Shift performance, grow sustainably

Divisional Report

for the year ended 31 March 2012

Contents

About this report 01

Corporate structure 02
- Purpose, values and strategic objectives 03

Material issues and risks 04
- Becoming a high-performance organisation 04
- Leading and partnering to keep the lights on 05
- Reducing our carbon footprint and pursuing low-carbon growth opportunities 06
- Securing future resource requirements, mandate and the enabling environment 07
- Pursuing private-sector participation 07
- Ensuring financial sustainability 07

Key indicators 09

Corporate governance 13
- Board of directors 13
- Executive management committee 15

Line divisions 16
- Generation 16
- Transmission 22
  - Independent Power Producers 24
  - Southern African Energy 25
- Distribution 26
- Group Customer Services 30
  - Integrated Demand Management 33

Service functions: 37
- Human Resources 37
- Finance 41
- Group Capital 47
- Group Technology and Commercial 53
  - Primary Energy 53
  - Technology 56
  - Commercial (procurement other than primary energy) 57

Strategic functions: 59
- Enterprise Development 59
  - Strategy and Risk Management 59
  - Regulation and Legal 60
  - Corporate Affairs 61
  - Eskom Development Foundation NPC 63
  - Group Information Technology 65
- Sustainability 66
  - Environmental Performance 66
  - Climate Change and Renewable Energy 68
  - Safety 70
  - Quality Management 73
  - Research and Testing 74
- Office of the Chief Executive 76

Subsidiary companies 77
- Eskom Enterprises SOC Limited Group 77
- Escap SOC Limited 78
- Eskom Finance Company SOC Limited Group 79

Future priorities 80

Appendices 82
- Awards 82
- Glossary 83
- Abbreviations and acronyms 85
- Sustainability responsibilities, approval and assurance 86
- Statistical overview 88
- Power station commercial capacities 90
- Environmental implications of using or saving electricity 91
- Transmission and Distribution equipment in service 92
- Sale of electricity and revenue per category of customer 93
- Eskom high-performance utility model (EHPUM) 95

Contact details 96

Navigation icon

RA **Reasonable assurance provided by the independent assurance provider (Refer page 86)**

About this report

The scope and structure of Eskom's annual reports is changing in line with global best practice. This Divisional Report is one of several covering the period 1 April 2011 to 31 March 2012:

- The *Divisional Report* sets out in substantial detail the achievements of 2011/12; the contributions of Eskom's operating divisions, affiliated entities and key functions to performance; and the challenges that lie ahead. It is available online.
- The *Integrated Report*, available at **www.eskom.co.za/IR2012/027.html**, has also been published in book format. It reviews overall performance for the reporting period, discusses material issues relevant to current and future performance, and summarises the financial results. This concise document allows the reader to obtain a bird's-eye view of Eskom's performance and projections.
- The *2011/12 statutory audited annual financial statements* are available online at: **www.eskom.co.za/IR2012/028.html**.

Eskom has applied Global Reporting Initiative (GRI) principles in compiling this report. These principles ensure that the company incorporates the views of its stakeholders, as well as internal planning reporting and risk-management processes.

Eskom has declared a B+ application level in terms of the GRI. Refer to the Assurance Provider's report on page 86 that confirms this declaration. The list of relevant GRI indicators is available online at **www.eskom.co.za/IR2012/029.html**. KPMG has provided assurance on selected sustainability information in this report (see page 86). Eskom follows a combined assurance approach (refer to **www.eskom.co.za/IR2012/030.html**).

Eskom's reports are also prepared with due consideration of the King Report on Corporate Governance (King III). Refer to **www.eskom.co.za/IR2012/031.html** for more information on King III.

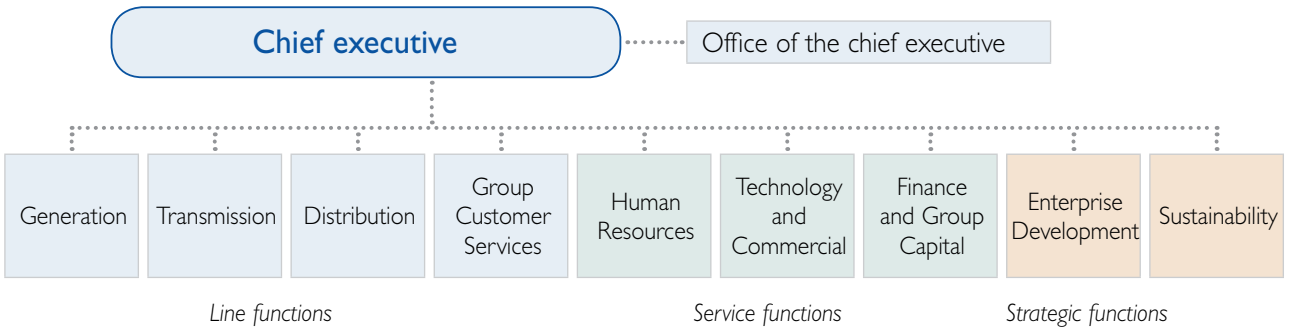
Corporate structure

Eskom executive committee

Eskom has now clarified the main mandate and role of each entity within Eskom, and the elements have been brought together into the new structure, where there are Line functions that operate the business, Service functions that service the operations and Strategic functions to develop the enterprise.

Line functions will focus on operations and on creating value while Service functions will safeguard Eskom's assets, provide expertise on day-to-day standardised services and leverage synergies in the organisation. Strategic functions aim to bring about step changes in performance and provide broader strategic support to the group. The office of the chief executive, which incorporates the Delivery unit as well as the Assurance and Forensic department, has been expanded to provide support to the chief executive.

The new organisation structure is indicated below:

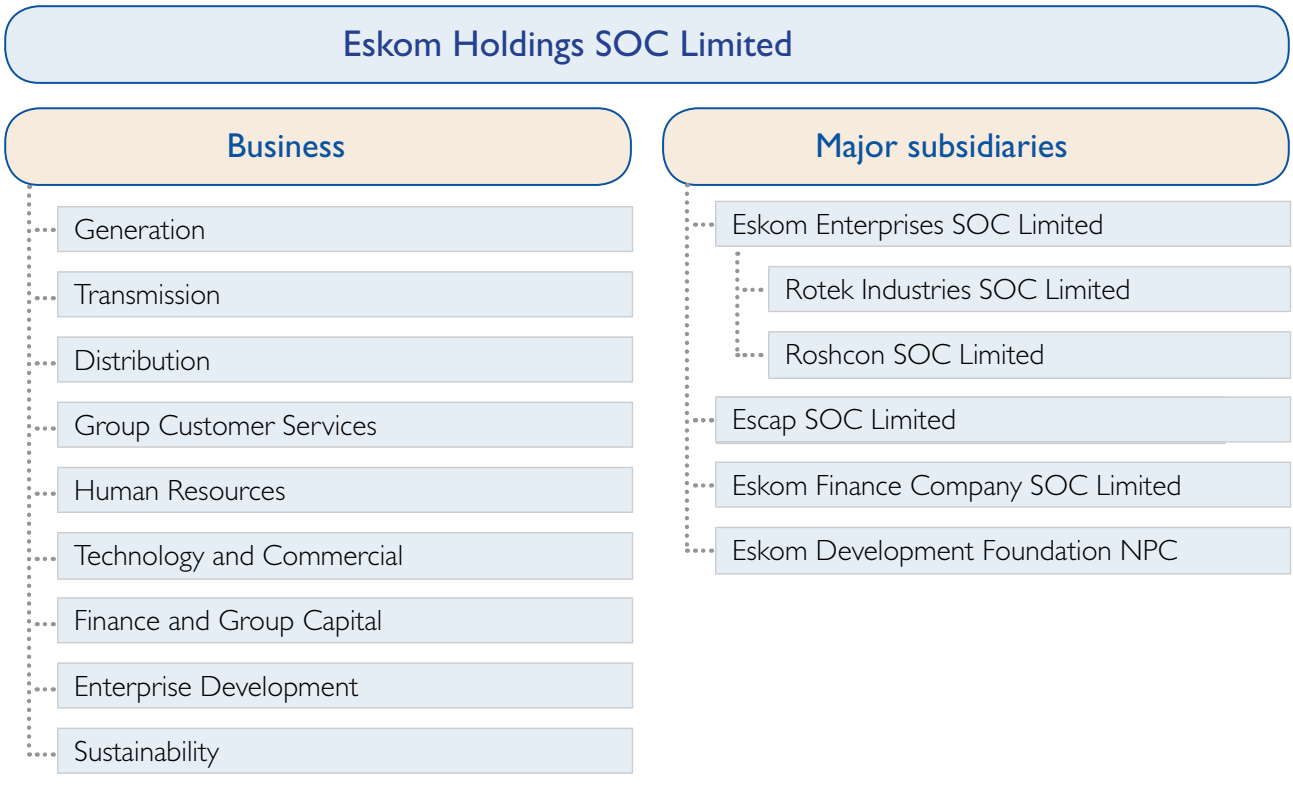


Eskom has its head office in Johannesburg, with satellite operations located across South Africa. It maintains a small office in London, primarily for quality control of the equipment being manufactured in Europe for the capacity expansion programme.

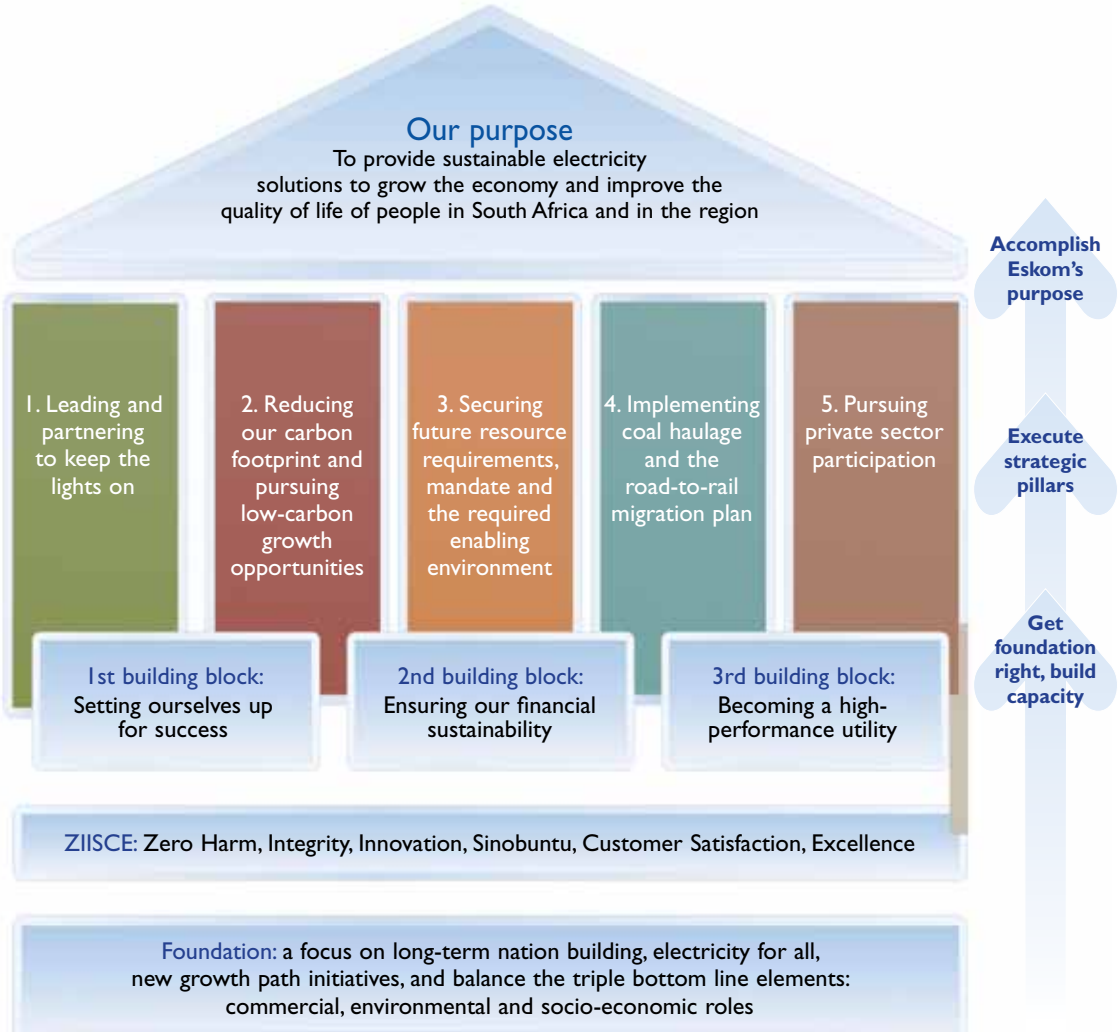
Eskom has a number of subsidiaries:

- The Eskom Enterprises SOC Limited group provides lifecycle support and plant maintenance, network protection as well as support for the capacity expansion programme for all Eskom Holdings SOC Limited divisions. Eskom Enterprises operates primarily in South Africa; it has two subsidiaries that have an interest in electricity operations and maintenance concessions in Mali, Senegal and Mauritania as well as in Uganda.
- Eskom Finance Company SOC Limited grants home loans to Eskom employees.
- Escap SOC Limited, Eskom's wholly owned captive insurance company, manages and insures Eskom's business risk.
- The Eskom Development Foundation NPC is a wholly owned non-profit company that manages Eskom's corporate social investment.

Legal and operational structure of the Group:



Purpose, values and strategic objectives



Purpose

The purpose of Eskom is to provide sustainable electricity solutions to grow the economy and improve the quality of life of people in South Africa and in the region.

Strategic objectives

In September 2011, the Eskom board approved Eskom's six-year corporate plan that was informed by an extensive strategic review process. The board approved the purpose statement, values and strategic objectives. Eight strategic objectives were approved and these are underpinned by the approved strategic priorities.

The strategic objectives are summarised as:

- Becoming a high-performance organisation
- Leading and partnering to keep the lights on
- Reducing Eskom's carbon footprint and pursuing low-carbon growth opportunities
- Securing Eskom's future resource requirements, mandate and the required enabling environment
- Implementing coal haulage and the road-to-rail migration plan
- Pursuing private sector participation
- Ensuring Eskom's financial sustainability
- Setting Eskom up for success.

The Eskom values are:

- Zero harm
- Integrity
- Innovation
- Sinobuntu (caring)
- Customer satisfaction
- Excellence.

The key performance measures and material stakeholder issues aligned with the strategic objectives are shown on page 9.

Material issues and risks

Eskom has implemented a risk-monitoring system to respond appropriately to all significant risks. Emergencies are managed through Eskom's integrated emergency response structures. Risk monitoring is done at departmental, regional, operating unit and subsidiary level and is reported upwards to corporate. After these integrated risk reports are consolidated, the executive management committee and the board's audit and risk committee review and evaluate the risk profile to determine the major corporate and business risks. What follows is a high-level examination of the key material issues and risks facing Eskom.

Becoming a high-performance organisation

Focus on safety and actions taken

During 2011/12 Eskom experienced 13[RA] employee fatalities and 12[RA] contractor fatalities. Eskom considers any loss of life unacceptable and has adopted a broad range of measures to ensure a safe workplace. Refer to the safety section on page 70 for the detailed actions taken.

Regulation

Eskom is subject to governmental regulation of many aspects of its operations. These include licensing, tariff structure, trade commitments and environmental emissions. Such regulation has the potential to affect Eskom and its stakeholders by changing its structures and operations (for instance, through the new ISMO Bill), by affecting its revenue stream (through regulating tariffs and imposing penalties for environmental emissions).

Multi-year price determination (MYPD)

Eskom's revenues are determined by the National Energy Regulator of South Africa (NERSA) through the process of a multi-year price determination (MYPD). The process requires that the proposed application for a revenue determination be submitted first to the South African Local Government Association (SALGA) and National Treasury for comment. Eskom then takes into account this input when it makes its application to NERSA. NERSA subjects the application to a rigorous analysis process including extensive stakeholder consultations and public hearings.

Stakeholder management

Challenges and action taken

Reputational damage

Should any of the corporate or business risks Eskom faces materialise and result in significant financial loss, price increases or load shedding, in isolation or in aggregate, it will have a significant negative impact on Eskom's shareholder and stakeholder relationships, and Eskom's brand and reputation – all of which may constrain Eskom's ability to raise capital. A strategy has been put in place to manage these risks and to communicate to stakeholders in a proactive manner.

Build strong skills

Challenges and action taken

Competition for skills

South Africa has limited availability of contractors with the required skills and capacity to support the expansion programme. To deepen the skills pool for the benefit of both the capacity expansion programme and for future grid maintenance, Eskom has partnered with six leading South African universities to train engineers in areas relevant to Eskom.

The Back2Basics programme

The Back2Basics programme was established in 2010 to improve overall performance across Eskom by simplifying and optimising processes and systems. The programme aims to ensure that all management information is complete, accurate, reliable, accessible and timely.

Eskom is analysing and standardising all business processes across the business. The result of this process has been thoroughly documented and staff members are receiving training.

The programme includes services tools, project tools, engineering tools, and operations, maintenance and outage management initiatives.

The services tools programme (release 1) has implemented a consolidated, standardised and improved SAP application on schedule and within budget. The enhanced SAP system was made available on 13 October 2011. The stabilisation period ended in December 2011 and the solution has been handed over to Group IT. The benefits of this project will be tracked by the Delivery unit.

The services tools programme has achieved the following during 2011/12:

- Handed over 50 process control manuals, fully aligned to best practice, to the business
- Created master data governance to maintain the integrity of master and transactional data while the programme cleansed records prior to conversion
- Extensive SAP training to enable the workforce to effectively use the standardised, simplified and optimised systems and processes.

The Back2Basics programme will continue to develop standardised and optimised processes, focusing on the project and engineering tools and the maintenance and outage maintenance areas. The services tools programme will focus on SAP implementation for Rotek (Roshcon and Rotran implemented during March 2012).

[RA] *Reasonable assurance provided by the independent assurance provider. (Refer page 86)*

Industrial action addressed

Industrial action has the potential to cause employee safety incidents through vandalism or intimidation. Industrial action at Eskom's capacity expansion projects during the year was addressed through project labour agreements (at Medupi and Kusile) and strong industrial relations policies (Ingula).

The wage negotiations during the year deadlocked, resulting in threats of (illegal) strike action by certain of the trade unions representing employees in the Eskom bargaining unit. However, the dispute was resolved by arbitration and a two-year salary and conditions-of-service agreement was concluded with trade unions.

Critical information systems failure

Effective and secure information systems are essential for efficient management, accurate billing of customers, payment of suppliers and employees and effective power generation and transmission of electricity over the national grid. The confidentiality, integrity and availability of information systems could be affected by ineffective design or controls, frequent failure of critical applications, inadequate disaster-recovery plans, lack of stability in the integration environment, poor data security and deliberate cyber-attacks.

These risks could result in loss of day-to-day production and critical information, as well as the inability to recover the network as a result of inadequate disaster-recovery plans.

The controls in place to prevent system failure include information standards and control frameworks, third-party security assessments, vulnerability assessments, reviews of infrastructure and applications, automated application testing, change-control management and development and monitoring of disaster-recovery plans.

Over the last six months, business-continuity planning has been significantly enhanced, including for the on-line vending system.

For further detail, refer to the Group IT section on page 65.

Leading and partnering to keep the lights on

Challenges and action taken

Keep the lights on

This is one of Eskom's key performance targets: ensuring that the lights stay on by managing supply and demand in such a way that essential maintenance can be done while an adequate reserve is maintained to protect the system.

Reductions in energy demand

Eskom runs several programmes to encourage customers to reduce their energy and demand consumption. This makes more capacity available for maintenance work and reduces the likelihood of load shedding in the future. These programmes include power buyback agreements with industrial customers, an Energy Conservation Scheme, residential power-reduction initiatives, power alert system and the 49M campaign.

Infrastructure deterioration

Eskom's ageing electricity supply network and power stations require essential maintenance and upgrades. Given the constraints on the power system there has been a reduction in the maintenance window, which has resulted in a backlog which increases the probability of network or plant failure and in some cases contraventions of environmental regulations. A project to coordinate a comprehensive, synchronised maintenance and refurbishment plan is under way. This project uses demand-side initiatives to create windows of opportunity to do the required work, and so improve plant and grid efficiency while reducing the possibility of plant failure and load shedding.

Deliver capacity expansion programme

Eskom's capacity expansion programme – initiated in 2005, will have added 17GW of much-needed electricity generating capacity to the national grid by 2018/19. The central challenge facing this programme is to remain on schedule. Eskom is using an integrated approach to manage schedules, budgets and risks associated with the expansion programme. This has involved using lessons learnt to date and putting in procedures, tools and systems to make the programme highly effective and efficient. These include the project lifecycle methodology, the project development and readiness assessment and the Eskom high performance utility model.

Challenges and action taken

Capital expenditure prioritisation

Eskom plans to spend approximately R320 billion over the next five years, of which approximately R130 billion relates to capital expenditure not associated with the capacity expansion programme.

In the light of this large, strategically critical investment programme, Eskom established the Group Capital division in September 2010, with the aim to improve capital portfolio management and the development and execution of projects.

Eskom's capital allocation process is built upon successful divisional methodologies and Eskom's Integrated Risk Management approach, but is now further standardised across the group and strongly informed by local and international peer company practices (e.g. E.ON, EnBW, RWE, National Grid, Sasol).

Eskom's capital prioritisation and allocation processes are made up of a series of stages that:

- 'scrub' and validate individual projects before inclusion in the portfolio
- rank projects based on 'risk scores' and project categories before accounting for constraints to project delivery
- translate an execution-constrained project list into divisional budgets
- monitor performance and adjust the portfolio budgets based on new projects originated, changes in strategic direction and delivery performance.

Investment delays
Investment decisions were previously not made in good time for generation capacity to be realised when required. The consequence of the late start of the capacity expansion programme is that the supply-demand balance is expected to remain tight throughout 2012 and 2013, until the Medupi power station starts coming online. Future investment decisions are being addressed through continual engagements between government and Eskom.

Delays on Medupi power station's first unit
Delay in the boiler for the new dry-cooled coal-fired station at Medupi, the new power station being built in the Limpopo province, has resulted in the completion date for the first unit (Unit 6) being postponed to 2013. This unit was initially due to come online in late 2012, adding 794MW to the power grid. The contractor's unsatisfactory delivery performance is being addressed with the contractor at the highest levels. Significant improvement in performance has been seen since January 2012.

Delays in acquiring servitudes for transmission lines
Delays in acquiring servitudes are leading to delays on projects and cost escalations. Eskom continues to engage with land owners and is working with the government to resolve these matters.

Ensuring better engineering scope definition
Inadequate engineering scope definition during project planning and development has led to delays in project timelines. Eskom is putting in place stronger controls through project readiness assessment to prevent this from happening in future.

Industrial action
Industrial action as a result of employee dissatisfaction – particularly contractors' relationship with their employees – has led to project delays and property damage.This is being addressed through various mechanisms, including project labour agreements (for Medupi and Kusile) and strong industrial relations policies (Ingula).

Changing technology
Eskom continues to develop a resource plan to cater for anticipated technologies based on the possible energy mix allocations in the IRP 2010.

Reducing our carbon footprint and pursuing low-carbon growth opportunities

Eskom's operations and South Africa's wellbeing depend on the quality of the environment.

Challenges and action taken

The nature of power generation
The way in which Eskom generates, transmits and distributes electricity inevitably has an impact on the environment. Eskom is aware of this and strives to embed a culture of environmentally responsible behaviour and decision making across the business. Eskom works hard to ensure that it operates as a responsible corporate citizen and takes its commitment to environmental responsibility seriously.

Environmental concerns
Increasing generation capacity, while at the same time trying to limit both Eskom's emissions and its carbon footprint, remains a challenge. The Medupi power station in Limpopo province and Kusile power station in Mpumalanga have been the target of some protests because they are coal-burning facilities.While the protests have not seriously disrupted the construction activities, they have had a negative reputational effect.

Eskom is striving to reduce its environmental impact by ensuring that its new coal-fired stations are much more efficient than older stations, in terms of both the carbon emissions produced and the water used for each unit of electricity generated. It is also commissioning Kusile with flue gas desulphurisation plant to reduce its SO_2 emissions and adding more renewable-energy projects to its power mix. The greenfields wind farm at Sere, in the Western Cape, will add another 100MW to the power supply system when completed in the 2013/14 financial year. A 100MW concentrating solar thermal power pilot plant, near Upington in the Northern Cape, is in development and is expected to start construction by the end of 2015.

Eskom is installing photovoltaic solar panels at 13 coal-fired power stations, four peaking stations and Megawatt Park, in order to supplement their auxiliary electricity consumption. The solar panels have already been installed at Kendal and Lethabo power stations. The intention is for all 17 sites to be operational in 2013.

Photovoltaic installation erected at Lethabo Power Station

Environmental contraventions
Due to the constrained system, there is less opportunity to maintain pollution control technology at power stations. This gives rise to an increased risk of environmental contraventions. Eskom plants could at some stage incur heavy penalties or even lose their operating licences and may have to be decommissioned if there is not an appropriate intervention. This would have a negative effect on Eskom's ability to keep the lights on and on Eskom's reputation, which in turn would influence its ability to raise funding and secure land, servitude and permits for future power stations – all of which would impact its long-term ability to keep the lights on.

Accordingly, Eskom is committed to addressing its environmental impacts. The company is executing a technical plan to eliminate liquid effluent discharges by recycling polluted water for reuse. Groundwater is also monitored for pollution and recommended mitigations are implemented. In addition, in terms of the impact on air quality, Eskom formed a task team during the reporting period to improve particulate emissions' performance and is implementing improvement plans. Lessons learned from environmental legal contraventions were shared with employees and contractors. There was a significant decrease in the number of environmental contraventions from 63[RA1] in 2010/11 to 50[RA] in 2011/12.

Water scarcity

Eskom's power stations depend on a steady, adequate supply of water of a certain quality. Competing resource needs, drought in catchment areas, pollution and poor water supply infrastructure all have the potential to hinder Eskom's access to affordable water.

The recycling of polluted water will help to manage a reliable, affordable and sustainable water supply for the life of existing and new power plants (see Primary Energy on page 53 for more information). Accordingly, this will reduce the reliance on fresh water consumption by the power stations.

Securing future resource requirements, mandate and the enabling environment

Challenges and action taken

Competition for coal

Operations at Eskom's coal-fired power stations depend on a continuous supply of coal. However, long-term coal supply is threatened by international competition for South Africa's coal and the influence this has on the price and availability of suitable coal.

New specifications for the acceptable quality of coal are also having an influence on supply. Eskom is engaging with decision makers in the mining industry and government agencies to address problems in coal procurement to secure a long-term stable supply (see Primary Energy on page 53 for more information).

Coal-stock levels were at 39[RA] days at 31 March 2012, having recovered from a low of 36 days at the end of July 2011 following labour action at a number of collieries, but down from the 41[RA] days at 31 March 2011.

Conductor, equipment and electricity theft

Electricity theft (illegal connections) and the theft of distribution cables and other equipment continue to affect operations. Operation Khanyisa, a campaign launched in 2010 to promote the legal use of power, is helping to address this issue as part of the energy-loss and theft-management programme.

Pursuing private-sector participation

Securing private-sector participation

Eskom is committed to facilitating the entry of independent power producers (IPPs) and acknowledges the role that IPPs must play in the South African electricity market. Eskom has signed up 1 008MW of capacity from IPPs on short- or medium-term contracts. It is supporting the government's renewable energy programme, which aims to bring more than 3 700MW of renewable energy from IPPs on to the national grid. Eskom's board has also approved participation in the Department of Energy's open-cycle gas turbine IPP project. Finalisation of this power purchase agreement is dependent on government approval, refer to page 24. The government's Integrated Resource Plan 2010 provides for further participation by IPPs but direction is awaited on the respective roles of Eskom and IPPs in the implementation of the plan.

Preparations for the independent system and market operator (ISMO)

During 2011 the government tabled the ISMO Bill, which provides for a separate state-owned entity into which certain functions would be spun off from Eskom over time. A phased approach towards the ISMO was envisaged, starting with the ringfencing of the relevant organisational units initially in an Eskom division, after which the division can be transformed into an Eskom subsidiary – and then into a separate state-owned company. A comprehensive business plan has been developed for the ISMO end state as contemplated in the ISMO Bill and Eskom is following the necessary governance processes to establish the subsidiary.

Challenges and action taken

Clarity regarding ISMO

Eskom is engaging government and relevant regulatory bodies for clarity on the implementation to factor possible changes into its planning.

Integrated Resource Plan 2010 allocation

Eskom is currently engaging with the Department of Energy (DOE) and DPE about the allocation through Eskom's newly formed generation steering committee. This will impact Eskom's ability to achieve an appropriate energy mix to reduce CO_2 emissions.

Ensuring financial sustainability

Eskom must raise capital to pursue its capacity expansion programme. Eskom is investing strategically and leveraging its assets to secure financing. An appropriate tariff structure that allows for cost recovery, including real return on replacement value of assets, is necessary to encourage investment over the long term. Tariffs need to be set at levels that do not constrain economic growth, with provision made to ensure that low-income households are able to obtain electricity in a sustainable manner. However, they must allow for cost reflective tariffs. Eskom has raised a significant amount of debt (some government guaranteed) to fund the capacity expansion programme.

Other risk factors (if unmitigated) affecting Eskom's ability to raise capital, as well as impacting the cost of borrowings, include:

- Reliance on the government's credit rating. Any negative change in the government's credit rating directly affects Eskom
- Rand depreciation increasing the cost of imported equipment purchases, impacting the Rand value and hence the cost of foreign loans

[RA] *Reasonable assurance provided by the independent assurance provider. (Refer page 86)*

1. *One environmental contravention was registered in March 2011 and, following an investigation, was reclassified as an event. This resulted in reducing the number for the comparative year.*

- Uncertainty regarding the tariff price path
- Significant increases in environmental taxation (including carbon taxes) not recoverable from Eskom's customers
- Non-payment for electricity as a result of increased electricity tariffs
- Inappropriate cash liquidity levels in the future
- Regulatory uncertainty regarding the final structure of the ISMO
- Power system crises that might result in a loss of investor confidence.

Continued repercussions from the global financial crisis could also negatively affect Eskom's ability to raise capital.

All of these risks are constantly monitored and action plans continually revised to address the potential risks.

Mali subsidiary

During the year significant unrest occurred in Mali due to a coup. Eskom has since March 2010 been negotiating its exit from Mali and the exit date for Mali has been extended to 31 July 2012. The Mali business continues to be disclosed as a discontinued operation. There is sufficient provision for exit and all the major financial risks have been addressed in the exit agreement and the addendum to the exit agreement.

Market making risk

Eskom partakes in local market making activities for its bonds in a bid to reduce the funding cost of the company. Most investors place a premium on liquidity of bonds and are therefore prepared to accept a lower yield (relative to alternative bonds) to invest in bonds where the issue sizes are large and deemed to be liquid.

The risks of market making include the anticipated loss on turnovers, typically the bid/offer spread thereon which is partially mitigated through carry trading opportunities. In addition there is the potential negative impact on liquidity which Eskom believes is limited due to the strategy of holding sufficient liquidity buffers as well as a portfolio of liquid government bonds.

Challenges and action taken

Adequate liquidity levels required

Significant progress has been made in funding the capital expansion programme and Eskom is in a healthy funding and liquidity postion. The latest projections indicate that Eskom has sufficient cash from cash on hand, investments, net operational cash flows and current secured facilities available to fund the business for the next 18 months.

Financing talks under way

Eskom continues to work with government, regulators and financing institutions to secure adequate and affordable funding. More than 77% of the R300 billion funding plan required up until the completion of Kusile in 2017/18 is secured. For further details, refer to page 46.

Savings mechanisms put in place

Cost-saving drives are under way and Eskom is monitoring budgetary performance. Eskom has achieived significant operational savings over the last two financial years.

Key indicators

The performance for the past five years and the target set for Eskom's detailed key indicators per strategic objective as per the Eskom five year corporate plan are indicated below (Eskom group numbers are indicated unless otherwise stated):

Key indicator area	Key indicator and statistics	Target 2017	Actual 2012	Year on year*	Actual 2011	Actual 2010	Actual 2009	Actual 2008
Becoming a high performance organisation								
Focus on safety	LTIR[1,2] (index)	0.20	0.41 RA		0.47 RA	0.54 RA	0.50 RA	0.46
	Fatalities (employees and contractors)[1] (number)	0	25 RA		25 RA[8]	17 RA	27 RA	29
Improve operations	UCLF[1,2] (%)	3.50	7.97 RA		6.14 RA	5.10 RA	4.38 RA	5.13
	EAF[1,2] (%)	85.50	81.99 RA		84.59 RA	85.21	85.32	84.85
	SAIDI[1,2] (hours per year)	39.00	45.75 RA		52.61 RA	54.41 RA	51.51 RA	55.51 LA
	SAIFI[1] (events per year)	17.00	23.73 RA		25.31 RA	24.65 RA	24.16 RA	25.36 LA
	Total system minutes lost for events <1 minute[1,2] (minutes)	3.40	4.73 RA		2.63 RA	4.09 RA	4.21 RA	3.56 LA
	Major incidents[1] (number)	1	1 RA		0 RA	1 RA	3 RA	5 LA
Put customer at centre	Customer service index[1,2]	89.30	85.55		84.37	85.05	84.74	82.11
Internal organisational transformation (company)	Employment equity – disability[1] (%)	3.00	2.49 RA		2.53	2.54	3.38	3.30
	Racial equity in senior management[1] (% of black employees)	71.00	53.90 RA		52.52	47.31	46.91	n/a
	Racial equity in professionals and middle management[1] (% of black employees)	77.00	65.69		64.05	62.93	62.14	n/a
	Gender equity in senior management[1] (% of female employees)	36.00	24.31 RA		23.51	21.55	20.72	n/a
	Gender equity – professionals and middle management[1] (% of female employees)	40.00	32.43		31.56	30.25	29.75	n/a
Build strong skills	Total engineering learners in the system[SC, 1, 2, 3] (number)	2 073	2 273 RA		1 335	955	968	n/a
	Total technician learners in the system[SC, 1, 2, 3] (number)	805	844 RA		692	681	588	n/a
	Total artisan learners in the system[SC, 1, 2, 3] (number)	2 705	2 598 RA		2 213	2 144	1 979	n/a
	Total youth programme learners in the system[1, 2, 13] (number)	5 000	5 159		n/a	n/a	n/a	n/a

Key indicators

Key indicator area	Key indicator and statistics	Target 2017	Actual 2012	Year on year*	Actual 2011	Actual 2010	Actual 2009	Actual 2008
Leading and partnering to keep the lights on								
Keep the lights on	Management of the national supply/demand constraints (Load shedding) (yes or no)[SC, 1, 3]	No	No RA		No RA	No RA	Yes	Yes
	DSM demand efficiency[4](MW)	2 438[11]	365 RA		354 RA	372 RA	916 RA	650 LA
	DSM energy efficiency[SC, 1, 15] (GWh)	11 614[11]	1 422 RA		1 339 RA	n/a	n/a	n/a
	Internal energy efficiency[SC, 1, 3, 16] (annualised GWh)	59.00[11]	44.96 RA		26.20 RA	n/a	n/a	n/a
	Maintenance backlog[4, 17] (number)	n/a	26[19]		36	n/a	n/a	n/a
Deliver capacity expansion	Generation capacity installed[SC, 1, 2, 3] (MW)	8 062[11]	535 RA		315 RA	452 RA	1 770 RA	1 043
	Transmission lines installed[SC, 1, 2, 3] (km)	6 596[11]	631 RA		443 RA	600 RA	418 RA	480
	Transmission capacity installed[SC, 1, 2, 3] (MVA)	25 275[11]	2 525 RA		5 940 RA	1 630 RA	1 375[14]	1 355
	Total capital expenditure (excluding borrowing costs)[1, 2] (R billion)	65.00[12]	58.82		47.93	48.70	43.66	24.26
Reducing our environmental footprint and pursuing low-carbon growth opportunities								
Reduce environmental footprint in existing fleet	Relative particulate emissions[1, 2] (kg/MWh) sent out	0.21	0.31 RA		0.33 RA	0.39 RA	0.27 RA	0.21 LA
	Specific water usage[SC, 1, 2] (L/kWh) sent out	1.20	1.34 RA		1.35 RA	1.34 RA	1.35 RA	1.32 LA
	Carbon dioxide emissions (relative)[4, 5, 23] (kg/kWh)	n/a	0.99		0.99	0.98	0.98	0.95
	Carbon dioxide emissions[4, 5, 23] (Mt)	n/a	231.9 RA		230.3 RA	224.7 RA	221.7 RA	223.6 LA
	Nitrogen oxide emissions[4, 5, 21] (kt)	n/a	977 RA		977 RA	959 RA	957 LA	984
	Sulphur dioxide emissions[4, 5] (kt)	n/a	1 849 RA		1 810 RA	1 856 RA	1 874 RA	1 950 LA
	Nitrous oxide emissions[4, 5] (t)	n/a	2 967		2 906	2 825	2 801	2 872
	Environmental legal contraventions[1, 2, 6] (number)	5	50 RA		63 RA[7]	55 RA	114 RA	46

A bald Ibis nesting site on the new Ingula pumped storage scheme site near Ladysmith

Key indicators continued

Key indicator area	Key indicator and statistics	Target 2017	Actual 2012	Year on year*	Actual 2011	Actual 2010	Actual 2009	Actual 2008
Secure our future resource requirements, mandate and the enabling environment								
Maximise socio-economic contribution	% of local content in all new build contracts[SC, 1, 2, 3] (%)	52.00	77.2[RA]	🟡	79.7[RA]	73.9[RA]	n/a	n/a
	Government electrification connections[1, 2] (number)	567 543[11]	125 628	🟡	129 945	106 603	68 208	125 263
	Total number of electrification connections[4] (number)	724 636[11]	155 213	🟢	149 914	149 901	112 965	168 538
	B-BBEE attributable spend (company)[1, 2] (% of total spend)	90.00	73.2[RA]	🟢	52.3[RA]	28.6[22]	63.2	n/a
	Black women owned spend (company)[1] (% of total measured procurement spend)	30.00	3.3[RA]	🔴	4.3	12.1[18]	10.0[18]	n/a
	Corporate social investment[4] (Rm)	n/a	87.9[RA]	🟢	62.3[RA]	58.7[RA]	79.5[RA]	69.8
Implementing coal haulage and the road-to-rail migration plan								
Implementing coal road-to-rail migration plan	Coal haulage (road-to-rail)[1] (Mt)	100.8[11]	8.5	🟢	7.1	5.1	4.3	4.2
Pursuing private sector participation								
Pursuing private sector participation	IPP installed capacity[1] (MW)	3 600[11]	1 008	🟢	888	n/a	n/a	n/a
	IPP GWh purchased[4] (GWh)	n/a	4 107	🟢	1 833	n/a	n/a	n/a
Ensuring our financial sustainability								
Company: Statistics and ratios	Sales volumes[1] (GWh)	238 715	224 785	🟢	224 446	218 591	214 850	224 366
	Net production and import volumes[1] (GWh)	271 351	250 454	🟢	248 914	242 871	237 317	246 483
	Cost of electricity (excluding depreciation, including immediate priorities)[SC, 1, 3] (R/MWh)	583.2	374.19[RA]	🟡	296.36[RA]	255.09[RA]	237.29	197.80
	Interest cover[SC, 1, 3] (ratio)	2.19	3.27[RA]	🟢	1.40[RA]	0.77[RA][20]	(4.72)	0.96
	Debt/equity ratio[SC, 1, 3] (ratio)	1.67	1.69[RA]	🟡	1.66[RA]	1.68[RA][20]	1.32	0.40

Coal is successfully being transported by rail to Camden power station near Ermelo

Key indicators continued

Key indicator area	Key indicator and statistics	Target 2017	Actual 2012	Year on year*	Actual 2011	Actual 2010	Actual 2009	Actual 2008
Group: Income statement	Free funds from operations (FFO)[1] (Rm)	77 325[9]	30 483	■	16 953	2 356	13 865	8 793
	Electricity revenue per kWh (including environmental levy)[1] (c/kWh)	97.51[9]	50.27	■	40.27	31.95	24.67	19.40
	Electricity operating cost per kWh (including depreciation)[1, 2] (c/kWh)	71.39[9]	41.28	■	32.78	28.23	25.94	18.56
	Arrear debts as % of revenue[1] (%)	0.60[9]	0.53	■	0.75	0.83	1.54	1.09
Group: Balance sheet	Return on average assets[1] (%)	1.70[9]	3.73	■	2.93	1.63	(5.29)	(0.11)
	Return on average equity[1] (%)	16.45[9]	13.92	■	10.68	5.58	(16.02)	(0.28)
	Customer service (large power users)[1] (average debtors days)	n/a	21.75	■	18.89	18.88	16.38	14.26
	Customer service (small power users – excluding Soweto debt)[1] (average debtors days)	n/a	42.88	■	45.06	40.53	47.54	48.89
	Top industrial and international customers[1, 10] (average debtors days)	n/a	14.40	■	15.46	15.37	16.53	12.76
	Average coal stock days[1] (days)	46	39 RA	■	41 RA	37 RA	41 RA	13
Group: Funding	FFO as % of gross debt[1] (%)	22.16[9]	15.15	■	9.51	1.92	15.89	13.98
	Gross debt/EBITDA[1] (ratio)	3.73[9]	6.46	■	7.55	8.40[20]	(13.00)	10.81
	Working capital ratio[1] (ratio)	1.01[9]	0.76	■	0.85	0.89[20]	0.78	0.85
	Debt service cover ratio[1] (ratio)	2.99[9]	3.50	■	1.90	1.43[20]	0.75	0.68

Key:

* *Year on year change in performance*
■ *2012 performance improved compared to 2011*
■ *2012 performance remained the same as in 2011*
■ *2012 performance deteriorated compared to 2011*
■ *2012 performance within 2012 target but deteriorated compared to 2011*

Notes:

LA *Limited assurance provided by the independent assurance provider in previous years.*
RA *Reasonable assurance provided by the independent assurance provider (Refer page 86).*
SC *Key indicator forms part of shareholder compact.*

1. *Indicator included in the Corporate Plan.*
2. *This measure is taken into account for short-term performance measurement (in relation to executive remuneration). For further remuneration details see www.eskom.co.za/IR2012/032.html.*
3. *This measure is taken into account for long-term performance measurement (in relation to executive remuneration). For further remuneration details see www.eskom.co.za/IR2011/033.html.*
4. *Additional material indicator.*
5. *Calculated figures based on coal characteristics and the power station design parameters. SO_2 and CO_2 emissions are based on coal analysis and using coal burnt tonnages. Includes coal-fired power stations and the gas-turbine power stations as well as oil consumed during power station start-ups and for CO_2 the underground coal gasification pilot (flaring).*
6. *Eskom's continued aspiration is for zero environmental violations. In order to achieve this, targets have been set in the corporate plan.*
7. *Restatement. One environmental legal contravention was registered in March 2011 and following an investigation was reclassified as an event. This has resulted in the reported number of environmental legal contraventions for 2011 changing from 64 to 63.*
8. *Amended after issuing the 2011 integrated report due to a lost-time injury reported in January 2011 which deteriorated to a fatality in July 2011.*
9. *Financial group targets for 2017 are not available, hence the Eskom company targets for 2017 have been presented.*
10. *Top customers' debtors days excluding disputes for 2010 onwards. For 2008 and 2009 a consolidated top customers' debtors days figure is provided.*
11. *Cumulative target for the five year period: 2013 – 2017.*
12. *The R65.0 billion is the average annual capital expenditure (excluding borrowing costs) target to be achieved every year between now and 2016/17.*
13. *New measure, comparatives not available. Target for 2011/12 met.*
14. *This includes construction by the Transmission division.*
15. *The basis of measurement changed during the 2011 year; prior to that verified savings of 372MW RA (2010) and 916MW RA (2009) were achieved.*
16. *Reporting basis changed during the 2011 year, hence no comparatives are available.*
17. *New measure, comparatives prior to 31 March 2011 not available.*
18. *For 2009 and 2010, the BWO % was calculated on the attributable spend.*
19. *Includes 18 outages of the original 36 maintenance outages identified as at 31 March 2011 and eight additional maintenance outages which have arisen since 1 April 2011.*
20. *Restatement.*
21. *NO_x reported as NO_2 is calculated using average station specific emission factors which have been measured intermittently between 1982 and 2006, and tonnages of coal burnt.*
22. *Attributable spend in 2010 based on top 295 suppliers.*
23. *Refer to www.eskom.co.za/IR2012/034.html for the climate change fact sheet, giving details of the relative CO_2 emission factor.*

Corporate governance

The corporate governance for the Eskom Holdings SOC Limited Group is set out within the Integrated Report at www.eskom.co.za/IR2012/035.html.

