Eskom Competitive Supplier Development Programme (CSDP)

2008 - 2013
Contents

1 Background and context ................................................................. 6
  1.1 Historical decline of the SA power industry ......................... 6
  1.2 Opportunities to revive the SA power industry .................... 8
  1.3 The role of TSAPRO .......................................................... 11
  1.4 The strategic journey towards a globally competitive industry ......................................................... 13
    1.4.1 Phase 1: The period 2007 to 2015 ............................ 13
    1.4.2 Phase 2: The period 2015 to 2025 ............................ 13
    1.4.3 Phase 3: The period 2025 onwards .......................... 14
  1.5 CSDP: Developing the SA power industry through SA procurement ........................................................ 14
  1.6 Principles and assumptions of Eskom’s CSDP .................... 16

2 Industrial development opportunities ................................. 19
  2.1 Eskom’s approach to CSDP.................................................... 21
    2.1.1 Arriving at the 5 focus areas ........................................ 21
    2.1.2 Consultation with stakeholders ..................................... 22
    2.1.3 Feasibility of industrialisation ....................................... 23
  2.2 Potential CSDP interventions by industry grouping............ 25
    2.2.1 Plant and Equipment industry ....................................... 25
    2.2.2 Structural and Reinforcement Steel industry ............... 27
2.2.3 Coal Boiler industry ......................................................... 28
2.2.4 Coal Turbine industry ....................................................... 29
2.2.5 Controls and Instrumentation industry ............................. 31
2.3 Initial CSDP priority components and milestones ............. 32
2.4 The key enabler: Skills development ................................. 33
3 Eskom’s CSDP implementation plan ...................................... 34
3.1 Local content targets ......................................................... 34
3.2 Implementation through relationships with industry ........... 36
3.2.1 Establishing and sustaining component hubs ............... 38
3.2.2 A CSDP organisational structure within Eskom ............. 39
3.3 Enabling initiatives .......................................................... 40
3.3.1 Compliance to policy and legislation ............................. 40
3.3.2 Tracking and co-ordination ........................................... 41
3.3.3 Strategic support ......................................................... 42
3.3.4 Skills development ....................................................... 42
3.3.5 Supplier benchmarking and pre-qualification ............... 43
3.3.6 Funding .................................................................. 44
3.3.7 Government support initiatives ................................. 44
4 Revisions required for future submissions .......................... 46
5 Appendix: Eskom CSDP 2008-2013 Presentation .................. 47
Executive summary

The power expansion of the 1970s was supported by capable local industries, although these capabilities have declined in the past years. The new phase, from 2007 to 2025, of ~40GW expansion provides an opportunity to revive these local industries. The Competitive Supplier Development Programme (CSDP), which aims to develop SOE procurement to secure a local supply chain, will build the foundation for this industrial revival over the coming 5 years.

Eskom will focus on 5 industry groups with a total spend of R131bn over 5 years. These groups are Plant and Equipment, Structural and Reinforcement Steel, Coal Boiler, Coal Turbine and Controls and Instrumentation. Skills development is a critical enabler for all of these groups. CSDP has identified priority component industries for local development through a process of industrial categorisation and developed targets for each of these categories.

Eskom proposes ambitious, fact-based targets, an industry engagement approach and a set of relevant supporting initiatives to deliver the CSDP. CSDP aims to increase local spend on the 5 focus groups by 22%, thereby improving the SA balance of payments by at least R13.5bn. A new industry engagement approach will foster long term, collaborative relationships amongst Eskom, suppliers and enabling bodies. Delivery will be ensured through 7 enabling initiatives which include skill building and procurement policy changes.
**CSDP going for gold**

Eskom will launch its very first CSDP in the year 2008, which is also the year of the Olympic Games. We thus have framed the CSDP journey in line with the spirit of the Olympic Games.

We have chosen to use three symbols synonymous with the Olympic Games viz. the Olympic Torch, the 5 Olympic Rings making up the logo and the archery Target.

The Olympic Torch indicates the history and context of the proposal. This then translates the context into the assumptions used in our approach. We hope that this Torch will be kept burning throughout SA’s path to industrialisation.

The 5 Olympic Rings symbolise the 5 continents in our globe. In the context of the CSDP the 5 Rings symbolise the 5 industrial groups that were chosen to be part of Eskom’s CSDP 2008-2013. It is clear that skills development is a critical enabler in all groups. These 5 groups are the Plant and Equipment industry, Structural and Reinforcement Steel industry, Coal Boiler industry, Coal Turbine industry and Controls and Instrumentation industry.

The archery Target used in the context of Eskom’s CSDP 2008-2013 symbolises the clear and ambitious CSDP targets that Eskom aspires towards in the implementation of its CSDP. This section of the document outlines the implementation methodology and also discusses the critical enablers.
1 Background and context

The power industry, though once a strong market for local industry, has declined since the 1990s. Projected new expansion of just over 40 GW provides the opportunity to revive that market. Competitive Supplier Development Programme (CSDP) 2008 to 2013 is the mechanism through which Eskom will build a foundation for industrialisation. Subsequent Eskom supplier development plans (SDPs) should assist the SA power industry to demonstrate local manufacturing strength in order to emerge as a globally competitive design and manufacturing champion.

In this CSDP submission, Eskom refers specifically to the spend that will occur at the start of the 40GW new build, between 2008 and 2013. However, there is significantly more spend in the power industry beyond 2013. Furthermore, nuclear components are not considered due to the current sensitivity of tender negotiations. The inclusion of nuclear components in future CSDP plans, will result in further local manufacturing opportunities.

