



# SWITCH TO EFFICIENCY.

PRIVATE SECTOR ENERGY EFFICIENCY PROJECT.



energy  
Department:  
Energy  
REPUBLIC OF SOUTH AFRICA



“ The system remains **tight** and that will be the case for the next number of **years**. ”

– Former Eskom CEO **Brian Dames**





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“ Office lights  
left on overnight  
use enough  
energy in a year  
to heat a home for  
almost 5 months.”

Switch it off and you'll  
make all the difference.



## FOREWORD: KEEPING THE LIGHTS ON.

There are two key issues in relation to energy and its impact on the economy that companies are concerned about: price increases, the most recent with effect from 1st April 2014 and energy security of supply. These two factors impact the bottom line and operational productivity of companies.

With electricity demand outstripping supply and Eskom being forced to shut down power station generation units to undertake maintenance of its aging infrastructure or respond to unplanned incidents within very tight reserve margins, South Africans need to play their part much more seriously in reducing their consumption of energy. Cut backs in electricity usage by large energy users have helped to keep the lights on but this is not a sustainable solution, particularly if big companies are required to do this over a protracted period.

Fuel prices also continue to fluctuate and have risen steadily over the past few years. Passing all rising costs on to consumers is not a solution. Businesses both large and small will find it difficult to remain in operation without taking concerted measures to reduce their energy consumption.

Fortunately, there are practical, achievable and cost effective measures that businesses and other consumers can take to significantly ease the situation. While debates continue about how we consider our energy security and energy mix into the future, there is something we can do now. In the words of Maria van Hoeven, Executive Director of the International Energy Agency, speaking at the launch of the 2013 Energy Efficiency Outlook report: "Key to adapting to higher energy prices over the longer term will be efficiency – what was called the hidden fuel and more recently, the first fuel."

While we need to bring in more generation capacity, including renewable and alternative energies, most of us continue to neglect opportunities to use available energy more efficiently in our factories, plants, and

office blocks. We continue to waste energy by leaving the lights on, by neglecting to upgrade to more efficient technologies or by failing to fix the leak in a compressor or investing in building retrofits. Eskom alone cannot solve our energy security problems.

As South Africans we need to prepare for an increasingly resource-constrained world while ensuring that we have sufficient energy to grow our economy and also enable more people to access energy. The most immediate, practical and cost-effective way of doing this is to pick the so-called "lowest hanging fruit" by becoming more energy efficient.

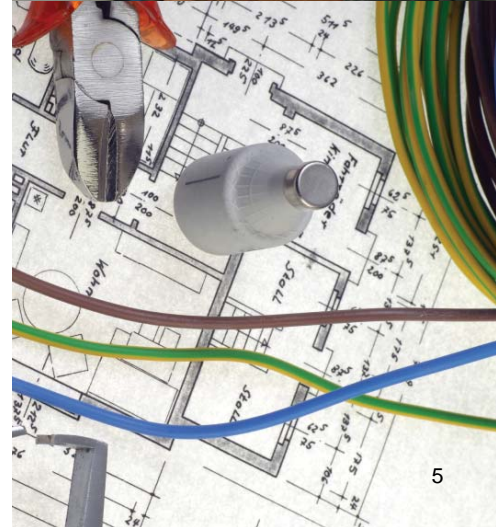
The NBI supports a vision of creating a thriving, sustainable and equitable society. Through our work, we offer support to the private sector in areas which have significant impacts on business including areas such as Energy Efficiency, Climate Change, Water Conservation, Skills Development and Ethical Business Practice.

The NBI is now implementing the Private Sector Energy Efficiency (PSEE) Project with funding of £8.6 million (approximately R150 million) from the UK government's Department of International Development and the strategic and operational support from the Department of Energy. This offers large, medium-size and small companies free or subsidised technical support to undertake energy efficiency initiatives.

We also encourage companies to join our Energy Efficiency Leadership Network.

For more information on the NBI, visit our website: [www.nbi.org.za](http://www.nbi.org.za). For companies wishing to benefit from the PSEE visit our project website: [www.psee.org.za](http://www.psee.org.za) or call our help desk for advice on 0801 113 943 (toll-free).