Additional corporate governance information not included in the Integrated Report is provided here:

- Full details of the board of directors
- Attendance at board and board committees
- Full details of Exco members
- Attendance at Exco meetings

A summary of Eskom's remuneration philosophy and a summary of executive remuneration is provided within the integrated report at www.eskom.co.za/IR2012/036.html. Detailed disclosures regarding executive remuneration appear in the notes to the statutory annual financial statements at www.eskom.co.za/IR2012/037.html. For adherance to King III refer to the fact sheet at www.eskom.co.za/IR2012/038.html.

Board of directors[1]

ZA (Zola) Tsotsi (65)
Independent non-executive director
Chairman of the board
Appointed June 2011
BSc Mathematics and Chemistry – UBLS (Lesotho)
BSc (Hons) Chemical Engineering – University of Surrey (UK)
Director: Torre Technologies (Pty) Limited, Mandla Technologies (Pty) Limited

BA (Brian) Dames (46)
Executive director and chief executive
Appointed June 2010
BSc (Hons) – University of the Western Cape
MBA – Samford University, USA
Senior Management Programme; University of Stellenbosch
Graduate Diploma in Utility Management – Samford University School of Business, USA
Director: Industrial Development Corporation, The Electric Power Research Institute (EPRI)

Dr BL (Bernie) Fanaroff (64)
Independent non-executive director
Appointed in May 2010
PhD (Radio Astronomy and Astrophysics) – University of Cambridge

Q (Queendy) Gungubele (53)
Independent non-executive director
Appointed in August 2011
LLM (Labour Law) – University of Johannesburg
BJuris – University of Limpopo
Advanced Diploma Labour Law – University of Johannesburg
Certificate in management in minerals and mining policy – University of the Witwatersrand

N (Neo) Lesela (42)
Independent non-executive director
Appointed June 2011
BEng (Hons) Industrial Engineering – University of Salford, UK
Director: Kahina Consulting CC, LE-SEL Research (Pty) Limited

B (Bajabulile) Luthuli (39)
Independent non-executive director
Appointed August 2011
BCom Acc – University of KwaZulu-Natal
HDip Acc – University of KwaZulu-Natal
Director: Blackfish Business & Media Consulting (Pty) Limited, Numsa Investment Company (Pty) Limited

C (Chwayita) Mabude (42)
Independent non-executive director
Appointed June 2011
BCompt – University of South Africa

Y (Yasmin) Masithela (38)
Independent non-executive director
Appointed June 2011
LLM (Tax Law) – University of the Witwatersrand
LLB – University of Cape Town
BA – University of Cape Town
Higher Diploma in Company Law (H Dip Co Law) – University of the Witwatersrand
Director: Afrocentric Holding Limited

MC (Collins) Matjila (50)
Independent non-executive director
Appointed June 2011
LLB – University of the Witwatersrand
BA (Law) – National University of Lesotho
Senior Executive Programme – Harvard Business School
Director: Kopano Cable Trading (Pty) Limited

Dr B (Boni) Mehlomakulu (39)
Independent non-executive director
Appointed April 2010
PhD Chemical Eng. – University of Cape Town
MSc Organic Chemistry – University of Natal
BSc Chemistry and Applied Chemistry – University of Natal
Director: South African Bureau of Standards

ME (Mafika) Mkwanazi (58)
Independent non-executive director
Appointed June 2011
BSc Mathematics and Applied Mathematics – University of Zululand
BSc Electrical Engineering – University of Natal
Director: Transnet SOC Limited, Hulamin Limited, Stefanutti & Stocks Holdings Limited

PS (Paul) O'Flaherty (49)
Finance director
Appointed January 2010
BAcc – University of the Witwatersrand
BCom – University of the Witwatersrand
CA(SA)
Director: Escap SOC Limited, Eskom Finance Company SOC Limited, Roshcon SOC Limited, Rotek SOC Limited, Eskom Enterprises SOC Limited
Chairman: Accounting Practices Committee of the South African Institute of Chartered Accountants

SPQ (Phenyane) Sedibe (42)
Independent non-executive director
Appointed June 2011
MA Social Policy – University of Durban-Westville
BA (Hons) Political Science/Sociology – University of Durban-Westville
Director: TACE Development

L (Lily) Zondo (43)
Independent non-executive director
Appointed October 2011
BSc (Hons) – University of South Africa
BAcc – University of the Witwatersrand
CA(SA)
Director: Humulani Investments (Pty) Limited

1. *Only major directorships are reflected.*

Changes in board composition in 2011/12

- Zola Tsotsi was appointed chairperson after Mpho Makwana retired as chairperson, having served as a director for three terms and acting as interim chief executive
- The following members were appointed during the year: Queendy Gungubele, Neo Lesela, Bajabulile Luthuli, Chwayita Mabude, Yasmin Masithela, Collins Matjila, Mafika Mkwanazi, Phenyane Sedibe and Lily Zondo
- The following board members retired during the year: Zee Cele, Daniel Dube, Lars Josefsson, Hee-Beom Lee, Wendy Lucas-Bull, John Mirenge, Jacob Modise, and Uhuru Zikalala.

Board and board committee meeting attendance

Members	Board	Audit and risk	Investment and finance	Tender	Social ethics and sustainability[1]	People and governance
	Chairperson: ZA Tsotsi	Chairperson: C Mabude	Chairperson: ME Mkwanazi	Chairperson: MC Matjila	Chairperson: B Mehlomakulu	Chairperson: SPQ Sedibe
Total number of meetings	**10**	**6**	**4**	**9**	**5**	**4**
LCZ Cele[4]	2	2		2		
BA Dames	9	3[7]	3		4	4
SD Dube[4]	2			2	1	1
BL Fanaroff	10	3				4
Q Gungubele[2]	4				3	2
LG Josefsson[4]	2	2			1	
HB Lee[4]	1				1	
N Lesela[3]	8		3	7		
WE Lucas-Bull[4]	1		1			1
B Luthuli[2]	5	3[7]		4		
C Mabude[3]	8	4	3			
PM Makwana[4]	2				1	1
Y Masithela[3]	8	4			4	
MC Matjila[2]	7			7		2
B Mehlomakulu	8			8	4	
J Mirenge[4]	1	2	1			
ME Mkwanazi[3]	6		3	7		
JRD Modise[4]	2	2	1			
PS O'Flaherty	10	6[7]	4	7		
SPQ Sedibe[3]	8				4	3
ZA Tsotsi[3]	8					2
U Zikalala[4]	2	2				
L Zondo[6]	4	2[7]	1			
External members: MJ Husain				3		
MM Matutu[5]					–	

1. *The sustainability committee reconstituted into social ethics and sustainability committee.*
2. *Member appointed to committee in September 2011.*
3. *Member appointed to committee in July 2011.*
4. *Member retired July 2011.*
5. *Member retired when contract expired.*
6. *Member appointed to committee in October 2011.*
7. *Member attended meeting in the capacity of "official".*

Executive management committee[1]

BA (Brian) Dames (46)
Chief executive
Appointed as chief executive June 2010
Appointed to Exco February 2008
Refer page 13 for qualifications and directorships

PS (Paul) O'Flaherty (49)
Finance director and group executive: Group Capital
Appointed to Exco January 2010
Appointed group executive: Group Capital September 2010
Refer page 13 for qualifications and directorships

BE (Bhabhalazi) Bulunga (56)
Group executive: Human Resources
Appointed February 2010
BA (Social Sciences) – University of Swaziland
Director: Eskom Finance Corporation SOC Limited

T (Thava) Govender (44)
Group executive: Generation
Appointed September 2010
BSc Hons (Energy Studies – Nuclear and Fossil) – University of Johannesburg
BSc (Chemistry and Biochemistry) – University of Durban-Westville
Management development programme – University of South Africa

EL (Erica) Johnson (43)
Group executive: Enterprise Development
Appointed February 2008
MSc (Electrical Engineering) – University of Cape Town
BSc (Electrical Engineering) – University of Cape Town
MBA – University of Witwatersrand

Dr SJ (Steve) Lennon (53)
Group executive: Sustainability
Appointed September 2000
PhD (Physical Metallurgy) – University of the Witwatersrand
MSc (Engineering) Physical Metallurgy – University of the Witwatersrand
BSc (Chemistry, Applied Chemistry) – University of Natal
Director: National Advisory Council on Innovation, Electric Power Research Institute

DL (Dan) Marokane (40)
Group executive: Technology and Commercial
Appointed September 2010
BSc (Chemical Engineering) – University of Cape Town
MSc (Engineering) (Petroleum) – Imperial College, UK
MBA – University of Cape Town
Director: Acting chief executive of Eskom Enterprises (SOC) Limited, Roshcon (SOC) Limited, Rotek (SOC) Ltd, Evergrin Investment (Pty) Limited

TBL (Tsholofelo) Molefe (43)
Group executive: Group Customer Services
Appointed April 2011
BCompt (Hons) (Certificate in Theory of Accounting) – University of South Africa
BA Hons (Accounting and Finance) – University of East London, UK
CA(SA)
Director: Eskom Development Foundation NPC, Trans Africa Projects (Pty) Limited
Chairman of Audit and Risk Committee at Government Communication and Information Systems (GCIS)

A (Ayanda) Noah (45)
Group executive: Distribution
Appointed April 2011
BSc (Electrical Engineering) – University of Cape Town
MBA (International Management Centre)
Executive Development Programme – University of the Witwatersrand
Director: Eskom Enterprises SOC Limited

MM (Mongezi) Ntsokolo (51)
Group executive: Transmission
Appointed April 2011
BSc (Electrical Engineering) – University of the Witwatersrand
MBA – University of Stellenbosch

Exco meeting attendance

Total number of meetings	12
BE Bulunga	12
BA Dames	11
PS O'Flaherty	12
T Govender	11
EL Johnson	10
SJ Lennon	11
DL Marokane	11
TBL Molefe	12
A Noah	8
MM Ntsokolo	10

Changes in executive management committee composition in 2011/12

Thava Govender became Acting Chief Officer: Generation Business in September 2010, he attended Exco meetings, but was not a member. In April 2011 he became a member of Exco.

Tsholofelo Molefe, Ayanda Noah and Mongezi Ntsokolo became members of Exco in April 2011.

1. *Only major directorships are reflected.*

Line divisions

Eskom's line divisions are responsible for operating the business on a day-to-day basis and creating value. This section contains the 2011/12 operational reports for each of Eskom's four line divisions:

- Generation division
- Transmission division
- Distribution division
- Group Customer Services division.

Generation

Mandate

Eskom has the ambition to ensure that no supply interruptions occur due to plant unavailability. To realise this ambition, Eskom aspires to become a world-class generating utility by demonstrating high reliability and availability of its generating assets, with an aspirational Energy Availability Factor (EAF) of 90%.

Operational highlights

- Avoided load shedding in 2011/12
- Received praise from the World Association of Nuclear Operators for Eskom's proactive approach in assessing Koeberg's state of readiness in response to the Fukushima review guidelines
- Received international interest in Eskom's innovative approach, in a series of Nuclear Safety Awareness seminars, in assessing its nuclear safety culture
- Reduction in number of unplanned automatic grid separations/7 000 operating hours (UAGS/7 000) compared to 2010/11
- Decreased coal-related energy losses
- Installed gaseous-emission monitoring systems on one unit of each coal-fired power station to improve Generation's monitoring capability
- Improved particulate emissions from 0.33[RA] kilograms per megawatt hours sent out (kg/MWhSO) in 2010/11 to 0.31[RA] kg/MWhSO in 2011/12. Although the target of 0.30kg/MWhSO was not achieved due to constraints in the system this year, there has been an improvement over the last two years.

Operational challenges

- Balancing the conflicting needs of shutting down to perform power-plant maintenance with keeping plants on load and generating electricity to meet the energy demand
- The unplanned outage on Koeberg Unit 2 (shut down from 28 October to 4 December 2011), the long-term shutdown of Duvha Unit 4, as well as unplanned outages on the coal-fired power stations severely affected the generation key performance indicators
- Poor-quality coal at some stations hampered relative particulate-emissions performance and contributed to not achieving the target of 0.30kg/MWhSO
- The tight system, poor coal and underperforming plant resulted in a high number of exemptions against power station air emission licences being requested from authorities (33% of the time operating under exemption)
- Environmental compliance audits at several power stations during 2011/12 found that Eskom was not in full compliance with site permit and licence conditions.

Future focus areas

- Focus on safety and environment to achieve zero harm to people and the environment
- Return Duvha power station's Unit 4 (600MW) turbine and generator to service in the second half of 2012
- Reduce Eskom's unplanned capability loss factor (UCLF) – a measurement of the power lost due to the unplanned shutdown of power stations – by 2% over the next three years
- Reduce particulate emissions to 0.21kg/MWhSO by 2016/17 to minimise the impact on human health and comply with regulated emission standards by *inter alia*, retrofitting fabric filter plants at power stations with high particulate emissions
- Ensure that there is a suitable level of plant spares available and serviceable
- Complete industry waste-management plans for all coal-fired stations, as required by the National Environmental Management: Waste Act
- Obtain ISO 14001 certification for remainder of power stations by March 2013
- Implement the lessons learnt from Japan's Fukushima event to Koeberg power station
- Reduce carbon footprint by improving efficiency of power production and changing the energy mix towards lower carbon emitting technologies.

Current performance

Key financial statistics: Generation, as at and for the year ended 31 March 2012

Rm	2012	2011
Operating maintenance costs	4 936	4 254
Total assets	90 095	78 685
Capital expenditure (excluding capitalised interest)	6 590	6 341

[RA] *Reasonable assurance provided by the independent assurance provider (refer page 86)*

Current performance *continued*

Technical performance

Measure		Target 2012	Actual 2012	Actual 2011	Actual 2010
Power generated by Eskom power stations	GWh	240 642	237 291	237 430	232 812
Unit capability factor (UCF)[1]	%	85.10	82.96[RA]	85.87[RA]	85.86
Energy availability factor (EAF)[2]	%	84.10	81.99[RA]	84.59[RA]	85.21
Unplanned automatic grid separations/7 000 hours (UAGS/7 000)[3]	Number	2.80	3.19	3.62	2.80
Unplanned capability loss factor (UCLF)[4]	%	6.50	7.97[RA]	6.14[RA]	5.10[RA]
Planned capability loss factor (PCLF)[5]	%	8.40	9.07	7.98	9.04
Generation load factor (GLF)[6]	%	66.90	65.13	66.39	66.20

Kendal power station in Mpumalanga

Overall, Generation's performance deteriorated in 2011/12 compared to the previous year. The need for more maintenance in a capacity-constrained environment continues to be a challenge, with plant failing as a result. The system was also greatly affected by the major energy loss that occurred with the Duvha power station Unit 4 incident, which has contributed more than 1% to the system energy losses. As in previous years, boiler tube failures remain the single biggest contributor to the total unplanned energy losses in the Generation division.

During the year Generation made use of every possible opportunity to undertake maintenance activities. This is reflected in the planned capability loss factor (PCLF) being significantly higher than the previous year and higher than target.

The quality of coal used in the generating plant has generally improved in the last year, which has resulted in a reduction in the load losses that are related to external factors. It is important to note though that the effects of the previous batches of poor quality coal continue to affect the performance of some of the units as the damage that was caused will take some time to fix. For further detail, refer to Primary Energy on page 53.

There has been an improvement in the reliability of the Generation plant, evident in the significant reduction in the number of unit trips. Koeberg's performance was negatively affected by a 36 day forced outage repair a hydrogen leak related to the generator stator coolant system.

Power station maintenance outlook

The existing power station maintenance plan and resultant system outlook continue to indicate a very constrained system with increasing risk profiles of the performance of plant and safety of people. The continual use of maintenance deferments as a lever in managing supply and demand side constraints is no longer a viable option and Eskom has no choice but to execute its maintenance programme.

A typical coal-fired generating unit requires certain necessary routine and periodic maintenance, as indicated below, to ensure that it meets its technical performance requirements, is safe to operate and does not violate any environmental laws.

Activity	Cycle time (years)	Duration (days)
General overhaul	6–12	40–60
Interim repairs	2–3	14–35
Mini–general overhaul	6	28
Boiler inspection	1–1.5	7–14
Statutory inspection and test	6	35
Main steam pipe work		120

Summer is the high maintenance period, but this year Eskom has the additional burden of having to reduce a maintenance backlog.

[RA] *Reasonable assurance provided by the independent assurance provider (refer page 86).*

1. *UCF measures the plant availability and provides an indication of how well the plant is operated and maintained.*
2. *EAF measures plant availability (UCF above), plus energy losses not under the control of plant management (external) and internal.*
3. *UAGS/7 000 indicates the number of unplanned unit trips per 7 000 operating hours.*
4. *UCLF measures the lost energy due to unplanned production interruptions resulting from equipment failures and other plant conditions.*
5. *PCLF-planned energy loss is energy that was not produced during the period because of planned shutdowns or load reductions due to causes under plant management control.*
6. *GLF indicates the extent to which the generation fleet was loaded on average over the year to produce the energy demanded.*

Progress on reducing the maintenance backlog

Eskom has made steady progress in reducing the backlog of its outstanding outages; however scheduling all outstanding outages is done with extreme care considering all the options and reasons including risk profiles.

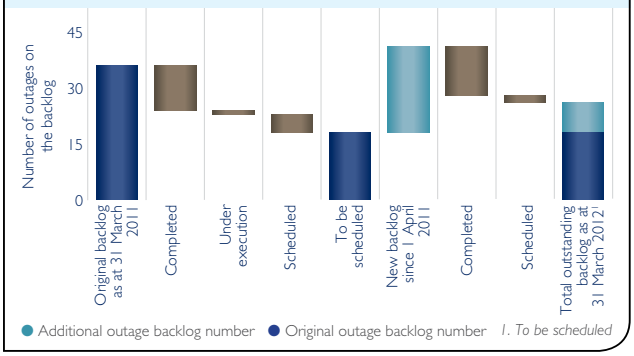
To achieve the resolve of keeping the lights on while executing the generation maintenance, a number of initiatives have been submitted for PFMA approval.

As at the end of March 2011 Eskom had a total of 36 outages on backlog. Over the past 12 months Eskom managed to complete 12 outages and one is currently in progress, with five scheduled, which reduces the original backlog to 18.

In addition to the 36 original outages, 23 more were added. Of these 23 outages; eight are still outstanding, 13 were completed and two were scheduled. As at 31 March 2012, the total backlog including additional outages is thus at 26 outages. Note that of the 26 backlog outages, 16 are considered as philosophy (design) maintenance type outages.

Outage backlog as at 31 March 2012

Maintenance outage backlog as at 31 March 2012



In order to further reduce this backlog, demand and supply side levers will have to be used in order to create enough energy space for the required additional outages.

Generation Excellence Programme

As part of Eskom's strategic objectives the improvement of operations and plant performance was identified. This turnaround programme (the Power Station Enhancement Project) focuses on the key levers impacting EAF. A project team was established earlier this year and work commenced at Kendal and Matla power stations as the first wave to pilot the improvement project.

The identified actions at the first wave of power stations are on target. Outages have been planned to continue the execution of enhancements to plant. The allocation of these outages given the shortage of maintenance space on the grid remains a challenge.

The second wave of stations was identified and the launch of the project was done at all sites and the identification and analysis of focus areas are in progress. The second wave stations, Kriel, Arnot, Lethabo and Majuba are currently in the process of finalising root cause analysis.

The third wave is currently rolling out and relevant power stations are currently appointing team members.

Benchmarking

Coal-fired stations

Generation has benchmarked its coal plant performance over many years against some of its major European counterparts. Eskom's plant profile and performance aligns with that of VGB (Association of Large Boiler Operators), a European-based technical association for the electricity and heat generation industries, with 495 member organisations from 35 countries, representing a collective capacity of 520GW.

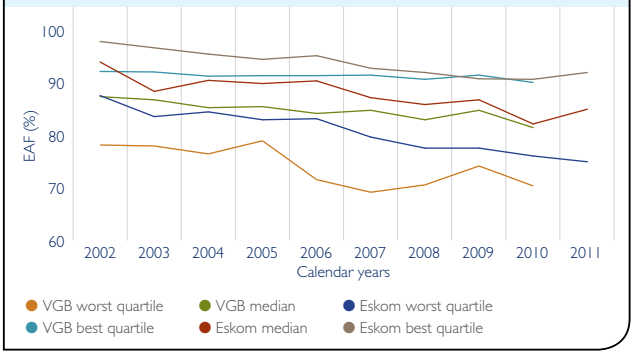
The graphs below illustrate the energy availability performance and load factors of Eskom's coal-fired generating units in comparison to VGB member performance (excluding Eskom).

Energy availability

When considering the best quartile and the median, Eskom's performance has historically been better than that of the VGB fleet. Over the past few years, this gap has, however, been closed, and for 2010 the performance for the two organisations was the same. The worst quartile has, however, seen a deteriorating VGB trend which has maintained the performance gap to Eskom.

Eskom's overall declining performance is due to increased operating pressure on the electricity production infrastructure and other operating factors outlined in the performance overview section.

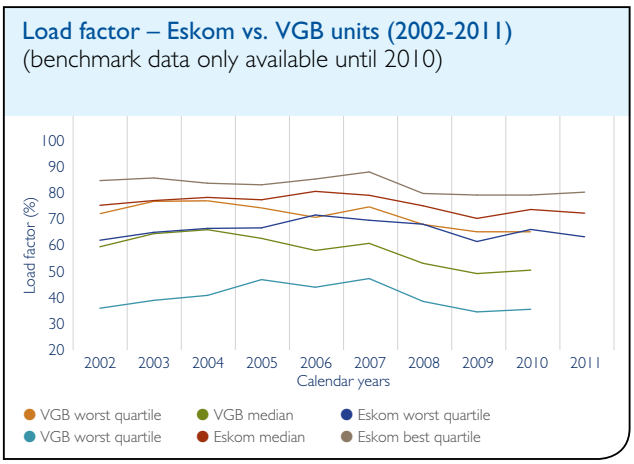
Energy availability – Eskom vs VGB units (2002-2011)
(benchmark data only available until 2010)



Load Factor

Eskom's units continue to operate at significantly higher load factors than VGB's coal-fired units.

Load factor – Eskom vs. VGB units (2002-2011)
(benchmark data only available until 2010)



Nuclear power station

Eskom is affiliated to the World Association of Nuclear Operators (WANO) and the Institute of Nuclear Power Operations (INPO). South Africa is a member of the International Atomic Energy Agency. These affiliations enable Eskom to benchmark performance, conduct periodic safety reviews, help define standards, disseminate best practice and train personnel. Through INPO, Eskom has obtained international accreditation for its "systematic approach to training" of licensed and non-licensed nuclear operators at Koeberg. Eskom is the only non-US utility to receive such accreditation. An International Atomic Energy Agency Operational Safety Review Team visited Koeberg in August 2011 while a WANO peer review of Koeberg was undertaken in November 2011.

Although Koeberg's safety performance remains amongst the best in the world, its availability and hence electricity production performance in 2011 was adversely affected by the two forced outages on unit 1 experienced in the second half of 2010 and the forced shutdown of unit 2 in 2011.

Koeberg power station near Cape Town

Koeberg also compares its performance, with respect to public exposure to radiation arising from Koeberg effluent releases, to the limits set by the National Nuclear Regulator (NNR). Exposure to radiation is measured in units of milliSieverts (mSv). The limit recommended by the International Atomic Energy Agency for public exposure to radiation is 1.0 mSv per year. However, the National Nuclear Regulator has set a stricter limit of 0.25 mSv per year for South Africa.

As can be seen from the graph, the average public exposure to radiation arising from Koeberg's operations has been less than 0.005 mSv in recent years (or less than 2% of the limit imposed by the National Nuclear Regulator).

Thermal energy efficiency programme

Eskom's planned thermal energy efficiency programme is targeting to yield a minimum of 150MW of increased efficiency by the end of 2015. These efficiency benefits equate to approximately 400 kilotons per annum in reduced coal consumption across all coal-fired power stations. This translates to a reduction of 1.5 million tons of CO_2 emissions per annum.

Energy savings for the year, based on several improvements implemented in the short term to alleviate anticipated supply constraints at ten coal-fired stations, amounted to between 31MW and 35MW.

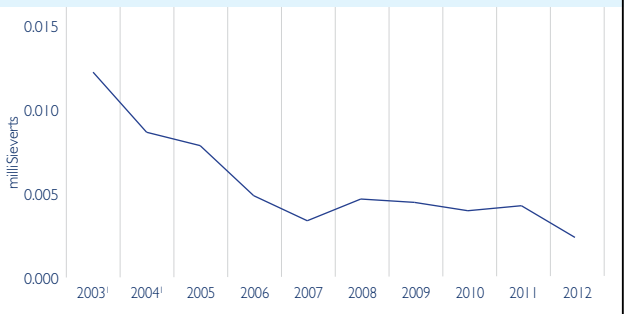
Monthly heat rate trends at the pilot at Majuba power station (i.e. coal energy consumed per electric energy produced) showed that the station was able to perform better than the agreed 11.3MJ/kWh target for eight months of the year. The thermal energy efficiency programme was extended to another five coal-fired stations, yielding positive results. The full energy efficiency programme will be rolled out to the remaining coal-fired stations during 2012/13.

Progress on repairing Duvha power station unit four

On 9 February 2011, the 600MW unit four at Duvha power station was taken off-load for a statutory turbine test. The protection on the unit failed, starting a fire and causing severe mechanical damage to the turbo generator and the surrounding area. The fire was rapidly brought under control by the power station's fire team.

The root cause of the incident was a modification applied by Eskom in 2004 that, inadvertently, when installing a new programmable logic controller, removed a maximum speed limit during over-speed test conditions. The modification error has been corrected on the remaining units, while corrective actions have been applied to eliminate contributory causes.

Public individual radiation exposure due to effluent from Koeberg



1. Calendar Year

Line division: **Generation** continued

The Duvha recovery project is progressing in phases, with the unit due to come online in the second half of 2012:

Completed Still progressing Not started

	Phase		Status
1.	1.1 Strip down and damage assessment 1.2 Procurement and refurbishment of spares	1.1 Q4 2011 1.2 Q1 2012	1.1 1.2
2.	Repair turbine and generator foundations	Q1 2012	
3.	Assembly of centreline	Q2 2012	
4.	Commission the centreline and associated systems	Q3 2012	

Most of the required components are previously used, and have been sourced from the United Kingdom. They have been delivered and are in the process of being refurbished locally. Two components are being refurbished in the United Kingdom. Salvageable components are also being refurbished. The rest of the spares are on order with the focus being on local supply.

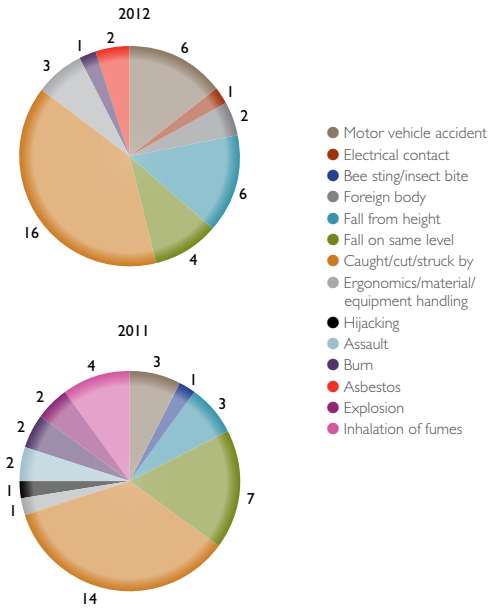
Generation safety performance

Causes of employee lost time injuries (including fatalities)

Two employee fatalities resulted from asbestosis, which was due to exposure of asbestos at the old Vaal and Hex River power stations.

For detailed information about the overall safety strategy and initiative at an Eskom level please refer to the safety section on page 70.

Generation safety performance
Causes of employee lost time injuries (including fatalities)



Environmental performance

Relative particulate emissions

Relative particulate emissions improved from 0.33[RA] kg/MWhSO in 2010/11 to 0.31[RA] kg/MWhSO in 2011/12, but the target of 0.30 kg/MWhSO was still not achieved.

A particulate emissions recovery team, chaired by the Group executive of Generation, was formed to facilitate implementing solutions for improving emissions performance. Unfortunately, the implementation of the recommendations of the recovery team has been hampered by system constraints. Outages needed for repairs and maintenance are frequently postponed, sometimes by many months. In addition, reducing production of electricity in order to reduce particulate emissions is not always possible, given the high demand for electricity. At some stations, particularly Tutuka and Matla, particulate emissions have been made worse by episodes of poor or variable quality coal.

Nevertheless, several stations – including Matimba, Majuba, Arnot, Hendrina and Camden – have achieved consistent particulate emissions performance in 2011/12.

Water usage

The total Eskom water usage (all power stations, including return to service stations (RTS)) was 319 772ML (2011: 327 252ML). Improved water-management systems contributed to reducing water usage from 1.35[RA] litres per kilowatt hour (L/kWh sent out) in 2010/11 to 1.34[RA] L/kWh sent out (2011/12). The best performing power stations are obviously the dry-cooled stations, Matimba, Kendal and Majuba, (3 of the 6 units) and Koeberg (sea water cooled).

[RA] *Reasonable assurance provided by the independent assurance provider (refer page 86).*

Line division: **Generation** continued

ISO 14001 certification

Generation continued with their ISO 14001 certification drive during 2011/12. To date Generation head office at Megawatt Park, nine operational coal-fired power stations, Koeberg nuclear power station and the peaking operating unit have achieved ISO 14001 certification.

Legal contraventions

There was a decline in legal contraventions from 41 to 34 in 2011/12, with the majority of contraventions still relating to on-site emissions and water-management challenges.

Solar heater test facility at Rosherville

Key Generation environmental performance indicators

Indicator	Unit	Target 2012	Actual 2012	Actual 2011	Actual 2010
Number of environmental legal contraventions	number	0	34	41	33
Number of environmental legal contraventions reported in terms of Eskom's operational health dashboard[1]	number	0	1	1	0
Relative particulate emissions	kg/MWhSO	≤0.30	0.31 RA	0.33 RA	0.39 RA
Net raw water consumption	ML	n/a	319 772	327 252	316 202
Specific water use	L/kWhSO	≤1.35	1.34 RA	1.35 RA	1.34 RA
Material containing polychlorinated biphenyls (PCBs) thermally destructed	tons	n/a	0	3.1	0.9
Materials containing asbestos disposed of[2]	tons	n/a	308.3	232.4	209.8
Carbon dioxide emissions (absolute)[5]	Mt	n/a	231.9 RA	230.3 RA	224.7 RA
Carbon dioxide emissions (relative)[3, 5]	kg/kWhSO	n/a	0.99	0.99	0.98
Nitrogen oxide emissions[4]	kt	n/a	977 RA	977 RA	959 RA
Sulphur dioxide emissions	kt	n/a	1 849 RA	1 810 RA	1 856 RA
Low-level radioactive waste generated (net)	m^3	n/a	184.7 RA	165.3 RA	137.8
Intermediate-level radioactive waste generated (net)	m^3	n/a	25.4 RA	39.4 RA	47.1
Low-level radioactive waste transported to Vaalputs	m^3	n/a	54 RA	81.0 RA	216.0 RA
Intermediate-level radioactive waste transported to Vaalputs	m^3	n/a	130 RA	0 RA	266.0 RA
Public individual radiation exposure due to effluents	mSv	≤0.25	0.0024	0.0043	0.0040
Ash produced	Mt	n/a	36.21 RA	36.22 RA	36.01 RA
Ash sold	Mt	n/a	2.3 RA	2.0 RA	2.0 RA
Ash recycled	%	n/a	6.4 RA	5.5 RA	5.6 RA
Ash disposed of on Eskom ash dumps and dams	Mt	n/a	33.83 RA	34.16 RA	33.89 RA

RA *Reasonable assurance provided by the independent assurance provider (refer page 86).*

1. *Under certain conditions, contraventions of environmental legislation are classified in terms of the Eskom operational health dashboard (OHD) index. These include instances where censure was received from authorities, non-reporting to authorities as may be legally required, non-reporting in Eskom, a repeat legal contravention, or when the contravention was not addressed adequately. Group or divisional executives can escalate any significant environmental legal contravention to the OHD.*
2. *Quantities of waste disposed of at registered waste sites.*
3. *Factor figures are calculated based on total energy generated by Eskom (but excluding electricity used by pumped storage scheme).*
4. *NO_x reported as NO_2 is calculated using average station specific emission factors, which have been measured intermittently between 1982 and 2006, and tonnages of coal burnt.*
5. *See **www.eskom.co.za/IR2012/039.html** for climate change fact sheet, giving details of the relative CO_2 emission factor.*

Line division: **Transmission**

Mandate

To optimally plan, operate and maintain Transmission's assets throughout their economic life; and to provide an integrative function for the reliable development, operation and risk management of the interconnected power system.

Eskom's transmission network consists of 153 substations and 28 995km of transmission lines of voltages ranging between 132 kilovolts (kV) and 765kV.

Operational highlights

- The number of line faults per 100km performance has shown improvement and has achieved the business target
- Substantially improved the availability of transmission assets
- Future trading opportunities in the southern African region have been identified to assist with alleviating the current generation capacity constraints.

Operational challenges

- To attain performance targets with regard to two KPIs:
  - system minutes < 1 (achieved 4.73[RA] against a target of 3.40)
  - number of interruptions (achieved 48 against a target of 35)
- High levels of conductor, equipment and electricity theft are affecting plant performance and increasing cost
- To reduce the number of protected bird species mortalities due to collisions with powerlines.

Future focus areas

- Focus on safety and environment to achieve zero harm to people and the environment
- Strengthen the network to improve redundancy and thus reliability
- Connect Independent Power Producers (IPPs) to the grid
- Improve network reliability and technical performance which, with improved redundancy, will reduce the number and severity of interruptions as well as minimise line faults
- Continue efforts to reduce conductor and pylon theft
- Improve the implementation of conditions of environmental authorisations, including environmental management plans
- Obtain ISO 14001 certification by March 2014.

Key financial statistics: Transmission, as at and for the year ended 31 March 2012

Rm	Actual 2012	Actual 2011
External revenue	**4 873**	4 125
Maintenance and refurbishment costs	**290**	98
Total assets	**24 042**	19 445
Capital expenditure (excluding capitalised interest)	**1 554**	1 503

Benchmarking

Benchmarking Eskom's transmission system performance against other similar utilities remains challenging due to differences in network firmness, reliability criteria, definitions and data-capturing practices between utilities.

Transmission participated in the International Transmission Operations and Maintenance Study during the current financial year to identify best international practices for the transmission industry. Twenty-seven international transmission companies participated in this study, which focused on maintenance and plant performance. Eskom's transmission-plant performance is in the first quartile for extra-high voltage switchgear and instrument transformers. Its performance is below average in the overhead line and compensation asset categories.

Technical performance

Transmission technical performance

Measure	Description of measure	Target 2012	Actual 2012	Actual 2011	Actual 2010
Number of system minutes lost	Total number of system minutes lost (for incidents of less than one system minute)	≤3.40	**4.73[RA]**	2.63[RA]	4.09[RA]
Number of major incidents	Records number of incidents with a severity greater than one system minute	≤2	**1[RA]**	0[RA]	1[RA]
Number of interruptions	Interruptions affecting the continuity of supply	≤35	**48**	30	31
Number of line faults	Number of transmission line faults per 100km	≤2.45	**2.41**	2.72	2.54

[RA] *Reasonable assurance provided by the independent assurance provider (refer page 86).*

Technical performance *continued*

Transmission interruption performance deteriorated during 2012. This was primarily due to risks associated with the execution of increased expansion and refurbishment projects at operational sites resulting in additional system minute <1 losses.

When a plant item is placed on a planned outage for maintenance activities or for the commissioning of new plant the remaining plant is placed under an increased risk that an interruption could occur if a second contingency arises on the network. A major incident occurred at Acacia substation near Cape Town in the Western Cape on 28 September 2011, due to a line hardware failure on the one feeder line while the second feeder was undergoing maintenance. This caused an interruption of supply with a total of 1.536 system minutes lost. An operational risk-management procedure has since been adopted to enhance response capability and condition assessment on unstable feeder lines before starting planned maintenance.

The number of line faults was reduced in 2012 mainly due to:

- Additional fire-management teams and improvements in maintenance on servitudes
- Maintenance on high-voltage direct current (HVDC) line insulators
- Reduced lightning faults as a result of a milder storm season resulting in fewer grass fires. Fires under powerlines can cause a line fault, typically at the mid-span (at the lowest ground clearance) due to the smoke causing a breakdown of the airgap, which can result in flashovers.

Refer to page 35 for the management of energy losses.

Transmission safety performance

Causes of employee lost time injuries (including fatalities)

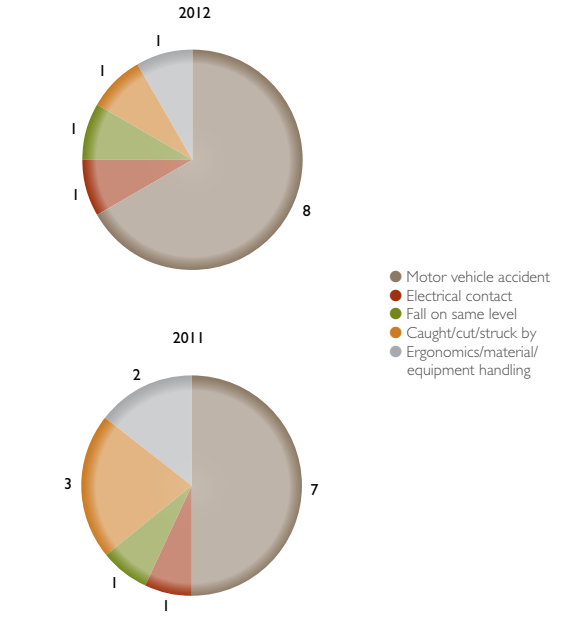
Three fatalities occurred (two employees and one contractor). Eight (one fatality and seven LTI) motor vehicle accidents, which remains the highest cause of the lost-time incidents.

For detailed information about the overall safety strategy and initiative at an Eskom level please refer to the safety section on page 70.

Pylon theft is becoming a major problem for Eskom

Transmission safety performance

Causes of employee lost time injuries (including fatalities)



Environmental performance

Transmission aims to constantly improve its environmental performance which is measured in terms of key environmental indicators, as indicated in the table below.

