from (NamPower 2008)

6 Paratus, meaning ‘always ready’ in Latin, was so named as it was built primarily to provide peaking power.

8 Estimates published in the White Paper put urban access to electricity at 75 per cent and rural access at 9 per cent.


10 Usually, the independent electricity distribution companies in a region become shareholders in the new RED.


17 Personal communication, 2008.

18 ECB personal communication, 2008.
19 ECB personal communication, 2008.
20 ECB, personal communication, 2008.
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22 As at 2010.
23 ECB, personal communication, 2008.
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26 ECB, personal communication, 2008.
27 Various stakeholders, personal communications, 2008.
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30 ECB, personal communication, 2008.
31 NamPower, personal communication, 2008.
32 Various stakeholders, personal communications, 2008.
33 Where RR = revenue requirement, RAB = regulatory asset base, RoR = rate of return, E = operations and maintenance expenses, D = depreciation, T = taxes.
34 Where RR = revenue requirement, RAB = regulatory asset base, RoR = rate of return, E = operations and maintenance expenses, D = depreciation, T = taxes.
35 ECB, personal communication, 2010.
36 ECB, personal communication, 2008.
37 ECB, personal communication, 2010.
38 ECB, personal communication, 2008.
39 The North American Electric Reliability Corporation defines ‘loss-of-load expectation’ as ‘the expected number of days in the year when the daily peak-demand exceeds the available generating capacity. It is obtained by calculating the probability of daily peak-demand exceeding the available capacity for each day, and adding these probabilities for all the days of the year.’
40 ECB, personal communication, 2010.
41 ECB, personal communication, 2008.

References