1.1 Historical decline of the SA power industry

After fifteen years of limited investment in electricity, South Africa is faced with the challenge of rapidly increasing generation capacity to meet the needs of our growing economy (see Figure 1 below). However, our lack of focus has resulted in low competitiveness in the local power industry. In addition, between 1969 and 1990, manufacturing played a reactive role with no ambition to grasp more long term capabilities like design, nuclear technology and skills development.
The decline was brought about by several shortcomings during the period 1969 to 1990, which led to lack of competitiveness within the SA power industry. Eskom developed strong coal-based system-level architectural capacity with limited ability to innovate further since there was no programmatic vision behind expansion. Also, there was a high specification engineering drive with little standardisation. This in turn led to diverse demand, leaving little opportunity to progress up a particular learning curve and develop particular capabilities and thus a competitive advantage. Economic isolation drove local content premiums rather than a focus on competitiveness.

During the last period of new build, from 1970 to 1990, manufacturing played a reactive role with no ambition to grasp more long term capabilities like design and nuclear technology. For example, Eskom research and development (R&D) focused internally (e.g., dry cooling) and a military-related research programme led to research into nuclear technology. OEMs thus undertook design R&D in home countries with flexible production.
technology ‘job-shops’ created by local companies to deliver on varying local content agreements with OEMs. Parastatals and mining houses drove artisanal and engineering skill development for SA, with limited involvement of our manufacturing sector.

There was little focus on skills development within the SA manufacturing sector. SA had ability to absorb technology demonstrated by the effectiveness of our local job-shops. However, investments were made only in response to domestic demand. Therefore industry shrank in line with decline in local demand, resulting in localised economic collapse. Outside of nuclear, there was limited R&D in industrial design and processes based on short-term commercial focus, thus there was also negligible investment by anyone in skills.

1.2 Opportunities to revive the SA power industry

Projected new investments to develop an additional 40 GW of power will take place from now to 2025. This will provide the opportunity to revive the South African power market.

South Africa will develop power capacity using several technologies including coal, nuclear, and open cycle gas turbine (OCGT) power stations. Industry development opportunities will also arise from commissioning return to service (RTS) and pumped storage generation plants (see Figure 2).

Further opportunities will be available in transmission and distribution as well as operation and maintenance.

New transmission and distribution infrastructure will follow the rise of new power stations, and the continued electrification of South
Africa. This will provide numerous opportunities to local companies providing products and services for such infrastructure.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Capacity (GW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear</td>
<td>18.7</td>
</tr>
<tr>
<td>Coal</td>
<td>13.3</td>
</tr>
<tr>
<td>Pumped storage</td>
<td>7.3</td>
</tr>
<tr>
<td>OCGT</td>
<td>2.1</td>
</tr>
<tr>
<td>RTS</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>43.3</strong></td>
</tr>
</tbody>
</table>

**Figure 2**: Estimated SA power expansion from 2008 to 2025 on a GW basis

It will be important to include the various operation and maintenance opportunities both of a routine service nature and the high expenditure refurbishment. This operation and maintenance expenditure will continue beyond the life of new build type projects.

---

1 Estimates compiled from Eskom draft 1 ISEP 11 – Constrain coal build rate and Eskom adequacy report 2008, week 14
in South Africa and is expected to result in significant revenue opportunities for potential local industry players.

The construction industry is expected to be the largest contributor to the new build project. Electrical components, cables and conductors, steel fabrication as well as structural steel industries are also expected to contribute significantly. Other industries with significant opportunities during the new build project include component manufacturing, services (e.g. maintenance), steel forging, electronics and instrumentation, piping and bending and design. Figure 3 below shows the local and global industries contributing towards long term power spend in South Africa.
% of build spend

- Construction: 24%
- Electrical components: 16%
- Cables and conductors: 13%
- Steel fabrication: 11%
- Structural steel: 8%
- Component manufacturing: 7%
- Services: 6%
- Steel forging: 5%
- Electronics and instrumentation: 5%
- Piping and bending: 2%
- Design: 2%
- Other: 1%

**Figure 3**: Breakdown of local and global industries contributing towards long term power spend in South Africa (Source: PBMR; McKinsey; EIA; Eskom interviews; TSAPRO team analysis)

### 1.3 The role of TSAPRO

The size of the required build programme necessitates the formulation of a comprehensive response involving a range of government departments, state-owned enterprises (SOEs) and government agencies. To define exactly what would be required by such a response, and to understand the challenges and opportunities better, Eskom and the DPE initiated The South Africa
Power Project (TSAPRO). In particular the project was tasked with analysing the following problems:

- What government interventions are required to support the development of a power industry cluster designed to secure future power supply?
- How can the build programme be leveraged to promote industrialisation?
- What will be the roles of government, SOEs and the private sector?
- What will be the impact of the programme?

Given the number of departments that are and will be involved, TSAPRO reports to an Advisory Committee made up of the Ministers and Directors General of the Departments of Public Enterprises, Minerals and Energy, Trade and Industry and Science and Technology. In addition, the Chairs and Chief Executive Officers of Eskom, Pebble Bed Modular Reactor (PBMR) and the Nuclear Energy Corporation of South Africa (Necsa) are members of the Committee.

A task team made up of representatives from the above organisations was established to drive the process operationally. TSAPRO has developed a guiding vision to “establish an integrated and sustainable power industry cluster to meet the long term needs of South Africa and export markets”.

In developing the strategic journey, the task team and consultants drew on international case studies, held a range of workshops with stakeholders and potential suppliers, conducted interviews and performed original research and analysis.
1.4 The strategic journey towards a globally competitive industry

By 2025, there is an opportunity to develop the South African power industry to global manufacturing standards. The development of the industry can be viewed as a journey in 3 phases.