Key Transmission division environmental performance indicators

	Target 2012	Actual 2012	Actual 2011	Actual 2010
Number of environmental legal contraventions	0	2	0	1
Number of environmental legal contraventions reported in terms of Eskom's operational health dashboard[1]	0	0	0	0
Materials containing asbestos disposed of at registered waste sites (tons)	n/a	35.4	10.5	21.5
Material containing polychlorinated biphenyls thermally destructed (tons)	n/a	2.6	400.7	3.7

1. *Under certain conditions, contraventions of environmental legislation are classified in terms of Eskom's operational health dashboard index. These include instances where censure was received from authorities, where incidents were not reported to authorities as legally required, where incidents were not reported within Eskom, where there was a repeat legal contravention or where the contravention was not addressed adequately. Divisional executives can escalate any significant environmental legal contravention to the operational health dashboard.*

Operational risks including hazardous waste disposal, phase-out of PCB and asbestos are tracked and regular updates of inventories ensure that set targets are met. For example, the replacement of 24 valve tanks at Apollo (each of which contained about 43 000 litres of oil) with eight air insulated valve tanks, has reduced the Transmission environmental footprint.

In cooperation with the Endangered Wildlife Trust, continued installation of devices on Transmission power lines is helping minimise impacts on birds. The eradication of alien vegetation and other invader plants during servitude maintenance helps to combat the spread of these species.

Operationally, Transmission monitors and reports on the usage of SF6, a greenhouse gas, mainly used in the switchgear plant, with a view to avoiding the release of this gas into the atmosphere.

Transmission ensures that service providers/suppliers are assessed for competence and the necessary understanding of legal requirements, to prevent possible violations of legislation. The compliance to legal and other requirements, driven through the implementation of ISO 14001, as well as compliance to the EIA requirements and conditions, continues to ensure that proactive measures are in place to minimise negative environmental impacts.

Criminal incidents

A comparison of theft statistics reported by Transmission for the period April 2010 to March 2011 and April 2011 to March 2012 indicates the following:

- A decrease in crime from 191 incidents the previous financial year to 180
- A 24% increase in the number of conductor thefts reported (from 55 to 68 incidents)
- A 31% decrease in the value of material stolen (from R2.908 million to R1.992 million)
- A 24% decrease in the theft of support lattices (from 63 incidents to 48 incidents).

A total of 648 arrests were effected and a further 176 criminal cases are pending in the criminal justice system.

A Transmission security refurbishment project has been initiated to upgrade the physical security measures at critical substations thereby enhancing security of assets and people, and ensuring security of supply. Eskom has also contracted the services of two security contractors to help combat the theft of Transmission and Distribution equipment.

Independent System Market Operator

Preparations for ISMO

During 2011 the government tabled the ISMO Bill, which provides for a separate state-owned entity into which certain functions would be spun off from Eskom over time. A phased approach towards the ISMO was envisaged, starting with the ring-fencing of the relevant organisational units initially in an Eskom division, after which the division can be transformed into an Eskom subsidiary – and then into a separate state-owned company.

The System and Market Operator division (ISMO), operating under the governance of the Eskom board, was instituted on 1 October 2011. Its functions include energy planning, feasibility studies, IPP procurements and market administration.

A comprehensive business plan has been developed for the ISMO end state as contemplated in the ISMO Bill and Eskom is following the necessary governance processes to establish the subsidiary, including obtaining the required PFMA approval from the Department of Public Enterprises. Eskom anticipates the phasing of the subsidiary structure during 2012/13.

Independent power producers

Eskom is committed to facilitating the entry of independent power producers (IPPs) to the South African electricity market as evident through its pursuing of private sector participation as a strategic imperative. Eskom has already signed agreements with non-Eskom generators and IPPs under the medium-term power purchase programme and for short-term energy. To date it has signed power purchase agreements with a total contracted capacity of 1 008MW.

Eskom has actively supported the Department of Energy in finalising its request for proposal documents and power purchase agreements for the renewable energy IPP programme. The Department of Energy formally launched this procurement programme on 3 August 2011. The request for proposal document calls for 3 725MW of renewable energy technologies to be in commercial operation between mid-2014 and the end of 2016. Twenty-eight preferred bidders were announced in December 2011, following the first bid submission date of the programme. The total megawatt contribution from these 28 bidders combined is 1 416MW. On 21 May 2012, the Department of Energy announced that 79 bids had been received by the second bid submission date. Of these, only 19 bidders were selected as preferred bidders. The total megawatt contribution from these 79 bids amounted to 3 255MW, while the limit for the second round of bids was 1 275MW.

The amount paid for the IPP and municipal purchases, amounted to R3.3 billion (2010/11: R1.3 billion).

IPP and municipal purchases for 2012	Planned purchases MW	Actual purchases MW	Actual purchases GWh
Medium and short-term contracts		493	2 149
Municipal generation		515	1 958
Total	**1 500**	**1 008**	**4 107**
Average cost in R/kWh			0.77

Southern African Energy

Eskom has engaged in cross-border trading for many years. As interconnection between South Africa and its neighbouring countries increased, the need to formalise regional electricity trading was recognised. This resulted in the establishment of the Southern African Power Pool (SAPP), which SADC formed under the leadership of the various energy ministers in 1995. Eskom and the other national utilities of the SADC were the initial members, but membership has recently been opened for independent power producers and independent transmission companies.

In the early years of the SAPP Eskom had significant surplus energy available and a number of countries came to depend on Eskom rather than building their own generation capacity. This resulted in Eskom's cross-border sales exceeding cross-border purchases:

Cross border purchases and sales of electricity

		Actual 2012	Actual 2011	Actual 2010
Sales	GWh	13 195	13 296	13 227
Purchases	GWh	9 939	10 190	10 579
Net sales	**GWh**	3 256	**3 106**	**2 648**

It is important to differentiate between physical flows across the border (imports and exports) and the contractual volumes purchased and sold. These volumes differ due to other utilities wheeling power across the Eskom grid and some energy purchased being used en-route to meet a portion of a sales obligation.

While Eskom is a net exporter of electricity, the net volume exported (exports less imports) represents only 1.36% of the total energy available in South Africa.

The majority of the purchases are from Cahora Bassa (HCB) in central Mozambique with small volumes from Lesotho. Eskom sells firm power to the national utilities of

- Botswana (BPC)
- Namibia (NamPower)
- Swaziland (SEC)
- Lesotho (LEC).

Eskom also has trading relationships with Zimbabwe (ZESA) and Zambia (ZESCO), but these agreements are for non-firm power when surplus capacity exists and during emergency situations. In addition Eskom sells to three end-user customers, one in Mozambique and two in Namibia. Finally Eskom wheels (transports) power on behalf of Electricidade de Mozambique (EDM), the national utility of Mozambique, from Cahora Bassa to the load centre in the south of Mozambique.

The membership of the SAPP[1] provides Eskom the opportunity to trade electricity on a market platform called the Day-ahead Market and it provides members the right and obligation to wheel electricity. However, minimal volumes are traded on this platform due to the prevailing energy constraints across the region.

During the mid to late 2000s the pending electricity constraints were anticipated and some of the regional utilities initiated new generation projects. During 2011/12 Namibia commissioned a new 90MW hydro unit and Botswana the first of four 150MW coal-fired units. Before the end of 2012 the other three units will be commissioned, significantly reducing the exports to Botswana.

The SADC region has an abundance of renewable and other primary energy sources and could in time play a significant role in meeting South Africa's electricity requirements and assist with enhancing the energy mix to improve South Africa's environmental performance.

To ensure South Africa benefits from these potential power projects a dedicated unit has been established called Southern African Energy. The mandate of this unit is *"To pursue the development and execution of business opportunities in the SADC Region with a view to increase imports, strengthen transmission systems, access strategic resources, and grow Eskom's market share in the region"*. To achieve this mandate a number of projects are already being advanced in a number of countries. The primary focus is on hydro and natural gas resources and transmission strengthening.

A high-voltage yard in the Free State

1. *SAPP members:*
   Interconnected countries – South Africa, Namibia, Lesotho, Swaziland, Botswana, Zimbabwe, Mozambique, Zambia, Democratic Republic of Congo.
   Non-interconnected countries – Malawi, Angola and Tanzania.

Line division: **Distribution**

Mandate

Distribution's mandate is to operate its network assets and provide reliable electricity by building, operating and maintaining distribution assets, while also acting in the national interest by actively partnering with the wider industry in resolving distribution industry issues and enhancing stakeholder relations.

Eskom's distribution asset base is comprised of 47 509km of distribution lines, 311 831km of reticulation power lines and 11 415km of underground cables in South Africa, representing the largest power line system on the continent of Africa.

Operational highlights

- Rolled out the Zero harm campaign for the improvement of safety performance
- Significant improvement of the system average interruption duration index (SAIDI) performance and marginal improvement of the system average interruption frequency index (SAIFI) performance during 2011/12
- Operation Khanyisa, a public-awareness campaign about legal power usage, is helping to improve energy loss and decrease theft
- Exceeded the targeted number of electrification connections in 2011/12, reaching 4 206 181 (2010/11: 4 050 968) homes since the inception of the electrification programme in 1991.

Operational challenges

- Safety performance is a serious concern, especially employee and contractor fatalities
- Employee security remains a concern
- High levels of theft of equipment and electricity, including illegal connections, which impact network performance and service levels, and increase costs
- Collisions and electrocutions of birds on distribution power lines.
- Acquisition of land and servitudes for electricity infrastructure.

Future focus areas

- Revitalise our focus on safety, adopting a Zero harm approach by:
  - Promoting a safety culture with a focus on morale and mindsets
  - Creating safety awareness
  - Revisiting governance, rules and regulations
  - Creating capability, training and development of skills
- Contribute to socio-economic development by:
  - Reducing public safety incidents through awareness
  - Providing viable electricity options to informal settlements
  - Support government initiatives such as the universal access plan
- Through operational excellence, continue improving network reliability and technical performance
- Continue with appropriate network maintenance and capital investments, based on sound asset management principles
- Continue rollout of Operation Khanyisa to reduce energy theft
- Improve business operations through standardisation, optimisation and integration of business processes (Back2Basics)
- Continue to grow human capital through retention of core, critical and scarce resources and acquisition of the right skills.

Key financial statistics: Distribution, as at and for the year ended 31 March 2012

Rm	Actual 2012	Actual 2011
Grants received for electrification	1 784	1 720
Maintenance and refurbishment costs	3 851	2 947
Total assets	49 934	44 428
Capital expenditure (excluding capitalised interest)	7 941	8 190

Distribution technical performance

Measure	Description of measure (and unit)	Target 2012	Actual 2012	Actual 2011	Actual 2010
System average interruption duration index (SAIDI)	Availability of supply index (hours per annum)	≤49.0	45.75[RA]	52.61[RA]	54.41[RA]
System average interruption frequency index (SAIFI)	Reliability of supply index (number per annum)	≤22.0	23.73[RA]	25.31[RA]	24.65[RA]
Distribution supply loss index (DSLI)	Distribution network unavailability index (minutes per month)	n/a[1]	11.68	12.81	12.30
Reticulation supply loss index (RSLI)	Reticulation network unavailability index (hours per annum)	n/a[1]	2.14	2.28	2.43
Reticulation supply loss index (RSLI)	Unplanned reticulation network unavailability index (hours per annum)	n/a[1]	1.72	1.85	1.84

[RA] *Reasonable assurance provided by the independent assurance provider. (Refer page 86)*

SAIDI performance improved from 52.61[RA] hours in 2011 to 45.75[RA] hours against a target of 49 hours during 2012. On the other hand, SAIFI performance improved from 25.31[RA] interruptions in 2011 to 23.73[RA] interruptions, although not achieving the target of 22 interruptions.

The improved SAIDI performance is attributed to the benefits of the reliability improvement investments which were made over the last few years, including focused attention to and improved management of all outages.

The accuracy of reporting on the Distribution Supply Loss Index (DSLI) and the Reticulation Supply Loss Index (RSLI) is a focus in Distribution. Current reporting is a best estimate, and this needs to be considered for year-on-year evaluation and comparative analysis.

Refer to page 35 for the management of energy losses.

Benchmarking

Distribution participated in a 2010 benchmarking study, conducted by an independent international consulting group, with utilities in North and South America. The reporting methodology, network characteristics, environment and operational processes and practices of the distributors in the benchmarking panels are not the same, which results in a wide range of performance levels. This makes any direct performance comparison a challenge.

Eskom's network interruption performance is dominated by the performance of rural lines, which have been built on a least-cost basis. In this way, Eskom's distribution networks differ significantly from those of other distribution companies that have supply areas which include large cities and towns. Rural lines in South Africa include long radial lines with very limited redundancy and back-feed capability. This significantly distorts direct comparison with North American distributors in the benchmarking panel.

The South American peer group is more appropriate from a network investment and customer point of view than the North American peer group (as well as European peer groups). The Eskom system average interruption duration index (SAIDI) and system average interruption frequency index (SAIFI) are currently in the fourth quartile.

System average interruption duration index performance in South America (2010) is between 2.8 and 362.3 hours per year and for Eskom it is currently 45.75[RA] hours.

System average interruption frequency index performance in South America (2010) is between 2.5 and 106.2 sustained supply interruption events per year, and for Eskom it is currently 23.73[RA] events.

Network Performance Strategic Direction

Since 1991 Eskom has connected more than 4.2 million electrification customers to the Distribution network. Historically, the planning philosophy has always focused on compliance to minimum regulatory requirements (specifically voltage regulation) and did not consider long-term network reliability. This resulted in the design of lengthy radial subtransmission and distribution lines, with no redundancy built into the network. These long lines invariably supply large numbers of customers with little or no alternative for backfeeding, in the event of supply interruptions.

Distribution's networks are therefore characterised by:

- Average feeder length of more than 100km (some lines much longer than 300km)
- High number of customers per feeder (in some cases more than 10 000 customers per feeder)
- More than 90% of networks are overhead
- Majority of customers in rural and deep rural areas supplied by radial lines
- Distribution predominantly at 11kV and 22kV
- Limited network redundancy
- Limited ring-feeds and back-feeding capability
- Low network visibility limiting remote control of switching devices (like reclosers and sectionalisers).

Distribution's long-term objective is to move to first quartile performance for Distributors with similar network characteristics but it is recognised that it will require considerable resources to achieve. Distribution has the following medium-term objectives for its network performance:

- Reduce SAIDI to 39 hours per annum by 2016/17
- Reduce SAIFI to 17 interruptions per annum by 2016/17.

The following four key strategic initiatives are planned to improve the SAIDI and SAIFI performance:

- Establishment of additional customer network centres
  - Reduce travelling time
  - Ensure that field staff are located close to the customers and networks
- Increase live work from 50% to 70% to reduce the outages experienced by customers
- Effective planning, refurbishment and strengthening of networks:
  - Revision of the planning criteria to reduce the number of customers affected by a fault and set the criteria for the creation of redundancy on networks
  - Focus on poor performing networks
  - Increased visibility of network
  - Improvement of SAIDI for customers in the top customer segment
- Use of mobile computing devices to improve work management and resource utilisation.

The key strategies include the following:

- Establish a culture where network reliability management becomes a way of life
- Implement an integrated asset management approach based on international best practice (PAS 55)
- Continue to increase preventative maintenance and to reduce refurbishment backlogs of an ageing network
- Improve plant performance
- Increase utilisation of live work resources on activities that save most customer interruption hours
- Improve outage management through better outage co-ordination and utilisation of technology
- Improve operational efficiency to reduce total outage restoration time
- Increase network visibility to facilitate remote control of existing and additional switching devices.

[RA] Reasonable assurance provided by the independent assurance provider (refer page 86).

1. There are no DSLI and RSLI targets for 2011/12.

Electrification

The Department of Energy (DoE) began funding the Integrated National Electrification Programme (INEP) in April 2001. Eskom implements the programme in its licensed areas of supply on the department's behalf. Electrification in a municipality's licensed areas of supply is carried out by that municipality. Eskom carries the operating costs for the electrification programme, as the licensed distributor supplying electricity to its customers.

Funding is currently made available for new connections and infrastructure development that are part of the INEP. The average cost of infrastructure development and the cost per connection are likely to increase as more remote rural areas are electrified. In addition, technical specifications for network design have been enhanced to better accommodate future growth in electricity demand and to improve the quality and reliability of the electricity supply in these areas.

4 206 181 homes have been electrified since the start of the electrification programme in 1991.

A typical residential distribution network in the Western Cape

Electrification programme

	Unit of measure	Target 2012	Actual 2012	Actual 2011	Actual 2010
Total connections	number	125 377	155 213	149 914	149 901
Direct connections, excluding farm workers	number	124 712	154 249	149 112	149 028
Farm worker connections	number	665	964	802	873
Total capital investment	Rm	2 037	1 575	1 512	1 086
Reticulation and connections	Rm	1 642	1 311	949	914
Sub-transmission infrastructure development	Rm	389	260	559	169
Farm worker connection incentives paid	Rm	6	4	4	3

Meeting universal access to electricity targets in the future is primarily dependent on the availability of funding via the integrated national electrification programme. The current levels of funding will only achieve universal access in 2033. Eskom would prefer to accelerate electrification in order to achieve the universal access to electricity by 2020.

Electrification of grid schools and clinics

	Unit of measure	Target 2012	Actual 2012	Actual 2011	Actual 2010
Capital investment	Rm	n/a[1]	2	158	142
Total connections	number	n/a[1]	19	854	774

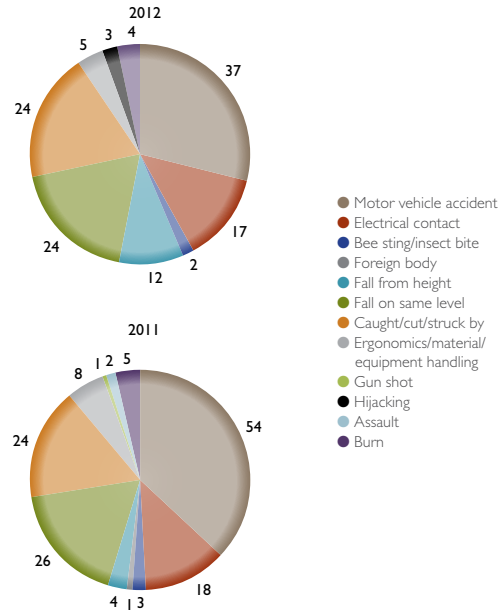
The electrification of schools is funded by the Department of Basic Education (DBE) through the Accelerated Schools Infrastructure Delivery Initiative. The electrification of clinics is funded by the Department of Energy through the National Electrification Fund. Both programmes are focused on electrifying specifically identified schools and clinics.

1. *There is no target for 2012.*

Line division: **Distribution** continued

Distribution safety performance
Causes of employee lost-time injuries (including fatalities)

Distribution safety performance
Causes of employee lost time injuries (including fatalities)



Vehicle safety is the largest contributor to the current safety performance in this division. Management has introduced a new initiative in the form of the Drivecam monitoring device, which is used to proactively monitor driving behaviour and assist with coaching and development of Eskom drivers. The zero harm value has also been rolled out to most of the divisional employees to ensure that safety is adopted as a personal accountability.

For detailed information about the overall safety strategy and initiative at an Eskom level please refer to the safety section on page 70.

Distribution environmental performance
Key Distribution division environmental performance indicators

	Target 2012	Actual 2012	Actual 2011	Actual 2010
Number of environmental legal contraventions	0	5	11[2]	4
Number of environmental legal contraventions reported in terms of Eskom's operational health dashboard[1]	0	2	2	0
Materials containing asbestos disposed of at registered waste sites (in tons)	n/a	71.6	285.8	16.2
Material containing polychlorinated biphenyls thermally destructed (tons)	n/a	11.3	18.0	13.3
Number of reported bird fatalities due to Distribution infrastructure	0	33	244	233

Bruce Ockhuis in his safety gear performs line maintenance in the Western Cape

1. *Under certain conditions, contraventions of environmental legislation are classified in terms of Eskom's operational health dashboard index. These include instances where censure was received from authorities, where incidents were not reported to authorities as legally required, where incidents were not reported within Eskom, where there was a repeat legal contravention or where the contravention was not addressed adequately. Divisional executives can escalate any significant environmental legal contravention to the operational health dashboard.*
2. *One environmental legal contravention was registered in March 2011 and, following an investigation, was reclassified as an event. This has resulted in the reported number of environmental legal contraventions for 2010/11 changing from 12 to 11.*

Line division: **Group Customer Services**

Mandate

Customer Services is responsible for placing the customer at the centre of Eskom's business. It guides the business towards the overall objective of achieving fully satisfied and serviced customers who consistently rate Eskom in the top quartile and promote Eskom as a company.

Operational highlights

- Improvement of the large power-user debtor days for top customers
- Secured a number of electricity buyback deals totalling 817MW
- Successfully encouraged customers to reduce electricity load on short notice when required
- Positive engagements between stakeholders and customers on the capacity situation including system status report submitted daily to Eskom's customers.

Operational challenges

- The total time taken to provide a key industrial customer with a quotation is a concern
- Price increases have a serious impact on profitability and long-term sustainability of many customers
- Environmental levies and cross-subsidisation between customer categories are becoming an issue with large customers having to cross-subsidise residential customers
- Ensuring customers are updated on their quality of supply as well as planned outage events. Quality of supply is showing a negative trend and customer perception that the quality of supply does not meet the required standard
- Increase in the number of defaulting municipalities which may result in cashflow implications for Eskom. Management of the Soweto debt and energy losses
- Ensuring that tariffs are reflective of actual costs taking into account size, locality and time of use by customers
- Rollout of the Energy Conservation Scheme – ensuring that all affected customers understand the process and are comfortable with the reference consumption.

Future focus areas

- Continued focus on improving safety levels and the wellness of staff members
- Manage power demand by ensuring that all possible options are explored with customers regarding grid access, power buyback, demand management participation (DMP) to help close the energy gap
- Standardise and streamline regional customer-service activities
- Revising the customer satisfaction questionnaires to ensure that all service aspects that are important to customers are taken into account
- Establish visibility of the current performance of Group Customer Services
- Improve integrity of customer data for segmentation purposes and better understanding of different customer needs
- Increase employees' skill levels, with skills development ranging from technical to business-related skills
- Improve business operations through standardisation, optimisation and integration of business processes and systems (Back2Basics).

Line maintenance is a key element of ensuring customer satisfaction

Customer numbers

Number	Actual 2012	Actual 2011	Actual 2010
Local	4 852 712	4 653 740	4 463 291
Redistributors	786	784	773
Residential[1]	4 713 178	4 514 998	4 325 550
Commercial	50 270	49 090	47 984
Industrial	2 775	2 857	2 925
Mining	1 100	1 110	1 134
Agricultural	84 095	84 393	84 415
Traction	508	508	510
International	10	10	10
Utilities	7	7	7
End users across the border	3	3	3
Total	**4 852 722**	**4 653 750**	**4 463 301**

Key financial statistics: Group Customer Services, as at and for the year ended 31 March 2012

	2012	2011
External (local) revenue (Rm)	108 260	86 454
Impairments (Rm)	587	669
Debtors less provisions (Rm)	8 835	6 955
IDM costs (Rm)	1 942	779
Top industrial and international customers debtors days (excluding disputes)	14.4	15.5
Customer services, large power users debtors days – municipalities and other	21.8	18.9
Customer services, small power users debtors days excluding Soweto	42.9	45.1

1. *Prepayments and public lighting included under residential.*

Benchmarking

Eskom monitors its service performance in comparison with guidelines contained in the National Energy Regulator of South Africa (NERSA) code of practice (NRS047-1:2005). It also participates in benchmarking studies, conducted by an independent international consulting group, to understand how its performance compares with similar international utilities. The last study was conducted in 2011 for the 2009 financial year. Benchmark comparisons in this annual report are therefore given with respect to the 2009 study.

Selection of a suitable peer group is important, given Eskom's unique position in supplying a mix of urban and rural areas. Eskom benchmarks its retail business and customer service performance within a panel of North American and South American utilities.

Four internal performance measures have been selected as representative of core business processes directly impacting the satisfaction of Eskom's residential, small and medium customers.

These four measures are
- restoration time
- minor project quotation times (<30 days)
- minor project connection times (<90 days)
- contact-centre service level.

Customer service measurement

Eskom's service delivery and efficiency is important to South Africa's economic prosperity, transformation and sustainable development. By monitoring customer satisfaction, Eskom can plan to ensure that it delivers the required quality of service at the appropriate time and price. A range of statistical perception and interaction based customer surveys, conducted by an independent research organisation, is used to measure customers' satisfaction with the service delivered.

These include
- MaxiCare – measurement of Eskom's residential, small and medium customers
- KeyCare – measurement of Eskom's large industrial customers
- CustomerCare – measurement of Eskom's customers who have had recent contact with its contact centres.

Eskom uses these results to identify which aspects of service require improvement. Once action plans have been reprioritised and implemented, success is tracked by monitoring the trends for those specific aspects of service.

Customer service index

The Eskom KeyCare survey measures the total service delivered to Eskom's Top Customers (i.e. top industrial customers using a minimum of 100GWh of energy per year). An independent research supplier conducts interviews with senior managers at three levels, namely general management, engineering and accounting. The Eskom KeyCare index produces a 12-month moving average as its key performance indicator through monthly surveys asking questions on technical performance, administration and management. The Eskom total quality index (TQI%) score for 2012 is 106% against a target of 100%, which shows an improvement against the score of 101% for 2011 (2010: 98%).

Eskom KeyCare index	Eskom TQI% at March 2012[1]
General Management	99.20
Engineering	106.40
Accounting	112.14
Average KeyCare	105.91
Target	100.00

Eskom has regular interactions, in large and small forums, with top customers and key stakeholders, facilitating discussions in regard to Eskom and the key industrial customers' business decisions. In addition, regular high-level strategic meetings are held with corporate groups such as the Energy Intensive User Group to explore opportunities and strengthen relationships.

Eskom uses a composite index to measure the service delivered to its residential, small and medium customers. The weighted customer service index combines the results of two external customer service perception surveys and four internal customer service process measures. Eskom achieved a score of 85.55% (2011: 84.37%) against the target of 85.82%.

Customer service index results	Target 2012 %	Actual 2012 %	Actual 2011 %	Actual 2010 %	Regulatory standard %
External customer perception surveys:					
Enhanced MaxiCare	≥93.65	90.65	89.40	92.95	n/a
CustomerCare	≥80.00	82.10	82.30	80.70	n/a
Internal performance measures:					
Restoration time <7.5 hours	≥72.00	62.60	66.93	72.15	90.00
Minor projects quotations <30 days	≥90.00	91.00	86.00	90.00	95.00
Minor projects connections <90 days	≥88.00	85.00	82.00	78.00	95.00
Contact-centre service level	≥82.00	85.10	83.80	82.60	80.00
Weighted customer service index	≥85.82	85.55	84.37	85.05	

As mentioned above, Eskom has participated in a 2009 international benchmarking study, conducted by an independent international consulting group. As per the benchmarking study, the first quartile performance for contact-centre service level is >70%.

1. *12 month moving average*

Eskom is currently in the first quartile of contact-centre service performance per the benchmarking study. The minimum standard specified in NRS047-1:2005 is 80%. Eskom achieved year-on-year improvement while the call volumes queued into the contact centres remained at 5.66 million calls (2011: 5.66 million).

Refer to fact sheet at www.eskom.co.za/IR2012/040.html for more information about the measuring of customer satisfaction.

Online Vending System

The Online Vending System in Eskom had operational performance issues that affected customers in the country at a large scale at the end of 2011 and start of 2012. The problems were mainly due to infrastructure issues during the cut-over to new hardware. In addition to this a vendor software system malfunctioned after the vendor made changes to its system. The system was restored to normal operations and is being closely monitored. No major incidents have been experienced since the middle of February 2012.

The following has been done to rectify the issues:

- The infrastructure design was improved and simplified
- Monitoring was expanded, with additional early warning systems that were put in place
- Improved change control processes were implemented with vendors, which will prevent a recurrence of the issues in February that were caused by vendor software malfunction
- The off-the-shelf software that Eskom uses was reviewed by the application vendor and enhancements were applied
- Offline solutions have been developed to ensure that even when the system is offline customers will still be able to buy electricity coupons. Prepaid electricity coupons can be purchased at vending outlets found at major retail stores across the country should the offline solution need to be activated.

The infrastructure is in the process of being replaced, and further application changes by the vendor are anticipated in the near future. No further unplanned interruptions are expected as all known issues have been resolved.

Eskom understands the impact to its customers when system issues are experienced and has apologised to customers for the inconvenience caused.

Transformation journey to customer service excellence

Eskom has set itself an aspiration of becoming a world-class Customer Service Organisation by creating fully satisfied and serviced customers who consistently rate Eskom in the top quartile.

In order to overcome the current challenges and reach its aspiration, Eskom will progress in three phases with completion expected in 2014.

Over the past 12 months, significant progress was made in setting up the new division with centres of excellence and structured operating units to ensure a single point of accountability and relationship management for all customers of Eskom.

For the second phase, a 12-month transformation journey has been developed to eliminate the negative sentiments in the public about Eskom's customer service.

The third phase scheduled for 2012/2013 will be focused on the following:

- Getting the basics right by simplifying, standardising and optimising processes, systems and data, as part of Eskom's Back2Basics programme
- Building skills to enhance people and organisation competence to ensure the best people are the face of Eskom to customers. Through the Eskom Academy of Learning, the School of Customer Service has been established to provide the necessary training required to all Customer Service front-line staff and other customer facing employees of Eskom
- The structured operating units will focus on all customer service channels and touch points such as walk-in-centres, contact centres and vending outlets. Eskom will also explore how it can leverage technology such as the use of social media platforms for customer communication
- In support of Eskom's purpose *"...to improve the quality of life of all South Africans..."* Eskom continues to strive to ensure that customers have reliable and sustainable electricity solutions (quality product and services) through improved access to free basic electricity (FBE), uninterrupted access to vending and payments, accurate bills, simplified tariffs and transparent communication.

The final phase in 2013/14 will focus on developing segment specific strategies to ensure utilisation of the most appropriate, optimal channels and service offerings to each customer base and establishing a nerve centre to ensure regular monitoring and response to matters impacting the customer experience. Performance and measurement tools will be enhanced to enable Eskom to respond to customer needs and introduce continual improvements where appropriate.

Free basic electricity

Government aims to bring relief to low-income households through the national electricity basic services support tariff, thereby ensuring optimal socio-economic benefits from the national electrification programme. Qualifying customers are eligible for predominantly 50kWh of free electricity per month.

Eskom provides free basic electricity in its supply areas and this is recoverable from municipalities at a standard tariff.

Municipalities continue to revise their qualifying criteria used for the allocation of free basic electricity as a result of which customers' meters reconfigured to receive free basic electricity have decreased during the current financial year.

Free basic electricity	Unit of measure	Actual 2012	Actual 2011	Actual 2010
Municipalities contracted to provide FBE	number	243	243	243
Municipal contracts rolled out	%	99	99	99
Customers approved by municipalities for FBE	number	1 196 117	1 132 421	1 308 357
Customers' meters reconfigured to receive FBE	number	1 139 120	1 141 235	1 294 997
Reconfigured FBE customer meters in the year	average %	99	100	99
Amount invoiced to contracted municipalities	Rm	294	273	308

1. 12 month moving average.

Integrated demand management

Mandate

To create a culture of energy efficiency in South Africa and design integrated solutions to solve complex energy-demand issues for a sustainable future for the country.

Operational highlights

- Achieved a total peak demand savings of 365MW[RA] and annualised energy savings of 1 422GWh[RA]. This figure includes verified peak demand savings of 347MW and annualised energy savings of 1 350GWh for NERSA and Department of Energy funded projects. The additional 18MW of demand savings and 72GWh of annualised energy savings have been installed but will only be verified and claimed in the 2013 financial year
- Started the ongoing compact fluorescent lamps (CFLs) clean development mechanism sustainability project
- Introduced new energy-efficient lighting technologies such as light-emitting diodes (LEDs)
- Accelerated the solar water-heating rebate programme. To date 158 175 units have been installed and verified. Promoted skills and job creation, especially through the low-pressure solar water-heating programme
- Power Alert continued to drive savings in critical time. During the year an average demand saving of 261MW was attained during evening peak periods
- Rolled out 49M, a marketing campaign aimed at promoting long-term behavioural change in favour of energy savings.

Future focus areas

- Implement the recently approved 500MW demand-response pilot programme
- Continue the energy-efficiency drive in the residential market through the recently approved residential mass rollout initiative which involves going door to door to residential homes and installing energy efficient technologies including CFL bulbs, LED lamps, low flow shower heads, flow restrictors, timers and geyser blankets
- Drive the recently implemented incentive programmes further into the market
- Continue investigating new implementation and technology opportunities.

Performance

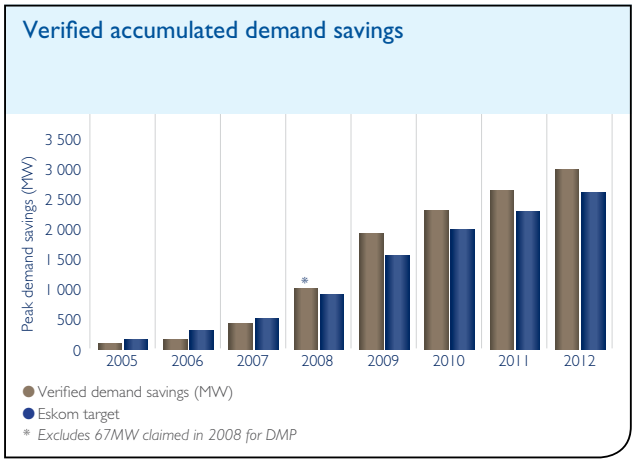
Customer Services, through the integrated demand management business unit, plays a key role in helping Eskom balance power supply and demand during periods of generation constraint.

Since 2004, when demand-side management projects were initiated and measured, the demand savings in the evening peak (18:00 to 20:00) have risen in line with the growing requirement for demand reduction.

The accumulated verified demand savings for the combined financial years 2005 to 2012, is 2 997MW. A single power station's generator unit contributes about 600MW to the national grid. Therefore demand-side management has now "freed up" about five generators (a typical power station has six).

The total evening peak demand savings achieved for the 2011/12 period was 365MW[RA] (2011: 354MW[RA]) against the Eskom target of 313MW.

Verified accumulated demand savings (MW) against the accumulated Eskom target per year



The annualised energy savings for this financial year are 1 422GWh[RA] against the target of 1 051GWh. These results were due to implementing the demand-management programmes listed below.

Programme category	Verified savings achieved (MW)
Agriculture	<0.01
CFL rollout	215
Compressed air	12
Demand reduction	58
Heat pumps	1
Industrial process optimisation	7
Lighting and HVAC	14
Shower heads	14
Solar water heating	26
Total	**347**

Current and future demand-management programmes

Demand response

Demand response (DR) is a collective name for initiatives whereby the system operator can request consumers of electricity to reduce their immediate consumption/demand for a limited period of time in an attempt to balance demand and supply, normally for some form of incentive. It primarily aims to bring demand and supply into balance and is thus a demand management tool, with limited energy benefits. The demand market participation (DMP) programme is well established and focuses mostly on large consumers. However, a significant market exists in the smaller industrial and commercial markets. The demand response aggregation programme was initiated to utilise this potential. Eskom will contract for bulk demand reductions potential with intermediary

[RA] *Reasonable assurance provided by the independent assurance provider (refer page 86).*

Demand response *continued*

agent or "aggregators" who in turn contract with a large number of smaller consumers to reduce demand when called upon.

The Demand Response Aggregation Pilot Programme (DRAPP) is being implemented. The programme aims to save 500MW by Winter 2012 and it is estimated that a total market potential of 2 500 MW exists.

Emergency demand response

In addition to the Demand Response Aggregation Programme, processes were initiated to increase the current demand response capacity. This includes the extension of the current DMP capacity. Customers with current DMP contracts were approached to extend their contracted savings potential at an incentivised rate. The emergency DMP programme aims to increase the available demand reduction by an additional 200MW.

Approval has also been given for the purchase of energy from customer-owned standby generators, with the target for this standby power being 100MW. Eskom contracts customers that have emergency generators to use in times when the system is constrained. On Eskom's request they will generate to reduce their own consumption and Eskom will compensate them at a contracted rate per kWh. A service provider has been contracted to help to implement the programme, assisting with the dispatching of the requirements, measurements and other contractual requirements.

Energy Conservation Scheme

The Energy Conservation Scheme (ECS) is a key element in the suite of solutions to reduce the supply/demand gap. It can be implemented in a relatively short space of time to provide the bulk of the required demand reduction and associated energy savings (up to 6 000 GWh per annum). In addition, ECS will provide the pricing signal to ensure the uptake on other solutions such as demand-side management, particularly amongst larger consumers.

Eskom strongly supports ECS as a key "safety net" or "insurance policy" risk mitigation strategy. A phased implementation approach is supported, allowing for an initial, simulation phase where ECS charges will be set at zero. Consumers and distributors will be able to familiarise themselves with the scheme.

Given the urgency of the supply/demand situation, preparations need to immediately commence. ECS requires a number of legislative and regulatory amendments to be implemented. Also, a number of operational implementation issues need to be addressed to ensure success. Eskom is engaging stakeholders to support unlocking of these constraints.

Residential energy-savings programmes

Eskom's solar water-heating programme offers a rebate to customers who use solar power instead of electricity to heat water. Customers can either replace existing electric geysers with solar-heated systems or they can install low-pressure solar water-heating systems to replace water heating via other electrical appliances.

The past financial year has seen a significant increase in the number of both high- and low-pressure solar water-heating system installations. 158 175 claims (27 149 high-pressure systems and 131 026 low-pressure systems) were submitted to energy audits for measurement and verification. 7 870 units not verified this financial year will be verified in 2012/13.

The Residential Mass Rollout Programme was implemented in the 2011/12 financial year to complement the ongoing CFL project, which has largely exhausted its power-savings potential. The solution is based on a free rollout of a "basket" of technologies, focusing on optimising single customer visits. These measures resulted in demand savings of 36MW for the year under review. The residential market is seen as a key focus area to obtain savings in order to manage the supply/demand situation in the immediate future.

Eskom's Power Alert and Geyser evening campaigns between 17:00 and 21:00 aim to reduce power demand during the evening peak.

Commercial and industrial incentive programmes

The Integrated Demand Management business unit has implemented a number of alternative incentive programmes that financially reward companies for achieving energy savings.

The Standard Product is based on a catalogue of energy savings technologies offered to consumers. Each item/technology will be offered at a fixed financial rebate which is based on deemed future energy savings. This is an efficient and quick method, targeting smaller projects (<250kW) mainly in the commercial market.

The Standard Offer will allow mainly commercial and industrial consumers to implement energy savings technologies based on their specific needs. Eskom will measure actual savings over a three year period, effectively "buying" energy savings at a predetermined rate per technology group. Eskom aims to significantly reduce current project approval timelines, allowing quick turnaround of savings opportunities.

These programmes have streamlined the incentive-programme application process, resulting in greater participation by the commercial and light industrial sector, which in the past had limited participation in integrated demand-management programmes. In 2011/12, 18 projects were submitted through the Standard Offer programme, realising demand savings of 8MW, and 215 projects were submitted through the Standard Product programme realising demand savings of 3MW.

Power buybacks

As part of the efforts to create the necessary space to perform essential and critical generation plant maintenance, Eskom has entered into power buyback agreements with some of its large industrial customers. The power buyback period is typically for 30 days or longer with all current agreements terminating by 31 May 2012. The requirement is that customers reduce their base load demand and this reduction is purchased by Eskom at a rate negotiated with customers. The rate takes into account the customers' fixed costs, contractual obligations and various other requirements including the requirement of no permanent job losses.

This initiative has proved to be beneficial in creating the additional space on the power system through base load demand reduction. During this power buyback period, lower than usual commodity prices and surplus stock levels would have had a significant negative impact on the economy, jobs and customers' business operations.

Eskom believes that through the power buyback scheme, customers are in a slightly more favourable position than they would have otherwise been in creating a win-win situation for both parties.

Energy-efficiency marketing

Eskom embarked on a major drive aimed at reducing electricity consumption among all electricity users. Two major initiatives, comprising nine programmes, aim to promote immediate and long-term behavioural changes.

The immediate-response initiative aims to avoid load shedding through the Power Alert and 17:00 to 21:00 evening programmes.

Eskom's 49M campaign is a long-term behavioural-change initiative that seeks to embed energy-efficiency attitudes and practices in all consumers, particularly residential users, with the ultimate goal of reducing their consumption by 10%. The integrated demand management business unit provides advice and financial assistance to residential customers and corporations to "make the switch" and install energy-efficient technologies for a sustainable lifestyle.

Internal energy efficiency

Eskom's aim is to improve the energy efficiency of its facilities (power plants and buildings) through the undertaking of energy audits and efficiency programmes focusing on lighting, heating, ventilation and air-conditioning (HVAC). For the year demand savings of 1.37MW[RA] and energy savings of 44.96GWh[RA] were achieved.

Energy losses management

Energy losses reflect the difference between the quantity of energy sent out from the power stations and the quantity sold to the various customers at the end of the value chain.

There are two broad categories of energy losses:

- Technical energy losses naturally occur when electrical energy is transferred from one point to another. The medium through which electrical energy is transferred imposes a resistance to the flow and some of the energy is dissipated as heat.
- Non-technical energy losses can be calculated as the difference between total energy losses and technical losses. They are typically caused by theft (illegal connections, meter tampering), errors in data and billing, among others.

In 2011/12, total Distribution energy losses were 6.32%[RA], of which non-technical losses are estimated to be between 1.6% and 2.5%. Compared to other utilities globally, Eskom continues to perform well on energy loss management. Distribution has participated in a 2007 benchmarking study, conducted by an independent international consulting group, mainly with South American utilities. The 2007 benchmarking parameters for total distribution losses were 5.60% to 12.07%. Eskom is currently in the first quartile of the top performing distribution utilities.

Even though Eskom compares favourably with other utilities, energy losses management remains a key focus area for the utility. Eskom will therefore continue to research and implement loss reduction initiatives.

