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# UNDERGROUND COAL GASIFICATION - POWER OPPORTUNITIES

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## STRUCTURE OF PRESENTATION

- Regulatory Overview
- Typical Power Project Structuring
- What may be expected in South Africa
- Questions





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# REGULATORY OVERVIEW

## REGULATORY OVERVIEW IN SOUTH AFRICA

- Integrated Resource Plan
- Electricity Regulation Act
- Section 34 Determination
- Gas to Power IPP Programme
- Gas Utilization Master Plan
- Gas Laws



## REGULATORY OVERVIEW

- **Integrated Resource Plan 2010-2030**
- On 6 May 2011, the DoE released the Integrated Resource Plan (IRP) 2010-2030 in respect of South Africa's forecast energy demand for the 20 year period from 2010 to 2030.
- The IRP 2010-2030 seeks to determine the long-term electricity demand for South Africa. It also details how this demand should be met in terms of generating capacity, type, timing and cost.
- The IRP 2010-2030 is a living plan that is expected to be continuously revised and updated as necessitated by changing circumstances. Consequently, the DoE released the IRP 2010 Update which is still to be approved by Cabinet.
- The current draft of the IRP 2010 Update provides recommendations on which investments should be pursued in the shorter term, that is, over the next two to three years.

## REGULATORY OVERVIEW

- **Section 34 Determination under the Electricity Regulation Act (ERA)**
- Under section 34 of the ERA the Minister of Energy has the competency to make ministerial determinations for the procurement of new generation capacity to ensure its continued uninterrupted supply.
- To date this has been done under the Independent Power Producer Procurement Programmes for various technologies.
- On 18 August 2015 the Minister of Energy made a determination that **3126MW** must be procured from gas under a Gas to Power IPP Programme, under which the Department of Energy will be the procurer, and Eskom will be the off taker of electricity so procured.

## REGULATORY OVERVIEW

- **Gas to Power IPP Programme**
- The Minister of Energy issued a determination on 18 August 2015 stating that generation capacity is needed to contribute towards energy security, including 3,126MW to be generated from gas. Gas sources include natural gas delivered to the power generation facility by any method including by pipeline from a natural gas field or elsewhere or a liquefied natural gas (LNG) based method; coal bed methane; **synthesis gas or syngas; above or underground coal gasification**; shale gas and any other gas type or source as may be considered appropriate.
- The DoE issued a request for information, the results of which have not been published. The procurement of the Gas IPP Procurement Programme is the next envisaged step.



energy

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

## REGULATORY OVERVIEW

- **Gas Utilization Master Plan**
- The DoE is working to release a gas utilisation master plan (GUMP) which will set out South Africa's plans to utilise gas until 2050. GUMP aims to provide a framework for investment in gas infrastructure and outlines the role that gas could play in the electricity, transport, domestic, commercial and industrial sectors.
- It is anticipated that GUMP will result in revisions to the regulatory and licencing framework so as to promote an accelerated and enabling environment for gas development. GUMP is also expected to consider various supply options, including the potential for domestic production of natural gas, shale gas, coal bed methane, importation of LNG and piped gas from Namibia and Mozambique.