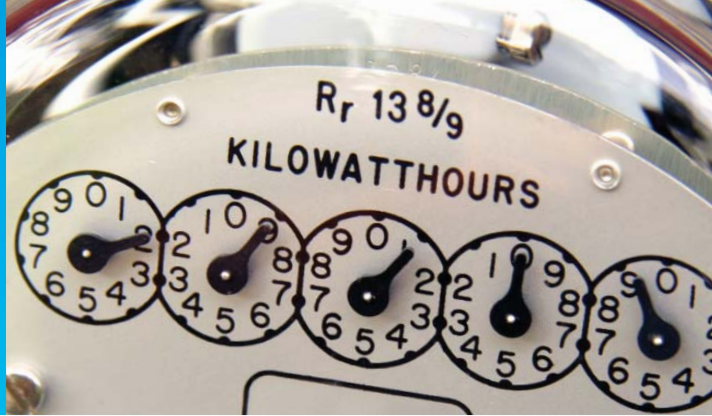
**Joanne Yawitch**  
Chief Executive Officer of the  
National Business Initiative



““ Air conditioning an office for 1 extra hour a day uses enough energy in a month to power a TV for over a year. ””

**Turn it off overnight and you'll make all the difference.**





## Reduce emissions. Improve bottom line.

Pro-active energy efficiency could reduce by 11 000 megawatts the amount of peak demand electricity government believes the country needs by 2030. The savings would more than avoid the cost of two mega coal-fired power stations, such as the new Medupi and Kusile plants which will generate a combined 9 600 megawatts at an installed cost of about R300 billion.

- The FM Green Report 2014, based on information from the Electricity Governance Initiative of South Africa.

Four South African companies invested R5.4 million to implement energy management systems over a two-year period. They saved 191.6 million kilowatt hours which would have cost them R182 million. They avoided 182 088 tons of carbon emissions.

- Case studies on ArcelorMittal, ToyotaSA, Gelvenor Textiles and Saint-Gorbain by the Industrial Energy Efficiency Improvement Project.



## INTRODUCTION.

### THE PRIVATE SECTOR ENERGY EFFICIENCY (PSEE) PROJECT.

The National Business Initiative (NBI) is implementing a country-wide Private Sector Energy Efficiency (PSEE) Project with funding of £8.6 million (approx. R150 million) from the UK government through its Department for International Development.

The PSEE aims to improve energy efficiency in large, medium and small commercial and industrial companies in South Africa through the provision of various services to assist them to identify and implement energy saving measures. The PSEE plans to support 60 large, 1 000 medium and 2 500 small companies by March 2015.

The project, which comes under the UK-SA Bilateral relationship, will contribute to the South African government's strategy for reducing energy demand. The PSEE is governed by a multi-stakeholder steering committee led by the Department of Energy.

The NBI has contracted the UK Carbon Trust to provide technical support to the PSEE Team, drawn from expertise developed over 10 years of implementing similar programmes in Great Britain.

### THE NATIONAL BUSINESS INITIATIVE (NBI).

The NBI is a voluntary coalition of over 120 local and multinational companies. As an organisation, the NBI is a not-for-profit which operates from a combination of business membership contributions, sponsorships and business or donor programme funding.

The NBI mission is to shape business strategy and action towards a sustainable future. The approach used by the NBI is centred around facilitating partnerships, advocacy and collective action. This includes policy engagement and implementation through practical programmes and projects.

Over the past eight years, the NBI has helped South African businesses to improve their energy efficiency through initiatives such as the Voluntary Energy Efficiency Accord, the Carbon Disclosure Project and Energy Efficiency Leadership Network.



## THE PSEE PROJECT BENEFITS TO COMPANIES.

Energy supply challenges and the impact of rising electricity and fuel prices on company operational costs make it imperative for South African companies to manage their energy demand and meet South Africa's local and international obligations to reduce carbon emissions. At the same time, implementation of energy efficiency measures can improve business productivity, competitiveness and innovation as well as access to energy efficiency financial subsidies and tax incentives.

### The PSEE Project seeks to support companies towards achieving:

- Increased awareness of energy efficiency.
- Energy savings.
- Energy intensity reductions.
- Operational reliability.
- Implementation of projects which will result in the reduction of greenhouse gas emissions.
- Improved economic competitiveness through resource and process efficiency.
- Investment leveraged from the private and public sectors through capital investment in energy efficiency projects.
- Indirect social benefits such as job creation and retention, and skills development relating to energy efficiency services.