Energy losses	Target 2012	Actual 2012 GWh	Actual 2011 GWh	Actual 2010 GWh
Total Eskom energy flow		254 300	253 084	246 705
Total distribution network energy flow[1]		226 424	224 328	218 663
Actual loss – Distribution		14 312	12 734	12 839
Actual loss – Transmission		7 686	8 157	8 009
Total actual loss		21 998	20 891	20 848
NERSA MYPD allowance		22 533	22 535	21 131
Energy loss (%) (12MMA)	**%**	**%**	**%**	**%**
Total Distribution loss	≤6.07	6.32[RA]	5.68[RA]	5.87
Total Transmission loss	≤3.40	3.08[RA]	3.27[RA]	3.27
Total Eskom loss	≤8.75	8.65	8.25	8.45

[RA] *Reasonable assurance provided by the independent assurance provider (refer page 86).*

1. *Inclusive of energy flows to key customers.*

Line division: **Group Customer Services** continued

The performance as at end of March 2012 shows an increase in the Distribution losses (6.32%)[RA] and a decrease in the Transmission losses (3.08%)[RA] when compared to the performance at the end of March 2011. The actual Eskom total losses results achieved (8.65%) are within the target energy losses (8.75%) allowed by the regulator. Energy Losses Management Programme activities will be intensified going forward to drive the losses downwards.

For internal evaluation purposes the estimated technical losses range between 60% and 75% of total losses in Distribution, while 100% is estimated for the Transmission networks. The actual percentage in Distribution is influenced by factors such as network design, network topology, load distribution on the network and network operations.

Refer to Transmission on page 22 and Distribution on page 26.

Operation Khanyisa

The energy losses management programme has stabilised distribution energy losses at around 6% through audits and corrective measures, conducting energy-balancing of ring-fenced areas, implementing tested technologies and a public awareness campaign called Operation Khanyisa.

Operation Khanyisa, launched in October 2010, promotes legal power usage in South Africa. Although the focus of the campaign is electricity theft, it integrates related issues such as safety, non-payment, energy efficiency and infrastructure theft.

The theme of the campaign is sustainability for economic growth. Electricity theft contributes to power outages, rising prices, the slowing down of the economy, job losses and fatalities and injuries due to electrocutions. It also affects government's universal access programme.

The core partners of Operation Khanyisa are Proudly South African, Business Against Crime, Business Unity South Africa, the South African Local Government Association and Primedia Crime Line. The campaign is currently active only in Eskom areas of supply, but the intention is to expand into areas serviced by municipalities, hence the partnership with the South African Local Government Association.

Operation Khanyisa is now in full operation and South African citizens continue to heed the call to report electricity theft and illegal electricity sales.

Illegal connections in residential area

Safety of the public is important to us

[RA] *Reasonable assurance provided by the independent assurance provider (refer page 86).*

Service functions: **Human resources**

Mandate

Being the custodian of people management within Eskom, Human Resources (HR) is mandated to partner and empower line to recruit, develop, and retain a skilled, committed, engaged and accountable staff base across Eskom. HR is committed to the building of skills not only internally to Eskom but also for the communities in which Eskom operates. This is done in support of Eskom's aspiration and duty to grow the economy and improve the quality of life of people in South Africa and in the region, as outlined in the New Growth Path.

Operational highlights

- Establishment of the Welding School of Excellence and the Eskom Power Plant Engineering Institute (EPPEI) launched in partnership with South African universities
- Project Management Training Centre of Excellence partnered with academic institutions for the development and improved professionalism of project management staff throughout Eskom
- The Eskom Leadership Institute, including the supervisory development programme, was launched with the focus of building leadership capacity to build a comprehensive leadership pipeline
- Eskom awarded the Magnet Student Survey Award for five consecutive years for engineering students
- Announced as a finalist in 2012's GBCHealth Business Action on Health Awards for the Eskom HIV counselling and testing campaign
- Safety awareness and education facilitated through coaching and training to embed safety culture.

Operational challenges

- Eskom is still finalising its capacity model, which is required to ascertain the right employee profiles employees and skills mix required to execute its strategy for the next five years
- Inability to sufficiently meet equity targets.

Future focus areas

- Eskom to embed high performance culture aligned to strategy through implementation of team-based performance management, ensuring all work output is linked to strategy
- Eskom to focus on transformation beyond numbers and embedding a culture of country accountability and authentic transformation conversations in line with developmental goals
- ETAPro training programme to be launched to train power station engineers to optimise power station performance
- Establish a School of Customer Services as well as a Project and Construction Management School to be fully operational in the next financial year
- Eskom to implement an integrated workplace skills plan to address the key training priorities in closing the core and critical competency gaps as tabulated below
- Maintain focus on learner pipeline as tabulated below.

Eskom learner pipeline

All targets have been exceeded including the learner pipeline, engineering, technician, artisan and a youth programme of 5 159 for period 2011/12 against a target of 2 100, as tabulated below:

	Target	2012	2011	2010
Eskom total learners/bursars	5 735	6 794 RA	5 283 RA	5 255 RA
Engineering learners	1 800	2 273 RA	1 335	955
Technician learners	700	844 RA	692	681
Artisan learners	2 350	2 598 RA	2 213	2 144
Other learners	885	1 079	1 043	1 475
Learners being trained to contribute to the socio-economic development of South Africa (SYDI).	2 100	5 159	n/a	n/a

Projected growth in Eskom-funded learners

	2013	2014	2015	2016
Total learner pipeline	5 907	5 979	5 990	6 100
Engineers	1 949	2 007	2 032	2 035
Technicians	757	780	789	791
Artisans	2 543	2 619	2 651	2 656
Other learners	658	573	518	618

Service functions: **Human resources** continued

Projected engineering/technical skills to replace

Cumulative projected engineering/technical skills to replace	2012	2013	2014	2015	2016
Total engineering/technical skills	17 307	16 578	15 855	15 144	14 449
Engineers and technologists	2 821	2 683	2 549	2 421	2 299
Artisans and trades workers	10 947	10 495	10 042	9 592	9 148
Technicians	3 539	3 400	3 264	3 131	3 002
Engineering/technical skills to replace	–	729	1 452	2 163	2 858

Benchmarking

The following information is an indication of HR's metrics against industry practice:

Human resources sustainability

Human resources is responsible for measuring and monitoring critical factors relating to the sustainability of Eskom's human resources. A human resources sustainability index is used to measure the following key aspects: employee satisfaction, employee competence, and employee health and wellness. The measurements and criteria are reviewed annually to make sure they stay applicable.

The HR Sustainability index has also reflected positively in terms of overall HR performance, achieving a year-to-date HRSI score of 82.4% (2010/11: 88.3%) against a target of 80. An increase in the index weighting of fatalities from 1.5% in 2011 to 4.5% in 2012 and an increase in the turnover of core staff during 2012 resulted in a reduction of the total index score from 2010/11 to 2011/12.

Training and development costs as a percentage of the wage bill

Eskom's R1 361 million (2010/11: R998 million) investment in training and development is 6.3% of the wage bill. This puts Eskom well within the 75th percentile of United States utility companies (which average 3.3%) and United Kingdom/European utility companies (which average 3.5%) according to a 2010 PricewaterhouseCoopers report.

Employer of choice

Young engineering professionals have rated Eskom the employer of choice out of 60 engineering and technology companies in South Africa for five years running (Ideal Employer Ranking, Magnet Survey, 2011).

Overall staff turnover

Eskom's overall staff turnover was 3.7% for the period 2011/12. This places Eskom favourably below the 25th percentile of South African companies (9.5%). The average turnover in Eskom has been 6.2% per annum over the last two decades. This is beneficial to Eskom as the average cost of separation and replacing scarce and critical skills ranges from 30% to 100% of an incumbent's annual salary.

Turnover due to retirement

Turnover due to retirements is 1.03%. This places Eskom midway between the 50th percentile (0.6%) and 75th percentile (1.2%) of South African companies. Twenty-seven percent of Eskom's staff are 50 years and above and could be considered a retirement risk within the next decade.

Performance

People with disabilities

Eskom's disability target is 3% of the workforce and actual is 2.49% (company only). This is well above the national norm of 0.7% (Employment Equity Commission's report, 2009) and the government's 2% target for the public service.

Currently 1 032[RA] (2010/11: 1 012[RA]) (company 1 022[RA] (2010/11: 1 002[RA])) group employees are recognised as having disabilities, as per the Employment Equity Act. Eskom continues to strive for a fair representation of people with disabilities. The table below details Eskom's group disability profile at all occupational levels compared to the internal target.

Percentage of all Eskom employees with disabilities

	Target 2012	Actual 2012	Actual 2011	Actual 2010
Percent of employees with disabilities – Company	3	2.49[RA]	2.53	2.54
Percent of employees with disabilities – Group	n/a	2.36[RA]	2.36	2.29

Trainee welders do a demonstration at the launch of the Eskom Welding School this year

[RA] *Reasonable assurance provided by the independent assurance provider (refer page 86).*

Service functions: **Human resources** continued

Employment equity

Eskom implemented an employment-equity plan supported by a long-term target-setting strategy (Equity 2020) to drive its transformational agenda for the three financial years leading up to 2012/13. The employment-equity plan seeks to create a workplace and workforce profile that is diverse and inclusive, and to ensure that diversity becomes the *Eskom way*.

In November 2010 Eskom participated in the Department of Labour's director-general review process. In February 2012 the department confirmed that Eskom has the necessary transformation interventions in place.

The table below details the employee profile for Eskom's four top occupational levels in terms of gender and race. There are no specific targets set for this group.

Eskom company employee profile for the top four occupational levels (task grades nine and above)

Occupational level	Date	Male				Female				Foreign nationals	
		A	C	I	W	A	C	I	W	Male	Female
EAP %[1]		**39.20**	**6.10**	**1.90**	**6.70**	**34.20**	**5.20**	**1.10**	**5.50**	**0**	**0**
Top management (FAA, FBB)	Mar 2010 Actual %	23.81	4.76	19.05	28.57	9.52	4.76	4.76	4.76	0.00	0.00
	Mar 2011 Actual %	28.57	4.76	14.29	33.33	4.76	4.76	4.76	4.76	0.00	0.00
	Mar 2012 Target %	**28.57**	**4.76**	**14.29**	**33.33**	**4.76**	**4.76**	**4.76**	**4.76**	**0.00**	**0.00**
	Mar 2012 Actual %	34.48	3.45	13.79	24.14	13.79	3.45	3.45	3.45	0.00	0.00
Senior management (EEE, SSE)	Mar 2010 Actual %	17.80	3.04	10.07	42.62	9.37	2.81	4.22	5.15	4.22	0.70
	Mar 2011 Actual %	20.62	3.84	10.55	38.85	10.31	2.88	4.32	6.00	2.16	0.48
	Mar 2012 Target %	**21.49**	**3.51**	**8.55**	**35.75**	**13.82**	**3.29**	**3.73**	**5.26**	**3.95**	**0.66**
	Mar 2012 Actual %	21.33 RA	3.67 RA	11.01 RA	36.24 RA	10.78 RA	2.75 RA	4.36 RA	6.42 RA	2.52	0.92
Professional, specialists and mid-management (T14–T18)	Mar 2010 Actual %	26.70	5.22	7.49	26.85	18.61	2.04	2.87	6.73	2.69	0.80
	Mar 2011 Actual %	26.80	5.14	7.38	26.11	19.73	2.09	2.91	6.83	2.40	0.62
	Mar 2012 Target %	**28.86**	**5.36**	**6.45**	**23.08**	**21.36**	**2.59**	**2.54**	**6.48**	**2.52**	**0.75**
	Mar 2012 Actual %	27.28	5.19	7.28	25.11	20.82	2.18	2.94	6.49	2.16	0.54
Skilled technical, academic qualified workers, junior management, supervisors (T09–T13)	Mar 2010 Actual %	33.85	5.12	2.41	20.81	25.16	2.80	1.71	7.01	0.78	0.36
	Mar 2011 Actual %	34.62	5.16	2.46	19.46	26.05	2.96	1.67	6.72	0.64	0.26
	Mar 2012 Target %	**34.79**	**5.29**	**2.32**	**18.22**	**26.76**	**3.23**	**1.60**	**6.72**	**0.73**	**0.34**
	Mar 2012 Actual %	36.03	5.26	2.47	18.44	26.15	2.88	1.69	6.25	0.61	0.22

Eskom group employee profile for the top four occupational levels (task grades nine and above)

Occupational level	Date	Male				Female				Foreign nationals	
		A	C	I	W	A	C	I	W	Male	Female
Top management	Mar 2010 Actual %	20.83	4.17	16.67	37.50	8.33	4.17	4.17	4.17	0.00	0.00
	Mar 2011 Actual %	28.57	4.76	14.29	33.33	4.76	4.76	4.76	4.76	0.00	0.00
	Mar 2012 Actual %	34.48	3.45	13.79	24.14	13.79	3.45	3.45	3.45	0.00	0.00
Senior management	Mar 2010 Actual %	18.10	2.94	9.95	42.53	9.50	2.71	4.30	5.20	4.07	0.68
	Mar 2011 Actual %	20.83	3.70	10.42	38.89	10.42	2.78	4.40	6.02	2.08	0.46
	Mar 2012 Actual %	21.43 RA	3.57 RA	10.94 RA	36.61 RA	10.71 RA	2.68 RA	4.24 RA	6.47 RA	2.46	0.89
Professional, specialists and mid-management	Mar 2010 Actual %	26.67	5.17	7.41	27.38	18.25	1.95	2.85	6.73	2.82	0.77
	Mar 2011 Actual %	26.72	5.05	7.28	26.85	19.28	1.99	2.88	6.80	2.54	0.61
	Mar 2012 Actual %	27.29	5.11	7.17	25.76	20.36	2.10	2.90	6.45	2.34	0.53
Skilled technical, academic qualified workers, junior management, supervisors	Mar 2010 Actual %	34.14	5.00	2.46	21.86	24.05	2.68	1.66	6.88	0.93	0.35
	Mar 2011 Actual %	34.28	5.03	2.52	20.72	25.08	2.86	1.66	6.74	0.82	0.28
	Mar 2012 Actual %	36.39	5.11	2.50	19.62	24.86	2.74	1.65	6.15	0.76	0.24

RA *Reasonable assurance provided by the independent assurance provider (refer page 86).*

1. *EAP – Economically active population A: African C: Coloured I: Indian W: White*

Health and wellness

Eskom's integrated health and wellness programme promotes a safe and healthy working environment to ensure its employees are healthy, productive, resilient and engaged throughout their time at Eskom.

Eskom chief executive Mr Brian Dames launched the "**Road to a Safe and Healthy Lifestyle**" campaign as part of expanding the scope to other diseases impacting on the business. The campaign is a move from our traditional workplace programmes that focused on raising awareness and prevention of HIV infection and access to treatment care and support. The focus is now on addressing other disease conditions, as well as workplace related factors that put employees at risk of ill health.

Eskom as a company is committed to forge strategic partnerships that are aimed at enhancing effectiveness in the handling of community issues. It is in this respect that Eskom pledged to support government to achieve its HCT campaign objectives to test 15 million South Africans.

Eskom's HIV counselling and testing campaign has been nominated as a finalist in GBCHealth's Business Action on Health Awards, to be held in New York in May 2012.

On 10 – 12 October 2011, the Department of Health in partnership (Collective Action) with Eskom launched the HCT at Komati power station, Mpumalanga province, where 1 600 workers were tested.

During March 2012, Deputy President Kgalema Motlanthe and Health Minister Aaron Motsoaledi encouraged 5 000 workers at Eskom's Kusile power station in Mpumalanga to test for HIV. An esimated 77% of Eskom permanent employees now know their HIV status.

Employee relations

Eskom's employee-engagement model builds employee participation and involves employees and executives in conversations around strategy, performance and people. Eskom has also built more productive and sustainable relationships with organised labour through a partnering model to guide these interactions.

Eskom maintains direct lines of communication with recognised trade unions. The wage negotiations during the year deadlocked, resulting in threats of (illegal) strike action by certain of the trade unions representing employees in the Eskom bargaining unit. However, the dispute was resolved by arbitration and a two-year salary and conditions-of-service agreement was concluded with trade unions.

Refer to fact sheet at www.eskom.co.za/IR2012/041.html for more information on industrial relations.

Eskom Academy of Learning (EAL)

Eskom's Academy of Learning's mandate is to close Eskom's competency gap by addressing, coordinating and integrating all learning needs of employees; as well as enhancing performance throughout Eskom; by focusing on business needs, and catering for all facets of the learning value chain and learning operations.

Highlights

During 2011/2012 the EAL devoted a large proportion of its energy to supporting the Back2Basics (B2B) project (including the SAP reimplementation) with the rollout of classroom-based training and e-learning courses for the B2B processes and systems. More than 1 200 Eskom employees were trained as B2B facilitators and a total of 106 556 course attendees underwent the B2B training courses.

The EAL did not allow the focus on B2B to subvert it from addressing the normal training demands of the business and even managed to initiate a number of new training programmes. In March 2012 the EAL, in partnership with Group Technology launched the Welding School of Excellence. Forty welding apprentices were developed during 2011/12 as part of the pilot programme that preceded the launch.

The Engineering Centre of Excellence commissioned a state-of-the-art training facility that includes a power plant steam turbine simulator to train power plant engineers.

A new Government Certificate of Competency Programme was implemented to prepare candidates to become certified engineers. In addition, the Project Management Training Centre of Excellence implemented the Distribution Clerk of Works training curriculum to improve the quality of workmanship on the construction of overhead lines.

An ETAPro training programme is being launched to train power station engineers to optimise power station performance.

In January 2012 the Eskom Power Plant Engineering Institute (EPPEI) was launched as a partnership with South African universities to:

- increase the number of power plant MSc and PhD graduates
- ensure South African universities participate fully in the localisation of new technologies currently being offered to Eskom by original equipment manufacturers (OEMs)
- ensure South African universities play an active role in transferring and establishing these new technologies in the country
- ensure South African universities are actively involved in solving Eskom specific engineering problems
- leverage the expertise and experience of international universities and utilities.

The Project Management Training Centre of Excellence built up relationships with academic institutions for the development and improved professionalism of project management staff throughout Eskom. A Project and Construction Management School will be launched in the next year in partnership with Group Capital to ensure an adequate pipeline of skills is available for the continued Eskom built environment.

The EAL, in partnership with Group Customer Services set out to establish a School of Customer Services within the Professional Services Centre of Excellence. This School will become fully operational in the next financial year.

Total training investment per year

Training expenditure	Year	2012	2011	2010	2009
	Rm	1 361	998	758	823

Service functions: **Finance**

Mandate

To provide financial strategy, policies, assurance and strategic financial services (including treasury, shared services, corporate and regulatory reporting, taxation, as well as financial evaluation and advisory services) to the Eskom Group.

Operational highlights

- 77.6% of the R300 billion funding plan has been secured and R32 billion has been drawn down during 2011/12
- Eskom obtained approval from the government to increase the government guaranteed domestic bond issuance (DMTN programme) from R65 billion to R100 billion
- A standardised, one instance of SAP was implemented on 13 October 2011
- Ranked second in the Ernst & Young: Excellence in Sustainability Reporting Awards for the 2010/11 report
- Finance continued with their ISO 9001 certification drive during 2011/12. To date Group Taxation, Corporate and Regulatory Reporting, Shared Services and Treasury have received ISO 9001 certification.

Operational challenges

- The rating agencies changed the credit outlook for Eskom from stable to negative between November 2011 and March 2012.

Future focus areas

- Submit MYPD 3 to NERSA
- Maintain funding momentum
- Use alternative funding solutions for future Eskom initiatives
- Continue renegotiation of remaining special price agreement.

Financial results

Results of operations

Eskom has achieved a group net profit for the year to 31 March 2012 of R13.2 billion (2010/11: R8.4 billion) and a company net profit of R12.7 billion (2010/11: R8.0 billion).

Compared to the prior year, the 25.8% tariff increase (including the environmental levy) granted by NERSA to Eskom resulted in a 24.8% increase in revenue per kWh. The increase came into effect on 1 April 2011 for non-municipal customers and 1 July 2011 for municipal customers. This increase was offset by a 25.9% increase in operating costs, mainly due to increases in primary-energy costs, in line with target.

The operating profit for the year before fair value gains and losses on embedded derivatives and net finance costs was R22.0 billion (2010/11: R17.7 billion) for the group and R21.3 billion (2010/11: R17.1 billion) for the company.

Sales and revenue

Group revenue for the year to 31 March 2012 was R114.8 billion (2010/11: R91.4 billion), while company revenue was R113.5 billion (2010/11: R90.9 billion).

Included in electricity revenue is the environmental levy of R4.3 billion (2010/11: R4.3 billion) charged to customers.

The sale of 224 785GWh of electricity for the year represents an increase of 0.2% compared to the previous year (2010/11: 224 446GWh).

Electricity sales GWh	Actual 2012	Actual 2011
Southern African Energy International	13 195	13 296
Customer Service		
Top customers	87 984	88 794
Other large, small and residential customers	123 606	122 356
Total Eskom	224 785	**224 446**

The year to date sales were 2 288 GWh lower than target.

Sales within South Africa are lower than the target mainly due to the ferrochrome, steel and mining sectors all recording reduced sales as well as power buybacks (1 078GWh). The International sales were above target due to additional sales to NamPower, Namibia, necessitated by low water levels at the Ruacana hydro station as well as refurbishments at ZESCO, limiting self-generation.

While Eskom is a net exporter of electricity, the volume exported represents 1.4% of Eskom's sales for the year. Refer page 25 for details of Eskom's imports and exports of electricity.

Electricity revenue

Rm	Actual 2012	Actual 2011
Southern African Energy International	4 909	4 096
Customer Service		
Top customers	38 898	31 611
Other large, small and residential customers	69 192	54 668
Total Eskom	112 999	90 375

The unfavourable variance between actual and targeted revenue for the year of R202 million is attributable to the net of an unfavourable volume variance of R1 027 million, and a favourable price variance of R825 million.

Primary energy costs

Coal purchases and burnt statistics, as well as the coal stock days are presented:

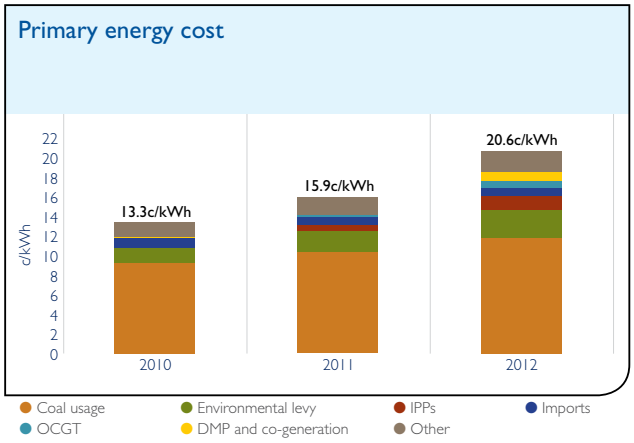
	Actual 2012	Actual 2011
Coal purchased (Mt)	124.27	126.23
Coal burnt (Mt)	125.21	124.68
Coal stock days	39 (RA)	41 (RA)

(RA) *Reasonable assurance provided by the independent assurance provider (refer page 86).*

The primary energy costs for the year (group and company) amounted to R46.3 billion (2010/11: R35.8 billion). The costs include the environmental levy of R6.2 billion paid to the government (2010/11: R5.0 billion).

The cost of primary energy as a percentage of electricity revenue was 41.0% (2010/11: 39.6%).

Breakdown of primary energy costs



The cost of primary energy increased by 29.2%, from 15.9c/kWh (2010/11) to 20.6c/kWh for the year to 31 March 2012. The 4.7c/kWh increase is made up of the following:

- The increased cost of coal burnt (20.8% per ton) contributed 1.54c/kWh (33% of the increase)
- The cost of using IPPs (R3.3 billion) contributed 0.88c/kWh (19% of the increase)
- Demand-market participation, power buyback and co-generation costs increased 923% to R2.2 billion and contributed 0.87c/kWh (19% of the increase)
- The environmental levy increase of 0.5c/kWh, which took effect on 1 April 2011, contributed 0.55c/kWh (12% of the increase)
- Open cycle gas turbine (OCGT) costs increased 281% to R1.5 billion and contributed 0.49c/kWh (10% of the increase)
- The increases in coal handling, gas-fired startups, road repairs and water usage costs make up the remaining 7% of the increase.

Coal stock days

Eskom's coal stock holdings, which reached a low of 36 days at the end of July 2011 following labour action at a number of collieries, have recovered well. The coal stock days at 31 March 2012 stood at 39 (RA) days (target level is 42 days), two days lower than the 31 March 2011 level of 41 (RA) days.

Operating costs

Group and company operating costs consist of the following:

Employee benefits

Group employee numbers increased by a net 1 695 in the year to 31 March 2012, to 43 473 employees, from 41 778 at 31 March 2011. Company employee numbers increased from 39 034 at 31 March 2011 to 40 802 at 31 March 2012.

Group gross employee costs (before transfer to capital expenditure) for the year to 31 March 2012 amounted to R24.4 billion (2010/11: R20.4 billion). Company gross employee costs for the same period amounted to R22.0 billion (2010/11: R19.0 billion). Group and company employee costs of R4.2 billion were capitalised to capital projects during the year (2010/11: R3.7 billion).

Arrear debt

Group annual arrear bad debt was 0.53% of the external revenue for the year to 31 March 2012 (2010/11: 0.75%). The residential debt in Soweto continues to grow. Electricity debtors increased from R11.5 billion at 31 March 2011 to R14.6 billion at 31 March 2012. The allowance for impairment for electricity receivables increased from R2.8 billion to R3.3 billion over the same period.

Municipal debt, while not yet at optimal levels, has improved when compared to the previous year. There has been a significant improvement in the level of provincial government support (via the Premiers' offices, the Department of Cooperative Governance and Traditional Affairs [COGTA] and provincial treasuries) and a heightened awareness and understanding of what the challenges are facing the municipalities. This has resulted in the formulation of action plans to address the financial performance and sustainability of the municipalities. Municipal entities are concluding payment arrangements with Eskom, which reduces the overall pressure caused by non-payment of electricity debt.

Eskom does not currently provide for arrear municipality debtors.

Soweto debt continues to have a considerable impact on arrear debt. Soweto has outstanding cumulative debts of R2.9 billion at year end, of which R2.3 billion is provided for.

Repairs and maintenance

The group's other operating expenses for the year to 31 March 2012, which amounted to R15.2 billion (2010/11: R12.1 billion), consist primarily of repairs and maintenance which are monitored closely for both the group and company.

The company's gross repairs and maintenance expenditure[1] for the year to 31 March 2012 was R17.6 billion (2010/11: R14.1 billion). Ensuring that the outage plan is executed in good time remains a challenge given the electricity demand and supply balance.

Company repairs and maintenance costs of R3.2 billion (2010/11: R2.1 billion), that were classified as major overhauls, were capitalised during the year.

(RA) *Reasonable assurance provided by the independent assurance provider (refer page 86).*

1. *Including employee benefits cost relating to repairs and maintenance.*

The group's maintenance cost is less than the company's due to the elimination of intercompany transactions.

Net fair value loss on financial instruments, excluding embedded derivatives

The net fair value loss on financial instruments, excluding embedded derivatives, was R2.4 billion for the year to 31 March 2012 (2010/11: a loss of R1.8 billion) for the group and a loss of R2.4 billion (2010/11: a loss of R1.9 billion) for the company. These losses consist primarily of the costs attributable to the rolling over of forward exchange contracts. The costs vary from period to period due to the timing of the placement of related procurement contracts and exchange rates.

Gain on embedded derivatives

The net impact on the income statement of changes in the fair value of the embedded derivatives (relating to the special pricing agreements) for the group and company was a fair value gain for the year to 31 March 2012 of R0.3 billion (2010/11: loss of R1.3 billion). The embedded derivative assets were Rnil (2010/11: Rnil) and liabilities amounted to R5.5 billion (2010/11: R5.9 billion). Discussions continue with interested parties, including the Department of Public Enterprises and the National Treasury, to find a solution regarding the remaining special-pricing agreements.

Net finance cost

After capitalising borrowing costs and including unwinding of interest on provisions, the net finance charges for the year to 31 March 2012 was R4.0 billion (2010/11: R4.7 billion) for the group and R3.9 billion (2010/11: R4.8 billion) for the company.

Gross finance income for the year to 31 March 2012 was R3.5 billion (2010/11: R2.4 billion) for the group and R3.6 billion (2010/11: R2.4 billion) for the company.

Gross finance cost for the group for the year to 31 March 2012 was R12.2 billion (2010/11: R15.4 billion). Included in gross finance cost was the effect of a remeasurement of the government loan at 31 March 2012 resulting in a gain of R5.5 billion (2010/11: R2.5 billion loss). The borrowing costs capitalised for the group was R5.0 billion for the year (2010/11: R8.6 billion). Unwinding of interest for the group amounted to R2.0 billion (2010/11: R1.7 billion).

Gross finance costs, excluding the remeasurement of the government loan, continue to increase as additional borrowings are raised to fund the capital expansion programme. The weighted annualised cost of borrowing as at 31 March 2012 was 9.8%[1] (2010/11: 9.5%).

Taxation

The effective tax rate for the year was 28.0% (2010/11: 27.9%) for the group and 28.3 % for the company (2010/11: 28.2%), which is in line with the current statutory tax rate of 28%. On a company level, provision is only made for deferred tax as Eskom is in an assessed loss position.

Liquidity and capital resources

The group's cash and cash equivalents increased from R12.1 billion at 31 March 2011 to R19.4 billion at 31 March 2012. The company's cash and cash equivalents increased from R11.5 billion to R18.4 billion in the same period.

Cash and cash equivalents at the group level, together with liquid investment in securities, amounted to R40.5 billion (2010/11: R49.9 billion). The group currently carries sufficient funds to cover Eskom comfortably for the next financial year. Further, based on the latest projections and including the signed and committed facilities per the planned draw-down schedule, Eskom's requirements are covered beyond March 2013.

Cash flows from operating activities

The group's net cash inflow from operating activities for the year was R38.5 billion (2010/11: R22.7 billion), while the company had a net cash inflow of R38.5 billion (2010/11: R22.1 billion). The free funds from operations at 31 March 2012 stood at 15.15% (2010/11: 9.51%) of gross debt for the group. The improvement in the cash flows for operating activities and in the free funds from operations as a percentage of gross debt is primarily due to the increased operating profitability of the company.

Cash flows used in investing activities

Cash flows used for investing for the year were R59.9 billion (2010/11: R46.5 billion) for the group and R59.0 billion (2010/11: R44.9 billion) for the company. The group capital expenditure cash flows included in this line item, excluding capitalised interest, amounted to R59.5 billion (2010/11: R45.3 billion) primarily due to the progress and phasing of the capital expansion programme.

Cash flows from financing activities

The net cash inflows from financing activities for the year were R28.7 billion (2010/11: R20.3 billion) for the group and R27.4 billion (2010/11: R19.4 billion) for the company. The raising of borrowings and the issuing of securities per the funding plan have been slowed to match the reduced capital expenditure. The debt-to-equity ratio for the group (including long-term provisions) as at 31 March 2012 was 1.64 (2010/11: 1.61) and for the company 1.69 (2010/11: 1.66).

Environmental fiscal reform

Government introduced a 2c/kWh environmental levy, applied to electricity generated from non-renewable energy sources, effective from 1 July 2009 and raised to 2.5c/kWh on 1 April 2011. This levy will be increased from 2.5c/kWh to 3.0c/kWh from 1 April 2012.

Standardising and optimising with Back2Basics

The Back2Basics programme was established to increase overall performance across the whole organisation by eliminating waste and creating efficiencies through standardisation, simplification and optimisation of processes and systems. The objective is to ensure that all processes and systems adhere to the CARAT principles, that management information needs to be *Complete, Accurate, Reliable, Accessible, and Timely*.

Eskom is currently analysing, documenting and standardising all processes, and improving the data quality and integrity that drives processes, identification of all process risks and standardisation of controls, rationalising of policies and procedures to effectively manage process risks, standardisation of reports, and driving process – and system training in Eskom to achieve the long-term ambition.

Documentation of the above produces a comprehensive Process Control Manual (PCM), per process which are organised according to the High Performance Utility Model (HPUM) framework. The

1. Excludes the government loan remeasurement

HPUM framework provides an integrated view of all of Eskom's capabilities and processes regardless of the technologies and systems, and allows the company to identify, manage, and maintain all of the business processes in a centralised manner.

Using the optimised PCMs as a framework, an assessment of current systems has been undertaken to ensure that enabling systems and technologies are also standardised across Eskom. The consolidated system requirements were then translated into a system release road map guiding the rollout of the implementations to achieve standardisation and efficiencies.

The Back2Basics programme forms an important part of the processes and systems initiative within the high performance organisation. Back2Basics was initiated in early 2010 to drive efficiencies by applying standard business processes and using uniform systems across Eskom. The Back2Basics programme comprises the Services Tools; Project Tools; Engineering Tools and Operations, Maintenance and Outage Management Initiatives.

The Services Tools Programme (Release 1) has achieved the major milestone of implementing a consolidated, standardised and improved SAP application on schedule and within budget. The enhanced SAP system was made available to the user base on 13 October and the decision to go live was motivated by sponsors from each section of the business and also supported by external audit. The stabilisation period has ended in December 2011 and the solution has been handed over to operations (Group IT).

Services Tools Programme (Release 1) has thus met its objective and has provided an enabling platform of standardised, simplified and optimised processes, systems and tools to support a culture of continual improvement. Benefit realisation of the project will be tracked by the Delivery unit going forward.

Specific significant achievements during this period relating to Services Tools (Release 1) include:

- Handover of 50 PCMs, fully aligned to best practice, from the Services Tools Programme to business ensuring the HPUM model can be sustained in the future within the business
- Creation of master data governance within the business to maintain the integrity of master and transactional data as the Services Tools Programme cleansed a significant number of records prior to conversion
- Extensive training of SAP functionality and the improved processes took place in the form of classroom and e-training and will enable the workforce to effectively utilise the standardised, simplified and optimised systems and processes.

The immediate future focus for the Back2Basics programme will be the continuation of the development of the standardised and optimised processes as designed within the Project Tools, Engineering Tools and Operations, Maintenance and Outage Management Programmes. The Services Tools Programme will focus on the SAP implementation for Rotek (Roshcon and Rotran implemented during March 2012) and is concurrently in preparation for Services Tools (Release 2) planning.

Treasury

Eskom remains well placed from a funding point of view. It has healthy liquid reserves and, at the beginning of the financial year, had effectively prefunded a portion of the year under review.

Treasury has adapted its funding to market conditions by balancing local and international funding, and capital-market and money-market funding. During 2011/12, Eskom obtained approval from the government to increase the government guaranteed domestic bond issuance (DMTN programme) from R65 billion to R100 billion.

Funds for the next 12 to 18 months will be sourced by issuing bonds, through export-credit backed financing, from development-finance institutions and the domestic money market. Funding progress remains positive and, in line with corporates internationally, prudence dictates that a portion of the next financial year requirements (ending March 2013) is already prefunded.

The global sovereign credit crisis and the implications of the staggered implementation of new global banking regulations (Basel III) have not yet materially affected Eskom's ability to access funding, although such funding is becoming increasingly expensive. The effect these new requirements will have on corporate clients is difficult to determine on a product-by-product basis, but the overall impact will undoubtedly be a higher cost of funding and difficulty extending tenor. Eskom's Treasury continues to closely monitor the global crisis and the ways in which it might influence the company's funding abilities in the forthcoming years.

During the year the South African sovereign rating outlook was changed to "negative". While the Treasury has not noticed any direct impact of the change, it did have an effect on the rand, which consequently affected the mark-to-market of Eskom's hedging activities.

The Treasury continues to manage funding in terms of the plan developed for the capacity expansion programme (up to the completion of Kusile). It has largely identified sources of funding and has made progress in both securing the funding and drawing down on the facilities. In funding the build programme, the Treasury is conscious of balancing its utilisation of the government guarantee facility against building its own balance sheet such that Eskom can ultimately be rated as a standalone investment grade credit.

The government's Electricity Pricing Policy, approved in 2008, aims to achieve cost-reflective tariffs that will reflect the full economic cost of supplying electricity to customers in terms of the current multi-year price determination (MYPD 2). South Africa is entering the final year of the MYPD 2 increase cycle and Eskom is conscious of the impact of the price increases on both the consumer and its own ability to recover costs. In March 2012 in response to the President's call in his State of the Nation address for tariffs that support economic growth and job creation, and after robust evaluation Eskom requested that NERSA revise the latest increase downwards to 16% for the period from 1 April 2012 to 31 March 2013. Eskom is in the process of reviewing a number of scenarios to ascertain the potential effects of a longer phase-in to a cost-reflective tariff.

During the year under review the Department of Energy released its Integrated Resource Plan, the 20-year energy strategy for the country. Eskom will ensure the "bankability" of the projects detailed in the Integrated Resource Plan and allocated to the company by implementing suitable funding plans. The magnitude of the plan's build programme will require a funding approach that continues to support Eskom's long-term standalone investment-grade credit rating and potentially includes technology or equity partners for certain aspects of the strategy. Central to the success of the strategy is certainty around the tariff trajectory and flexibility in approach to allow for a potential industry restructure.

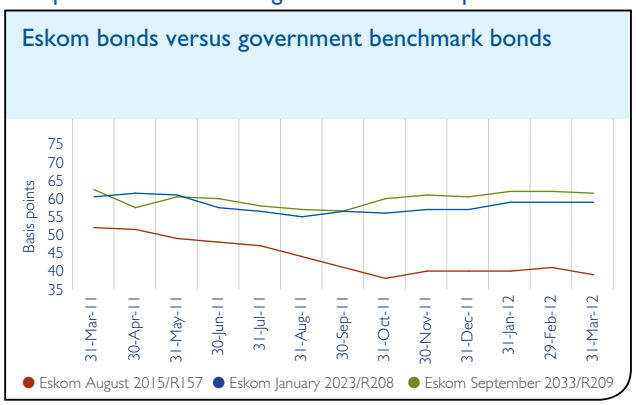
Service functions: **Finance** continued

Funding

Eskom Treasury's first priority is to secure liquidity, which needs to be balanced against the management of other financial risks, including interest-rate, currency, credit and refinancing risks. The past financial year was dominated by the sovereign credit crisis, particularly in the Eurozone and the United States, resulting in extreme volatility of interest and currency rates and most importantly uncertainty on access and depth of the markets.

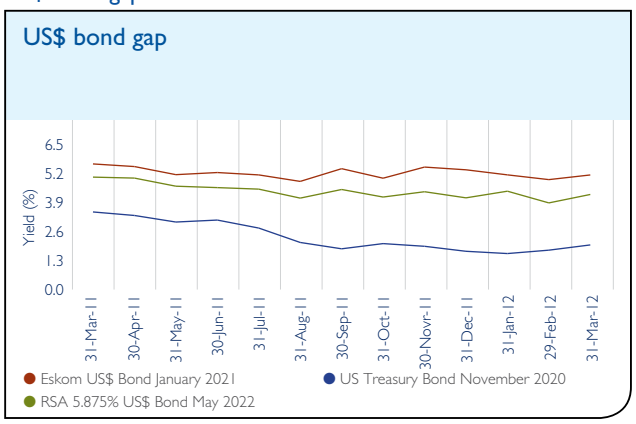
This market volatility posed a challenge for Eskom's bond auctions. In response the Treasury changed to smaller-sized auctions, which have been fully subscribed. The performance of both domestic and international bonds in issue continues to be under pressure due to the large demand for funds related to the infrastructure development in the country and the volatile European sovereign credit climate.

Comparison of Eskom and government bond spreads



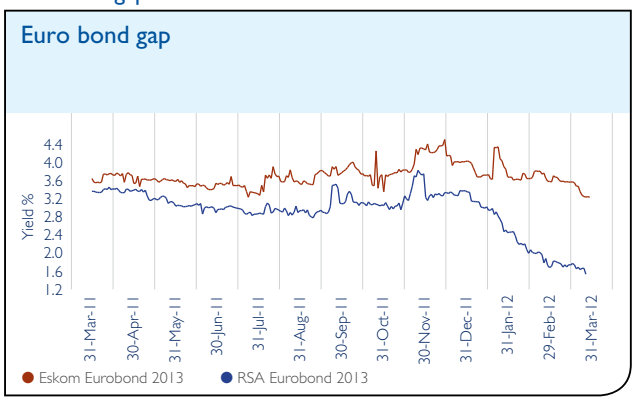
The gap between the RSA government and Eskom bonds is linked to the perceived credit risk of Eskom over the government. The Eskom August 2015 (ES15) spread over the government R157 narrowed to 39 basis points (from some 52 basis points a year ago), Eskom January 2023 (ES23) spread over the government R208 narrowed to 59 basis points (from some 60.5 basis points a year ago), and the Eskom September 2033 (ES33) spread over the government R209 narrowed to 61.5 basis points (from some 62.5 basis points a year ago). This narrowing across the curve shows an increased confidence in Eskom's credit.

US$ bond gap



The spread between the USD 2021 Eskom bond and the equivalent RSA government bond widened to 87 basis points (from 59 basis points a year ago) in volatile, credit sensitive market conditions. The initial spread was 64 basis points. The spread to the equivalent benchmark US Treasury bond widened to 312 basis points (from 214 basis points a year ago). The initial issue spread was 250 basis points.

Euro bond gap



The spread between the Eskom Eurobond 2013 and the RSA government Eurobonds widened to 162 basis points (from 27 basis points a year ago) in volatile, credit driven European markets.

The major focus during the 2011/12 year from a new funding point of view has been on initiatives relating to renewable energy projects. During the year the Treasury also secured USD800 million export-credit-backed financing from US Exim (United States) for the Kusile power station and obtained approval by SACE (Italy) for €300 million for the Ingula underground works contract.