1.4.1 Phase 1: The period 2007 to 2015

The Eskom CSDP 2008-2013 aims to build a foundation for industrialisation. In this phase, the focus is to leverage SOE procurement to access the power spend for industrialisation. Local industry will need to build incremental capabilities in component manufacturing for coal power stations as well as transmission and distribution networks. We will need to develop logistics support to match the requirements of local industry.

With the assistance of TSAPRO SA should prepare for the future by launching a nuclear industrial programme and positioning in the nuclear value chain. This will involve choosing strategic partners, selecting investments and continuing with R&D into renewable energy and its respective demonstration.

1.4.2 Phase 2: The period 2015 to 2025

During the period from 2015 to 2025 the SA power industry should demonstrate its local manufacturing strength. Thus the South African power industry should intensify its nuclear manufacturing capabilities and commercialise viable renewables and the nuclear fuel cycle. We would also expect exports of common equipment and niche nuclear equipment also to increase in this phase.

In order to prepare for the future, SA will aim to deepen system R&D capability, and identify future technology opportunities.
1.4.3 Phase 3: The period 2025 onwards

Beyond 2025 South Africa aims to emerge as a global design and manufacturing champion. We should expand nuclear component and system exports. In addition we should support SA power replacement and expansion programmes.

In order to prepare further for the future, SA will need to identify new technologies for R&D.

1.5 CSDP: Developing the SA power industry through SA procurement

CSDP 2008-2013 is the mechanism through which Eskom will build a foundation for industrialisation.

The objective of the CSDP is to develop a procurement tool-kit with supporting measures to promote investments and learning. CSDP aims to develop internationally competitive capabilities in local suppliers to the state owned enterprises’ (SOE) capital and relevant operational spend. This includes ensuring security of supply, reducing costs by increasing efficiencies, reducing dependency on imports and foreign exchange exposure and also developing niche export areas.

The CSDP was initiated by the Department of Public Enterprises (DPE) in 2007 and draws on previous and existing government and SOE programmes.

The DPE advises that the components of a CSDP plan submission should include:

- A spend analysis (detailed 5 years and high level 10-15 years)
- A supplier industry analysis
- Priority interventions and associated sectors
- Key performance indicators, and
- A high level implementation plan

Prior to the CSDP, the Department of Trade and Industry (dti) initiated the National Industrial Participation Programme (NIPP). NIPP obliged suppliers to invest 30% of the contract value in non-related industries for imported contracts worth over $10 million. However, there was no framework guiding prioritisation of investment areas.

A new framework for SOE procurement was then developed by the DPE. SOEs that indicated an interest in subscribing to the CSDP were tasked with developing a plan to promote investment through continuity of demand in focus areas. The CSDP is driven by bilateral co-ordination between the SOE and suppliers. SOEs and government partners will actively identify and promote industries in which South African suppliers could have global competitive advantage.

The CSDP is a key feature of national development frameworks such as the Accelerated and Shared Growth Initiative for South Africa (Asgisa), National Industrial Policy Framework (NIPF) and Industrial Policy Action Plan (IPAP), the 10 Year Innovation Plan, the National Spatial Development Perspective (NSDP) and the Joint Initiative on Priority Skills Acquisition (Jipsa). CSDP is the vehicle through which these frameworks can be both implemented and institutionalised. Hence, CSDP is complementary to other industry development support programmes such as Competency Centres and Foundry and Tooling initiatives initiated by the Department of Science and
Technology (DST), Centres of Excellence initiated by the Department of Trade and Industry (dti), the United Nations Industrial Development Organization (UNIDO) supplier benchmarking, an Advanced Manufacturing Technology Strategy (AMTS) and a range of other incentive programmes.

1.6 Principles and assumptions of Eskom’s CSDP

Eskom’s CSDP approach is guided by a set of key principles. The guiding principles are to:

- Prioritise specific areas of industry to develop first
- Phase the industrialisation dependent on the character of local industry development
- Establish a new, collaboration-based supplier engagement process to jointly support industrialisation
- Adjust related procedures and policies to allow for the proposed CSDP approach

By applying these principles, the impact of Eskom’s CSDP on the local power industry will be to:

- Ensure security of supply (for both new build and operation of current plants) and allow for more predictable pricing
- Develop a competitive, self-sustaining local industry not dependent on subsidies
- Include corresponding skill and capability development incremental to existing South African resources
There are 6 key assumptions underlying Eskom’s CSDP submission which inform the analysis. These are:

1. The overall power expansion timeline on a GigaWatt (GW) basis was based on Eskom planning projections (ISEP draft 11, Constrain Coal Build Rate and Eskom Adequacy Report Week 14 2008). Nuclear build was considered as GW expansion but not on a component level in this CSDP, since supplier negotiations are still at a sensitive stage. Additional programmes should be included in revisions of subsequent CSDP plans, e.g., lifetime extension, station replacement.

2. The time horizon is 5 years for the detailed CSDP. Though there is a detailed 5 year view, we have also made 20 year assumptions to provide for long term planning which may be shared with suppliers to stimulate investment. The forecasts should be refined for each CSDP submission.

3. Spend is based on 5 priority industry groups. Priority groups are Plant and Equipment, Coal Boiler, Coal Turbine, Structural and Reinforcement Steel, and Controls and Instrumentation (C&I). Projections were created on spend per GW basis, based on current contracts. The nuclear component spend was not considered, but GW expansion was applied to other work streams where applicable, e.g., Transmission (Tx) and Distribution (Dx), C&I.

4. All figures are real numbers, based on current pricing, with no adjustments for inflation or price escalation.

5. Local content projections are for priority components. These are the focus of monitoring for CSDP initiatives. For other components aside from those identified as priorities, it is assumed that local content proportions will remain constant.
Local content proportions are based on current contracts where possible. Some short term adjustments have been applied according to known contractual changes.