Energy efficiency offers a powerful and cost-effective tool for achieving a sustainable energy future. Improvements in energy efficiency can reduce the need for investment in energy infrastructure, cut energy bills, improve health, increase competitiveness and improve consumer welfare. Environmental benefits can also be achieved by the reduction of greenhouse gases emissions and local air pollution.

– The International Energy Agency





## LARGE-SIZE COMPANIES.

**The PSEE aims to support energy efficiency initiatives for about 60 large companies with annual energy spend of over R45 million.**

### **SUPPORT SERVICES.**

**What will your company receive.**

Energy consultants will provide each company with up to 60 days of customised support to develop a strategic energy management plan. Support will be given over an eight-month period and can include:

- Establishment of an energy baseline and carbon footprint.
- Development of energy management systems and strategies.
- Identification of energy saving opportunities and technology feasibility studies.
- Assessment of the cost-benefit of different options.
- Opportunity prioritisation.
- Setting of medium and long-term targets.
- Capacity building.
- Development of internal energy efficiency awareness campaigns.
- Advice on legal compliance requirements and access to such measures as energy efficiency tax incentives.
- Remote advice and guidance through a telephone advice line, website, publications and guides, events and workshops, and awareness raising activities.

*Note that the combination and prioritisation of the aforementioned services will be dependent on a determination by the company of strategic gaps identified that enables or supports the development or improvement of a more comprehensive Energy Management plan and its implementation. Based on this a scope of work will be designed to inform the support required of the appointed consultant.*

### **How support services will be implemented.**

Services will be delivered by approved consultancies which will work under a tripartite agreement between the company, the consultancy and the PSEE programme team represented by an account manager.

Up to three consultancies will be approached to pitch for each project and the final decision will be made by the customer in collaboration with their account manager.

The approach of consultants in developing a strategic energy management plan will be based on the following steps dependent on level of maturity and needs of the company:

#### **Baseline:**

Build an energy and carbon emissions baseline; review and recommend initial measurement and monitoring procedures.

#### **Mobilisation:**

Identify internal stakeholders; secure buy-in and support; agree on aims, approach, commitments and responsibilities for energy management.



#### **Business case:**

Develop overall understanding of energy use, carbon emissions and associated risks and opportunities; agree on objectives and approach to implementation of energy management; understand drivers to energy efficiency, organisational value-at-stake and the competitive landscape.

#### **Opportunity identification:**

Establish detailed picture of company energy use, assets and liabilities; generate and evaluate ideas for cost-effective energy efficiency and emission reductions that are both technical and holistic.

#### **Implementation plan:**

Prioritise options, reflecting overall corporate objectives; develop implementation plan including indication of target timescales and cost.

#### **Manage implementation:**

Monitor implementation progress and effectiveness; review progress and update implementation plan.

#### **Customisation:**

Flexible approach to further energy and carbon savings for highly mature organisations. Specific strategic-level interventions could include training, technology analysis, feasibility studies, and supply chain engagement.

#### **YOUR COMPANY'S ROLE.**

##### **What will support services cost.**

Costs of support services will be shared, with the PSEE contributing 60% and the company 40%.

##### **What is expected of your company:**

- Commitment of time from a project champion.
- Senior executive management sponsor to drive progress and buy-in to the project.
- Willingness to share information on energy consumption data.
- Commitment to implement some priority recommendations.
- Agree to inclusion of project outcomes in case studies for publication by the PSEE.

##### **For more information:**

- An online application form is available on the website [www.psee.org.za](http://www.psee.org.za).
- Or call us on our toll-free line 0801 113 943.
- Or email us: [info@psee.org.za](mailto:info@psee.org.za).



## MEDIUM-SIZE COMPANIES.

About 1000 medium-size companies with annual energy spend between R750 000 and R45 million will receive four days of direct on-site consulting support fully subsidised by the PSEE.

### **SUPPORT SERVICES.**

**What will your company receive:**

Energy consultants will undertake an assessment of energy consumption, identification of energy saving opportunities, and follow up support will be made by the NBI which will enable companies to implement some of the identified energy saving opportunities. More specifically, support includes:

- Remote advice and guidance through a telephone advice line, website, publications and guides, events and workshops and awareness raising activities.
- A thorough site visit and assessment of major energy using systems against best practice.
- A review of existing energy policy, strategy and operational plans in accordance with the Energy Management Standard (ISO 50001).
- Expert data analysis and commentary on energy performance.
- Modelling of the cost and environmental impact of the existing systems.
- A prioritised, costed action plan of recommendations that will improve energy performance.
- An outline of cost-benefit analysis for investment.