Funding of Eskom's renewable-energy projects

Eskom regards renewable energy as crucial for reducing South Africa's reliance on coal-fired power stations. Eskom is currently involved with two significant renewable-energy projects: the Sere wind farm in the Western Cape, and the concentrating solar plant near Upington in the Northern Cape, each of which will produce 100MW.

The World Bank loan finalised in 2010 included funding for a portion of these projects. The balance was to be sourced from the Clean Technology Fund and associated development-finance institutions, and Eskom's own sources.

The Clean Technology Fund is funded by developed countries as an interim measure to fill the funding gap for renewable-energy projects in developing countries. Its committee approved the South African Investment Plan submission in October 2009, securing USD100 million for the Sere wind farm and USD250 million for the Upington concentrating solar plant.

The signing of the €100 million AFD (Agence Française de Développement) loan in July 2011 resulted in the Sere wind project being fully funded, enabling it to go ahead in terms of Eskom's policy of only proceeding with projects that are fully funded ie from both debt and internally generated funds.

The outstanding funding for the concentrating solar plant project is expected to be concluded by December 2012.

Standalone credit rating

Eskom's ability to raise debt funds on a standalone basis is a function of its credit rating as assigned by the various rating agencies.

Concerns raised by rating agencies about Eskom's ability to finance the current capacity expansion programme and the requirements of the Integrated Resource Plan without a cost-reflective tariff adjustment have been mitigated by the South African government's strong support as shareholder. The revised cash-flow projections, the outcome of government's latest support package and the tariff increase from MYPD 3 will all play a major role in the ongoing decisions of the agencies.

In accordance with Moody's and Standard & Poor's rating methodology for government-related issuers, Eskom's Baa2 and BBB+ ratings respectively, both with a negative outlook, reflect a high level of potential government support in case of need. The change in outlook to negative from stable of South Africa's sovereign rating by all agencies has directly affected Eskom's rating.

Summary of Eskom's standalone credit rating as at 31 March 2012

Entity	Rating Status	Moody's	S&P	Fitch
Eskom Holdings SOC Ltd	Foreign currency	Baa2	BBB+	–
	Local currency	Baa2	BBB+	A[a]
	ZAR Long-term	–	AA	AAA[b]
	ZAR Short-term	–	A1	F1+
	Outlook	Negative	Negative	[a] Negative [b] Stable

Financial sustainability

Significant progress has been made in funding the capital expansion programme and Eskom is in a healthy funding and liquidity position. The latest projections indicate that Eskom has sufficient cash from cash on hand, investments, net operational cash flows and current secured facilities available to fund the business through to at least March 2013.

Funds sourced in terms of Eskom's R300 billion funding plan from 1 April 2010 to 31 March 2017

Sources Rbillions	Funding sourced	Secured to date	Drawdowns 1 April 2010 to 31 March 2012	Drawdowns 1 April 2010 to 31 March 2011	Amount supported by government
Bonds	90.0	32.9	32.9	26.7	20.4
Commercial paper	70.0	70.0	20.0	10.0	–
Export credit agencies	32.9	32.9	15.6	7.5	–
World Bank	27.8	27.8	5.6	2.6	27.8
African Development Bank	20.9	20.9	5.9	3.9	20.9
Development Bank of Southern Africa	15.0	15.0	3.0	1.0	–
Shareholder loan	20.0	20.0	20.0	20.0	20.0
Other sources	23.4	13.2	0.8	0.0	4.9
Totals	**300.0**	**232.7**	103.8	**71.7**	**94.0**
Percentages		*77.6[1]*	*44.6[3]*	*33.9[2]*	*40.4[3]*

By the end of the financial year Eskom had secured 77.6% of the funding required for the capital expansion programme. Of the R23.4 billion "other sources" required by the funding plan the Treasury has secured approximately R13.2 billion from various sources. These funds are to be applied to projects that have already been signed off (particularly the renewable-energy projects). The remaining funding includes facilities that have been identified and are currently being negotiated, and facilities that have been identified but not yet negotiated. The balance of the funding required for "other" continues to be explored, with various sources being considered, amongst others Islamic finance (Sukuk), preference shares and retail bonds.

1. *As a percentage of the total R300 billion sourced*
2. *As a percentage of the secured total of R211.7 billion as at 31 March 2011*
3. *As a percentage of the secured total of R232.7 billion as at 31 March 2012*

Service functions: **Group Capital**

Mandate

To create a centre of excellence in the allocation and monitoring of all capital expenditure from a group level and in the planning, development, monitoring and execution of mega projects.

Operational highlights

- Shareholder compact targets relating to Group Capital all exceeded in the 2011/12 financial year
- Commissioning of Komati units (Unit 4, 5 and 6), Grootvlei's Unit 5 plus the capacity upgrades at both Camden, Unit 6 and, Arnot Unit 5. Grootvlei has now been completely re-commissioned. Altogether, Eskom added 535MW of power to the grid
- Power Delivery Projects, Medupi, Ingula and Kusile projects are ISO 14001: 2004 certified
- Significant progress has been made in the placing of contracts for the Kusile power station project
- High local content levels achieved in contracts awarded
- Positive economic impact on local communities through job creation and other spin-offs.

Operational challenges

- Continue the focus on employee and contractor safety in the capacity expansion programme
- Maintaining the construction schedule in the capital expansion programme
- The completion of the transmission projects is constantly challenged by access problems, servitude acquisition and unavailability outages due to network constraints
- Adding power to the grid while minimising the carbon footprint
- Containing costs
- Fierce competition for technical skills for the capacity expansion programme, both internationally and locally.

Future focus areas

- Hydrostatic pressure test for Medupi Unit 6 planned for June 2012
- Complete Medupi's boiler in Unit 6, the first new power-station unit that will be commissioned
- Repair Duvha power station's Unit 4 on time
- Start refurbishing the last unit at Kriel and second unit at Matla
- Finalise the procurement strategy for Sere wind project
- Obtain servitudes for various Transmission projects
- Refine renewable-energy project methodology and continue pursuing existing renewable-energy projects.

Key financial statistics: Group Capital, as at and for the year ended 31 March 2012

Rm	2012	2011
Capital expenditure (excluding capitalised interest)	39 730	30 436

Benchmarking

It is challenging to obtain consistent and accurate benchmarks for new power-plant capital costs due to the following factors:

- The numbers are commercially sensitive
- The assumptions behind the numbers vary greatly (technology, plant design, base year, exchange rate)
- The costs are constantly changing and have increased substantially over the past few years due to a rising demand for equipment and a movement in commodity prices
- The consideration of contextual issues such as localisation, supply chain, economic cycles/parameters and economies of scale.

The most widely used method to compare capital costs of different power stations is the "overnight cost" method and is evaluated in terms of the United States dollar cost per kilowatt (USD/kW) for installed capacity. The overnight cost excludes escalation in equipment, labour, commodity, capitalised borrowing, and operating and maintenance (O&M) prices. The overnight cost methodology commonly includes the engineering, procurement and construction (EPC) portion, or plant basic cost, as well as a combination of the following cost components:

- Owner's development costs (ODC)
- Contingency
- Transmission costs.

Further, overnight cost calculations depend on a number of factors such as site location, the year of comparison, the technology used and the station size.

Another method of comparing the total capital and operating costs is the "levelised cost of electricity" (LCOE) method. This methodology calculates the present value cost in United States dollars per megawatt-hour (USD/MWh) of energy production. Financial factors such as interest rates, inflation, discount rate and taxation are taken into account and include the capital cost, as well as fuel and all fixed and variable operating and maintenance costs. In the LCOE method, comparisons are significantly more difficult to compare on a like-to-like basis, as a great number of cost components need to be evaluated to normalise costs being reported from different sources.

Although the overnight cost of a plant may be high, its LCOE may be low and vice versa. One reason is the variation in operational and/or maintenance costs for different technologies; some power plant technologies' O&M costs may be more expensive than the O&M costs of other power plant technologies. Since the levelised cost of electricity includes the capital cost, as well as the O&M costs one can better evaluate the cost effectiveness of a plant by looking at the levelised cost of electricity.

The benchmarking information must be used with care as only high-level broad conclusions can be made, particularly if the underlying assumptions differ from the various information sources. The Eskom overnight and LCOE numbers have been compared with available benchmarks.

Summary of benchmark information from EPRI, Lazard, and IEA

Study	ZAR/USD exchange rate	Technology	Overnight costs (USD/kW)	Cost components	LCOE (USD/MWh)	Cost components
EPRI (May 2010) Data for IRP2010	7.4	Pulverised coal with FGD[1]	2 403 – 2 656	■ Basic cost ■ Contingency	80 – 85	■ Capital cost ■ Operational cost ■ Fuel cost
		Pulverised coal without FGD[1]	2 091 – 2 281		71 – 75	
Lazard (June 2009)	8.3[2]	Super-critical with and without carbon capture	2 800 – 5 925	■ Basic cost ■ Contingency ■ Owner's development costs ■ Borrowing costs ■ Transmission	78 – 144	■ Capital cost ■ Operational cost ■ Fuel cost ■ Transmission
IEA (2010 Edition)	8.2	Super-critical from various countries	672 – 2 539	■ Basic cost ■ Contingency ■ Owner's development costs	29 – 100	■ Capital cost ■ Operational cost ■ Fuel cost
		Pumped storage	2 703		73 – 149	

In order to compare cost more accurately, an attempt has been made to adjust the Eskom costs to the same base year and exchange rate and to match the cost components listed above in the EPRI, Lazard and IEA benchmarks. The outcome is presented in the table below. The comparison of overnight and LCOE costs with international benchmarks shows that Eskom's plants are well within or below the international benchmark.

Eskom costs adjusted to similar cost components from EPRI, Lazard, and IEA

	Overnight cost (USD/kW)			LCOE (USD/MWh)*		
Study	Medupi	Kusile	Ingula	Medupi	Kusile	Ingula
EPRI	2 210	2 399	1 641	56	79	110
Lazard	2 786	3 269	2 045	53	72	103
IEA	2 048	2 325	1 540	51	71	99

While Medupi and Kusile are similar super-critical coal-fired power stations, the difference in their costs is due to Medupi costs not including flue-gas desulphurisation. The capital expenditure phasing is also different, resulting in Kusile attracting higher escalation and financing charges.

Based on the current economic and financial parameters applied by Eskom, the average overnight cost (excluding borrowing costs but including owners, development costs, transmission and contingency) and LCOE calculations for capacity expansion projects are:

- Medupi 2 300 USD/kW and 54 USD/MWh
- Kusile 2 500 USD/kW and 73 USD/MWh
- Ingula 1 700 USD/kW and 110 USD/MWh.

Current performance

The Group Capital division focuses on Eskom's capital-intensive projects, such as the capacity expansion programme and upgrades. The budget for the new capacity expansion programme from inception in 2005 until its completion in 2018/19 is approximately R340 billion.

The capacity expansion programme includes the 4 764MW Medupi and 4 800MW Kusile coal-fired stations; the Ingula pumped-storage scheme in the Drakensberg, which will deliver 1 332MW of hydro-electricity during peak demand periods; and the expansion and strengthening of the transmission network.

In 2011/12 the capacity expansion programme delivered as follows:

		Target current year	Year to 31 March 2012	From inception in 2005 to 31 March 2012
Generation capacity	MW	385	535 RA	5 756
Powerlines built	km	606	631 RA	3 899
Substation capacity installed	MVA	500	2 525 RA	20 195

RA *Reasonable assurance provided by the independent assurance provider (refer page 86).*

1. *Flue-gas desulphurisation.*
2. *The Lazard study has not indicated the R/USD exchange and whether transmission costs were included. Assumed R/USD exchange of 8.3 (Eskom value corresponding with 2009 base year) and inclusion of Transmission costs.*

* *Eskom changed its levelised cost model during the past financial year and therefore the levelised cost of electricity (LCOE) indicated in this table and paragraphs below should change. The changed LCOE was however not yet presented to board for approval, hence, the LCOE remains unchanged.*

Service functions: **Group Capital** continued

Capacity-expansion programme by project (excluding capitalised interest)

Project (R billion)	Total approved project cost	Total expenditure since inception (2005–2012)	Total expenditure from 2005 to 2011
Camden (return to service)	5.7	5.5	5.5
Grootvlei (return to service)	7.3	6.9	6.9
Komati (return to service)	12.2	10.5	9.0
Kriel	1.8	1.4	1.2
Arnot	1.4	1.4	1.3
Matla refurbishment	2.7	1.4	1.0
Majuba rail	4.8	0.2	0.2
Duvha	2.4	0.1	0.1
Tutuka	0.8	0.2	0.1
Underground coal gasification	1.0	0.8	0.6
Ingula (excluding transmission integration)	20.4	11.1	7.6
Sere	1.2	0.1	0.1
Medupi (excluding transmission integration)	91.2	55.2	40.7
Kusile (excluding transmission integration)	118.7	39.3	24.7
Transmission projects (including transmission integration for Medupi, Kusile and Ingula)	32.0	16.9	12.3
Total	**303.6**	**151.0**	**111.3**

Ensuring electricity supply for the future

The most significant risks to the capacity expansion programme relate to engineering, construction, procurement and economic fluctuations. These are some of the challenges the programme faces:

- Resource constraints
- Shortage of project staff (including project managers, planners and contract managers), suppliers and contractors
- Keeping a sustained focus on safety
- Upward pressure on capital cost on the back of high global demand for equipment
- Timely completion of environmental impact assessments and obtaining environmental authorisations, permits, rights and land servitudes
- Having the correct contract and procurement strategies
- Managing commodities and high exposure items correctly
- Inadequate and non-standardised processes and tools to manage and monitor progress.

Notwithstanding these and other challenges, Group Capital continues to meet the requirements of the capacity expansion programme. Formal project assurance is used to track project schedules, costs and safety risks to meet the expected quality standards and deadlines.

The three key projects – Medupi, Kusile and Ingula – are being closely monitored to ensure they meet the current schedule and capital expenditure. By the close of the 2011/12 period, Medupi was 39% complete (target 47%), Kusile 7% complete (target 11%), Ingula 41% complete (target 48%). The delay at Ingula is mainly due to the geological conditions related to the main turbine hall.

The placement of contracts is satisfactory across all generation programmes. At Medupi, 98% of contracts (by value) has been placed; 90% at Kusile; 100% at Ingula; 100% at Grootvlei; 100% at Komati; 100% at Kriel, Arnot and Matla; and 44% at Duvha. Local content from contracts awarded in the capacity expansion projects is indicated below.

Local suppliers and service providers in Eskom's capital-expansion programme

Project	Contract value (in R billion)	Local content committed		Actual local-content expenditure	
		R billion	%	R billion	%
Medupi power station	50.5	32.4	64	12.8	39
Kusile power station	50.9	32.3	63	12.0	37
Ingula pumped-storage scheme	10.4	3.8	36	3.6	94
Power delivery projects	8.3	6.6	80	1.9	28
Total/overall average	**120.1**	**75.1**	**63**	**30.3**	**40**

Capacity expansion project update

Medupi power station

HP (high pressure) turbine installation at Medupi power station, November 2011

The first three units at Medupi power station are in different stages of progress

Technology	Coal, dry cooling, flue-gas desulphurisation
Output	4 764MW (six 794MW units)
Location	Lephalale, Limpopo
Completion date	First unit in second half of 2013, all units complete in 2017/18, commissioning of flue-gas desulphurisation plant in 2018

Progress

- Site-preparation activities started in May 2007
- The project experienced scheduling challenges in 2011/12. Eskom has since revised the contract strategy to ensure timely delivery of Units 1, 2, 3 and 4
- Progress on Unit 5: the turbine-area air-cooling suspended slab was poured, the main second-phase steel work was installed and the boiler area handed over to Hitachi so that boiler construction could start
- Progress on Unit 6: the HP turbine was lifted into position in November 2011 and the generator rotor lifted into position in December 2011.

Kusile power station

Kusile boiler erection, November 2011

Technology	Coal, dry cooling, flue-gas desulphurisation
Output	4 800MW (six 800MW units)
Location	eMalahleni, Mpumalanga
Completion date	2018/19

Progress

- Construction has started to move from mainly civil structures to include steel erection. The project suffered a 10-week delay in 2011/12 due to labour action. Since then both the contractors and the Kusile execution team have made progress to minimise the impact of the strike on the schedule.
- 47 of the 53 procurement packages have been placed. An additional 22 small packages have been identified as a result of the incomplete work left behind by a contractor after the labour action. These packages are receiving urgent attention since they are critical to staying on schedule.
- The access road connecting the site to the N4 highway to the north is complete. A main water-supply pipeline from Kendal power station is about 95% complete.
- About R16 billion of the budget will have been spent in the Nkangala district on items such as accommodation, training and training facilities, catering, laundry, fill material and other smaller contracts for goods and services by the end of the project.
- To date 208 local businesses within the region have attracted R929 million in revenue from the project.
- At least 5 500 locals will be employed during the construction phases of this project. 3 000 of these people are already employed.
- Social-development projects worth R75 million have been funded. These projects include building homes for child-run families.
- The project is in the process of identifying suitable applicants from the surrounding area for bursaries and skills training.

Ingula pumped-storage scheme

The Ingula pumped-storage scheme consists of an upper and lower dam, both containing about 22 million cubic metres of water. The dams, 6.6km apart, are connected by underground waterways through an underground powerhouse, which will house four 333MW pump turbines.

Technology	Pumped storage
Output	1 332MW (four 333MW units)
Location	Ladysmith, KwaZulu-Natal
Completion date	2014

Progress

- Milestones for the year all achieved according to schedule
- Project management tool, Primavera pilot commenced on 24 October 2011
- Both dams are complete and Braamhoek dam is full
- Construction on the main underground works is progressing well and excavation of all the tunnels has been completed
- All contracts for the project were placed and the mechanical contractor is starting with the installation of the mechanical component
- Completed 41% of the work for the project.

All tunnels for the Ingula pumped storage scheme have been completed

Ingula: Low pressure headrace tunnel 3 and 4 full round shutter

The completed Bedford Dam at the Ingula pumped storage scheme

Grootvlei power station

Technology	Coal (return-to-service)
Output	1 200MW[1] (six 200MW units)
Location	Balfour, Mpumalanga
Completion date	2012

Progress

- All units were in commercial operation by18 July 2011
- Project is 98% complete.

Komati power station

Technology	Coal (return-to-service)
Output	1 000MW (four 125MW units and five 100MW units)
Location	Middelburg, Mpumalanga
Completion date	2013

Progress

- Units 4, 5, 6, 7, 8 and 9 were in commercial operation at 31 March 2012
- Project is 74% complete.

Renewable-energy projects

Sere wind-farm pilot project

A 100MW greenfields pilot wind farm is planned for Sere, on the West Coast in the Western Cape. Commercial operation is planned for December 2013.

Concentrating solar power pilot

A 100MW concentrating solar power pilot plant project is planned for Upington, in the Northern Cape. Commercial operation is planned for December 2015.

1. Due to the de-rating of units the output is now 1 150MW

Service functions: **Group Capital** continued

Power delivery projects progress

Power delivery projects contributed 631km[RA] of lines and 2 525MVA[RA] of substation capacity to the national grid in 2011/12. In total, 3 899km of lines have been built of which 1 238km have been put into commercial operation and added to the grid since 2005.

Since the inception of Eskom's capacity expansion programme, 1 342 jobs have been created within the power delivery projects.

Current completion dates

- 765kV transmission project: May 2015
- Northern grid: September 2017
- Central grid: May 2014
- Cape grid: March 2014.

Safety performance

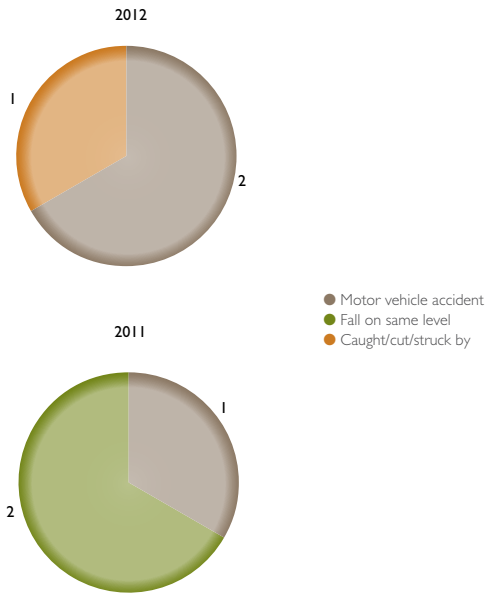
Fatalities	Actual 2012	Actual 2011	Actual 2010
Employee fatalities	0	0	0
Contractor fatalities	1	2	2

Management has interpreted the health and safety requirements in a project environment to contextualise and simplify for implementation.

For detailed information about the overall safety strategy and initiative at an Eskom level please refer to the safety section on page 70.

Group Capital safety performance

Causes of employee lost time injuries*



*Group capital had no employee fatalities.

Grootvlei power station in the snow

Environmental performance

Environmental performance indicators	Target 2012	Actual 2012	Actual 2011	Actual 2010
Number of environmental legal contraventions (number)	0	8	8	15
Number of environmental legal contraventions reported in terms of Eskom's operational health dashboard (number)[1]	0	2	1	0
Materials containing asbestos disposed of (tons)[2]	n/a	32.7	76.1	73.6
Materials containing polychlorinated biphenyls (PCBs) thermally destructed (tons)	n/a	0.4	0	1.2

[RA] *Reasonable assurance provided by the independent assurance provider (refer page 86).*

1. *Under certain conditions, contraventions of environmental legislation are classified in terms of the Eskom operational health dashboard (OHD) index. These include instances where censure was received from authorities, non-reporting to authorities as may be legally required, non-reporting in Eskom, a repeat legal contravention, or when the contravention was not addressed adequately. Group or divisional executives can escalate any significant environmental legal contravention to the OHD.*
2. *Quantities of waste disposed of at registered waste sites.*

Service functions: **Group Technology and Commercial**

Mandate

The newly established Group Technology and Commercial division has as its core responsibility the oversight, monitoring and execution of the engineering and procurement (including primary energy) activities across Eskom, as well as oversight of the Eskom Enterprises SOC Limited group of companies.

Primary Energy

Primary Energy division works to identify, develop, source, procure and deliver the necessary amounts of primary energy (coal, water, sorbent and biomass) of the required quality to Eskom's power stations, at the right time and at minimum cost.

The mandate includes:

- Meeting plants' primary-energy requirements over their full lifecycle at reasonable cost
- Securing future primary-energy requirements by working with relevant parties at national level to ensure that adequate resources (coal, water, biomass and sorbent) are available and accessible for power generation
- Ensuring the necessary water infrastructure is put in place, and optimising the use of current infrastructure and resources through collaboration with government and other stakeholders
- Obtaining coal of the quality required to run power stations through effective contract negotiation or coal beneficiation, eliminating coal-related load losses
- Optimising supply chain operations and logistics solutions for the efficient and safe delivery of primary energy as required at power stations.

Operational highlights

- Coal by rail to Majuba and Camden reached ~8.5 million tons for the year
- The overall efficiency in using water has improved from 1.35RA L/kWh sent out in 2010/11 to 1.34RA in 2011/12.
- Conclusion of a memorandum of understanding with a junior mining coal supplier (Sekoko Resources (Pty) Limited) in the Waterberg
- Increased collaboration with the Mpumalanga authorities to promote public safety awareness on the coal-haulage routes
- Construction of Komati Water Scheme on track for completion at the end of 2012; the Department of Water Affairs began construction of Mokolo and Crocodile water augmentation project
- Primary Energy has achieved ISO 9001 certification as at the end of March 2012 and will work towards ISO 14001 and OSHAS 18000 in this coming financial year.

Ongoing challenges

- Road fatalities among coal transporters and the public remain high despite several interventions
- Maintaining coal stock levels at acceptable levels
- Achieving contractual performance on all coal supply agreements.
- Purchasing more expensive coal from the short/medium-term market due to the poor volume performance of mines
- Supplying some power stations with coal of required quality and consistency remains a challenge
- Quantifying total environmental liability at cost-plus mines
- Delays in spending on the road-repair programme within MYPD 2 due to delays in the approval of the water-use licence on the P97/1 and D2514 Majuba roads and unreliable bitumen supply due to volatility in crude oil.

Future focus areas

- As a signatory to the UN Global Compact, Eskom endorses the CEO Water Mandate[1] and pledges its commitment to the principles (refer page 67)
- Finalise commitments for second phase of Mokolo and Crocodile water projects
- Ensure coal suppliers have mining, water and environmental authorisations
- Investigate and implement water conservation, water demand management and mine water treatment and reuse at power stations
- Address national water challenges through stewardship and collective action
- Full rollout of the containerised rail solution for Tutuka power station in the second half of 2012
- Execute the heavy haul rail solution to Majuba power station
- Conclude coal and limestone supply agreements for Kusile power station
- Secure long-term coal supply with a focus on empowerment of emerging black owned mines
- Implement a coal quality improvement strategy through beneficiation of coal
- Develop an integrated logistics strategy to cater for transportation of coal, biomass and sorbent.

Key financial statistics: Primary Energy, as at and for the year ended 31 March 2012

Rm	2012	2011
Coal cost	26 586	23 089
Water cost	1 165	990
Coal inventory balance	3 798	3 709
Cost plus mines (Future fuel costs) balance	5 452	4 089

RA *Reasonable assurance provided by the independent assurance provider (refer page 86).*

1. *United National Global Compact's CEO Water Mandate is a unique public-private initiative designed to assist companies in the development, implementation and disclosure of water sustainability policies and practices.*

Performance

Coal quality assurance and management

There are several short-, medium- and long-term initiatives underway to ensure that coal purchased, delivered and fed to power plants meets the required qualities to generate electricity with minimum resultant coal-related load losses.

- Supplies are being reviewed against minimum coal quality requirements for each power station on a total cost of ownership to Eskom basis. The cost of securing improved qualities, either through contractual supply or beneficiation will be measured against possible modifications and benefits to the station or system
- On-line, real time monitoring, measurement and analysis tools for the coal feed to the power stations are being procured at priority stations to enable proactive running of the power stations with the delivered coal qualities
- Coal beneficiation plants to upgrade out of specification coal at the identified tied collieries is receiving focused attention with the respective mining houses. Coal beneficiation will however result in yield losses which will require additional resources to fulfil the power station burn requirements.

Long-term coal supply strategy

Eskom works with potential suppliers to secure long-term coal supply. This strategy includes building a portfolio of short- to long-term supply agreements by providing project support through off-take agreements while ensuring that contracts are entered into with suppliers who comply with applicable legislation and operate sustainable entities.

Several factors pose risks to secure supply of coal:

- Mining conditions and coal quality in Mpumalanga have deteriorated in recent years due to the fact that the better quality coal has been extracted and mines have to mine in more difficult geological areas
- Lengthy legislative approvals for mining operations, which are also subject to public challenge, can affect delivery timelines
- Attractive steam coal export prices provide coal suppliers with greater incentives than supplying coal for local use
- New suppliers experience challenges with exploration and operational resources which impacts sustainability of supply at Eskom volume and quality requirements.

Future focus areas include:

- Developing the Waterberg coalfields
- Continuing to diversify the sourcing portfolio away from reliance on major mining houses, sourcing a sustainable proportion of coal from emerging black-owned mines
- Sourcing torrefied wood chips to conduct a biomass test burn
- Sourcing limestone for use in flue gas desulphurisation plants as they are implemented on new and existing power stations
- Implementing solutions to improve the quality of coal delivered to the power stations.

Secure access to strategic resources via national policy changes

During the reporting period Eskom held discussions on coal security with several government departments, including the Department of Mineral Resources, Department of Public Enterprises, Department of Energy and the National Planning Commission. This includes discussions regarding a balance between local and export coal requirements and the increasing international demand for Eskom grade coal.

Secure coal for Kusile

Negotiations are at an advanced stage regarding a coal-supply agreement and a conveyor agreement at the New Largo Colliery. Environmental impact assessment appeals, however, could delay the start of construction of the mine to November 2014.

Improve the efficiency of cost-plus mines

The amount of coal procured from Eskom's tied collieries has been below committed levels. The mining houses are conducting diagnostics to identify areas for improvement and cost containment.

Safety of coal transport

About 35.5 million tons of coal was transported by road in 2011/12, primarily in Mpumalanga. In response to the high number of road accidents and fatalities related to coal transport, Eskom launched a public safety-awareness initiative aimed at *zero harm for all*.

Road repairs

In its MYPD 2 adjudication, NERSA granted Eskom R950 million for road repairs in 2010/11. Eskom has spent R500 million on road repairs and plans to spend the remaining R450 million within the MYPD 2 period. For the remaining two years of MYPD 2, NERSA increased the environmental levy from 2c/kWh to 2.5c/kWh to raise funds to enable the Department of Transport to conduct road repairs, effective 1 April 2011.

Coal quality

The quality of coal that Eskom uses is vital to efficient operations. Poor-quality coal has greater ash content, reduced calorific (energy) value and has more rock impurities. This damages coal-handling and grinding equipment, reduces the efficiency of power plants, causes load losses, and increases emissions and the ash-removal burden.

Mining conditions and coal quality in Mpumalanga have deteriorated in recent years because the better-quality coal has already been extracted, leaving behind only poorer-quality deposits, and coal is now being mined in difficult geological areas.

Coal beneficiation (purification), blending and online quality-monitoring capabilities were not built into most long-term coal supply agreements, making it a challenge to maintain consistency of coal quality supplied to power stations. Eskom is undertaking various projects to improve the quality and consistency of its coal, including online coal-quality monitoring, cross belt sampling and beneficiation at cost-plus mines. Eskom is also engaging with mining houses to ensure the timely supply of life-of-mine plans to enable better control of coal qualities being mined and delivered to power stations.

Repairs were made to the R42 as part of the road repairs programme

Road-to-rail migration plan

Eskom's road-to-rail migration strategy, which is being implemented with the co-operation of Transnet Freight Rail, has focused on designing and implementing rail offloading capabilities at power stations that are linked or could be linked to the main rail network with rail sidings. The goals include:

- Security of supply through logistics solutions at Camden, Tutuka, Majuba, Grootvlei, Kendal and Hendrina to cater for throughput potential of 32 million tons per year by rail
- Reducing the road safety risks from extensive coal road haulage
- Reducing the costs of coal transport, including the costs of road repairs
- Minimising reputational damage to Eskom.

Eskom has completed the construction of the Camden coal terminal and 65% of the Tutuka coal terminal. The development of the Majuba heavy-haul line will proceed once the pending PFMA approval has been secured.

Eskom currently transports coal by rail only to the Majuba and Camden power stations. The 8.5 million tons transported during 2011/12 represents an increase of 1.4 million tons compared to 2010/11. For 2012/13 it is planned to transport 12.2 million tons by rail once the Tutuka rail facility is operational.

Develop an integrated strategy for Waterberg coalfields

The Integrated Waterberg Strategy is intended to secure coal and to support the development of a rail line that will transport coal to power stations in Mpumalanga. The Waterberg coalfields lie 600km north-west of Mpumalanga and the existing rail line is not capable of meeting the needs of Eskom and the export coal industry.

The development of the Waterberg coalfields is seen as a catalyst to unlocking the Northern Mineral Belt and hence the Integrated Waterberg Strategy is a key project on the Presidential Projects Strategic Integrated Programme. Eskom is working closely with Transnet Freight Rail and the Department of Water Affairs on funding models for the rail and water infrastructure which are required to unlock the Waterberg. Eskom is also in discussion with mining suppliers for long-term coal supply contracts in the Waterberg and is considering the necessary decisions on the second phase of the water augmentation project to ensure timeous availability of water. If the project proceeds as envisioned, rail imports to Mpumalanga could begin in 2019.

Water strategy

Eskom's water supply strategy addresses key risks of water scarcity, water security, pollution of water resources, and climate change impacts.

Eskom has set out to meet the water-quality objectives in different catchment areas; manage the impact of future water price increases; actively influence policy, planning, legislation and regulation; and work with stakeholders to develop solutions. The water conservation and demand management strategy is intended to meet some of the requirements of new and existing power stations by reducing fresh-water intake and reusing effluent water.

During the financial year, Eskom submitted inputs into the Energy Chapter of the National Water Resources Strategy 2 Draft to the Department of Water Affairs in order to secure Eskom's current and future water supplies for power generation and related needs. Further comments will be provided during the consultation process leading up to the gazetting of the National Water Resources Strategy for public comment. At Eskom's request, the Department of Water Affairs is investigating potential infrastructure bottlenecks in the Vaal River water supply system. Eskom has also worked closely with the Department of Water Affairs to address the backlog of water use licence applications for its power stations, capacity expansion projects and coal suppliers.

The main water-supply infrastructure projects under way that affect Eskom operations are:

- The Mokolo and Crocodile Water Augmentation Project (MCWAP) Phase 1, which will provide sufficient capacity for Medupi's water requirements and associated developments, excluding the planned flue gas desulphurisation process. In the interim, there is adequate water from Matimba power station's water allocation to support Medupi's first three units. The first phase of the MCWAP is on track to be completed by September 2013.
- The Komati Water Scheme Augmentation Project will provide water for Kusile power station and the return to service of Komati power station. The project is on track to be completed by December 2012.

The Komati Water Scheme Augmentation Project will provide water for Kusile power station

Technology

Mandate

Group Technology consists of the following areas of responsibility: engineering, outage management, asset management and operating model. The overall objectives of the division are to ensure optimum performance of plant assets, and to infuse the capacity expansion programme with excellence in design and project engineering. The division has been set up to help Eskom restore its engineering capability to a high standard in terms of design, operating and maintenance and project engineering services and solutions. This impact has to be felt in improved statistics in terms of plant and energy availability, as well as in timely delivery for capacity expansion projects.

Operational highlights

- Launched the Eskom Welding School of Excellence, with 150 learners enrolled. The programme trains participants to International Institute of Welding standards, which are aligned with a level-four qualification in the National Qualifications Framework. The programme will ensure that the welding reject rate is significantly reduced, bringing about improvement in both capacity expansion projects and old plant[1]
- Developed an outage execution capability programme and opened an outage control centre to ensure that the outage programme is implemented successfully
- Completed new outage management processes (as part of Back2Basics) in line with global engineering and safety standards.

Operational challenges

- There are resource constraints in the area of engineering IT solutions, and this may have an impact on adhering to timelines on key deliverables.
- Outage management challenges:
  - Poor safety record, averaging one lost-time incident per week over 2011/12
  - Overall performance of outages on due date, slip and performance
  - Congestion, with both Camden and Kriel stations executing outages back to back
  - Delayed resourcing of the Outage Centre of Excellence resulted in lack of proper response strategies.

Engineering institute

To meet future power demand, Eskom has embarked on a large capacity expansion programme. The huge capital outlay associated with this expansion drive represents a unique opportunity for South Africa to develop a service industry around the power plant industry.

However, the current engineering offering in South African universities, although broad and diversified, does not fully meet the needs of the power industry, which requires specific subject skills. South Africa also faces a shortage of qualified engineers, which could jeopardise Eskom's objective to deliver its capacity expansion and retrofit programmes within planned schedules and costs.

To tackle this challenge, Eskom established a Power Plant Engineering Institute in collaboration with six leading universities to produce a stream of highly skilled engineers within identified specialisations. This will create and develop a local knowledge base around these specialisations. The institute will also build capacity in developing universities, creating and sustaining a pipeline of qualified engineers in areas relevant to the power industry.

Eskom has identified eight broad specialisation areas and awarded eight chairs to six leading South African universities in the following fields:

- Emissions control technologies
- Combustion engineering
- Energy efficiency
- Plant asset management
- Renewable energy technology
- Materials science
- High-voltage engineering AC
- High-voltage engineering DC.

The Power Plant Engineering Institute was launched on 12 January 2012 with a total of 42 BSc Engineering candidates selected from Group Technology.

1. *Further detail available in the HR section (refer page 37).*

Commercial (procurement other than primary energy)

Mandate

Group Commercial's mandate is to optimally manage external spending, ensuring effective and efficient procurement, inventory management, warehousing and logistics, supplier management and development, contract negotiations and establishment. The single procurement entity will also avoid production interruptions.

Operational highlights

- Finalised the formation of the Eskom-wide consolidated procurement and supply chain function
- In 2011/12, more than 77% local content expenditure in the contracts placed for the capacity expansion programme (63% since the inception of the capacity expansion programme)
- Increased expenditure with level 1 – 8 B-BBEE suppliers
- Successfully consolidated and established national contracts for liquid fuels and optical ground wire for all Eskom divisions
- Adoption of a company-wide tender evaluation criterion that places increased emphasis on BEE status and both local jobs and skills development
- Consolidated all supplier development and localisation requirements into one approach – Competitive Supplier Development Plan 2 – and obtained an international award for Best Supplier Diversity Project
- Implemented processes and systems (as part of Back2Basics) that have increased inventory accountability and visibility throughout all Eskom's warehouses.

Operational challenges

- One fatality in the supply chain environment
- Slow progress in engaging supplier entities owned by people living with disabilities, black youth and black women owned entities
- Management of project inventory is a key focus area going forward
- Slow progress in finalising sourcing strategies that aligns to the increased focus on supporting socio-economic agenda for targeted commodities and in supporting socio-economic performance.

Future focus areas

- Embedding the operating model with smooth processes, data transparency and standardised tools
- Continual improvement through performance dialogues
- Leverage benefits that result from the 'One Eskom' approach to ensure the NGP target is achieved amongst others
- Unleash junior miners' development to secure future coal resources
- Improved pace in the engagement of black youth, black women and black owned entities by procurement
- Step change in engagement of professional service panels to ensure equitable work distribution
- Enhancement of supplier relationship management
- Finalise key industrialisation initiatives in line with the approved Competitive Supplier Development Plan 2.

Performance

During 2011/12, Eskom's total procurement spend was R155.5 billion, including primary energy (2011: R115 billion). This has resulted in the need for a project sourcing excellence in support of the capital expansion schedule. The impetus is to drive down operating unit costs, allowing cash to be freed up to drive other initiatives.

Group Commercial is developing a local supplier base to support long-term requirements in areas such as nuclear equipment supply and renewable technology. There is a focus on skills alignment and competency development to support improved performance. The division is resolving legacy issues from the fragmented procurement and supply chain that was in existence until 2010.

National spend in capacity expansion programme

Eskom's capacity expansion programme continues to support affirmative procurement and industrialisation. The annual target is 52% local content in annually placed capacity expansion contracts as set out in the shareholder compact. For 2011/12, committed local content spend in capacity expansion projects was equivalent to 77.2%(RA) of the total contracted value.

Industrialisation

Eskom's spending programmes support the government's economic objectives, including local development, the competitive supplier-development programme, job creation and encouraging the growth of small businesses. During the reporting period, total investment spend in plant by suppliers was R646 million (2011: R608 million). Improvements to the supplier development and localisation functions have better aligned Eskom to deliver on government policy requirements.

Training

Since the inception of the respective projects a total of 7 226 (2011: 6 970) individuals have been identified for skills development, of these 2 342 (2011: 2 514) are currently undergoing training. To date, 5 915 (2011: 4 961) people have completed their training at various training sites across the country. Over and above the skills-development commitment in capacity expansion projects, there are 5 225 skills-development commitments made through the Eskom supplier network and through the normal procurement transactions.

Job creation

Since the inception of capacity expansion contracts to the end of March 2012, some 28 616 (2011: 21 477) jobs were created as a direct result of the build projects. A total of 13 954 (2011: 11 519) people (49% of the total jobs created in capacity expansion projects) were employed from the local districts surrounding project sites – Waterberg around Lephalale (7 320), Inkangala around Delmas (3 440), Uthukela around Ladysmith (1 852) and power delivery projects (1 342).

In addition to the jobs created in capacity expansion projects, during the reporting period, a total of 3 663 jobs were committed to be created and retained by suppliers. Of these 3 578 jobs have been committed through the Eskom supplier network and 85 jobs have been committed to be retained.

(RA) *Reasonable assurance provided by the independent assurance provider (refer page 86).*

Service functions: **Group Technology and Commercial**
continued

Eskom B-BBEE attributable spend performance[1]

	Target 2012	Actual 2012	Actual 2011	Actual 2010
Measured procurement spend (R billion)	n/a	98.5	79.9	72.6
Attributable spend (R billion)[2]	n/a	72.1 RA	41.9 RA	20.8 LA3
Attributable spend (%)	60.0	73.2 RA	52.3 RA	28.6
Attributable spend on black women owned businesses (R billion)	n/a	3.3 RA	3.4 RA	2.5
Black women owned businesses as % of measured procurement spend	8.0	3.3 RA	4.3	12.1[4]

The percentage attributable spend target is in line with the Codes of Good Practice that prescribe a minimum of 50% for the first five years that the codes are in effect. The 73.2% RA achieved indicates that Eskom has exceeded its B-BBEE target for the year. Going forward, strategies are to be put in place to improve the performance of black women owned businesses in particular.

Commercial risk and governance

The commercial risk and governance function ensures that Group Commercial's activities are undertaken within the ambit of a sound risk management framework that encompasses good governance, legislative and regulatory compliance. It includes a centralised project sourcing function that executes all project-related capital procurement to ensure consistent practice, align procurement practices and obtain good value for Eskom.

During the reporting period Group Commercial published its updated Policy (32-1033) and Procedure (32-1034) to:

- Align it with the objectives of the B2B project
- Align with requirements of good governance and mandatory legislative frameworks
- Entrench standardisation of commercial practices across Group Commercial
- Promote Supplier Development and Localisation through encouraging open competitive tendering.

Supply chain operations

This department includes all operational supply chain functions, apart from the actual procurement of materials. The function is responsible for national warehousing and distribution activities, supply chain planning, shipping and haulage, and investment recovery.

Commodity sourcing

The commodity sourcing department sources commodities for all of Eskom.