6. Export estimates are high level. They were applied only to priority components also specified as suitable for export as determined by Eskom. The assumed local production capacity remains constant after reaching a local demand ceiling, with excess exported. This was not a focus of the current 5 year plan and thus estimates should be revised in subsequent CSDP plans.
2 Industrial development opportunities

Eskom has decided to prioritise 5 industry groups: Plant and Equipment, Structural and Reinforcement Steel, Coal Boiler components, Coal Turbine components and Controls and Instrumentation. Development of all of these industries will be underpinned by skills development.

The 5 priority industry groups comprise approximately 10% of the TSAPRO estimated R1.3 trillion spend in SA to 2025. Figure 4 shows the projected total SA power industry spend until 2025, as estimated by TSAPRO and highlights spend on CSDP components. Eskom will spend R131 billion (Figure 5) on the 5 industry groups over a period of 5 years, indirectly in the case of steel, largely through OEM and construction contracts. This spend will be channelled through a mix of local and international procurement.

CSDP components were prioritised on the basis of the nature of local industry development (see Section 2.1.3 below), the size of spend, the accessibility of spend during 2008 to 2013 as well as the feasibility of capturing such opportunities.

In Figure 4, the other coal, Tx, Dx and operation and maintenance (O&M) spend includes civils and construction and post 2013 spend. Nuclear, making up 31%, was not considered in the CSDP 2008–2013 assumptions owing to the sensitivity of current supplier negotiations. Nuclear and advanced technology components are to be evaluated in a subsequent CSDP submission. Inflation was not included because all numbers used for CSDP are real and based on current pricing.
Figure 4: Projected total SA power industry spend until 2025, 100% = R1.3 trillion (Source: TSAPRO estimates; Eskom PSCM and ED Commercial). Note: These are not approved budget figures.
**Figure 5**: Total spend (R billion) to 2013 (Source: Eskom PSCM and ED Commercial estimates).

### 2.1 Eskom’s approach to CSDP

#### 2.1.1 Arriving at the 5 focus areas

In developing the industrialisation journey, Eskom prioritised components with maximum investment impact.

First the size and accessibility of opportunity was considered. Eskom looked at the proportion of industry group spend. We also considered the accessibility of spend during the new build period. For example we probed the existence of South African players and the lead time to develop capacity and capabilities. We started with coal technology spend for this CSDP, since nuclear technology will only be effected in future CSDPs. We also looked at the ease of capturing the spend.
Second Eskom looked at the global competitiveness of each industry. The presence of a global bottleneck results in opportunities for entering the global supply chain. We reviewed our ability to produce locally at globally competitive prices.

Third Eskom looked at the synergies between the power industry and other industries. We considered the presence of synergies between capabilities across industries and technologies.

2.1.2 Consultation with stakeholders

The Eskom Supplier Development Plan (SDP) was written in conjunction with, and will be implemented in conjunction with major stakeholders. These stakeholders include Eskom itself together with TSAPRO, Eskom’s suppliers and the South African government.

Eskom categorised and prioritised the components. Eskom also developed demand forecasts and set industrialisation targets. Eskom also convened and managed discussions with other stakeholders. Eskom will leverage its procurement to drive industrialisation and it will continue to track and monitor industrialisation.

TSAPRO developed the industry and intervention categorisation framework and a high level view of the strategic priorities. The team in this power project is also developing enabling systems (skills, funding, R&D and coordination).

Suppliers gave feedback on draft SDPs. Suppliers will continue to benchmark and develop businesses to requirements. They should also pre-qualify as preferred suppliers. Suppliers will invest in capacity, capabilities and skills.
Government will provide policy and legislative support. Government will also provide support programmes for suppliers through skills, R&D, financing and benchmarking.

2.1.3 Feasibility of industrialisation

Eskom’s CSDP categorises components by the character of local industry development. TSAPRO developed a categorisation methodology to understand the feasibility of industrialisation (see Figure 6). Components were classified\(^2\) into *natural*, *coordinated*, *government supported* and *government led*.

The key defining factor behind a *natural* component classification is its existing competitive local supply. It can be described by the following characteristics within the current SA environment:

- Within local industry capability
- Moderate capacity expansion required
- Funding can be undertaken independently

The key defining factor behind a *coordinated* component classification is its potential to be locally competitive in a free market environment. It can be described by the following characteristics within the current SA environment:

- Major capacity expansion required
- Clear commitment required from customers
- Funding can be undertaken independently

\(^2\) Industry experts, Dorbyl, Eskom CSDP team and TSAPRO team contributed to categorisation methodology
• Local capabilities exist

The key defining factor behind a government supported component classification is that it requires co-ordinated government interventions. It can be described by the following characteristics within the current SA environment:

• Major capacity expansion required
• Government support required
• Potential for sustainability
• Unlikely to have local suppliers
• Many global suppliers

The key defining factor behind a government led component classification is its need for strategic government intervention. It can be described by the following characteristics within the current SA environment:

• Not commercially viable/ sustainable in SA alone
• Direct government intervention required
• Very high risk and major investment
• Few global suppliers
### Component classification

<table>
<thead>
<tr>
<th>Component classification</th>
<th>Categorisation rationale</th>
</tr>
</thead>
</table>
| Government led          | - Requires strategic government intervention  
- Not commercially viable in SA alone  
- Direct government intervention required  
- Very high risk and major investment required  
- Low sustainability outlook  
- Few global suppliers  |
| Government supported    | - Potential to be locally competitive with co-ordinated government interventions  
- Major capacity expansion required  
- Government support required  
- Potential for sustainability  
- Unlikely to have local suppliers  
- Many global suppliers  |
| Coordinated             | - Likely to be locally competitive without government intervention  
- Major capacity expansion required  
- Clear commitment required from customers  
- Funding can still be undertaken independently  
- Local capabilities exist  |
| Natural                 | - Existing competitive local supply  
- Within local industry capability  
- Moderate capacity expansion required  
- Funding can be undertaken independently  |

**Figure 6**: Eskom has categorised components by character of local industry development (Source: Dorbyl; Industry experts; Eskom CSDP team; TSAPRO team)

### 2.2 Potential CSDP interventions by industry grouping

Eskom has identified components that present opportunities for CSDP intervention within each of the 5 industry groups.