### **How support services will be implemented:**

The energy survey will be undertaken by an approved consultant working under a framework contract with the PSEE. Coordination of the consultant and survey will be done by a PSEE account manager.

At the conclusion of the survey, your company will receive an audit report and a follow up call from the account manager, as well as an additional call three to six months later to track progress and discuss potential next steps.



### Survey-based support will follow one of two types:

- A general assessment, reviewing energy use, identifying energy savings opportunities and developing a suggested implementation plan, or
- An in-depth look at opportunities in a specific technology area.

Companies which have received survey-based or similar support but require assistance in taking identified opportunities to the point of implementation may receive tailored follow-on support to prioritise projects for implementation, build a business case for implementation, and understand the finance and technology options available. Follow-on support will typically be in the form of a one- to two-day engagement with a consultant. This can be extended if the customer is willing to fund any additional time.

### YOUR COMPANY'S ROLE.

#### What is expected of your company:

- Commitment of time from a project champion.
- Senior executive management sponsor to drive progress and buy-in to the project.
- Willingness to share information on energy consumption data.
- Commitment to implement some priority.
- Recommendations, which could begin with least- or no-cost opportunities.
- Agree to inclusion of project outcomes in case studies for publication by the PSEE.

#### Examples of companies that may fall into the medium-size company category:

Food manufacturing and manufacturing industries that supply retailers, automotive manufacturers, foundries, large franchises where there is high industrial or commercial energy usage.

#### For more information:

- An online application form is available on the website [www.psee.org.za](http://www.psee.org.za).
- Or call us on our toll-free line 0801 113 943.
- Or email us: [info@psee.org.za](mailto:info@psee.org.za).





## SMALL-SIZE COMPANIES.

**Small companies qualifying for PSEE services are those with a total energy spend of less than R750 000 a year.**

### **WHAT YOUR COMPANY WILL RECEIVE**

**Remote advice will be provided through:**

- An advice line enabling you to access call handlers with varying degrees of technical expertise, who will ask a series of questions designed to assess the customer's type of business, main energy uses, and level of knowledge and previous action taken. The customer is then given recommendations – either live on the phone or through a follow-up call/email – for easy-to-implement energy saving measures, directed to the website or offered relevant publications.
- A comprehensive website that will offer advice and tips, relevant news, publications for download, and easy-to-use diagnostic tools, as well as links to other sites and lists of other services.
- The Project will also conduct energy efficiency awareness workshops. In order to ensure that they receive the relevant awareness raising and training programmes to be delivered as part of the PSEE offering, small businesses are encouraged to register their information on the Applications tab on our website.

The remote advice service is open to all businesses, though preference/priority will be given to smaller businesses where it would not be cost-effective to service with a face-to-face offer.

### **Example of companies that may fall into the small-size company category:**

Bakeries, butcheries, laundries, hair salons and spas, restaurants, small manufacturers, small industrial and commercial enterprises with high electricity and /or fuel usage.

### **For more information:**

- An online application form is available on the website [www.psee.org.za](http://www.psee.org.za).
- Or call us on our toll-free line 0801 113 943.
- Or email us: [info@psee.org.za](mailto:info@psee.org.za).





## CONSULTANTS.

The PSEE has undertaken a stringent accreditation process to appoint energy service providers to support large and medium-size company energy efficiency initiatives in South Africa's nine provinces.

The PSEE aims to make available consultants covering virtually every facet of energy efficiency. Categories and economic sectors include, but are not limited to:

### Technology Experts:

- Pumps
- Fans and blowers
- Motors and motorised systems, including intelligent motor controllers)
- Boilers and steam systems
- Compressors and compressed air systems
- Heating, ventilation, and air conditioning systems, refrigeration and chillers
- Process heating and cooling (including heat pumps, WEH, DHWS, heat exchangers, furnaces)
- Lighting
- Fuel Switching
- ICT data centres

### Sectors:

- Transport
- Agricultural, Agri-processing
- Commercial
- Industrial buildings
- Industrial