Its accomplishments during the reporting period included:

- Placing the first consolidated fleet contracts
- Developing appropriate strategies for the procurement of an array of commodities, including shipping and haulage, holistic strategy for all operational and capital expenditure
- Approving a new cable and conductor strategy valued at about R13 billion over the next five years, with an emphasis on local spend (95%) and job creation
- Issuing an open tender for A, B and C panels of Engineering Consulting Services with an estimated value of R7 billion over five years
- Developing a global IT sourcing strategy worth R8.4 billion over five years
- Finalising the resettlement of farm labourers at Kusile power station site
- Placing five-year diesel supply contracts as well as obtaining the required approval for five-year contracts for the supply of fuel oil to coal-fired power stations.

Supplier development and localisation

The supplier development and localisation function supports the government's socio-economic development objectives, including B-BBEE, by maximising local supplier development in a manner that supports Eskom's business plan. The main achievement in the period under review is the organisational adoption of a consistent new tender evaluation criteria that places emphasis on both BEE equity holding and local jobs and skills development and the board adoption of the Competitive Supplier Development Plan 2 to drive Eskom's contribution towards national industrialisation for the next five years.

Business enablement

The business enablement function creates an enabling environment for sourcing, supply chain and socio-economic activities through systems and process-based support.

Coal procurement is a massive item in the Eskom procurement environment

1. *Figures relate to Eskom only.*
2. *Attributable spend is the actual spend multiplied by the B-BBEE recognition level for each compliant supplier.*
3. *Attributable spend for 2010 comprised the top 295 suppliers out of the 11 790 active vendors. In the current year the reported number encompasses the entire supplier population.*
4. *Calculated as a percentage of attributable spend.*

LA Limited assurance provided by the independent assurance provider in previous year.
RA Reasonable assurance provided by the independent assurance provider (see page 86).

Strategic functions: **Enterprise development**

In February 2012, the Enterprise Development Group was established as a strategic function in Eskom. This change presents a great opportunity to unite and shape four key portfolios – Strategy and Risk Management, Regulation and Legal, Corporate Affairs and Group IT – albeit from the perspective of "*development of the enterprise*." This is a very exciting step and provides a tremendous challenge to our creativity and a new platform to help deliver on Eskom's developmental mandate.

Strategy and Risk Management

Mandate

To lead an integrated approach to organisational strategy, risk management and corporate planning to ensure sustainability and resilience.

The newly formed organisational strategy and risk management portfolio aims to ensure that Eskom has world-class strategy development and review, risk and resilience and corporate planning processes that meet stakeholders' requirements and continually improve organisational performance.

The division aims to do this by building a high-performance Strategy and Risk Management portfolio that integrates Organisational Strategy development, Corporate Planning and Risk and Resilience Management into a seamless strategic decision support capability.

Operational highlights

- Established a Strategy and Risk Management division and repositioned the legacy capabilities in a new synergistic business model encompassing shaping, safeguarding and servicing of key functions
- Commenced building a new strategy capability including frameworks, tools and methodologies to support the evolution of the business into the future
- Produced a 2012/13 – 2012/17 corporate plan that reflects the new thinking of integration between risk, resilience, scenario based strategy and corporate planning
- Updated the risk management framework and approach to manage the key challenges in the business
- Established a resilience capability by linking the resilience framework to the risk management approach.

Operational challenges

- Defining long-term strategy in a very dynamic local and global policy and economic environment
- Establishing and entrenching a new core competence in a short space of time within the organisation.

Future focus areas

- Taking Eskom's strategy and risk management capability to world-class standards
- Continued stakeholder engagement to ensure strategy and risk management alignment with all stakeholders
- Implementing a strategy development and strategic intelligence process for Eskom that is aligned with the corporate planning process and integrates risk, that is seen to be adding value to all levels of the business
- Being recognised as a high performance team in strategy execution by our key stakeholders by delivering executable business plans
- Establishing a risk intelligent and resilience framework that informs decision making at strategic and business planning level, within Eskom's operations; under both normal as well as crisis conditions.

A group of Wits students visits the Ingula pumped storage site as part of a stakeholder engagement programme

Regulation and Legal

Mandate

The Regulation and Legal division was established in its current structure at the beginning of the financial year as part of the strategic review. It comprises the regulation, legal, compliance, governance and company secretary departments. It included the assurance and forensics department until the last quarter of 2011. The role of deputy information officer in terms of the Promotion of Access to Information Act has been delegated to the Divisional Executive and the resources are managed in the legal and compliance department.

The division ensures good governance, assurance and compliance with current policy, regulatory and legal frameworks and enabling legal environment.

Operational highlights

- Successfully implemented the Companies Act (2008), the Companies Amendment Act (2011) and the Consumer Protection Act (2008)
- A draft significance and materiality compliance framework for transactions has been developed with the Department of Public Enterprises and approved by the board
- Revised delegation of authority principles for Eskom established subject to board approval
- Developed and began implementing a subsidiary governance framework
- Implemented fraud risk management and developed training for employees. Several employees are now certified as fraud examiners
- Improved business monitoring and capability tools including the use of computer assisted audit techniques (CAATS).

Operational challenges

- The submission of the MYPD 3 application and a timeous determination remains a challenge due to the tight timeframes. The process is being managed to ensure that it is effective and includes appropriate stakeholder engagement.

Future focus areas

Regulation and Legal aspires to set the standard of trust, credibility and value add. To achieve this it will focus on two key areas in the next financial year: how the division works and what it does (priorities).

The divisional leadership will focus on addressing inconsistent performance by embedding quality and developing skills.

Regulation and Legal will encourage a high-performance culture and environment by:

- Managing performance effectively
- Understanding what it means to add value
- Focusing on input as well as outcomes
- Being accountable
- Recognising good performance and appreciating and affirming its employees
- Creating a good work environment
- Empowering others.

The following are specific responsibilities that support the division's mandate and priorities:

- Implement mechanisms to enhance stable and predictable pricing
- Oversee implementation of Eskom's regulatory strategy
- Identify and minimise regulatory risk (increase predictability)
- Influence the external energy policy environment
- Position Eskom to achieve its future legal and compliance requirements, and prepare Eskom for new governance codes and laws
- Implement effective governance best practices
- Prepare for an ISO 9001 audit in 2012/13
- Assist in managing legal risks
- The submission of the MYPD 3 application.

What is multi-year price determination?

As a regulated state-owned company, Eskom's revenues and South Africa's electricity prices are determined by NERSA through the process of a multi-year price determination. Eskom is currently in its second MYPD cycle, which began in 1 April 2010 and ends 31 March 2013, and it is preparing its submission for the third cycle (MYPD 3).

The price-determination process requires Eskom to submit its proposed application to the South African Local Government Association, which represents the municipalities that constitute the single largest buyer group of electricity, and the National Treasury for comment, and take into account their input into its application to NERSA.

NERSA analyses Eskom's application to ensure that the utility is operating efficiently and that customers are getting value for their money. It also consults with various stakeholders and the public before making its decision.

Corporate Affairs

Mandate

To make Eskom a top global power company that is resilient, reputable, trusted, valued and highly regarded in South Africa and the world through effective communication and stakeholder management.

Eskom's stakeholder engagement is based on the AA1000 Stakeholder Engagement Standard[1]. Eskom is committed to the AA1000 AccountAbility Principles of inclusivity, materiality and responsiveness. The process is also influenced by Eskom's commitment to the United Nations Global Compact and King III.

Operational highlights

- Promoted public safety and the dangers of electricity by holding 645 engagements in five regions (Visited about 800 000 people during public safety-awareness campaigns in Cape Town, Limpopo, KwaZulu-Natal and the Free State.)
- During electricity Safety Week there were 217 school visits and 174 community events
- The quarterly "state of the system" address allowed Eskom to share information and increase its voice in the media
- Secured 32 supporter partnerships through the 49M campaign
- Highlighted energy efficiency and promoted science, innovation and technology through Eskom's Expo for Young Scientists and the eta Awards
- Successfully hosted 49M Charity Golf Day, raising R1 million for eight charities.

Operational challenges

- Continued negative media coverage regarding the country's reliance on coal and future tariff increases
- Sustaining a behavioural and attitudinal change towards energy efficiency.

Future focus areas

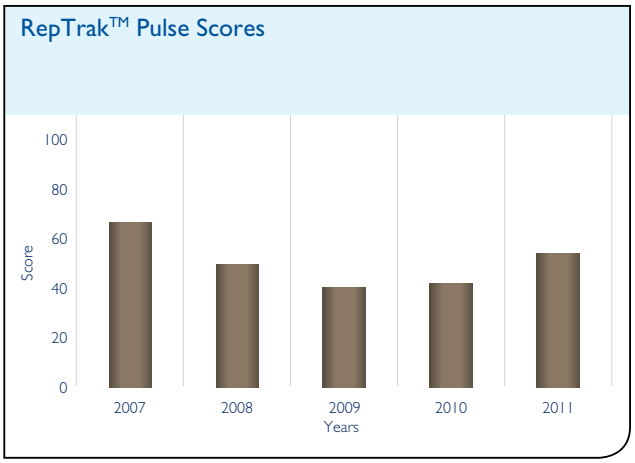
- Focus on safety communication and awareness with employees and the public
- Implement a permanent nerve centre (see "emergency communication and nerve centre" below)
- Continue the momentum of the 49M campaign
- Further enhance stakeholder relations governance by developing stakeholder relations policy and standards as well as the supporting tools
- Focus on leading and coordinating integrated, well-researched and effective solutions.

Benchmarking

RepTrak is a proprietary tool that was developed by the Reputation Institute to measure corporate reputations. RepTrak assesses the degree of stakeholders' admiration, trust, good feeling and overall esteem for companies. The model not only measures the health of a company's reputation among stakeholders, countries and industries, but also examines which of seven key factors most influences the company's reputation.

Eskom's RepTrak score has improved consistently since the load shedding of 2008.

RepTrak™ pulse scores 2006–2011



Performance

Stakeholder trust and confidence

Over the past year, Eskom has made significant progress in rebuilding stakeholder trust and confidence.

Compared to the previous financial year, there has been a marked increase in the number of engagements and presentations to parliamentary committees, organised labour, civil society, chambers of commerce and other organised business formations.

In becoming a top global utility and a high-performance company, Eskom has positioned itself as a customer-centred organisation. The key focus areas for the year included:

- Communicating and creating understanding and support for Eskom's strategy, vision and values
- Integrating communication messaging through a content hub
- Leveraging social media
- Adopting a vigorous and tested approach to communications and skills development
- Further enhancing emergency preparedness.

1. *AA1000 Accountability Stakeholder Engagement standard is an international standard that guides a company's approach to stakeholder engagement through the application of principles and best practice guidelines.*

Emergency communication and nerve centre

Eskom has enhanced its emergency communication protocols, as demonstrated in preparation for COP17. The pilot nerve centre unit, which was established in 2011, was used as the central command centre and information repository during the event. A weekly crisis meeting enables the team to proactively respond to key issues emanating from the media and various triggers that could affect Eskom's reputation. In addition, Eskom has staffed the newly established content hub unit with strategic writers and language practitioners. The unit will create a favourable platform for Eskom's voice.

Social media

Eskom increased its presence in social media, with increased followers and traffic on Twitter, YouTube and Facebook. Eskom's website also received significantly more hits on various key issues.

49M campaign

The 49M campaign, supported by government, encourages all South Africans to embrace energy saving for a sustainable future.

The Minister of Public Enterprises has taken an active role in the 49M campaign and has personally hosted various 49M road shows across the country. The campaign will gain momentum in 2012/13 with a focus on increased radio, print and television coverage as well as more community activities.

COP17 communication

Corporate Affairs successfully managed the COP17 communications and stakeholder management programme, which showcased Eskom's commitment to climate change, renewable energy and energy efficiency.

A robust internal communication programme included employees committing to changing their personal behaviour towards climate change and an art competition for employees' children, which educated hundreds of children about climate change, energy efficiency and renewable energy.

Eskom participated in various debates, and increased its voice in the media in the run-up to and during COP17. During the event, reporting on renewable energy created favourable coverage and input by Eskom amounting to 16% of total commentary. An interactive exhibition by Eskom and 49M was well received by the public and delegates at COP17.

Corporate Affairs supported Eskom's involvement in the COP17 conference by running campaigns to promote renewable energy in the run-up to the conference (the Green Line television programme, featuring Eskom's good-news stories and energy-saving tips – see www.thegreenlinetv.com for more information) and providing support during the conference itself.

Media relations

Media has become more receptive to Eskom, with its share of voice in the media increasing and neutral coverage predominating. However, Eskom continues to experience negative media coverage. To address this, a media strategy is being implemented based on four key pillars:

- Educating/informing the media
- Driving positive stories
- Active relationship building
- Leadership profiling.

The strategy aims to move negative coverage to neutral in the next 18 months. This will be achieved by maintaining a healthy share of voice in the media and targeting media audiences based on various topics. The quarterly "state of the system" address provides a positive opportunity to share information. Eskom will continue to adopt a proactive and transparent approach to communications and to strengthen its relationship with the media.

Integrated demand management campaign

During the financial year, Corporate Affairs, in conjunction with the Integrated Demand Management unit, ran a number of campaigns to encourage the public, commerce and industry to reduce electricity demand. These campaigns focused on eliciting immediate action to reduce usage from the general public (the televised "Power Alerts" and the "17:00 to 21:00" campaigns) and on instilling long-term behavioural and attitudinal shifts towards power usage (the 49M campaign). An interactive exhibit also travelled around South Africa, demonstrating new technologies and educating the public about energy conservation.

Interventions aimed at corporate and industrial customers (specifically mining) include a road show that went to Durban, Cape Town, Johannesburg, Polokwane and Rustenburg. Eskom also helped more than 50 companies run internal energy-efficiency programmes, reaching more than 10 000 employees in the process.

Refer to fact sheet at www.eskom.co.za/IR2012/042.html for more information on communication initiatives.

Minister of Public Enterprises, Mr Malusi Gigaba hands a cheque to Meals on Wheels from funds raised at Eskom's inaugural 49M Charity Golf Day

The Mayor of Emalahleni pledged her support for the 49M campaign

Eskom Development Foundation NPC

Mandate

The Eskom Development Foundation NPC (the Foundation) coordinates and executes Eskom's corporate social investment strategy. It supports socio-economic development programmes by targeting communities in which Eskom implements its capital expansion programme. Eskom also supports government's priorities of skills development, job creation and poverty alleviation.

The Foundation is involved in the following activities:

- Capacity building in small and medium enterprises
- Improving scarce technical skills in further education and training colleges
- Integrated environmental learning in schools
- Systemic education development in schools around capacity expansion sites
- Business investment competitions (including Simama Ranta enterprise education schools competition – which promotes enterprise clubs in secondary schools in South Africa. This programme is coordinated by a non-profit organisation, *Education with enterprise trust*)
- Business opportunities and franchise expo
- Enterprise development programme
- Whole-school development programme (early childhood development, primary school development, nutrition)
- Women's Day charity fundraising event
- Eskom employee *i-Volunteer* programme.

Performance

During the year, the Foundation funded 256 projects to the value of R87.9(RA) million with 531 762 project beneficiaries (2011: 256 organisations for R62.3(RA) million and 303 983 beneficiaries).

Eskom Development Foundation investments (as at 31 March 2012)

	2012			2011			2010		
Programme	No of projects	Approved Rm	Beneficia-ries	No of projects	Approved Rm	Beneficia-ries	No of projects	Approved Rm	Beneficia-ries
Contractor academy[1]	–	–	–	–	–	–	3	8.9	90
Business incubators	4	3.3	229	–	–	–	–	–	–
Enterprise development	3	1.1	26	4	2	1 241	5	2.9	2 742
Business investment competition	1	6.0	195	1	4.2	190	1	3.0	180
Business opportunities and franchise expo	1	5.6	56	1	4.1	51	1	2.5	45
Energy and sustainability programme	1	4.6	125 894	1	3.7	154 141	1	2.4	143 125
Infrastructure development	8	17.2	12 271	4	6.8	831	7	2.9	4 624
Education[2]	4	18.5	1 935	13	16.8	4 486	26	19.0	1 820
Further education and training colleges	4	6.2	2 918	5	5.0	4 228	5	4.7	4 059
Food security	4	4.7	480	–	–	–	–	–	–
Philanthropy and welfare	226	20.7	387 758	225	19.7	138 815	154	12.4	433 755
Total	256	87.9(RA)	531 762	254	62.3(RA)	303 983	203	58.7(RA)	590 440

For full detail on the activities of the Eskom Development Foundation, please refer to www.eskom.co.za/csi.html.

(RA) *Reasonable assurance provided by the independent assurance provider (refer page 86)*

1. *Contractor academies were executed by the Eskom Foundation but were funded by Eskom Distribution group.*
2. *Education projects managed by Eskom Human Resources division included.*

Sponsorships

eta Awards

Now in its 22nd year, the eta Awards, sponsored by Eskom, recognise individuals and companies who are using energy efficiently in nine categories. Colgate Palmolive reduced its consumption by 45%, setting the example in the industrial sector. Dr Anthony Keen from Cape Town has cut his home consumption by 71% – a role model for all domestic consumers.

Eskom Expo for Young Scientists

Now in its 31st year, the Eskom Expo for Young Scientists, a non-profit organisation and the biggest science-fair competition in South Africa, fosters a love for science, innovation and technology among the youth. This year, the expo showcased science projects selected from more than 50 000 learners across South Africa. A total of 725 finalists with 532 projects from 28 regions were joined by learners from Mexico.

The Best Female Project prize went to grade 11 learner Palesa Masuku of JM Ntsime High School in the North West province for her project using the marula fruit as an alternative source of energy. She won a trip to an international science fair.

The Best Rural High School was JM Ntsime High School in the North West province and the Best Rural Primary School was Phuthaditjhaba Intermediate School in the Free State. Both these schools received a mobile science kit valued at R25 000.

Eskom chief executive Mr Brian Dames and Minister of Science & Technology, Ms Naledi Pandor, visit one of the entries in the Eskom Expo for Young Scientists finals

Group Information Technology

Mandate

Group Information Technology (IT) aims to ensure effective and secure information systems for efficient management, accurate and timeous billing of Eskom's customers, accurate and timeous creditors and employee payments, and effective power generation and transmission over the national grid.

Operational highlights

Group IT highlights include both organisational and operational performance:

- Supported SAP Services Tools (as part of B2B) release and upgrade of Letsema (Maximo) project
- The executive management committee approved the IT strategy (2012–2016)
- Migrated 25 000 email users from GroupWise to Outlook, with remaining 12 000 to be migrated by July 2012
- Upgraded data network, providing increased bandwidth across the country, and upgraded backup and disaster recovery infrastructure.

Operational challenges

- Unplanned outages of online vending system. Group IT has narrowed down the root causes and is implementing treatment plans.
- Challenges caused by Maximo-SAP integration – not all allowances and recorded overtime were reflected in SAP. Maximo GTX also experienced challenges that affected work-order dispatching, causing delays and potential downstream safety issues. Integration is a priority and a dedicated task team is working on finding permanent solutions.
- A fault in the East London data centre affected numerous IT systems in the region. The fault was caused by damaged equipment, most notably the storage area network, when the fire-suppression system was triggered, releasing argon gas into the data centre. An independent investigation has been initiated to determine the cause of the fault.

Future focus areas

Two programmes have been established to improve Group IT's operations. The one relates to proactive crisis management and the second is an IT recovery plan. The programmes will continue for at least the next 12 months to ensure that the current IT operational challenges have been addressed and can sufficiently accommodate new business requirements.

Crisis management

Dedicated crisis-management teams work as cross-functional entities to address current incidents and identify and resolve potential future incidents. The teams focused on four areas in the current year:

- The online vending system
- Integration
- IT security perimeter
- Data loss.

IT recovery plan

The IT recovery plan focuses on fast-tracking and establishing a sustainable and resilient IT environment to ensure a stable foundation for future business requirements.

The IT recovery plan identified seven projects:

- Stabilise existing environment
- System resilience for critical applications
- End-to-end infrastructure review (independent supplier assessments)
- Integrated infrastructure and application monitoring
- IT security and disaster recovery
- Project prioritisation and focus
- Commercial alignment and challenges.

Strategic functions: **Sustainability**

Mandate

To deliver solutions that enable sustainable business performance and grow stakeholder confidence, contributing to the transformation of Eskom and South Africa. This includes:

- Ensuring a safe workplace for staff with Zero harm locked in psyche
- Protecting the environment and reducing the carbon footprint
- Research and testing to support cost-effective, climate-friendly and innovative approaches to providing energy, within a globally responsive manner
- Implementing the quality value chain
- Maintaining Eskom's international profile, relationships and interfaces
- Facilitating the deployment and the ramp up of a renewable energy industry in South Africa.

Operational highlights

- The safety health environment and quality (SHEQ) leadership forum was hosted during the reporting year and was well received by all stakeholders
- The successful implementation of the safety bootcamp for Distribution
- COP17 was a specific highlight for the division, which was responsible for coordinating a diverse range of stakeholders for the event
- Successful completion of the Eskom factor report, which is a comprehensive assessment of Eskom's contribution (both positive and negative) to society, considering the social, economic and environmental impact of Eskom's activities. Refer to the Eskom factor report at **www.eskom.co.za/IR2012/043.html**
- Establishment of the renewables business within Eskom and 1.5MW of photovoltaic capacity brought online
- Rollout of the total quality value chain – ISO 9000, 14000, 18000 (systems, environment, safety).

Future focus areas

- Ensuring that safety and the Zero harm vision for safety is locked into Eskom's psyche
- Carbon footprint reduction and adaptation strategy
- Environmental recovery (compliance, water, and air quality)
- Delivering on bringing renewable energy capacity through the implementation of Sere, CSP (100MW) and Solar PV with a view to developing even more renewable energy projects
- Development of clean coal technology including UCG
- Establishment of a smart grid programme
- Participation in international platforms/initiatives like the UN Global Compact LEAD initiatives and the Rio + 20 – Sustainable Energy for All
- Continue the implementation of the total quality value chain – ISO 9000, 14000, 18000 (systems, environment, safety).

Environmental performance

Zero harm to the environment is entrenched in the Eskom value chain. In 2011/12 there has been improvement in environmental management compared to previous year's performance with relative particulate emissions, water usage improving and a reduction in the number of legal contraventions. Several businesses achieved ISO 14001 certification.

Eskom aims to excel in its environmental management practices; commitment to this was confirmed when several strategic initiatives to reduce the environmental footprint and the following environmental objectives were incorporated into the Eskom Corporate Plan and are material to the Sustainability division.

- Avoid harming the natural environment and so minimise financial and legal liabilities; this will be achieved through skills development, awareness programmes, achieving ISO 14001 certification, carrying out effective environmental impact assessments and various improvement programmes
- Reduce the carbon footprint through efficient energy production and by diversifying the energy mix
- Reduce particulate and gaseous emissions to minimise the impact on human health and comply with regulated emission standards
- Reduce freshwater usage by using mining water and eliminate liquid effluent discharge to avoid damaging water resources
- Enhance waste management by reducing, reusing and recycling resources
- Comply with environmental legislation as a minimum requirement in all activities
- Minimise the impact of Eskom's activities on ecosystems and enhance ecosystem services such as functioning wetlands, improved biodiversity, avoiding erosion by responsible land-management practices.

Environmental expenditure

In 2011/12, R0.6 billion was allocated to environmental capital projects (2010/11: R0.3 billion) and R0.9 billion to environmental operational projects (2010/11: R1.1 billion).

The majority of capital expenditure can be attributed to air quality related projects, as well as other capacity expenditure related to the capacity expansion programme. Similarly, the operational expenditure can also be attributed to the capital expansion programme, as well as specific expenditure related to air quality, water management, water treatment and rehabilitation associated with coal mines.

The underground coal gasification project near Volksrust promises to remove some of the coal needs of Majuba power station

Key environmental statistics

Indicators		Target 2012	Actual 2012	Actual 2011	Actual 2010
Contraventions of environmental legislation	No.	48[1]	50[RA]	63[2][RA]	55[RA]
PCB thermally destructed	t	n/a	14.3[RA]	422.9[RA]	19.1[RA]
Asbestos	t	n/a	448.1[RA]	611.5[RA]	321.1[RA]

Compliance

Through focused attention to the Eskom drive to achieve zero environmental incidents, environmental legal contraventions have reduced from last year, with the majority of contraventions still related to emissions and water-management challenges on site. There were 50[RA] environmental legal violations during the current year, down from 63[RA][2] in 2010/11. There were two project specific activities that commenced before receiving the required environmental authorisation, resulting in administrative fines of R1.1 million (2011: R0.4 million).

An analysis of environmental legal contraventions over the past 11 years shows that legal contraventions related to water (40%), atmospheric emissions (18%) and authorisations/records of decision (19%) account for about 80% of Eskom's environmental contraventions. Water-related contraventions, in most cases, are a result of unauthorised releases of water from power stations. The contamination of water with silt or sewage has been the most common incident at construction sites.

Air-quality legal contraventions relate to exceeding the particulate matter limits as specified in the air emissions licences.

Benchmarking

A number of Eskom's environmental performance results were benchmarked against those of a selected number of other electricity utilities as set out in the benchmarking fact sheet available at www.eskom.co.za/IR2012/044.html.

Water

Eskom aims to reduce freshwater usage and eliminate liquid effluent discharge. This is achieved through effective water-management processes, water conservation and water-demand practices, and the treatment and potential use of mine water. The future key performance indicator targets a progressive reduction to 1.20 L/kWhSO by 2017.

Eskom continued to facilitate meetings with environmental NGOs. In particular, a technical workshop was held to share information on Eskom's water strategy and to provide an opportunity for NGOs to present their water-related initiatives and views on water management.

The CEO Water Mandate

United National Global Compact's CEO Water Mandate is a unique public-private initiative designed to assist companies in the development, implementation and disclosure of water sustainability policies and practices. As a signatory to the UN Global Compact, Eskom endorses the CEO Water Mandate and pledged its commitment to the principles and annually reports on progress in supporting and promoting compliance with the principles. Eskom is committed to, and reliant on, water as a primary input and, therefore, has a vested interest in securing control over water sources and services. Additional detailed information on Eskom's commitment to the CEO water mandate is available at www.eskom.co.za/IR2012/045.html – the fact sheet on water.

Air quality[3]

Eskom aims to reduce particulate and gaseous emissions to minimise the impact on human health and comply with regulated emission standards. The future key performance indicator target for particulate emissions progressively reduces to 0.21kg/MWhSO by 2017.

Refer Generation environmental performance on page 20.

Ambient air quality monitoring

Extensive regional air quality monitoring has been undertaken since the late 1970s and has formed part of Eskom's ambient air quality management programme. This extensive ambient air quality network provides key information for future strategic planning processes, compliance with standards and as a guide for research activities.

Monitoring is currently undertaken at 14 ambient air quality monitoring sites measuring a range of pollutants including sulphur dioxide, nitrogen dioxide, fine particulate matter, and ozone amongst others. Meteorological parameters like wind direction, wind speed, and temperature are also monitored. Although these sites are influenced by many sources, the majority are located strategically to monitor the level of pollutants at ground level resulting from power station emissions. The sites are therefore located close to power stations, in residential areas and some in remote areas (to measure regional air quality) – depending on the specific objectives of each site.

Ambient air quality is impacted by emissions from a number of sources, including Eskom, and the combined results from all these sources are reflected in the concentrations measured by the network. Monitoring equipment is calibrated against National Meteorological Laboratory standards in a laboratory accredited by the South African National Accreditation System. For additional information on the various ambient air quality monitoring sites please view the air quality fact sheet at www.eskom.co.za/IR2012/046.html.

[RA] *Reasonable assurance provided by the independent assurance provider (refer page 86).*

1. *Eskom's continued aspiration is for zero environmental violations. In order to achieve this, interim targets have been set in the corporate plan.*
2. *One environmental legal contravention was registered in March 2011 and, following an investigation, was reclassified as an event. This has resulted in the reported number of environmental legal contraventions for 2010/11 changing from 64 to 63.*
3. *Refer www.eskom.co.za/IR2012/047.html for the climate change fact sheet, giving details of the relative CO_2 emission factor.*

Biodiversity

The 2011–2020 United Nations Decade on Biodiversity (UNDB) was launched in December 2011, the ultimate target being to ensure that by 2020 all the people of the world will be aware of biodiversity and its value. Such awareness in Eskom was increased this year when leadership endorsed the Biodiversity Policy and Standard which affirms that '*Eskom shall ensure that in the planning, construction, operation and decommissioning of its activities mitigation measures are in place to limit the impact of its infrastructure, land-use and other resource uses on biodiversity and shall comply with all applicable legislation*'.

Complementary strategic partnerships are also mechanisms that Eskom supports to achieve the sustainability priority of "Zero environmental incidents". The long-standing Eskom-Endangered Wildlife Trust (EWT) partnership focuses on the management and monitoring of wildlife interactions. Detailed information on wildlife interactions statistics and management fact sheet can be found at www.eskom.co.za/IR2012/048.html.

The Ingula Partnership with conservation Non-Government Organisations (NGOs), BirdLife South Africa and Middelpunt Wetlands Trust, has proved invaluable towards the conservation of a very important biome ensuring the protection of the critically endangered White-winged Flufftail, Southern Bald Ibis, other endangered species and the habitat in which they exist (www.eskom.co.za/IR2012/049.html) (fact sheet).

The Ingula Partnership has also resulted in Eskom leadership endorsing research funding to the Birdlife International Species Champion Programme, whereby Eskom will fulfil the Species Champion role for both the White-winged Flufftail and the Southern Bald Ibis. This initiative promotes the overall protection and conservation of these two bird species.

ISO 14001 Environmental Management System Standard Certification

Progress has been made towards achieving Eskom's set objective of achieving certification to the ISO 14001 environmental management system standard by March 2014.

During this reporting period certification was awarded to the major build projects Medupi, Kusile and Ingula as well as the power delivery projects (construction of transmission power lines) and the Group Capital head office. In addition, certification was achieved at nine operational coal-fired power stations, Koeberg nuclear power station, the peaking operating unit and generation head office.

Climate change and renewable energy

Eskom has a comprehensive climate change strategy which is based on six pillars:

- Diversification of the generation mix to lower carbon emitting technologies
- Energy efficiency measures to reduce demand and greenhouse gas and other emissions
- Adaptation to the negative impacts of climate change
- Innovation through research, demonstration and development
- Investment through carbon market mechanisms
- Progress through advocacy, partnerships and collaboration.

Eskom's aspiration is to pursue a more diverse energy mix with the objective of reducing the utility's relative emissions until 2025 and subsequently reducing absolute emissions. Eskom continually models electricity options for achieving the conflicting goals of affordability and protection of the environment in the most optimum manner. In doing this work Eskom recognises that there is no single technology option that is the panacea for reducing greenhouse gas emissions. Eskom is therefore committed to the principle of an assessment of all options for reducing its emissions.

Renewable energy plays an important role in meeting Eskom's diversification aspirations. Eskom's Renewables unit has been set up to focus on large power-generation technologies, namely wind, photovoltaic and concentrating solar power. This will play an extremely important role in reducing both the relative (emissions intensity) and absolute emissions.

Eskom has an active research programme investigating South Africa's renewable energy sources for power generation.

Until now, Eskom's history of renewable power generation has focused mainly on hydro power, complemented by an additional push to reduce demand through energy efficiency.

Some large-scale renewable-energy projects are under way. Eskom is also retrofitting existing facilities with renewable energy sources to ensure energy efficiency and reduce relative carbon emissions.

Government policy on renewable energy

South Africa's White paper on renewable energy policy (2004) sets out government's principles, goals and objectives for renewable energy. It also commits government to a number of enabling actions to ensure that renewable energy becomes a significant part of its energy portfolio.

South Africa is in a strong position to harness vast renewable energy resources. The country has an average solar radiation of about 2 500kWh per square metre per year and large areas along the coast have average wind speeds of more than six metres per second.

Government's target is to contribute 10 000GWh of renewable energy to final energy consumption by 2013, produced mainly from biomass, wind, solar and small-scale hydro.

A large portion of the Integrated Resource Plan has been allocated to renewables and a renewable-energy purchase programme has been introduced (IPP procurement programme).

This year a photovoltaic installation was erected at Lethabo Power Station as part of Eskom's commitment to renewable energy

Eskom's renewable-energy projects

Sere wind farm

- Construction of 100MW wind farm in Western Cape
- 50 turbines of 2MW each
- Commissioning in 2013
- ~220 000 tons of carbon saved per year (based on 0.9 tons of carbon per MWh).

Concentrating solar power pilot plant

- Eskom is researching a 4km, 2 100MW concentrating solar thermal power station in the Northern Cape by building a 100MW plant near Upington. The assessment focuses on environmental eligibility, technical feasibility and commercial competitiveness
- 450 000 tons of carbon saved per year
- Vital to Eskom's carbon footprint reduction/low-carbon growth strategy.

Photovoltaic installations at power stations

- Installation of two photovoltaic pilot plants at Eskom sites
- Initial installation of one hectare per site adding 1.2MW of capacity
- Photovoltaic produces zero emissions during operation and does not need water
- Photovoltaic is a well-established, safe technology that can be installed quickly at plant site.

One of the air quality measuring sites that Eskom uses to measure the air quality around its power stations

Ocean energy

In 2002, Eskom completed a study that concluded that South Africa has a sufficient ocean resource to explore this renewable-energy option. A techno-economic study and technology evaluation are being performed to assess ocean energy conversion technologies to determine which should be researched further for possible application in South Africa.

Biomass

Biomass is a renewable-energy source derived from biological material from living or recently living organisms. It is plant-based material used directly or converted into other energy products such as torrefied pellets (moisture removed), biofuel and so on.

As part of Eskom's biomass research programme, a System Johannsen Gasifier was constructed and installed at a rural sawmill in Melalani in the Eastern Cape in conjunction with the University of Fort Hare. It uses wood and other biomass as a fuel source to produce a virtually tar-free gas, which powers an electricity generator.

Eskom is also evaluating other biomass options, such as the use of municipal solid waste as a feedstock for power generation. Municipal solid waste not only represents a continuous source of energy that can be harnessed for generation, but its use will also significantly decrease the burden on landfill sites and processing facilities.

To reduce greenhouse-gas emissions from its coal-fired power stations, Eskom is exploring the co-firing of biomass fuel. It aims to co-fire biomass to replace 10% of coal usage by weight in coal-fired power stations by 2026. To achieve this goal, a project within Eskom's primary energy division is sourcing suitable biomass within South Africa and sub-Saharan Africa.

The project is divided into phases, namely:

- Co-firing technology selection – selecting technology between separate milling and co-milling of biomass with coal, and between co-firing white biomass pellets and torrefied biomass pellets (also known as black pellets). Test burns will be conducted at Arnot and Kriel power stations to determine the most suitable technology and biomass fuel. Primary Energy is sourcing the biomass fuel for the test burns and an order has been placed for 2 000 tons of torrefied biomass pellets.

- Biomass fuel sourcing – sourcing biomass fuel for sustainable application. A contract has been placed with the Council for Scientific and Industrial Research to conduct a biomass fuel supply study. The study addresses the availability of biomass fuel in South Africa and neighbouring countries, including transport, beneficiation, quality, environmental, market conditions, fuel cost and legal/regulatory issues.

The Global Electricity Utilities Initiative

Eskom successfully spearheaded an initiative called The Global Electricity Utilities Initiative. This initiative saw Eskom bring 25 global utilities together to work towards a common purpose to reduce emissions, develop cleaner technologies and promote the introduction of renewables to embed global best practice. Eskom's involvement and leadership was positively received. The report shows that significant progress has been made in developed and developing countries in creating sustainable solutions towards clean electricity through progressive decarbonisation of the energy mix, more efficiency throughout the electricity value chain and the promotion of the more efficient end use of electricity. GEI utilities have also made substantial progress in increasing stakeholder engagement, investing in climate change-related projects, conducting research and development into new and advanced technologies and investing in adaptation measures.

1. *United National Global Compact's CEO Water Mandate is a unique public-private initiative designed to assist companies in the development, implementation and disclosure of water sustainability policies and practices.*

COP17/CMP 7

Eskom was integrally involved in assisting South Africa in hosting an excellent Conference of the Parties in Durban in December 2011. The country outlined its aspiration to move towards a low carbon future and to prepare South Africa for the impacts of climate change. Eskom demonstrated its holistic approach to climate change by discussing both mitigation and adaptation strategies.

From a domestic policy and regulation point of view, the Department of Environmental Affairs issued a White paper on the National Climate Change Response in November 2011. This document outlines a process, to be concluded within a two year period, for developing (in consultation) sectoral (and even company) carbon budgets that align with South Africa's pledge at Copenhagen.

National Treasury has also continued to engage stakeholders on their "carbon tax" proposal and a revised policy/proposal is expected to be published later this year. Eskom has engaged with National Treasury in order to identify ways to enhance the effectiveness and limit the unintended negative consequences that such a tax could have on electricity tariff increases and the South African economy. These engagements have included discussions on how the Integrated Resource Plan internalises the cost of carbon through capping carbon dioxide emissions in a certain timeframe and the pursuit of a lower carbon emitting electricity mix.

Power generation from renewable-energy sources was a focus at COP17. The Minister of Energy announced at COP17 that 28 successful IPPs will contribute about 1 400MW of solar and wind power, to the national grid. Eskom continues to catalyse private-sector participation in the electricity market beyond the conference. The Minister of Public Enterprises, also officially launched Eskom's Sere wind project at a COP17 function. The aim is to commission Sere in 2013 to add 100MW of "green power" to the grid.

The COP created enhanced awareness among South Africans of energy and climate change issues. Eskom is determined to use this momentum to continue to communicate on its efforts to meet both the mitigation and adaptation challenges and especially to further entrench energy efficiency messages.

Eskom will continue to pursue renewable energy and energy-efficiency projects. This includes a proposed photovoltaic expansion – 2MW at Megawatt Park by end 2012 and rollout of renewables at power stations. Eskom will build supportive and cooperative relationships with local municipalities to speedily address incidents and emergencies and ensure security of supply.

The United Nations Global Compact and Rio+20

Rio+20 will take place in June 2012 to secure renewed political commitment for sustainable development, assess progress to date and the remaining gaps in the implementation of the outcomes of major summits on sustainable development, and address new and emerging challenges.

Eskom's desired outcomes from Rio+20 include clear action plans for energy access and electrification, obtaining financing for energy access, energy-efficiency and renewable-energy initiatives. Eskom will participate in Rio+20 through its continued engagement in United Nations activities, including the Global Compact LEAD, Caring for Climate, CEO Water Mandate1 and Sustainable Energy For All. Eskom will engage and support government and liaise with international business through Business Action for Sustainable Development.

For more information on the United Nations Global compact refer to fact sheet at **www.eskom.co.za/IR2012/050.html**.

Safety

A price cannot be put on the value of human life or that of human abilities. Whilst many campaigns, policies, procedures and programmes have been instituted in Eskom over the past few years to prevent occupational health and safety (OHS) related incidents and fatalities, the results of such have been unsatisfactory as highlighted by the Eskom safety record.

The above necessitated a complete review of the Eskom OHS strategy and related action plans.

Key to bringing about the required step changes in OHS performance is ensuring that the foundation or purpose of the OHS strategy is sound. The foundation of Eskom's approach to OHS is based on the following purpose statement:

"Eskom is committed to our responsibilities in respect of occupational health and safety, which is integral to the way we do business. When we conduct our business of building a legacy that every employee, his/her family, and future generations can be fiercely proud of, health and safety is a primary consideration.

Electricity as a product can be fatal when someone comes into contact with it.

There are various safety and life hazards across the various processes involved in electricity provision."

The above is entrenched in Eskom through the fact that Zero harm to people and the environment has been adopted as a value in Eskom.

When Eskom conducts its business of building a legacy and ensuring zero harm that every employee, supplier (including contractors and consultants) and members of the public, his/her family, and future generations can be fiercely proud of, the following health and safety long-term objectives will be the focus:

- Zero harm to all employees, suppliers (including contractors and consultants) and members of the public
- Promote health and safety such that it becomes a way of life for all Eskom employees, suppliers (including contractors and consultants) and members of the public both at work and at home
- Ensure that all employees and suppliers (including contractors and consultants) return safely to their home and families on a daily basis
- To foster cooperation and consultation amongst all internal and external stakeholders to achieve Zero harm
- No operating condition, or urgency of service, justifies exposing anyone to negative risks arising out of Eskom's business or causing them injury or damage to the environment.

To deliver on the above objectives, the OHS environment, past strategies and interventions as well as OHS performance were analysed to understand the underlying issues which needed to be addressed in order to bring about the desired step changes.

To deliver on the above objectives, the OHS capability within Eskom from a policy, compliance and implementation coordination perspective has been centralised into a single department within the sustainability systems portfolio in the Sustainability division in Eskom. This team will be the driver behind this OHS strategy which focuses on addressing seven key areas (including the issues highlighted above) to achieve the desired objectives and bring about the step change sought:

- **Connecting** OHS to everything that is done in Eskom and personalising OHS
- Attaining **commitment** to Zero harm and OHS across Eskom
- Making **compliance** to OHS requirements as a non-negotiable
- Ensuring that Eskom has an optimal OHS organisation structure resourced with the required **competencies** and number of competent staff to deliver on the OHS mandate
- **Communicating** OHS and Zero harm in a manner that entrenches and reinforces the Zero harm value and related success, incidents, etc.
- **Consistency** of actions, decision making, etc.
- Ensuring that Eskom has a **cycle of continual improvement, tracking and monitoring** in OHS through the development of appropriate KPAs, KPIs and proactive assurance processes.

These key areas will apply to all of Eskom's strategic imperatives and activities.

Performance

Eskom's commitment to Zero harm builds a strong foundation for health and safety. Its safety expectations entail a simple set of non-negotiable policies, principles and standards set to achieve "Zero harm to all" as a way of life.

Sadly, there were 13[RA] employee fatalities, 12[RA] contractor fatalities and 33 public fatalities during 2011/12. Any loss of life is unacceptable and a massive concern. Eskom has implemented a number of safety improvement initiatives to reduce the number of safety-related incidents to zero.