#### 2.2.1 Plant and Equipment industry

Categorisation of Plant and Equipment components revealed a CSDP opportunity in power transformers, CTC and enamelled copper wire for transformers and constraints in the Tier 2 supply.
Conductors and cables also provide an opportunity. They are largely locally manufactured. Conductors and cables fit into a natural industrialisation initiative according to our methodology described in Section 2.1.3 above.

Eskom will channels its spend largely to Tier 1 manufacturing suppliers. However, there are a number of opportunities also to develop a Tier 2 industry that supplies to the Tier 1 industry. Plant and Equipment has several Tier 1 components that fit into our natural industrialisation initiative where local content is already high or can be achieved within the next two to three years. This will include ensuring that natural Plant and Equipment Tier 1 component industries such as cables, conductors, medium voltage distribution switchgears and distribution reticulation transformers develop as required to meet increasing demand, whilst remaining globally competitive. Tier 2 component industries that are also natural include the manufacture of aluminium rod, steel wire and standard copper wire. Tier 1 component hubs to be set up around each component industry (see Section 3) need to discuss the short-term capacity constraints around these tier 2 components, as well as the Tier 3 bottlenecks for raw materials, particularly in copper.

The key defining factor behind a coordinated component classification is its likelihood of being locally competitive without any government intervention. Small and medium power transformers form part of our coordinated industrialisation initiative. We foresee an opportunity to accelerate development of the SA transformer industry, and also potential to increase local content within the transformer supply chain in Tier 2 industries including continuously transposed conductor (CTC) and enamelled copper wire.

The key defining factor behind a government supported component classification is its potential to be locally competitive with the
assistance of government co-ordinated interventions. Within the Plant and Equipment industry, Tier 1 components include medium voltage generation switchgear, low voltage distribution switchgear and large power transformers. Possible Tier 2 component industries could then be developed through transformer bushings and core steel. Government support will be required here. Large power transformers are a priority component in this category, and Eskom intends to carry out further work on the opportunity in switchgear.

The key defining factor behind a government led component classification is its need for strategic government intervention. Within the Plant and Equipment industry, an example of a Tier 1 component is a specialised power transformer. Possible Tier 2 component industries could then be developed around SF6 circuit breakers and transformer on load tap changers. The manufacture of specialised power transformers is currently not commercially viable in SA. It is of a high risk nature and requires large capital investment. Direct government intervention will be required and these components are not a priority in CSDP 2008-2013.

2.2.2 Structural and Reinforcement Steel industry

Categorisation of Structural and Reinforcement Steel revealed a CSDP opportunity to influence across the supply chain.

The key defining factor behind a natural component classification is its naturally competitive local supply. Structural and Reinforcement Steel will be supported by Eskom towards natural industrialisation initiatives. This industry is within local industry capability requiring a moderate capacity expansion. Funding could be undertaken independently. Eskom influence in this area is largely through contracts with OEMs and construction companies. Supplier development is likely to be led by OEMs, encouraged and facilitated by Eskom through current and newly designed mechanisms. Eskom
will also contribute to the dti Metals Sector Development Strategy to support SA supplier development across the steel value chain.

2.2.3 Coal Boiler industry

Categorisation of Coal Boiler components revealed a CSDP opportunity for development of new industries related to fan shafts and bag filters.

Existing local industry already supplies components and services which amount to more than half of the total spend, but will need to substantially expand capacity in order to keep pace with the demand.

Eskom will channel its spend largely to the Tier 1 manufacturing sector. However, while certain tier 1 components have limited possibility for complete local manufacture, a number of opportunities exist to develop a Tier 2 industry that supplies the Tier 1 industry.

The key defining factor behind a natural component classification is its naturally competitive local supply. In other words it is something that it makes more sense to do locally and the industry should develop naturally provided that the demand is known. Examples of Tier 1 local component industries in this category include steelwork, fuel cycle components, air/gas systems, electrical components around the coal boiler, air heaters, insulation, low pressure services, as well as ash systems. The assembly and machining of water/steam cycle high pressure components is a Tier 2 natural industrialisation initiative, while the rest of high pressure components have limited likelihood of competitive local industry.

There are opportunities for the development of Tier 2 component industries that are classified as coordinated industrialisation
initiatives. A clear commitment is required from customers to access the independent funding required to undertake the major capacity expansion of existing local factories for these components. Casting and machining industries to supply the fan shaft industry, and a compressor industry to supply the bag filter industry fall into this category.

The key defining factor behind a government led component classification is its need for strategic government intervention as it is unlikely to be commercially viable. Within the Coal Boiler industry, an example of a Tier 1 industry is a specialised water/steam cycle high pressure component industry. Tier 2 component industries include water/steam cycle high pressure piping material, since the materials involved are highly specialised. Development of a local industry would involve a high risk, large capital investment, which would require direct government intervention. It therefore does not form part of the Eskom CSDP priority components.

2.2.4 Coal Turbine industry

Categorisation of Coal Turbine components revealed a CSDP opportunity in valves, blading and pumps.

There is already an established local industry which supplies components and services amounting to nearly half of the total spend, but capacity will need to ramp up significantly to meet increasing demand.