### Sub-sectors:

- Iron and Steel
- Pulp, Paper and Print
- Transport equipment
- Wood
- Non-ferrous
- Food and Beverage
- Machinery
- Textiles
- Chemical
- Cement, Glass
- Mining and Quarrying
- Construction
- Energy training programmes
- Measurement and Verification
- Metering, Monitoring, Targeting and Recording





# PRIVATE SECTOR ENERGY EFFICIENCY PROJECT TEAM.



**Dr Peter Mukoma:** PSEE Programme Head

Peter Mukoma is the Head of the Private Sector Energy Efficiency Project at the NBI. He joined the NBI in 2011 as Programme Manager responsible for the Energy Efficiency Leadership Network which he helped launch in December 2011 at COP 17. Peter is a Chemical Engineer with a PHD from the University of the Witwatersrand. Before joining the NBI, he worked for Forster Wheeler SA as a Senior Process Engineer working on a number of process design projects.

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**Valerie Geen:** Head Of The NBI Energy Programme

Valerie Geen heads up the NBI Energy Programme and has extensive experience in engaging with business on both local and international platforms on the topic of Climate and Energy, having initiated and led the NBI Climate and Energy portfolio for over eight years. Within the PSEE, she leads the function of stakeholder engagement, communications, marketing and strategic partnerships.

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**Chisakula Kaputu:** PSEE Programme Manager

Chisakula Kaputu joins the team having worked as Principal Energy Consultant/Director of Sustainable Energy and Environment and SAKU Energy Enterprise (SA). He holds a Bachelor of Engineering with honours degree (BEng (hons)) in Electronic and Electrical Engineering at The Victoria University of Manchester (UK) and is currently completing his Masters in Engineering (MEng) on research in Energy Management through CRCED– NWU. He has rich experience in Energy Management through working in the private sector and across various sectors and sizes of industry and is also completing his expert trainer qualification.

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**Hemal Bhana:** PSEE Programme Manager

Hemal Bhana joins the team having worked as a management consultant at Accenture as well as being a senior mechanical engineer and sustainability/strategy manager at Sasol Synfuels with combined experience of over 10 years in the energy environment. He holds a MBA from the University of Cape Town and a Mechanical Engineering degree from the University of Kwa-Zulu Natal. He has led various multi-million rand engineering and consulting projects with large teams and grown business development efforts in local sustainability.

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**Benjamin Curnier:** PSEE Programme Strategy Manager

Benjamin Curnier (seconded from Carbon Trust) is Programme Strategy Manager for the PSEE programme. During his time at the Carbon Trust, Benjamin successfully worked within a number of roles in different parts of the organisation, giving him first-hand experience of a wide range of Carbon Trust activities. He is in South Africa supporting the programme leadership team.

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**Rosalind Dos Santos:** PSEE Key Accounts Manager

Rosalind Dos Santos joins the team having worked in Carbon Project Finance in a large South African bank where she provided technical support to the trading as well as working on the mining energy funding portfolio. She has a Master's degree in Metallurgical Engineering and an undergraduate degree in Chemical Engineering. She has a passion for energy, carbon emission reduction, the environment, economic development and sustainability. She has worked in energy, sustainability, economic development and carbon consultancies from small niche consultancies to one of the big four strategy consultancies.



**Lesego Gaegane:** PSEE Key Accounts Manager

Lesego Gaegane joins the team having worked in the resource efficiency and energy management field for the past five years focusing on the implementation of energy management systems and production efficiency within industries. Lesego has a Chemical Engineering degree and has worked in manufacturing where she was involved in an R&D project to explore alternative electroplating methods. She has also worked in the mineral processing sector specialising in the crushing, milling and floating of Platinum Group Metals.

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**Mitesh Bhawan:** PSEE Key Accounts Manager

Mitesh Bhawan joins the team having worked as Project Manager/Energy Auditor at BuiltAfrica Energy Management Solutions and Commissioning Engineer for Eskom. He holds a Bachelor of Technology in Electrical Engineering through the Cape Peninsula University of Technology and is a Certified Energy Auditor (CEA) and Certified Energy Manager (CEM).

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**Oliver Stotko:** PSEE Regional Account Manager, Western Cape

Oliver Stotko has seven years of experience as an environmental consulting engineer in the energy management field. He has a BSc in Chemical Engineering and MSc in Environmental Engineering and is the current Western Cape branch Chair of the International Association for Impact Assessment. He is a registered Steam Systems Optimisation expert assessor under the UNIDO Industrial Energy Efficiency programme. He has carried out energy efficiency assessments for sectors including automotive, agro-processing, chemicals, clothing, leather and textile, metals, pulp and paper and commercial building sector.