Despite the unacceptable safety performance, there were positive achievements during the last year. Some units achieved up to 35 years without lost-time injuries.

Safety performance 2010–2012

	Unit of measure	Actual 2012	Actual 2011	Actual 2010
Employee safety				
Total fatalities	number	13[RA]	7[1][RA]	2[RA]
Electrical contact fatalities	number	4	3[1]	0
Vehicle accident fatalities	number	4	0	2
Other fatalities	number	5	4	0
Lost-time incident rate, including occupational diseases[2]	index	0.41[RA]	0,47[RA]	0,54[RA]
Contractor safety				
Total contractor fatalities	number	12[RA]	18[RA]	15
Electrical contact fatalities	number	1	1	1
Vehicle accident fatalities	number	5	10	6
Other fatalities	number	6	7	8
Public safety				
Total public fatalities	number	33	43	41
Electrical contact fatalities	number	27	22	27
Fatalities from other causes	number	6	21	14

Of the 13[RA] employees who passed away during 2011/12, four were due to electrical contact incidents; four were due to motor vehicle accidents, one as a result of fall while erecting a tower, one as a result of burns, one was struck by a reversing truck and two died as a result of occupational diseases.

Of the 12[RA] contractor employees who lost their lives during 2011/12, five were due to motor vehicle accidents, one to a fall from height while painting on a roof, one due to electrical contact at an electrical installation, two died during tree felling operations, one during a power line stringing operation and one fall-related incident when the contractor employee jumped from a moving vehicle before it was stationary. One died after being stung by wasps.

Vehicle accidents and electrical contacts remain the major causes of public fatalities.

Although the public fatalities are showing a positive trend compared to the fatalities of 2010/11, the intense public safety campaign continues to stress the need for continuous vigilance and education.

Lost-time incident rate (LTIR)

The progressive LTIR is a proportional representation of the occurrence of lost-time injuries over 12 months. The actual lost-time injury rate (LTIR) performance was 0.41[RA] per 200 000 man-hours worked against a target of 0.40 for 2012. The LTIR target was not met, which is a great disappointment, but the safety of Eskom's people remains fundamental to its business.

[RA] Reasonable assurance provided by the independent assurance provider (refer page 86).

1. Incident occurred on 1 January 2011 and employee died on 10 July 2011.

2. The progressive lost-time incident rate (LTIR) is a proportional representation of the occurrence of lost-time injuries over 12 months per 200 000 working hours.

In risk-specific terms, the leading causes of injuries were motor vehicle accidents, caught between, and struck by objects and falls.

In memoriam

Our thoughts and prayers go to the families, friends and colleagues of the employees and contractors who passed away in the line of duty this past year:

Employees	Contractor employees
Nkosinathi Emmanuel Gwetyana	Kanyiso Dlanjwa
Willem Jan Hendrick Jacobs	Muntungani Isaac Khumalo
Keyafisha Ernestina Lethuba	Wayne Klue
Neekesh Sibran Mahie	Mokete William Letsikhoane
Mfelani Timothy Malaza	Mokalabata Foster Madisa
Tshiro Alfred Mavuso	Maurice Mgadi
Phumowakhe Robert Mbatha	Sandile Miya
Setena Phineas Mekoa	Leronti Makalo Moeketsi
Johannes Mwiya	Mokhothu Stephen Pitso
Aifheli Joseph Nemavhidi	Siphamandla Cedrick Sithole
Stanley Mbongiseni Ngema	Nthabelang Gavin Sothoane
Philani Phakathi	Nxolosi Xhashimba
Daniel Jacobus Stols	

Operational highlights

The safety improvement programme has enhanced operational discipline and visible leadership in safety. Working towards the goal of zero harm, Eskom is implementing a behaviour-observation programme to change the safety culture from being reactive (by measuring and investigating incidents) to proactive (by observing and addressing unsafe acts and conditions through management visibility in the workplace).

Eskom has identified critical behaviours or actions that have a high probability of causing incidents. This led to the implementation of non-negotiable rules during 2008 – if not complied with, a disciplinary process is instituted. As a result, incidents involving these high-risk activities have substantially reduced. The wearing of safety belts was monitored and showed significant improvement.

Safety interventions in high-risk areas

Vehicle safety, electrical and slip, trip and fall incidents continue to be high-risk areas for employees and contractors. Various initiatives were implemented to address these issues.

Various staff communications highlighted electrical, vehicle and driver safety, as well the risk of trips, slips and falls. Work stoppages were held where management discussed the risks and lessons learnt from incidents involving these high-risk areas.

Driving behaviour is monitored through a vehicle monitoring device in company vehicles as part of Eskom's vehicle safety programme. Driver evaluation and advanced driver training are offered to employees.

Contractor management

Eskom held various supply forum meetings as part of the company's drive to work in partnership with suppliers and service providers on health and safety on its sites. The wide-ranging policies, procedures and standards were shared with contractors. In an effort to manage contractors more effectively, minimum mandatory generic safety, health, environmental and quality requirements must be met in the procurement and supply-chain management processes for all contractors. This includes assessing contractors in meeting the Eskom and legal requirements.

Public safety

Eskom has implemented several initiatives to address these areas, such as the Eskom electricity safety week from 15 to 22 August 2011. The campaign emphasised the dangers of illegal and unsafe connections.

Eskom continues to educate people about common errors made when handling electricity, hazards on work sites and how to avoid becoming a victim of electrocution or electric burns by adopting safe practices at work and at home. The dangers of illegal connections and cable theft are also highlighted.

Action taken

Incorporation of safety into performance management system

Eskom has included safety in its performance management system across all divisions. Any accidents reported count against the achievement of key performance targets.

Safety-management system established

A safety-management system has been established. Training of safety practitioners emphasises Eskom's policies and compliance audits are performed.

Safety training and monitoring for staff

Eskom ran several safety awareness and training programmes for staff throughout the year. Employees are expected to follow the cardinal rules of safety or be disciplined. This has resulted in a considerable increase in safe behaviours (such as use of safety belts) since 2008. Targeted initiatives for specific types of health and safety incidents were also conducted.

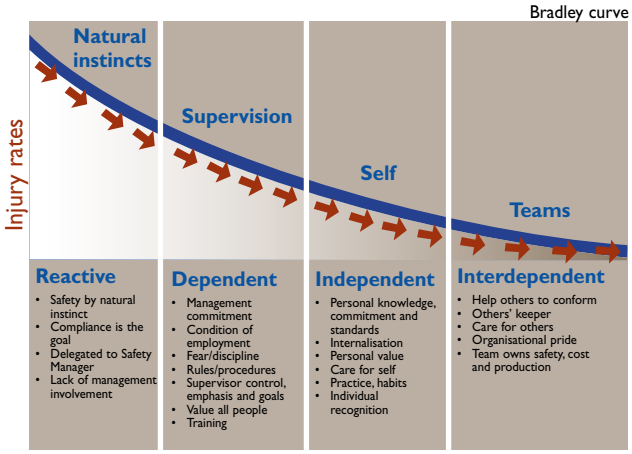
Contractor safety forums conducted

Eskom held contractor forums to ensure that the standard of safety management at Eskom sites was in line with best practice. Contractors are expected to comply with Eskom's safety, health and environmental policy; deviation from this policy is not tolerated.

Safety-improvement initiatives

Several initiatives to improve safety were initiated, including:

- Launching of the Zero harm campaign
- Peer reviews of risk-control interventions were conducted at selected sites
- Work was stopped to discuss and embed safety issues
- Management took robust action on repeat incidents
- Boot camp in order to focus on specific safety issues.



Safety is one of Eskom's priorities for the next year. Eskom is committed to safety, however, fatalities and incidents continue to occur. An Eskom principle is that *"No operating condition, or urgency of service, justifies exposing anyone to negative risks arising out of Eskom's business or cause"*. When reassessing its past efforts, it has become clear that Eskom must establish a safety culture that is driven by leadership and individual behaviour by moving from a supervision-driven culture to a self-driven culture.

Eskom will continue to focus on safety training and awareness, skills and competency, supervision and operational discipline to improve current performance.

Eskom is working with suppliers, customers and contractors to integrate safety, health and environmental issues into their operations. Contractors working under Eskom supervision or on company premises are expected to comply with Eskom's safety, health and environment policy. Eskom leadership has engaged with contractors in forums to ensure that the standard of safety management at Eskom sites is in line with best practice.

Quality management

Eskom has made an undertaking to develop and implement management systems that are ISO 9001, ISO14001 and OHSAS 18001 compliant to achieve sustainable performance improvement, with zero harm to people and the environment. The first milestone of this performance improvement journey is the establishment of ISO 9001 Quality Management Systems as the foundation for good business management. This will pave the way towards positioning Eskom for sustained success to ultimately become a high-performance organisation and top global utility. Upon achieving ISO 9001 compliance, the management systems will be enhanced by addressing Environmental, Health and Safety requirements. The execution of the ISO 9001 implementations plans are underway, with good progress made on certification.

To ensure that Eskom's rights as a customer are exercised, and that the quality of manufactured equipment meets Eskom's requirements, verified by independent assessment, Eskom has an office in London to manage the quality of products procured for the capital expansion programme.

Operational highlights

To date, the following divisions, business units and departments have received ISO 9001 certification or compliance:

Line functions	Service functions	Strategic functions	Office of the chief executive
ISO 9001 certification			
Arnot power station	Finance division	Eskom Development Foundation	Assurance and Forensic
Camden power station	Treasury	Legal	
	Shared Services		
Komati power station	Eskom Finance Company	Research, Testing and Development	
Hendrina power station	Eskom Academy of Learning		
Matimba power station	Industry Association Resource Centre		
Peaking operating unit	Eskom Aviation		
	Rotek and Roshcon		
	Telecommunications		
ISO 9001 compliance			
	Group Capital		
	Return to Service Projects		
	Power Delivery Projects		
	Ingula Project		
	Group Technology and Commercial		
	Project Sourcing		
	Primary energy division		

Operational challenges

Organisational restructuring in the past year resulted in some disruptions in the management system certification plans due to changes in mandates, functional scopes and organisational structures.

Future priorities and commitments

The focus in the next financial year will be to obtain ISO 9001 certification in the rest of the organisation and establish a Total Quality value chain to enable sustainable performance improvement across all functions. The medium- to long-term focus will be the introduction of business excellence models to facilitate the positioning of Eskom as one of the top performing power utilities.

Research and testing

Vision

To have a world-class research and innovation facility staffed with globally respected researchers verified by international benchmarking and peer review and enabled by increasing existing funding investment in people, laboratories and equipment. Research, testing and product development are distinct mandates but with a common human and financial resource base. The department focuses on immediate challenges and provides solutions to some strategic sustainability challenges.

Mandate

To ensure that Eskom makes the best use of current and emerging technologies to improve performance at existing facilities and infuse new build projects with excellence in engineering design.

Research, testing and product development are distinct mandates but with a common human and financial resource base. The department focuses on immediate challenges and provides solutions to some strategic sustainability challenges.

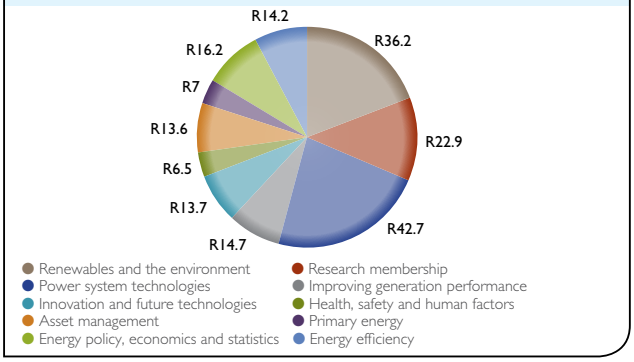
Financial performance

The research and technology function aims to ensure that Eskom makes the best use of current and emerging technologies to improve performance at existing facilities and infuse the capacity expansion projects with excellence in engineering design.

Research investment of R187.7 million was 5.9% lower in actual terms than last year. This needs to be understood in the context of a reduction in manpower charge out rates of approximately 35% halfway through the year. Thus in the last financial year R93.6 million (46%) was attributed to labour charges whilst this year, with similar manpower numbers, the figure was R66.7 million (35.6%). The remainder was spent on general expenses, suppliers and contracted services.

Research investment areas

Expenditure per research investment area (R million)



Strategic partnerships

Research continues to rely heavily on local and international partnerships for knowledge-sharing. Ongoing collaboration with the Electric Power Research Institute, Doble, the International Energy Agency Clean Coal Centre and Solar PACES provide Eskom with valuable access to international research. Eskom has signed an agreement with VGB on a project to evaluate new materials for future highly efficient power stations. Similarly, an agreement was concluded with a European Commission FP7 project, which will provide insight into the possibilities and impact of carbon capture and storage in South Africa.

Eskom continues to serve on the board of the South African Centre for Carbon Capture and Storage, which is working on the carbon capture and storage roadmap for the country. Eskom maintains strong strategic partnerships with the Council for Scientific and Industrial Research and universities and is a member of the European Utility Telecommunication Committee, the Welding Institute, the Fossil Fuel Foundation and the International Hydropower Association.

Testing

The skills and facilities required for research are also applied to real-time operational testing and other specialist services when required. The Eskom Research and Innovation Centre is the hub for many critical analyses that provide insight into the asset health of Eskom's power stations and network. Specialist services are provided in oil analysis, welding, non-destructive testing, coal quality, material fatigue and corrosion. Air-quality monitoring is controlled from the centre and reported nationally. All these areas are expanding and recruiting skills. Testing power stations for efficiency improvements is a key area of growth.

Demonstration and pilot projects

As research matures, testing and development ensures robust, effective and well-managed pilot and demonstration projects. A demonstration project is a production-scale asset constructed to evaluate and validate prior research findings and recommendations. This enables future business decisions (especially the understanding of risk and certainty of costs) regarding the applicability of the technology in Eskom's context.

High-voltage direct current

The purchase of a 1 000 volt high-voltage DC generator has been approved. This will allow Eskom to test high-voltage DC line designs at altitude and enable future network expansion using this technology.

Municipal solid waste to energy

One of Eskom's identified strategic initiatives. Work is progressing with local municipalities to bring biogas online and convert waste to energy through thermal conversion in the short term.

IP/MPLS telecommunications

This new technology is being researched to evaluate its suitability for all systems, especially operational security and reliability.

Low loss distribution transformers

Research into innovative transformer core material and construction techniques that minimise losses and help Eskom achieve internal energy-efficiency targets.

Plant monitor

An integrated system that allows for comprehensive monitoring, storage and analysis of equipment operational parameters and condition.

Solar photovoltaic pilots

Through collaboration with the newly established renewables business unit, research training and development funded and assisted in the development of photovoltaic installations at MegaWatt Park head office.

Friction stir taper stud welding platform

A tool for extracting metallurgical samples from materials used in pressurised steam-bearing structures and then plugging the holes. The samples are then analysed.

Other projects

Concentrating solar power

The concentrating solar power project is still on track for implementation in 2017. Land, water, environmental authorisations and funding have all been secured. Eskom is working closely with project funders to appoint an owner's engineer in 2012. The plant's required specifications have not changed and Eskom is encouraged to see similar plants already under construction elsewhere in the world. The plant's construction will start in 2016.

Underground coal gasification

Eskom conducted a number of studies on underground coal gasification (UCG) from 2002, and a pilot plant was commissioned in the Majuba coalfield in January 2007. In October 2010, gas was delivered from an underground combustion chamber to Majuba power station for the first time. Although small in energy terms (3MW of a 650MW unit), this was a significant achievement. Research is working on the gas treatment and clean-up facilities to reduce emissions and the site will reach 15 000m^3 gas capacity in 2012.

Although co-firing UCG gas at Majuba is the primary focus, Eskom is also designing a 100–140MWe open cycle gas turbine demonstration plant with 250 000 Nm^3/h UCG gas flow. Based on the analysis of the gas quality and potential for gas production, Eskom will decide whether to continue to co-fire or to use open cycle gas turbine technology in 2012. If this route is chosen, this will lead to the design and commissioning of a proof-of-concept commercial UCG-CCGT plant with an estimated capacity of 2 100MW (with 3 800 000 Nm^3/h UCG gas flow).

Refer to fact sheet at **www.eskom.co.za/IR2012/051.html** for more information on research and technology.

The piping of the underground coal gasification project next to the Majuba power station near Volksrust

Office of the Chief Executive

Delivery unit

Mandate

The Delivery unit coordinates and drives Eskom's performance-improvement programmes by tracking, monitoring and reporting on the implementation of the entire portfolio of strategic transformation initiatives. The initiatives can broadly be defined with these three objectives:

- Value-creating (strategic or enterprise projects)
- Operational (projects that enable Eskom to become more efficient and effective)
- Compliance ("must-do" projects required to maintain regulatory compliance).

As a result of this focus, four key business areas were created:

- **Transformation projects implementation** drives and supports transformational programmes and initiatives. A project management office was created within transformation project implementation to drive the integration of strategic project-management processes with operational processes.
- **The Eskom Leadership Institute** ensures that leadership development is aligned with the business strategy and the company's organisational values. The institute aims to establish and sustain a single, integrated leadership framework.
- **The internal consulting business area** develops in-house expertise in the areas of management consulting, business analysis and business-improvement services.
- **Mega systems and projects** focuses on standardising processes to eliminate waste and improve efficiencies. The Back2Basics programme aims to standardise, simplify and optimise business processes. The services tools programme provides an integrated, Eskom-wide resource-planning platform using SAP software. The SAP programme was successfully re-implemented in October 2011.

Operational highlights

- The Eskom Delivery unit implemented Primavera P6, a world-class, robust and easy-to-use integrated solution for globally prioritising, planning, scheduling, managing and executing projects, programmes and portfolios associated with the strategic initiatives mentioned above. To date, 54 transformational strategic initiatives have been prioritised and approved by the Eskom executive committee. This has enabled the unit to create and maintain an integrated plan for the individual strategic initiatives and programme plans.
- The Eskom Leadership Institute was launched.
- Internal consulting provided corporate finance advisory and investment governance support to the business. A new management framework for the use of external management and strategic consultants has significantly improved overall consulting expenditure.
- The Back2Basics programme (originally executed through the Finance division) significantly reduced the number of policies and procedures, increasing the level of standardisation across Eskom. Process control manuals documented detailed tasks and role-based descriptions of the work to be performed and employees were trained on the manuals, supporting the development of a standardised method of working.
- The Generation excellence programme has been launched at six power stations. Kendal and Matla power stations are making good progress in developing skills and improving performance (UCLF and preventative maintenance).
- The Distribution excellence programme has been launched in all regions and steady progress is being made. The programme focuses on the worst-performing networks, builds frontline capacity through technical service centres and increases the use of mobile computing. There has been a steady improvement in operational performance but safety remains a concern.

Ongoing challenges

- Staffing the Delivery unit has taken longer than expected, which presents a risk in the overall running and implementation of the divisions' outputs.
- The programme for managers appointed externally will be implemented in the new financial year. Similarly, the conceptual framework for a scorecard to measure leadership effectiveness has been developed. Finalisation and rollout has been delayed until the new financial year.
- There has been limited progress in establishing an in-house management consulting business and a financial and business analysis group, which has resulted in delayed support for the strategic initiatives and the business as a whole.

Future focus areas

- The transition to SAP project and portfolio management is expected to be completed by the end of May 2012. This will automate the tracking and monitoring of portfolio and financial performance of the strategic initiatives, achieving the data integrity principles of complete, accurate, relevant, accessible and timely information
- Roll out SAP release two and the Back2Basics programme in engineering, outages, maintenance, operations and projects
- Roll out Generation excellence programme to all power stations
- Step up Distribution excellence programme
- Step up customer-centred programmes
- Roll out Eskom's leadership strategy.

Subsidiary companies

Eskom Holdings SOC Limited has the following material direct subsidiaries
- Eskom Enterprises SOC Limited
- Escap SOC Limited
- Eskom Finance Company SOC Limited
- Eskom Development Foundation NPC (see page 63).

Eskom Enterprises SOC Limited Group

Mandate

To provide lifecycle support, plant maintenance, network protection and support for the capacity expansion programme for all Eskom Holdings Limited divisions. This is done primarily through two subsidiaries, Rotek Industries SOC Limited and Roshcon SOC Limited.

Operational highlights

- Supported management of coal supply
- Rotek Industries responded flexibly to tighten the power station maintenance programme and the maintenance backlog
- Supported Eskom's road-repair initiative.

Ongoing challenges

- Reduction in sustained demand for civil construction in the Roshcon environment
- Sub-optimal utilisation of assets and resources.

Safety performance

Causes of employee lost time injuries (including fatalities)

Management has interpreted the health and safety requirements in a project environment to contextualise and simplify for implementation.

For detailed information about the overall safety strategy and initiative at an Eskom level please refer to the safety section on page 70.

Future focus areas

Over the period ahead Eskom Enterprises SOC Limited Group will:
- Improve safety
- Reposition Eskom Enterprises' divisional assets into Eskom Holdings
- Integrate Rotek Industries and Roshcon into a single company producing high-quality products and focused on meeting Eskom's needs cost effectively
- Continue to implement the Back2Basics programme
- Manage the final exit from Eskom Energie Manatali concession in Mali.

Shareholder compact of the Eskom Enterprises company with Eskom

Key performance areas	Target 2012	Actual 2012	Target achieved
Financial measures			
Operating income	R39 million	R91 million	Yes
Gross profit margin	65.01%	67.45%	Yes
EBITDA	R108 million	R181 million	Yes
Net profit before tax	R87 million	R163 million	Yes
Net profit margin (after tax)	4.73%	10.93%	Yes
Debtors' days (12 month moving average)	40 days	79.14 days	No
Debtors outstanding >90 days	Rnil	R50 million	No
Socio-economic measures			
Racial equity	68.00%	67.13%	No
Gender equity	25.00%	24.06%	No
LTIR – employees	0.20	0.17	Yes
LTIR – contractors	Nil	Nil	Yes
Fatalities – employees	Nil	Nil	Yes
Fatalities – contractors	Nil	Nil	Yes
B-BBEE accreditation	Maintain	Maintain	Yes
Other reversal			
Eskom telecommunications backbone network availability	99.74%	99.79%	Yes
Utilisation of the rotary wing fleet (number of hours used)	3 000	4 709	Yes

In addition, Eskom Enterprises has entered into separate shareholder compacts with Rotek Industries and Roshcon, its two major subsidiaries.

Escap SOC Limited

Mandate

Escap is Eskom's local captive insurance subsidiary company.

It provides cost-effective, customised short-term insurance products to Eskom through a combination of reinsurance with the external providers and self-insurance.

Operational highlights

- The solvency margin was 119% (target: 50%), giving rise to surplus of R1 005 million in net assets (target: R484 million)
- Net claim expenses as a percentage of net earned premiums was 89% (target: ≤90%)
- Management expenses, as a percentage of net earned premiums was 7% (target: ≤16%)
- Net claims and management expenses, as a percentage of net earned premiums was 96% (target: ≤106%)
- Money-market investment performance measured by the short-term fixed-interest composite index (STEFI) was 5.8% (target: >5.7%).

Operational challenges

At 31 March 2012, listed share investment performance measured on the shareholder weighted index (SWIX) of the Johannesburg Stock Exchange was 2.4% (target: >7.8%).

Future focus areas

The Financial Services Board is developing a new risk-based solvency regime known as Solvency Assessment and Management to align the South African insurance industry with international standards. Since 1 January 2012, Escap has been required to monitor and report on a series of interim measures to determine whether its net assets exceed risk-based solvency capital requirements. Using 31 March 2012 financial information, Escap's net assets exceed its solvency capital requirements by R1 193 million.

Final Solvency Assessment and Management requirements for local insurers are expected to take effect on 1 January 2015. Escap intends to comply with these requirements.

Shareholder compact with Eskom

Key performance areas	Target 2012	Actual 2012	Target achieved
Solvency margin	≥50%	119%	Yes
Equity portfolio return (1 year), >SWIX	7.8%	2.4%	No
Money market portfolio return (1 year), >STEFI	5.7%	5.8%	Yes
Expense ratio	≤16%	7%	Yes
Incurred loss ratio	≤90%	89%	Yes
Combined ratio (expense and incurred)	≤106%	96%	Yes
Back to basics/SAP re-implementation deadlines met	≥90%	100%	Yes
FSB deadlines and SAM requirements met	100%	100%	Yes
Training and development targets met	≥90%	272%	Yes
Customer satisfaction rating	≥3	4	Yes
Employee benefits streamlining rating	≥3	3.2	Yes
Prompt claims payment rating	≥3	2	No

Eskom Finance Company SOC Limited Group (EFC)

Mandate

EFC was established by Eskom in 1990 primarily to finance home loans to its employees with the purpose of optimising home ownership costs to Eskom group employees and specifically mandates EFC to:

- Finance home loans at competitive rates
- Educate employees with regard to responsible home ownership and financing
- Administer interest rate and rental subsidies on behalf of Eskom
- Assist Eskom to develop and implement its housing policy
- Provide ancillary products to satisfy customer needs.

Operational highlights

- EFC securitisation SPV, Nqaba Finance, was recognised as "EMEA Finance's best securitisation deal" in Europe, Middle East and Africa
- ISO 9001 certification received during 2011/12
- The EFC loan book increased by R1.53 billion (27.2%), passed the R7.0 billion level in February 2012 and continued to grow to R7.2 billion (2011: R5.6 billion) at year end, exceeding the targeted growth of R839 million (15.2%) by R693 million
- New home loans granted is the major contributor to this growth. During the year 2 651 were granted to the value of R1.85 billion, enabling 37.9% of Eskom employees to have their home loans financed by EFC compared to the target of 38.9%
- This growth and operational efficiencies enabled EFC to achieve a 38.1% cost-to-income ratio compared to the target of 46.6%
- Favourable market conditions and increasing investor confidence in EFC's RMBS programme secured funding at favourable rates resulting in a financing margin of 3.1% compared to a target of 2.7%
- Customer satisfaction levels exceeded the target of 96.2% by achieving 97.2%.

Future focus areas

- Increase the loan book to more than R10 billion in the next five years
- Financing home loans to 55% of the Eskom workforce
- Maximise the Residential Mortgage Backed Securitisation programme (RMBS) to fund the growth
- Implementation of a business intelligence system.

Shareholder compact with Eskom

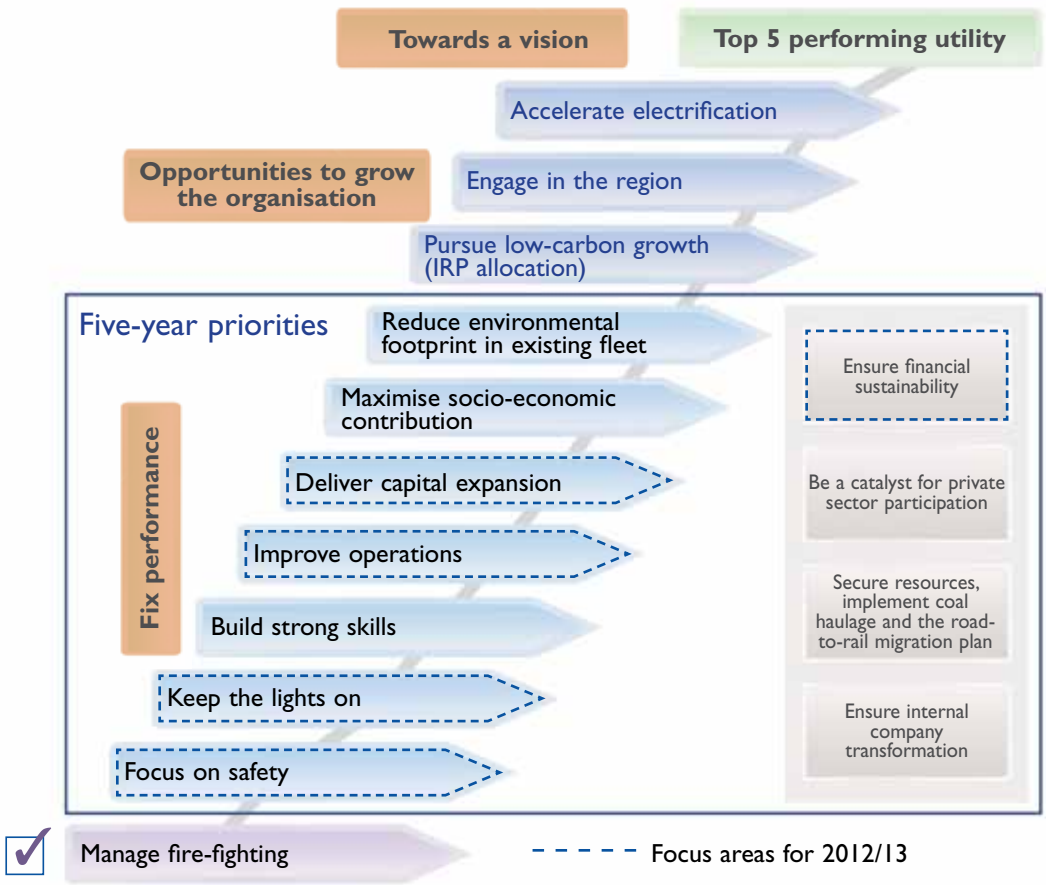
Key performance areas	Target 2012	Actual 2012	Target achieved
Maximise shareholder value, optimise home ownership cost to Eskom and its employees in the form of economic value added (EVA)[1]	R129.7 million	R166.2 million	Yes
Achieve company operational efficiency, cost-to-income ratio[2]	46.6%	38.1%	Yes
Optimise funding through the securitisation programme, additional assets securitised[3]	R750 million	Rnil	No
Asset growth, loan book net growth[1]	15.2%	27.2%	Yes
Maintain good customer satisfaction (%)	96.2%	97.2%	Yes
Maintain good macro customer relationship (rating)	3 rating	4.3	Yes
Socio-economic contribution, support of Black Economic Empowerment (BEE)			
work to BEE attorneys	90%	91.73%	Yes
controllable expenses to BEE companies[4]	65%	77.97%	Yes
Employment equity,			
racial equity, managerial and supervisory staff (%)	40%	47.8%	Yes
gender equity, woman employed (%)	66.7%	63.87%	No
Enable Eskom % employees to own a home (Eskom employees' home loans financed)	38.9%	37.94%	No

1. *Growth due to Eskom improved housing benefits.*
2. *Operational efficiencies and favourable interest rates.*
3. *PFMA approval outstanding.*
4. *New BEE suppliers supported.*

Future priorities of Eskom

Five step change focus areas for 2012/13

Eskom will focus on five areas for the financial year 2012/13, where step changes are required to create a solid platform to shift performance and grow sustainably.



The priorities for the next year are detailed below:

- **Safety**

  Eskom is committed to safety, however, fatalities and incidents continue to occur. An Eskom principle is that *"No operating condition, or urgency of service, justifies exposing anyone to negative risks arising out of Eskom's business or cause"*. When reassessing our past efforts, it has become clear that Eskom must establish a safety culture that is driven by leadership and individual behaviour by moving from a supervision-driven culture to a self-driven culture.

- **Keeping the lights on with focus on:**

  Ensuring security of supply

  Eskom is currently managing a tight power system, which will continue for the next five years and especially for the next two years, while new capacity is built. The electricity supply/demand balance will remain tight until both the Medupi and Kusile power plants begin operating.

  To minimise the possibility of load shedding, various initiatives including signing up short-term generation options, enhancing generation performance, improving coal quality, giving independent power producers (IPPs) access to the transmission grid, responding dynamically to changing demand, and intensifying communication to promote efficient energy use. Increasing use of open cycle gas turbines, identifying demand response options in smaller customers and establishing an Energy Conservation Scheme will create an electricity "safety net".

  Deferring maintenance is no longer an option to manage supply and demand. The maintenance programme must be implemented, which requires other supply and demand levers. The strategy to achieve this has been submitted to the Department of Public Enterprises (DPE) as a Public Finance Management Act (PFMA) application.

  Ensuring demand-side savings by both Eskom customers and Eskom owned facilities

  While it will take substantial effort from many stakeholders to overcome the current electricity challenges, security of supply can be ensured as long as all the key stakeholders, including the people of South Africa, partner with Eskom to overcome all the obstacles to implementing the identified initiatives on the supply and demand side: Accelerated Solar Water Heating, Accelerated Demand Response, The Energy Conservation Scheme (ECS), Innovative IDM Solutions, Mass Rollout Programmes, Residential Mass Rollout Programme, etc.

Future priorities of Eskom continued

- **Ensure financial sustainability:**
  The focus on the Multi-Year Price Determination 3 application will be a high priority.
- **Delivery on the capacity expansion programme**
  There is a renewed focus on delivering on capacity expansion projects; on time, within budget and at the right quality. There has been a delay with the commissioning of Unit 6 of Medupi, but the appropriate measures have been implemented to ensure that all the other generation units will be commissioned on time.

Commissioning schedule

Project	Actual 2011/12	Target 2012/13	Target 2013/14	Target 2014/15	Target 2015/16	Target 2016/17	Target 2017/18	Target 2018/19	Total
Grootvlei (return to service)	160	30							190
Komati (return to service)	325	200							525
Camden (return to service)	20	30							50
Arnot capacity upgrade (coal-fired)	30								30
Medupi (coal-fired)			794	794	1 588	794	794		4 764
Kusile (coal-fired)				800	800	800	800	1 600	4 800
Ingula (pumped storage)				1 332					1 332
Sere wind farm (renewable)			100						100
Total (MWs)	535	**260**	**894**	**2 926**	**2 388**	**1 594**	**1 594**	**1 600**	11 791

The capacity expansion programme has turned Eskom into the country's largest EPCM company. Current key projects are Medupi and Kusile, with 4 764MW and 4 800MW of generation capacity installed, respectively.

Eskom is also upgrading the grid to 765kV lines and the new construction will cover over 1 800 km of power supply lines. Other projects will add a further 2 300km of power supply lines and 20 600MVA of new transformers.

Distribution is making an effort to provide all South Africans with access to electricity. While connections of new customers amount to R16.4 billion, the refurbishment and strengthening of existing lines require investments of R14.5 billion and R26.6 billion, respectively over the next five years. Other distribution projects amount to R10.5 billion over the same period.

- **Improve operations:** with focus on the continuation of the implementation of the Back2Basics programme (Processes, Systems and Tools) and implementation of the Generation (Reducing our unplanned capability load factor (UCLF) and ensuring the reliability of our power stations), Distribution and Customer Centricity Excellence Programmes.

Appendices: **Awards**

September 2011

Eskom wins top sustainability award

Eskom's Integrated Report 2011 was recognised and awarded second place in the Ernst & Young: Sustainability Reporting Awards event for 2011 held at the Johannesburg Securities Exchange on 19 October 2011. The winner in the first place was the Bidvest Group and AngloGold Ashanti took the third place. This follows the award for excellent Corporate Reporting received by Eskom on 12 September 2011, also from Ernst & Young of which Eskom was one of only 10 companies regarded as Excellent.

This award distinguishes Eskom as an organisation committed to sustainable development by integrating the financial aspects of its business with open disclosure of sustainability challenges, progress and prioritising Zero harm for people and the environment.

October 2011

JSE Spire Awards 2011 Eskom Holdings awarded Best Issuer

This award goes to the issuer that is most committed to transparency, as demonstrated by regular and consistent sharing of information with investors and other market participants. It has clearly shown innovation and responsiveness to market conditions and investor needs. All market participants must feel they can trade the borrower's debt with confidence.

January 2012

Public Sector Excellence Award

Eskom won the gold medal in the "sector excellence: energy and minerals sector" category at the 2011 Public Sector Excellence Awards, held in Johannesburg on 31 January 2012. The annual public sector awards are organised by an independent non-profit citizen-centred initiative to assess and encourage excellence in the public sector. Other contenders in this category were PetroSA and NERSA.

February 2012

Eskom Finance Company and ABSA Capital – EMEA Finance award

Eskom Finance Company established a R5 billion residential mortgage backed securitisation programme, Nqaba Finance 1 (Proprietary) Limited, with the purpose to finance mortgage loans with funding from the South African capital market. ABSA Capital is the sole lead arranger of the transaction and was named by EMEA Finance as the best securitisation house of the year. Nqaba won the award for the best securitisation deal in EMEA.

The securitisation deal was spread over two transactions that were closed six months apart. In May 2011, R897 million was issued, refinancing notes into tenors of one to five years. This was followed in November 2011 by the securitisation of R398 million notes into 18-month maturities. The May bond was 3.8 times oversubscribed, while November's deal received bids worth R731 million. Further highlighting the success of the deals was the proportion of market participants involved – the market has a core of 25 investors, 18 of which bid for these notes.

Appendices: **Glossary**

Arrear debts as percentage of revenue	Total arrear debts/total revenue multiplied by 100
Base-load plant	Largely coal-fired and nuclear power stations, designed to operate continuously
Combined cycle	Technology for producing electricity from otherwise lost waste heat as it exits from one or more gas (combustion) turbines
Daily peak	Maximum amount of energy demanded in one day by consumers
Debt: equity including long-term provisions	Net financial assets and liabilities plus non-current retirement benefit obligations and non-current provisions divided by total equity
Debt service cover ratio	Cash generated from operations/(net interest paid plus debt repaid excluding repayments on commercial paper)
Decommission	To remove a facility (eg power station) from service and dispose of it safely and rehabilitate the site
Demand-side management	Planning, implementing and monitoring activities to encourage consumers to use electricity more efficiently, including both the timing and level of demand
Electricity operating costs per kWh	(Electricity related costs: Primary energy costs, net transfer pricing, employee benefit cost, depreciation and amortisation plus impairment loss and other operating expenses)/external sales in kWh
Electricity revenue per kWh	Electricity revenue including environmental levy/kWh sales total
Embedded derivative	Financial instrument that causes cash flows that would otherwise be required by a contract to be modified according to a specified variable such as currency
Energy availability factor (EAF)	Measure of power-station availability, taking account of energy losses not under the control of plant management and internal non-engineering constraints
Energy efficiency	Programmes to reduce energy used by specific end-use devices and systems, typically without affecting services provided
Flashover	Electrical insulation breakdown
Forced outage	Shutdown of a generating unit, transmission line or other facility for emergency reasons or a condition in which generating equipment is unavailable for load due to unanticipated breakdown
Free basic electricity	Amount of electricity deemed sufficient to provide basic electricity services to a poor household (50kWh/month)
Funds from operations	Cash generated from operations adjusted for working capital (excluding provisions) and net interest paid/received and non-current assets held for risk management
Funds from operations as a percentage of gross debt	Funds from operations/gross debt multiplied by 100
Gigawatt	One thousand megawatts
Gross debt	Debt securities issued, borrowings, finance lease liabilities and financial trading liabilities plus the after tax effect of: retirement benefit obligations and provisions for power station-related environmental restoration and mine-related closures
Gross debt/EBITDA	Gross debt/earnings before interest, tax, depreciation and amortisation
Independent non-executive director	■ Not a full-time salaried employee of the company or its subsidiary ■ Not a shareholder representative ■ Has not been employed by the company and is not a member of the immediate family of an individual who is, or has been in any of the past three financial years, employed by the company in any executive capacity ■ Not a professional advisor to the company ■ Not a significant supplier or customer
Independent power producer (IPP)	Any entity, other than Eskom, that owns or operates, in whole or in part, one or more independent power-production facilities
Interest cover	Operating profit before net finance cost/(net finance cost but before unwinding of discount on provisions, change in discount rate and borrowing cost capitalised)
International financial reporting standards	Global accounting standards issued by the International Accounting Standards Board that require transparent and comparable information
Kilowatt-hour (kWh)	Basic unit of electric energy equal to one kilowatt of power supplied to or taken from an electric circuit steadily for one hour (one kilowatt-hour is 1 000 watt-hours)
Load	Amount of electric power delivered or required at any specific point on a system
Load management	Activities to influence the level and shape of demand for electricity so that demand conforms to the present supply situation, long-term objectives and constraints
Load profile	Customer's electricity use over time, sometimes shown as a graph

Load shedding	Scheduled and controlled power cuts that rotate available capacity between all customers when demand is greater than supply to avoid blackouts
Lost-time incident rate (LTIR)	Proportional representation of the occurrence of lost-time injuries over 12 months per 200 000 working hours
Maximum demand	Highest demand of load within a specified period
Megawatt	One million watts
Megawatt-hour (MWh)	One thousand kilowatt-hours or 1 million watt-hours
Outage	Period in which a generating unit, transmission line, or other facility is out of service
Off-peak	Period of relatively low system demand
Peak demand	Maximum power used in a given period, traditionally between 07:00 – 10:00 and 18:00 – 21:00
Peaking capacity	Generating equipment normally operated only during hours of highest daily, weekly or seasonal loads
Peak-load plant	Gas turbines or a pumped-storage scheme used during peak-load periods
Planned capability loss factor (PCLF)	Ratio of the energy that was not produced during a given period of time (because of planned shutdowns or load reductions due to causes under management control) to the maximum amount of energy which could be produced over the same time period, expressed as a percentage
Power pool	Two or more interconnected electricity supply systems that agree to coordinate operations and seek improved reliability and efficiencies
Primary energy	Energy in natural resources (eg coal, liquid fuels, sunlight, wind, uranium)
Pumped-storage scheme	A lower and an upper reservoir with a power station/pumping plant between the two. During off-peak periods the reversible pump/turbines use electricity to pump water from the lower to the upper reservoir. During peak demand, water runs back into the lower reservoir through the turbines, generating electricity
Reserve margin	Difference between net system capability and the system's maximum load requirements (peak load or peak demand)
Return on average equity	Profit/loss for the year after tax/average total equity
Return on average total assets	Profit/loss for the year after tax/average total assets
System minutes	Global benchmark for measuring the severity of interruptions to customers. One system minute is equivalent to the loss of the entire system for one minute at annual peak. A major incident is an interruption with a severity ≥ 1 system minute
Technical losses	Naturally occurring losses that depend on the power systems used
Unit capability factor (UCF)	Measure of power-station availability indicating how well plant is operated and maintained
Unplanned automatic grid separations	Measure of the reliability of the service provided to the electrical grid that logs the number of supply interruptions per operating period
Unplanned capability loss factor (UCLF)	Ratio of the energy that was not produced during a given period of time (because of unplanned shutdowns, outage extensions, or unplanned load reductions due to causes under management control) to the maximum amount of energy which could be produced over the same time period, expressed as a percentage
Used nuclear fuel	Nuclear fuel irradiated in, and permanently removed from a nuclear reactor. Used nuclear fuel is stored on-site in used fuel pools or storage casks
Value created per employee	Value created divided by number of employees
Working capital ratio	(Total current assets less financial instruments with group companies less investments in securities less embedded derivative assets less derivatives held for risk management less financial trading assets less cash and cash equivalents)/(total current liabilities less financial instruments with group companies less debt securities issued less borrowings less embedded derivative liabilities less derivatives held for risk management less financial trading liabilities)

Appendices: **Abbreviations and acronyms**

B-BBEE	Broad-based black economic empowerment
CFL	Compact fluorescent lamps
COP17	2011 Conference of the Parties to the United Nations Convention on Climate Change
EAF	Energy availability factor
GWh	Gigawatt-hour (1 000MWh)
INPO	Institute of Nuclear Power Operations
IPP	Independent power producer
ISMO	Independent system and market operator
IT	Information technology
kg	Kilogram
kt	Kiloton (1 000 tons)
kWh	Kilowatt-hour
kWhSO	Kilowatt-hour sent out
L	Litre
LED	Light emitting diode
LTIR	Lost-time incidence rate
MW	Megawatt
MWh	Megawatt-hour (1 000kWh)
Mℓ	Megalitre (1 000 000 litres)
mSv	MilliSievert
Mt	Megaton
MVA	Mega volt ampere
MYPD	Multi-year price determination
NERSA	National Energy Regulator of South Africa
NGO	Non-governmental organisation
OHSAS	Occupational Health and Safety Assessment Series
PCB	Polychlorinated biphenyls
PFMA	Public Finance Management Act
PWR	Pressurised water reactor
RTS	Return to service power stations
SADC	Southern African Development Community
SAIDI	System average interruption duration index
SAIFI	System average interruption frequency index
Sm^3	Standard cubic metre
UCF	Unit capability factor
UCG	Underground coal gasification
UCLF	Unplanned capability loss factor
WANO	World Association of Nuclear Operators

Appendices: **Sustainability responsibilities, approval and assurance**

Sustainability responsibilities and approval

Sustainability key indicators, set out on page 9, report performance on issues material to Eskom's stakeholders. These key indicators have been prepared in accordance with the GRI G3 guidelines, supported by Eskom's internal reporting guidelines. Eskom's declaration on its GRI B+ Application Level is located on page 1. The King Code advocates that sustainability reporting and disclosure should be independently assured. KPMG Services (Pty) Limited provided reasonable assurance on selected sustainability key indicators marked with an "RA" in this report and limited assurance on Eskom's self-declaration of a GRI B+ application level. KPMG's assurance report is presented below.