Natural industrialisation initiatives to be achieved within the next two to three years include further developing Coal Turbine Tier 1 component industries such as air cooled condensers, common electrical components, unitised and electrical plant as well as condensate and feed heating pumps.
Eskom will channel its spend largely to the Tier 1 manufacturing sector. However, where entire Tier 1 components may not be produced competitively locally, there are opportunities to also develop a Tier 2 industry that supplies to the Tier 1 industry. *Coordinated* industrialisation initiatives for Tier 2 components are design services for common plant, valves for pipes and vessels and blading for the steam turbine. The key defining factor behind a *coordinated* component classification is its likelihood of being locally competitive without any government intervention. However, clear commitment is required from customers to access the largely independent funding required to execute major capacity expansion of existing local factories.

The key defining factor behind a *government supported* component classification is its potential to ultimately be produced competitively locally. However, initially it will require coordination, support to access funding and possibly short-term government incentives. Within the Coal Turbine industry, Tier 1 components in this category include boiler feed pumps and condensate extraction pumps. All sub-components for these pumps are currently imported and there is thus room for Tier 2 component industries to be developed around pumps. Both capabilities and capacity would be required to develop such industries in South Africa. Government support would be required here.

There also some components within the Coal Turbine industry which are classified as *government led*, which means that strategic government intervention is required to develop a local industry. The main steam turbine rotor as well as its casings and pumps fall into this category. The manufacture of these components is currently not commercially viable in SA. It requires large capital investment and is of a high risk nature, as prospects for commercial viability are very low. Direct government intervention would therefore be
required. These components do not form part of the current CSDP targets.

2.2.5 Controls and Instrumentation industry

Categorisation of Controls and Instrumentation components revealed a CSDP opportunity in actuators, transmitters and transducers.

Controls and Instrumentation, though a large spend category, has been classified as *government led* according to our methodology. The key defining factor behind a *government led* component classification is its need for strategic government intervention. The manufacture of Controls and Instrumentation is currently not commercially viable in SA. It is of a high risk nature and requires large capital investment. Direct government intervention would be required.

Eskom channels its spend to the Tier 1 manufacturing sector. However, within the Tier 1 C&I system there are a number of opportunities to also develop Tier 2 industries. These components are currently largely imported and fit into both the *government supported* and the *government led* industrialisation initiatives according to our methodology described in Section 2.1.3 above.

Electrical and pneumatic actuators, UPS battery chargers for control systems, transmitters, transducers and analysers (conductivity, pH, sodium) could make up a *government supported* Tier 2 industrialisation initiative. Eskom’s priority components in this area are actuators, transmitters and transducers. The key defining factor behind a *government supported* component classification is its potential to be locally competitive with co-ordinated government interventions. A major capacity expansion is required for the
manufacture of a *government supported* component like an actuator in South Africa. Government support would be required here.

### 2.3 Initial CSDP priority components and milestones

The evaluation of industry groups indicates a starting point for the CSDP. Eskom has prioritised these opportunities to develop an initial CSDP plan. Each category area will be developed according to a prioritised and phased approach. The estimated timeline for the impact of CSDP on local spend differs according to the category.

Priority components for CSDP 2008-2013 within the *natural* industrialisation initiative include air-cooled condensers, boiler fuel cycles, Structural and Reinforcement Steel as well as cables and conductors. The target set for 2013 in the area of *natural* industrialisation is 99% local content. Currently this area has about 90% local content.

Priority components for CSDP 2008-2013 within the *coordinated* industrialisation initiative include bag filters, fan shafts, as well as small and medium power transformers. The target set for 2013 in the area of *coordinated* industrialisation is 59% local content. Currently this area has about 16% local content.

Priority components for CSDP 2008-2013 within the *government supported* industrialisation initiative include large power transformers, C&I transmitters and transducers, electrical actuators, boiler feed pumps as well as condensate extractor pumps. The target set for 2013 in the area of *government supported* industrialisation is 36% local content. Currently this area has about 28% local content.
The *government led* industrialisation initiative is currently out of scope for Eskom’s CSDP 2008-2013 given the high degree of strategic investment it would require.

### 2.4 The key enabler: Skills development

Skills development will be the critical enabler behind the development of the 5 competitive supplier development (CSD) priority industry groups for CSDP 2008-2013. Eskom University should plan and coordinate skill building for the power industry cluster. This cluster includes Eskom, the Pebble Bed Modular Reactor (PBMR) and the Nuclear Energy Corporation of South Africa (Necsa) as well as key Original Equipment Manufacturers (OEMs) and suppliers, government and the training industry including Further Education and Training (FET) colleges and universities.

Eskom University will develop skills through existing Eskom training facilities. Eskom University will partner with key institutions e.g. universities and FET colleges, to increase skills development capacity across the industry. It will leverage procurement processes with suppliers to create workplace experience and job placements. Eskom University will engage with key stakeholders to address skills development related matters e.g. sourcing of funding or engagement on national skills development objectives.
3 Eskom’s CSDP implementation plan

There are three key aspects in the delivery of Eskom’s CSDP. First, Eskom has applied ambitious, fact-based targets for local power industry supply and developed a detailed strategic journey to achieve the targets. Second, Eskom has developed an implementation approach through relationships within industry. Thus, Eskom has to enhance procurement capabilities to enable establishment of hubs. There is also a move to set up a structure within Eskom to support the CSDP implementation approach. Third, implementation will be supported by 7 enabling initiatives.

3.1 Local content targets

CSDP 2008-2013 aims to increase the local spend on prioritised components by 22% and encourage competitive exports, thereby improving South Africa’s balance of payments by at least R 13.5bn. These components are located within the 5 industry groups focused on manufacturing approximately 76% of Eskom spend in the 2008 to 2013 period. Figure 7 below shows the estimates of CSDP spend on prioritised local and imported goods and services.