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**Angel Modutwane:** PSEE Programme Regional Account Manager, Kwa-Zulu Natal

Angel Modutwane has extensive working experience in the energy sector and recently completed her MBA in technology innovation and sustainability in Berlin, Germany. She also holds a Master's degree in Chemical engineering from The University of Cape Town. Her career spans eight years in the energy sector having started with Sasol in their R&D unit followed by the position of group energy specialist at PPC where she gained experience in energy management, identified energy efficiency opportunities and renewable technologies.

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**Kevin Tarr-Graham:** PSEE Programme Regional Account Manager, Eastern Cape

Kevin Tarr-Graham has spent the past 12 years advising major corporates in SA, the UK, EU and US on energy risk and efficiencies, renewable energy and carbon management. He holds a NHDip (Btech) Management from NMMU and has been trained through DNV/TwoTomorrows on Accountability CR AA1000 standards, GHG Institute on 14064 (Corporate GHG Accounting), the Canadian Standards Authority on 14064-2 (GHG Projects) & 3 (GHG Validation and Verification), WRI/GHG Protocol on Corporate Value Chain (Scope 3) Accounting and Reporting Standard, World Bank on Carbon Monitoring in CDM Afforestation/Reforestation Projects, Climate Reality Leadership (Al Gore) on Climate Crisis and Renewable Energy, Energy Training Foundation on EnMSI ISO50001 and has a Master Certificate in Renewable Energy Management and Finance.

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**Gershwin Pududu:** Project Manager For The NBI Energy Programme

Gershwin Pududu joins the team having worked as a projects facilitation officer Energy & Environment Partnership with Southern and East Africa (EEP S&EA) at DBSA, where he was responsible for facilitating and managing renewable energy and energy efficiency project funding in 14 participating countries from the SADC and EAC regions. He holds a PDM from Wits Business School and a Bachelor of Science from the University of the Witwatersrand and is completing his Masters in Development Finance through the University of Stellenbosch Business School.



**Golden Mokwalakwala: PSEE Financial Administrator**

Golden Mokwalakwala joins the team having previously worked at Rakoma and Associate Registered Accountants and Auditors as an accountant. He completed his articles at Price Waterhouse Coopers. Golden holds a BComm degree through the University of Limpopo.

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**Charmaine Plaatjie: PSEE Project Coordinator**

Charmaine Plaatjie joins the team with seven years' experience mostly in the financial industry, having previously worked at Nedbank as a senior project coordinator for two and a half years as well as at FirstRand as a project administrator and events coordinator for close to four years. Charmaine holds a project management and administration qualification through the XPert Group and also completed a risk management learnership at the University of Johannesburg.

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**Princess Ndobe: PSEE Database Administrator**

Princess Ndobe has worked as an environmental officer in the Hospitality industry with experience in GIS data capturing and analysis. She has a BSc degree in Life and Environmental Sciences, majoring in Geography and Environmental Management from the University of Johannesburg. She is also a Climate Reality Leader endorsed by the International Climate Reality Leadership Corporation.

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**Madimetja Godfrey Tloubatla: PSEE Programme Remote Advisor**

Madimetja Tloubatla holds a BSc in Water and Sanitation from the University of Limpopo. He has worked for Tiger brands, Saku Engineers and energy consultants (CSIR/NCPC), and recently for Royal Haskoning DHV as a process controller.

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**Chantal Blanche Napier: PSEE Programme Remote Advisor**

Chantal Napier holds diplomas in Business Management and Human Resources. She has worked as an energy consultant at NUS Consulting Group SA and has managed relationships with large industrial companies. She has also worked for Quadrant PHS South Africa as an internal sales consultant, and as a marketing and business development consultant for the Durban University of Technology. She has done full-time missionary work for Couples for Christ in Manila, Philippines.

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**Makgotso Mahasha: PSEE Switchboard**

Makgotso Mahasha fills in the switchboard function for the PSEE. She ensures that all caller and client queries are taken care of, by routing and screening calls, as well as providing relevant information about the programme. Makgotso has over two years administrative experience.



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