The board acknowledges its responsibility to ensure the integrity of the divisional report. The directors have collectively reviewed the content of the divisional report and believe it addresses the material issues and is a fair presentation of the performance of the group.

BA Dames
Chief executive
31 May 2012

PS O'Flaherty
Finance director
31 May 2012

Independent assurance report on selected sustainability information

To the directors of Eskom Holdings SOC Limited

We have undertaken an assurance engagement on selected sustainability information as described below and presented in the 2012 Eskom Divisional Report (the Report) of Eskom Holdings SOC Limited (Eskom) for the year ended 31 March 2012.

We are required to provide assurance as follows:

1. Reasonable assurance on the following key performance indicators prepared in accordance with the Global Reporting Initiative (GRI) G3 Guidelines, marked with a 'RA' on the relevant pages of the Report:
   - Technical performance parameters – *Unplanned capability loss factor, unit capability factor, energy availability factor, system minutes lost, major incidents, system average interruption frequency index (SAIFI), system average interruption duration index (SAIDI), management of the national supply/demand constraints and energy losses (transmission and distribution)*
   - Environmental performance parameters – *Coal purchased – stock days, specific water consumption, liquid fuel usage, demand side management (megawatts and gigawatts), relative particulate emissions, carbon dioxide emissions, sulphur dioxide emissions, nitrogen oxides emissions, low level radioactive waste generated and disposed, intermediate level radioactive waste generated and disposed, polychlorinated biphenyls (PCBs) thermally destructed, asbestos disposed, ash (produced, recycled and disposed), environmental legal contraventions and internal energy efficiency (megawatts and gigawatts)*
   - Social performance parameters – *Total learner pipeline (as at 31 March 2012), number of learners in system (engineers, artisans and technicians), disabilities, racial equity in senior management (% representation by race and gender), corporate social investment spend, employee and contractor work related fatalities, employee lost time injury rate (LTIR), Broad Based Black Employment Equity (B-BBEE) Expenditure – Company (attributable spend, attributable spend percentage, attributable black women owned spend and attributable black women owned percentage)*
   - Economic parameters – *Generation capacity installed and commissioned, transmission lines installed, transmission Mega Volt Amperes (MVA) installed, percentage of local content in new-build contracts, cost of electricity, debt:equity ratio (company) and interest cover (company).*

2. Limited assurance on Eskom's self declaration of the GRI B+ Application Level. Refer to page 1.

Directors' responsibilities

The Directors are responsible for the selection, preparation and presentation of the sustainability information, the identification of stakeholder requirements and material issues, for commitments with respect to sustainability performance, and establishing and maintaining appropriate performance management and internal control systems from which the reported information is derived, and for such internal control as the Directors determine is necessary to enable the preparation of the Report that is free from material misstatement, whether due to fraud or error.

The Directors are also responsible for the selection and application of the criteria detailed below:

- The GRI G3 Guidelines applied to the selected key performance indicators; and
- The GRI G3 Guidelines on Eskom's self declaration of the GRI B+ Application Level.

Independence and expertise

We have complied with the International Federation of Accountants (IFAC) Code of Ethics for Professional Accountants, which includes comprehensive independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour. Our engagement was conducted by a multi-disciplinary team of health, safety, social, environmental and assurance specialists with extensive experience in sustainability reporting.

Our responsibility

Our responsibility is to express assurance conclusions on the selected sustainability information based on our work performed. We have conducted our engagement in accordance with the International Standard on Assurance Engagements (ISAE 3000), Assurance Engagements other than the Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board. That Standard requires that we plan and perform our engagement to obtain assurance about whether the selected sustainability information is free from material misstatement.

Our procedures and the extent of our procedures depend on our judgement including the risks of material misstatement of the selected sustainability information. In a limited assurance engagement, the evidence gathering procedures are less than where reasonable assurance is expressed. In making our risk assessments, we considered internal control relevant to Eskom's preparation of the Report. We believe the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusions.

Summary of work performed for limited assurance on Eskom's self declaration of a GRI B+ Application Level

Our work included the following evidence-gathering procedures:

- Interviewing management and senior executives to evaluate the application of the GRI G3 Guidelines and to obtain an understanding of the control environment relative to the reported sustainability information
- Inspecting documentation to corroborate the statements of management and senior executives in our interviews
- Testing the processes and systems to generate, collate, aggregate, monitor and report the selected sustainability information
- Inspecting supporting documentation and performing analytical procedures
- Performing site work at the nuclear power station (Koeberg), coal power stations (Arnot, Tutuka, Kendal, Kriel, Matla, Hendrina, Duvha, Camden, Kusile and Grootvlei), Transmission divisions (Central and Northern), the Distribution divisions (Central and Eastern), Roshcon, Rotek and also performing desktop reviews of Mepudi and Matimba
- Conducting an Application Level check on the Report to evaluate whether all disclosure requirements of the GRI B+ Application Level have been adhered to
- Evaluating whether the information presented in the Report is consistent with our findings, overall knowledge and experience of sustainability management and performance at Eskom.

Conclusions

1. *On the selected key performance indicators on which we are required to express reasonable assurance*
   In our opinion, the selected key performance indicators for the year ended 31 March 2012 are fairly stated, in all material respects, in accordance with the GRI G3 Guidelines.
2. *On Eskom's self declaration on the GRI G3 B+ Application Level on which we are required to express limited assurance*
   Based our work performed, nothing has come to our attention that causes us to believe that Eskom's self declaration of a B+ Application Level is not fairly stated, in all material respects, in accordance with the GRI G3 Guidelines.

Restriction of liability

Our work has been undertaken to enable us to express the conclusions on the selected sustainability information to the Directors of Eskom in accordance with the terms of our engagement, and for no other purpose. We do not accept or assume liability to any party other than Eskom, for our work, for this report, or for the conclusions we have reached.

Other matter

The maintenance and integrity of the Eskom website is the responsibility of Eskom's management. Our procedures did not involve consideration of these matters and accordingly we accept no responsibility for any changes to either the information in the Report or our Independent Assurance Report that may have occurred since the initial date of presentation on the Eskom website.

KPMG Services (Pty) Limited

Per PD Naidoo
Director

Johannesburg
31 May 2012

AH Jaffer
Director

Johannesburg
31 May 2012

Appendices

Statistical overview

	2012	2011	2010	2009	2008
Sales					
Total sold (GWh)[1,2]	224 785	224 446	218 591	214 850	224 366
Growth/(reduction) in GWh sales (%)	0.2	2.7	1.7	(4.2)	2.9
Electricity output					
Total produced by Eskom stations (GWh (net))	237 291	237 430	232 812	228 944	239 109
Coal-fired stations (GWh (net))	218 212	220 219	215 940	211 941	222 908
Hydroelectric stations (GWh (net))	1 904	1 960	1 274	1 082	751
Pumped storage stations (GWh (net))	2 962	2 953	2 742	2 772	2 979
Gas turbine stations (GWh (net))	709	197	49	143	1 153
Wind energy (GWh (net))	2	2	1	2	1
Nuclear power station (GWh (net))	13 502	12 099	12 806	13 004	11 317
Purchased from independent power producers (GWh)	4 107	–	–	–	–
Total imported for Eskom system (GWh)	13 038	15 446	13 754	12 189	11 510
Total electricity for Eskom system (Eskom stations and purchased) (GWh)[4]	254 436	252 876	246 566	241 133	250 619
Total consumed by Eskom (GWh)[5]	3 982	3 962	3 695	3 816	4 136
Total available for distribution (GWh)[2]	250 454	248 914	242 871	237 317	246 483
Plant performance indicators					
Total power station nominal capacity (MW)	44 115	44 145	44 175	44 193	43 037
Total power station net maximum capacity (MW)	41 647	41 194	40 870	40 506	38 747
Peak demand on integrated Eskom system (MW)	36 212	36 664	35 850	35 959	36 513
Peak demand on integrated Eskom system, including load reductions (MW)	36 543	36 970	35 912	36 227	37 158
Reserve margin (including imports) (%)	16.9	14.9	16.4	10.6	5.6
Average energy availability – EAF (UCF) (%)[6]	82.0 (83.0)	84.6 (85.9)	85.2 (85.9)	85.3 (86.1)	84.8 (86.2)
Generation load factor (%)[8]	65.1	66.4	66.2	67.0	72.3
Integrated Eskom system load factor (EUF) (%)	79.4	78.5	77.7	78.6	85.2
Environmental indicators					
Specific water consumption (L/kWh sent out)[9]	1.34RA	1.35RA	1.34RA	1.35RA	1.32LA
Significant legal contraventions reported (number)[10]	5	4	0	12	6
Customer satisfaction (Enhanced PreCare/MaxiCare) (ratio)[11]	97.40	98.20	99.65	99.84	97.21
Net raw water consumption (ML)	319 772	327 252	316 202	323 190	322 666
Liquid fuels (diesel and kerosene) (ML)	225.5RA	63.6RA	16.1RA	28.9LA	345.9
Coal burnt (Mt)	125.2	124.7	122.7	121.2	125.3
Average calorific value (MJ/kg)	19.61	19.45	19.22	19.10	18.51
Average ash content (%)	28.88	29.03	29.56	29.70	29.09
Average sulphur content (%)	0.79	0.78	0.81	0.83	0.87
Overall thermal efficiency (%)	31.4	32.6	33.1	33.4	33.4
Line losses (%)	8.7	8.3	8.5	7.9	8.0
Nitrous oxide (N_2O) (t)[12]	2 967	2 906	2 825	2 801	2 872
Carbon dioxide (CO_2) (Mt)[12,18]	231.9RA	230.3RA	224.7RA	221.7RA	223.6LA
Sulphur dioxide (SO_2) (kt)[12]	1 849RA	1 810RA	1 856RA	1 874RA	1 950LA
Nitrogen oxide (NO_x) as NO_2 (kt)[13]	977RA	977RA	959RA	957LA	984
Relative particulate emissions (kg/MWh sent out)[14]	0.31RA	0.33RA	0.39RA	0.27RA	0.21LA
Particulate emissions (kt)	72.42RA	75.84RA	88.27RA	55.64RA	50.84
Ash produced (Mt)	36.21RA	36.22RA	36.01RA	36.66LA	36.04
Ash sold (Mt)	2.3RA	2.0RA	2.0RA	2.1	2.4
Asbestos disposed (tons)	448.1RA	611.5RA	321.4RA	3 590.8LA	321.0
PCB thermally destructed (tons)	14.3RA	422.9RA	19.1RA	505.6LA	17.0
Public individual radiation exposure (mSv)[14]	0.0024	0.0043	0.0040	0.0045	0.0047
Low-level radioactive waste generated (m^3)[15]	184.7RA	165.3RA	137.8	140.8	180.3
Intermediate-level radioactive waste generated (m^3)[15]	25.4RA	39.4RA	47.1	23.9	16.5
Low-level radioactive waste disposed of (m^3)	54.0RA	81.0RA	216.0RA	189.0	270.0
Intermediate-level radioactive waste disposed of (m^3)	130.0RA	0.0RA	266.0RA	473.6	418.0
Low-level nuclear waste – fuel racks (m^3)[16] (cumulative figure)	0 (697)	0 (697)	0 (697)	0 (697)	0 (697)
Used nuclear fuel, number of elements discharged[16] (cumulative figure)	60 (1 957)	112 (1 897)	56 (1 785)	56 (1 729)	112 (1 673)

2007	2006	2005 (15 months)	2004	2003	2002
218 120	207 921	256 453	206 799	196 980	187 957
4.9	(18.9)[3]	30.5	5.0	4.8	3.5
232 445	221 988	273 404	220 152	210 218	197 737
215 211	206 606	251 914	202 171	194 046	181 651
2 443	1 141	903	720	777	2 357
2 947	2 867	3 675	2 981	2 732	1 738
62	78	–	–	–	–
2	3	–	–	–	–
11 780	11 293	16 912	14 280	12 663	11 991
–	–	–	–	–	–
11 483	10 310	12 197	9 818	8 194	9 496
243 928	232 298	285 601	229 970	218 412	207 233
3 937	3 814	5 043	4 040	3 664	2 354
239 991	228 484	280 558	225 930	214 748	204 879
42 618	42 011	42 011	42 011	42 011	42 011
37 764	36 398	36 208	36 208	36 208	36 208
34 807	33 461	34 195	34 195	31 928	31 621
35 441	33 461	34 195	34 195	31 928	31 621
7.8	12.7	–	–	–	–
87.5 (88.6)	87.4 (88.7)	89.5 (89.9)[7]	89.5 (90.0)	87.5 (88.7)	89.3 (91.7)
72.4	69.7	69.0	69.2	66.3	62.3
82.7	79.8	78.0	77.4	76.8	74.0
1.35	1.32	1.27[7]	1.26	1.29	1.27
0	1	3[7]	2	2	3
100.80	101.06	93.10	8.31	8.47	8.57
313 064	291 516	347 135	277 557	271 940	251 611
11.3	–	–	–	–	–
119.1	112.1	136.4	109.6	104.4	96.5
19.06	19.58	19.36	19.42	19.41	19.54
29.70	29.10	29.60	29.60	28.90	28.40
0.86	0.88	0.87	0.87	0.92	0.92
33.9	33.8	34.0	34.0	34.2	34.1
8.4	8.2	8.2[7]	7.8	8.3	8.2
2 730	3 134	3 552	2 924	2 580	2 246
208.9	203.7	247.0	197.7	190.1	175.2
1 876	1 763	2 236	1 779	1 728	1 494
930	877	994	797	760	702
0.20	0.21	0.26[7]	0.27	0.28	0.29
46.08	45.76	72.83	59.17	58.65	57.53
34.16	33.40	40.80	33.10	29.80	26.20
2.2	1.8	2.0	1.6	1.2	1.3
6 060.0	–	–	–	–	–
10.0	–	–	–	–	–
0.0034	0.0049	0.0079[7]	0.0087	0.0123	0.0060
94.5	90.2	80.3	81.4	100.5	111.9
49.8	52.7	47.2	36.8	30.1	45.8
135.0	91.0	–	–	–	–
436.0	52.0	–	–	–	–
0 (697)	0 (697)	0 (697)	697	–	–
56 (1 561)	52 (1 505)	104 (1 453)	56 (1 405)	104 (1 349)	48 (1 245)

1. *Sales prior to 2005 include internal sales.*
2. *Difference between electricity available for distribution and electricity sold is due to transmission and other losses.*
3. *Actual sales growth was 0.8% when compared to the 12 months 1 April 2004 to 31 March 2005.*
4. *Includes Eskom electricity produced and delivered to neighbouring countries.*
5. *Used by Eskom for pumped storage facilities and synchronous condenser mode of operation.*
6. *Capacity hours available, times 100, divided by total capacity hours in a year.*
7. *Represents the 12-month moving average for 1 April 2004 to 31 March 2005.*
8. *kWh produced, times 100, divided by average net maximum capacity times hours in a year.*
9. *Volume of water consumed per unit of generated power from coal-fired power stations sent out, excluding Komati power station.*
10. *2002 reported in terms of the revised definition of the operational health dashboard. From 2008, repeat legal contraventions are included in the criteria.*
11. *Reflects the environmental element of Enhanced MaxiCare.*
    The Enhanced MaxiCare replaced the PreCare/MaxiCare from January 2005.
12. *Calculated figures based on coal characteristics and the power station design parameters. Sulphur-dioxide and carbon-dioxide emissions are based on coal analysis and using coal burnt tonnages. Figures include coal-fired and gas turbine power stations, as well as oil consumed during power station start-ups and, for carbon-dioxide emissions, the underground coal gasification pilot.*
13. *NO_x reported as NO_2 is calculated using average station specific emission factors, which have been measured intermittently between 1982 and 2006, and tonnages of coal burnt.*
14. *The limit set by the National Nuclear Regulator is ≤0.25mSv.*
15. *These are the net volumes produced in a 12 month moving window.*
16. *Waste as a result of re-racking of spent fuel pools at Koeberg power station.*
17. *The gross mass of a nuclear fuel element is approximately 665kg, with UO_2 mass typically between 462 and 464kg*
18. *See* **www.eskom.co.za/IR2012/052.html** *for the climate change fact sheet, giving details of the relative CO_2 emission factor.*

RA *Reasonable Assurance provided by the independent assurance provider (refer page 86).*

LA *Limited Assurance provided by the independent assurance provider in previous years.*

Power station commercial capacities at 31 March 2012

Name of station	Location	Number and current capacity of generator sets MW	Total nominal capacity MW	Total net maximum capacity MW[1]	Generators in reserve storage Number	Generators in reserve storage Nominal rating MW	Other generation total rating MW[2]
Coal-fired stations (13)			37 715	35 408	3	300	–
Arnot[3, 13]	Middelburg, Mpumalanga	1 x 370; 1 x 390; 2 x 396; 2 x 400;	2 352	2 232	–	–	–
Camden[4, 9]	Ermelo	2 x 200; 1 x 195; 3 x 190; 1 x 180; 1 x 185	1 530	1 450		–	–
Duvha[3]	Witbank	6 x 600	3 600	3 450	–	–	–
Grootvlei[4, 9, 10, 11]	Balfour	4 x 200; 1 x 190; 1 x 160	1 150	1 090	–	–	–
Hendrina[3, 9]	Mpumalanga	8 x 200; 1 x 195; 1 x 170	1 965	1 865	–	–	–
Kendal[3, 5]	Witbank	6 x 686	4 116	3 840	–	–	–
Komati[4, 9, 10]	Middelburg, Mpumalanga	5 x 100; 2 x 125; 2 x 95	940	580	3	300	–
Kriel[3]	Bethal	6 x 500	3 000	2 850	–	–	–
Lethabo[3]	Viljoensdrift	6 x 618	3 708	3 558	–	–	–
Majuba[3, 5]	Volksrust	3 x 657; 3 x 713	4 110	3 843	–	–	–
Matimba[3, 5]	Lephalale	6 x 665	3 990	3 690	–	–	–
Matla[3]	Bethal	6 x 600	3 600	3 450	–	–	–
Tutuka[3]	Standerton	6 x 609	3 654	3 510	–	–	–
Gas/liquid fuel turbine stations[6] (4)			2 426	2 409	–	–	–
Acacia	Cape Town	3 x 57	171	171	–	–	–
Ankerlig	Atlantis	4 x 149.2; 5 x 148.3	1 338	1 327	–	–	–
Gourikwa	Mossel Bay	5 x 149.2	746	740	–	–	–
Port Rex	East London	3 x 57	171	171	–	–	–
Hydroelectric stations[6](6)			661	600	–	–	61
Colley Wobbles[2]	Mbashe River	3 x 14	42	–	–	–	42
First Falls[2]	Umtata River	2 x 3	6	–	–	–	6
Gariep[7]	Norvalspont	4 x 90	360	360	–	–	–
Ncora[2]	Ncora River	2 x 0.4; 1 x 1.3	2	–	–	–	2
Second Falls[2]	Umtata River	2 x 5.5	11	–	–	–	11
Vanderkloof[7]	Petrusville	2 x 120	240	240	–	–	–
Pumped storage schemes[6, 8] (2)			1 400	1 400	–	–	
Drakensberg	Bergville	4 x 250	1 000	1 000	–	–	–
Palmiet	Grabouw	2 x 200	400	400	–	–	–
Wind energy (1)							
Klipheuwel[2]	Klipheuwel	1 x 1.75; 1 x 0.66; 1 x 0.75	3	–	–	–	3
Nuclear power station (1)							
Koeberg[3,12]	Cape Town	1 x 940; 1 x 970	1 910	1 830	–	–	–
Total power station capacities (27)			44 115	41 647	3	300	64

1. *Difference between nominal and net maximum capacity reflects auxiliary power consumption.*
2. *Operational but not included for capacity management purposes.*
3. *Base-load station.*
4. *Return to service station.*
5. *Dry-cooled unit specifications are based on design back-pressure and ambient air temperature.*
6. *Stations used for peaking or emergency supplies.*
7. *Use restricted to peaking, emergencies and availability of water in Gariep and Vanderkloof dams.*
8. *Pumped storage facilities are net users of electricity. Water is pumped during off-peak periods so that electricity can be generated during peak periods.*
9. *Due to technical constraints, some units at these stations have been derated.*
10. *Units commissioned for the first time at these RTS stations, were running their twelve month performance confirmation period during the period under review.*
11. *Grootvlei Unit 4's normal twelve month performance confirmation period was extended to twenty one months due to technical constraints.*
12. *Due to technical constraints, Koeberg units were derated to a total nominal capacity of 1 880MW (1 800MW net maximum). During the period under review Unit 1's output was increased by 30MW after a turbine retrofit, increasing the total nominal capacity to 1 910MW and the net maximum to 1 830MW.*
13. *At Arnot there are still partially uprated units due to technical constraints.*

Environmental implications of using or saving electricity[1]

	Factor 1 (total energy sold)[2]	Factor 2 (total energy generated)[3]	If electricity consumption is measured in:			
			kWh	MWh	GWh	TWh
Coal use	0.56	0.54	kilogram	ton	thousand tons (kT)	million tons
Water use[4]	1.42	1.37	litre	kilolitre	megalitre	thousand megalitres
Ash produced	161	155	gram	kilogram	ton	thousand tons (kT)
Particulate emissions	0.32	0.31	gram	kilogram	ton	thousand tons (kT)
CO_2 emissions[5]	1.03	0.99	kilogram	ton	thousand tons (kT)	million tons
SO_x emissions[5]	8.23	7.93	gram	kilogram	ton	thousand tons (kT)
NO_x emissions[6]	4.35	4.19	gram	kilogram	ton	thousand tons (kT)

Use of table: Multiply electricity consumption or saving by the relevant factor to determine the environmental implication.

Example 1 (using factor 1):
Used 90 MWh of electricity
Water consumption: 90 x 1.42 = 127.8
Therefore 127.8 kilolitres of water used

Example 2 (using factor 1):
Used 90 MWh of electricity
CO_2 emissions 90 x 1.03 = 92.7
Therefore 92.7 tons emitted

Example 3 (using factor 2):
Used 90 MWh of electricity
Water consumption: 90 x 1.37 = 123.3
Therefore 123.3 kilolitres of water used

Example 4 (using factor 2):
Used 90 MWh of electricity
CO_2 emissions 90 x 0.99 = 89.1
Therefore 89,1 tons emitted

1. *Figures represent the 12-month period from 1 April 2011 to 31 March 2012.*
2. *Factor 1 figures are calculated based on total electricity sold by Eskom (based on total available to Eskom to distribute – including what Eskom purchases – less technical electricity losses due to transmission and distribution of electricity across the country; less electricity theft; less our own internal use; and less wheeling). That is for CO_2: 239.1 Mt/(224 785 GWh) = 1.03 tons per MWh.*
3. *Factor 2 figures are calculated based on total electricity generated by Eskom (coal, nuclear, pumped storage, wind, hydro and gas turbines), but excluding electricity used for pumping water for the Pumped Storage schemes.. That is for CO_2: 239.1 Mt/(237 291 GWh – 3 982 GWh) = 0.99 tons per MWh.*
4. *Volume of water used at all Eskom power stations*
5. *Calculated figures based on coal characteristics and the power station design parameters. Sulphur-dioxide and carbon-dioxide emissions are based on coal analysis and using coal burnt tonnages. Figures include coal-fired and gas turbine power stations, as well as oil consumed during power station start-ups and, for carbon-dioxide emissions, the underground coal gasification pilot.*
6. *NO_x reported as NO_2 is calculated using average station specific emission factors, which have been measured intermittently between 1982 and 2006, and tonnages of coal burnt.*
7. *See **www.eskom.co.za/IR2012/053.html** for the climate change fact sheet, giving details of the relative CO_2 emission factor.*
8. *Further information can also be obtained through the Eskom Environmental helpline. Contact details available on page 95.*

Transmission and distribution equipment in service at 31 March 2012

	2012	2011	2010
Power lines			
Transmission power lines (km)[1]	**28 995**	28 790	28 482
765kV	**1 153**	1 153	1 153
533kV DC (monopolar)	**1 035**	1 035	1 035
400kV[2]	**17 118**	16 913	16 582
275kV	**7 361**	7 476	7 390
220kV	**1 217**	1 217	1 333
132kV	**1 111**	996	989
Distribution power lines (km)	**47 509**	46 712	46 018
165 – 132kV	**25 778**	25 075	24 514
88 – 33kV	**21 731**	21 637	21 504
Reticulation power lines (km)			
22kV and lower	**311 831**	308 899	305 151
Underground cables (km)	**11 415**	11 018	10 687
165 – 132kV	**230**	230	197
22kV and lower	**11 185**	10 788	10 490
Total all power lines (km)	**399 750**	395 419	390 338
Total transformer capacity (MVA)	**237 140**	232 058	223 398
Transmission (MVA)[3]	**132 955**	130 005	123 990
Distribution and reticulation (MVA)	**104 185**	102 053	99 408
Total transformers, number	**356 511**	351 297	344 369
Transmission, number	**408**	405	399
Distribution and reticulation (number)	**356 103**	350 892	343 970

1. *Transmission power line lengths as per Geographic Information System (GIS) distances.*
2. *The Majuba Umfolozi No 1 (765kV Line), even though constructed at 765kV, is currently still being operated at 400kV and thus, for now, is counted under the 400kV total.*
3. *Base of definition: transformers rated ≥30 MVA and primary voltage ≥132 kV.*

Sale of electricity and revenue per category of customer

Category	Customers 2012 Number	2011 Number	2010 Number
Local	**4 852 712**	4 653 740	4 463 291
Redistributors	**786**	784	773
Residential[1]	**4 713 178**	4 514 998	4 325 550
Commercial	**50 270**	49 090	47 984
Industrial	**2 775**	2 857	2 925
Mining	**1 100**	1 110	1 134
Agricultural	**84 095**	84 393	84 415
Traction	**508**	508	510
International	**10**	10	10
Utilities	**7**	7	7
End users across the border	**3**	3	3
	4 852 722	4 653 750	4 463 301

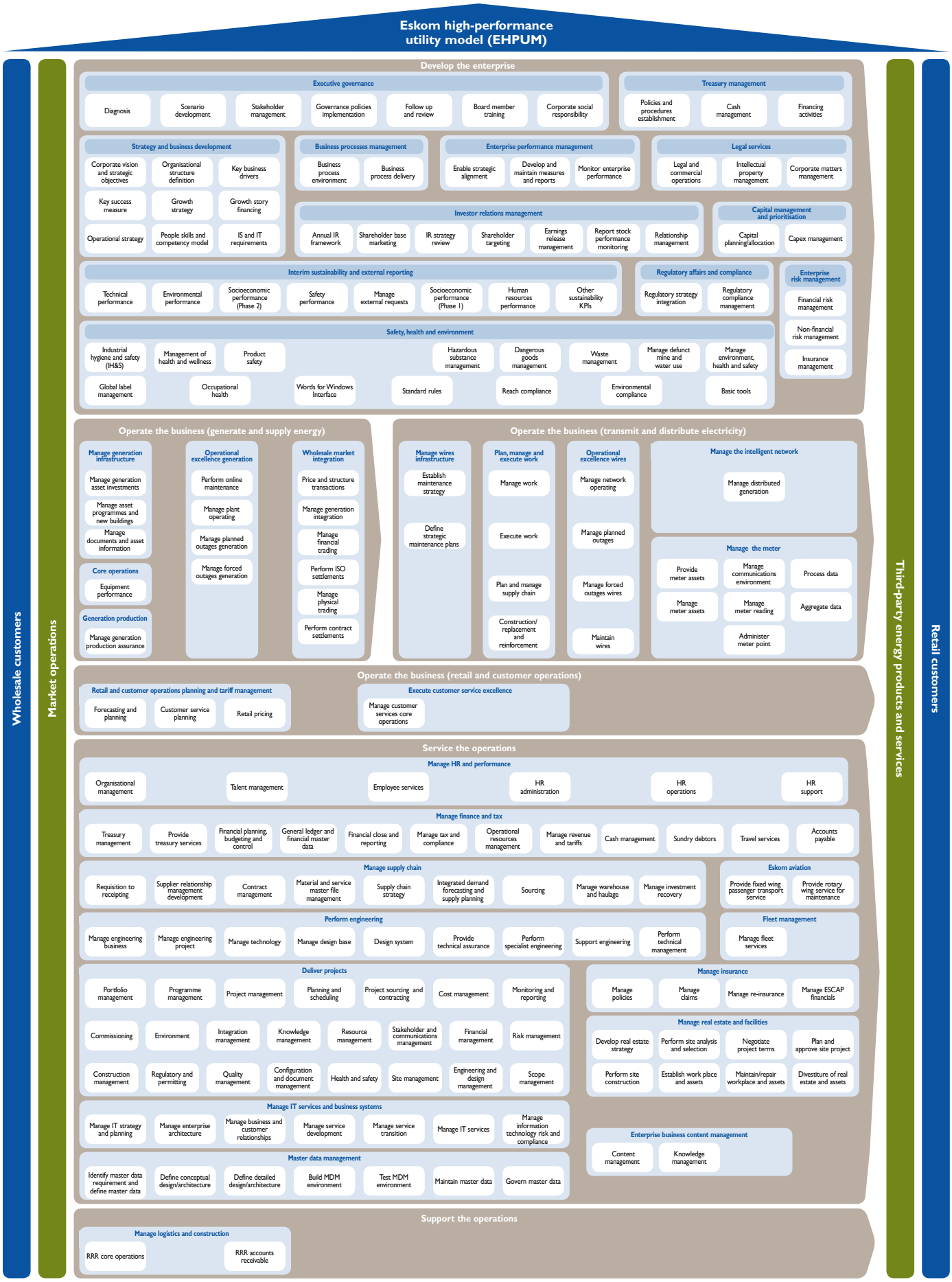
Category	Sold GWh 2012	GWh 2011	GWh 2010
Local	**211 590**	211 150	205 364
Redistributors	**92 140**	91 564	90 712
Residential[1]	**10 522**	10 539	10 350
Commercial	**9 270**	9 020	8 889
Industrial	**58 632**	59 611	55 816
Mining	**32 617**	32 630	31 733
Agricultural	**5 139**	4 919	5 010
Traction	**3 270**	2 867	2 854
International	**13 195**	13 296	13 227
Utilities	**3 607**	3 974	4 109
End users across the border	**9 588**	9 322	9 118
	224 785	224 446	218 591
Sales to countries in southern Africa (GWh)	**13 195**	13 296	13 227
Botswana	**2 498**	2 377	2 684
Mozambique	**8 265**	8 523	8 326
Namibia	**1 507**	1 559	1 459
Zimbabwe	**7**	0	6
Lesotho	**184**	247	121
Swaziland	**596**	564	597
Zambia	**134**	23	33
Short-term energy market[2]	**4**	3	1

1. *Pre-payments and public lighting are included under residential.*
2. *The short-term energy market consists of all the utilities in the southern African countries that form part of the Southern African Power Pool. Energy is traded on a daily, weekly and monthly basis as there is no long-term bilateral contract.*

Sale of electricity and revenue per category of customer *(continued)*

Category	Revenue 2012 Rm	2011 Rm	2010 Rm
Local	**108 047**	86 358	66 970
Redistributors	**46 034**	36 191	27 973
Residential[1]	**8 367**	7 003	6 622
Commercial	**6 111**	4 747	3 642
Industrial	**24 701**	20 469	15 089
Mining	**16 345**	12 979	9 599
Agricultural	**4 585**	3 577	2 954
Traction	**1 904**	1 392	1 091
International	**4 952**	4 127	2 972
Utilities	**2 423**	2 019	1 561
End users across the border	**2 529**	2 108	1 411
Gross electricity revenue	**112 999**	90 485	69 942
Less: revenue capitalised[2]		(110)	(108)
Electricity revenue per note 29 of the annual financial statements[3]	**112 999**	90 375	69 834
The environmental levy[4] included in revenue	**4 290**	4 335	3 263

1. *Pre-payments and public lighting are included under residential.*
2. *Revenue from the sale of production while testing Generation plant not yet commissioned, capitalised to plant.*
3. *Refer to the annual financial statements at www.eskom.co.za/IR2012/054.html.*
4. *The Environmental levy of 2c/kWh tax, was effective from 1 July 2009, to 31 March 2011. On 1 April 2011, the levy was raised to 2.5c/kWh. The levy is payable for electricity produced from non-renewable sources (coal, nuclear and petroleum). The levy is raised on the total electricity production volumes and is recovered through sales.*


Eskom high-performance utility model (EHPUM)
Wholesale customers
Market operations
Develop the enterprise
Executive governance
Diagnosis
Scenario development
Stakeholder management
Governance policies implementation
Follow up and review
Board member training
Corporate social responsibility
Treasury management
Policies and procedures establishment
Cash management
Financing activities
Strategy and business development
Corporate vision and strategic objectives
Organisational structure definition
Key business drivers
Key success measure
Growth strategy
Growth story financing
Operational strategy
People skills and competency model
IS and IT requirements
Business processes management
Business process environment
Business process delivery
Enterprise performance management
Enable strategic alignment
Develop and maintain measures and reports
Monitor enterprise performance
Legal services
Legal and commercial operations
Intellectual property management
Corporate matters management
Investor relations management
Annual IR framework
Shareholder base marketing
IR strategy review
Shareholder targeting
Earnings release management
Report stock performance monitoring
Relationship management
Capital management and prioritisation
Capital planning/allocation
Capex management
Interim sustainability and external reporting
Technical performance
Environmental performance
Socioeconomic performance (Phase 2)
Safety performance
Manage external requests
Socioeconomic performance (Phase 1)
Human resources performance
Other sustainability KPIs
Regulatory affairs and compliance
Regulatory strategy integration
Regulatory compliance management
Enterprise risk management
Financial risk management
Non-financial risk management
Insurance management
Safety, health and environment
Industrial hygiene and safety (IH&S)
Management of health and wellness
Product safety
Hazardous substance management
Dangerous goods management
Waste management
Manage defunct mine and water use
Manage environment, health and safety
Global label management
Occupational health
Words for Windows Interface
Standard rules
Reach compliance
Environmental compliance
Basic tools
Operate the business (generate and supply energy)
Manage generation infrastructure
Manage generation asset investments
Manage asset programmes and new buildings
Manage documents and asset information
Core operations
Equipment performance
Generation production
Manage generation production assurance
Operational excellence generation
Perform online maintenance
Manage plant operating
Manage planned outages generation
Manage forced outages generation
Wholesale market integration
Price and structure transactions
Manage generation integration
Manage financial trading
Perform ISO settlements
Manage physical trading
Perform contract settlements
Operate the business (transmit and distribute electricity)
Manage wires infrastructure
Establish maintenance strategy
Define strategic maintenance plans
Plan, manage and execute work
Manage work
Execute work
Plan and manage supply chain
Construction/ replacement and reinforcement
Operational excellence wires
Manage network operating
Manage planned outages
Manage forced outages wires
Maintain wires
Manage the intelligent network
Manage distributed generation
Manage the meter
Provide meter assets
Manage communications environment
Process data
Manage meter assets
Manage meter reading
Aggregate data
Administer meter point
Operate the business (retail and customer operations)
Retail and customer operations planning and tariff management
Forecasting and planning
Customer service planning
Retail pricing
Execute customer service excellence
Manage customer services core operations
Service the operations
Manage HR and performance
Organisational management
Talent management
Employee services
HR administration
HR operations
HR support
Manage finance and tax
Treasury management
Provide treasury services
Financial planning, budgeting and control
General ledger and financial master data
Financial close and reporting
Manage tax and compliance
Operational resources management
Manage revenue and tariffs
Cash management
Sundry debtors
Travel services
Accounts payable
Manage supply chain
Requisition to receipting
Supplier relationship management development
Contract management
Material and service master file management
Supply chain strategy
Integrated demand forecasting and supply planning
Sourcing
Manage warehouse and haulage
Manage investment recovery
Eskom aviation
Provide fixed wing passenger transport service
Provide rotary wing service for maintenance
Perform engineering
Manage engineering business
Manage engineering project
Manage technology
Manage design base
Design system
Provide technical assurance
Perform specialist engineering
Support engineering
Perform technical management
Fleet management
Manage fleet services
Deliver projects
Portfolio management
Programme management
Project management
Planning and scheduling
Project sourcing and contracting
Cost management
Monitoring and reporting
Commissioning
Environment
Integration management
Knowledge management
Resource management
Stakeholder and communications management
Financial management
Risk management
Construction management
Regulatory and permitting
Quality management
Configuration and document management
Health and safety
Site management
Engineering and design management
Scope management
Manage insurance
Manage policies
Manage claims
Manage re-insurance
Manage ESCAP financials
Manage real estate and facilities
Develop real estate strategy
Perform site analysis and selection
Negotiate project terms
Plan and approve site project
Perform site construction
Establish work place and assets
Maintain/repair workplace and assets
Divestiture of real estate and assets
Manage IT services and business systems
Manage IT strategy and planning
Manage enterprise architecture
Manage business and customer relationships
Manage service development
Manage service transition
Manage IT services
Manage information technology risk and compliance
Enterprise business content management
Content management
Knowledge management
Master data management
Identify master data requirement and define master data
Define conceptual design/architecture
Define detailed design/architecture
Build MDM environment
Test MDM environment
Maintain master data
Govern master data
Support the operations
Manage logistics and construction
RRR core operations
RRR accounts receivable
Third-party energy products and services
Retail customers

Contact details

Telephone

Eskom head office
+27 11 800 8111

Eskom Group Communications
+27 11 800 2323

Eskom Development Foundation
+27 11 800 8111

Eskom Media Desk
+27 11 800 3304
+27 11 800 3309
+27 82 805 7278

Investor relations
+27 11 800 2277

Ethics office advisory service
+27 11 800 2791
+27 11 800 3187 or
ethics@eskom.co.za

Confidential fax line
+27 11 507 6358

National sharecall number
08600ESKOM
(0860037566)

Websites and email

Eskom environmental
envhelp@eskom.co.za

Eskom integrated annual report:
www.eskom.co.za/IR2012/

Eskom Development Foundation:
www.eskom.co.za/csi

Eskom Media Desk
mediadesk@eskom.co.za

Investor relations
investor.relations@eskom.co.za

Eskom website
www.eskom.co.za
contact@eskom.co.za

Promotion of Access to Information Act
PAIA@eskom.co.za

Physical address

Eskom
Megawatt Park
2 Maxwell Drive
Sunninghill
Sandton
2157

Postal address

Eskom
PO Box 1091
Johannesburg
2000

Eskom Holdings Secretariat

Bongiwe Mbomvu (Company secretary)
PO Box 1091
Johannesburg
2000

Company registration number
2002/015527/06

Eskom

www.eskom.co.za

Eskom Holdings SOC Limited
Registration number 2002/015527/06