It should be noted that the 2008 CSDP submission refers specifically to the spend that will occur between 2008 and 2013. This therefore refers only to the start of the 40GW new build programme and there is significantly more spend in the power industry beyond 2013. High level 20 year projections based on GW expansion have been developed to share with the industry.
Figure 7: Projected spend on prioritised CSDP components, and estimated exports (R billion). Note: These are not approved budget figures.

CSDP 2008-2013 aims to increase local content on priority components to 91% by 2013. Export values of these components could reach R1.5bn as early as 2013. If CSDP is not implemented, local content would rise to 71%-78% anyway due to increased demand for components already manufactured locally. If CSDP is implemented, local content would rise substantially and export markets are likely to grow, improving SA’s balance of payments by R13.5bn.

These targets will be cascaded into specific targets and interventions for each of the 5 industry groups. Each industry
grouping should develop a detailed strategic journey to achieve the targets.

3.2 Implementation through relationships with industry

To implement CSDP through industry relationships, Eskom will enhance its procurement capabilities. Maintaining relationships with stakeholders and the interaction with component hubs need to underlie some of the competencies of Eskom’s procurement department.

A component hub will co-ordinate investment in skills, research and development and plant at a component level. The hub will consist of a community of local suppliers that benefit from power cluster fund co-ordination and contributions. The hub will also develop a ‘business case’ for funding of R&D, skills development and shared technical infrastructure.

Key relationships to support industrialisation should be maintained between government, enabling bodies, customers and industry. Government together with its enabling bodies needs to have regular discussions with industry about support for industrialisation, e.g., legislation and funding. Industry and its customers should undertake a mutually beneficial co-creation of demand and supply projections. Government together with its enabling bodies must proactively engage customers on industry dynamics and upcoming challenges.

To establish relationships in a compliant manner Eskom will:

- Understand how the hub concept and processes comply with current procurement policy and legislation
• Develop a CSDP procurement policy directive and the capacity to implement it. Eskom will amend its existing policy so it can support hubs and even go further to create a specific hub policy.

• Set up supporting structures within Eskom. Such structures include an industrial development (CSDP) structure, a skills development programme enhanced for CSDP and a contracting mechanism.

• Engage its suppliers within the new environment.
  
  o Existing suppliers will be obliged to participate in hubs.
  
  o New 1st tier suppliers will be added on a transactional basis.
  
  o New 2nd tier suppliers can be added after pre-qualification.
  
  o Suppliers will be removed from hubs for material contract breach or volunteer to leave.
  
  o Evaluation will occur according to industrialisation KPI’s.

To illustrate the application of the above relationships we show an example of a Cables and Conductors hub in Figure 8 below.
Figure 8: Preliminary Cables and Conductors example hub

3.2.1 Establishing and sustaining component hubs

Establishing and sustaining these hubs will require a defined process. The formation of component hubs will be guided by the following key principles:

- Led by a chairperson who has technical knowledge of component manufacture

- Focused on power supply components

- Supported by integrated initiatives to channel enablers to industries (e.g. funds, skills and R&D)

- Networked to bring together stakeholders from across the industry

- Centrally tracked to maintain accountability for targets and connectivity between hubs
• Action-oriented to achieve industrialisation targets and a strategic journey

The guiding principles underlying the membership of component hubs are to be:

• Fair, so all participants have equal opportunity to contribute to industrialisation

• Selective, to ensure only participants with commitment to industrialisation have access to the forum

• Inclusive of current suppliers, so as to maintain and grow existing relationships

• Long-term, so as to sustain growth of local industry

• Linked to acceptable fulfilment of industrialisation objectives, targets and contracts

3.2.2 A CSDP organisational structure within Eskom

Hubs will require establishment of a CSDP organisational structure within Eskom which will lead management of and interaction with hub chairpersons and the hub secretariats. Initially we anticipate five hub leaders in the five priority industries viz. Plant and Equipment, Structural and Reinforcement Steel, Coal Boiler, Coal Turbine and Controls and Instrumentation. Hub secretaries will be tasked with hub administration as well as the logistics of hub meetings. The enabling support, discussed below, for Eskom’s CSDP should arise out of these hubs.
3.3 Enabling initiatives

Establishing and sustaining effective component hubs will require a defined process and organisational structure within Eskom to ensure the necessary enabling initiatives remain in place.

Eskom’s CSDP organisational structure will therefore be supported by the following functions:

- Compliance to policy and legislation
- Tracking and co-ordination
- Strategic support
- Skills development
- Supplier benchmarking
- Funding
- Government support initiatives

These functions are at various stages of development so may not take on the specific characteristics described below. They are nevertheless a reflection of Eskom’s intent.

3.3.1 Compliance to policy and legislation

Implementation of CSDP will require a compliant policy environment. Suppliers will identify policy bottlenecks or issues and communicate these to the Eskom policy and legal teams. Eskom policy and legal teams will in turn provide information to suppliers on new procurement policy and approaches.

Request for proposals (RFP) to join hubs will be put out by Eskom. Suppliers will then respond with an expression of interest (EOI). Tier 1 suppliers will invite pre-qualified Tier 2 suppliers to join hubs.
Suppliers will need to meet both the CSDP and transactional contractual obligations in order to retain hub membership.

Eskom policy and legal teams will develop policy directives to enable implementation of CSDP in a compliant manner. These teams will also adjust contracts to reflect the objectives of the CSDP. Another role of the teams will be to develop compliant procedures for implementing hubs, i.e. tendering processes and prequalification.

3.3.2 Tracking and co-ordination

Eskom will track implementation of CSDP and co-ordinate efforts by communicating directly with component hubs. Hubs will submit progress reports and key performance indicator (KPI) measures to the tracking function. In turn, the tracking function will develop rules and tools for tracking and reporting progress.

The respective hubs will set ambitious, fact-based targets for localisation. These hubs are also expected to develop implementation plans with milestones and KPIs. They should also align hub KPIs with KPIs measured by the tracking function. Hubs will also plan the frequency of KPI and progress reporting.

The tracking function should develop rules for setting KPIs, setting targets, measuring progress and transitioning between sets of KPIs associated with phases of projects. The tracking function will also set overall CSDP targets and develop and maintain various dashboards for tracking progress. The team should consolidate progress from various hubs to present overall CSDP progress.
3.3.3 Strategic support

TSAPRO will provide relevant and timely strategic support to the Eskom CSDP team. In turn, the Eskom CSDP team will verify and test TSAPRO projections and strategy.

TSAPRO has provided support in compiling this CSDP. It will also provide support and advice to the CSDP programme leader including long-term spend projections as well as the national power expansion strategy.

The Eskom CSDP team will develop, revise and submit SDPs to DPE. This team will also establish CSDP structures within the Eskom supply chain to ensure the implementation of CSDP. The team will report on the overall Eskom CSDP for TSAPRO to track and co-ordinate national power industrialisation. In addition Eskom’s CSDP team will revise plan projections, targets and approach annually and re-submit CSDP plans to DPE. Finally the Eskom CSDP team will report CSDP progress to the DPE.

3.3.4 Skills development

Eskom University and CSDP suppliers will partner to build both internal and external skills. Within the hubs, suppliers should provide information regarding industry skills demand to Eskom University. In turn, Eskom University will develop the relevant industry skills and supply workplace experience placements.

Suppliers together with other stakeholders in the hubs should identify and forecast key skills for development. They should train within the framework provided by Eskom University. In addition, suppliers should provide workplace experience placements to trainee artisans.
Eskom University will mobilise available skills supply capacity, for example FET colleges, to match industry demand. Eskom, through its university, will also channel other resources like international aid and Sector Education and Training Authority (SETA) grants to support skills development. This university will work with other stakeholders like the Department of Education and Department of Labour to build appropriate supplier capacity. Eskom University will also develop skills required by the industry to industry standards.

3.3.5 Supplier benchmarking and pre-qualification

UNIDO/DPE will play a role in supplier benchmarking, supplier pre-qualification and supplier development. UNIDO/DPE will provide supplier benchmarking to the Eskom CSDP team. In turn, the Eskom CSDP team will provide a list of suppliers to be considered for prequalification as well as buyer requirements for priority components.

UNIDO/DPE will provide assisted self-assessment for benchmarking against Eskom’s requirements. Hence the Eskom CSDP team and UNIDO/DPE would need to develop prequalification criteria together. UNIDO/DPE through its supplier development programme would then assist suppliers to develop improvement plans to meet buyer requirements. UNIDO/DPE will partner with other government and funding bodies to assist supplier development.

The Eskom CSDP team will identify priority areas for industrialisation. In addition the team will establish hubs for priority components and identify suppliers. The process for prequalification will be developed in collaboration with UNIDO/DPE i.e., Eskom will furnish UNIDO/DPE with buyer requirements. The team will also develop policy to enable prequalification.
3.3.6 Funding

A partnership with the Industrial Development Corporation (IDC) can facilitate investment by local suppliers into increasing capacity and capabilities. Suppliers participating in the CSDP will provide prequalification status and relevant information to the IDC. In turn, the IDC will provide pre-approval for capacity and capability investments.

Through the hubs, suppliers will identify and forecast investments required for local Tier 2 participation in build programmes. Tier 2 suppliers will participate in the CSDP prequalification process including provision of relevant information. Tier 2 suppliers should be able to tender for participation based on pre-approved funding.

The IDC will allocate funds for industrialisation investments and assess a short-list of pre-qualified suppliers. The IDC will also pre-approve Tier 2 suppliers who wish to participate in tenders. This development finance institution will also provide funding for industry investments.

3.3.7 Government support initiatives

By working closely with government in the development and implementation of its CSDP, Eskom will leverage the various government support initiatives. Government will support suppliers to respond competitively to Eskom’s demand. In turn, Eskom will use procurement to achieve supply network development.

Government will mobilise and provide support to the supplier industries targeted in Eskom’s SDP. Government will also establish supplier development initiatives such as:

- Supplier benchmarking systems
- Skills development
- Access to finance
- Funding for technology development
- Process and competitiveness improvement

Eskom will identify components for which local supply can be expanded, developed or improved. Eskom will also set industrialisation targets for these components. Also, Eskom will use planning, specification, procurement and strategic sourcing as instruments to achieve these targets. In addition, Eskom will create a conducive environment for the development of local supply networks.
4 Revisions required for future submissions

Although this submission is the result of a year’s planning and consultation, by its nature such programmes need to be continually revised and updated. The next CSDP submissions will consider a number of areas for revision. These will include additional information, additional industry groups, further hubs and increased skills.

A key revision will be the inclusion of additional information. Such information will include information on nuclear components. It will also include coal life extension projects as well as generation and maintenance components. Lastly, the CSDP will be revised to include parts and consumables for services where outstanding.

The next CSDP submission should also include additional industry groupings including nuclear, advanced technology and concentrated solar power, when necessary.

A revised CSDP should develop a local supply strategy for 10 additional hubs. It should also establish further information sharing hubs in natural industrialisation components. A deeper analysis of tier 2 components will also be needed.

A revised CSDP will more clearly define skills supply and demand. It will also include the tracking of skills development through Eskom University.
5 Appendix: Eskom CSDP 2008-2013 Presentation