## REGULATORY OVERVIEW

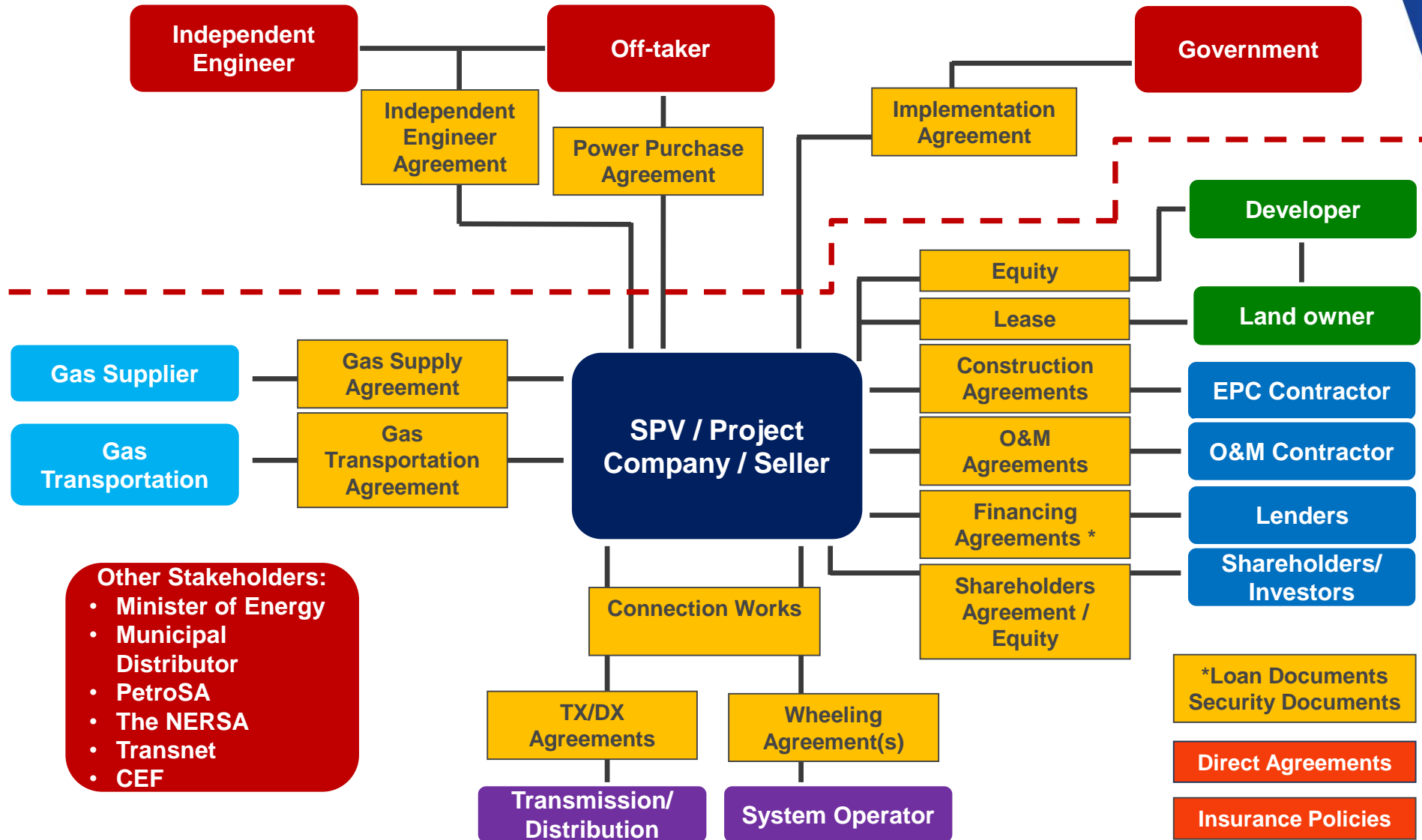
- **Gas Laws**
- The Gas Act, No 48 of 2001 provides the licensing and legislative framework for the gas projects in South Africa. The act, rules and regulations thereto govern the **construction of gas transmission, storage, distribution, liquefaction and re-gasification facilities and/or conversion of infrastructure into such facilities as well as the operation of gas transmission, storage, distribution, liquefaction or re-gasification facilities and trading in gas. All these activities require a license.**
- The Gas Regulator Levies Act, No 75 of 2002 makes provision for the imposing of levies based on the amount of gas, measured in gigajoules, delivered by importers and producers to inlet flanges of transmission or distribution pipelines and paid by the person holding the title to the gas at the inlet flange.
- NERSA, acting on behalf of the DoE, is the authority designated to regulate gas licences.



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# TYPICAL POWER PROJECT STRUCTURING

# TYPICAL POWER PROJECT STRUCTURING





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# THE TYPICAL SOUTH AFRICAN ENERGY EXPERIENCE

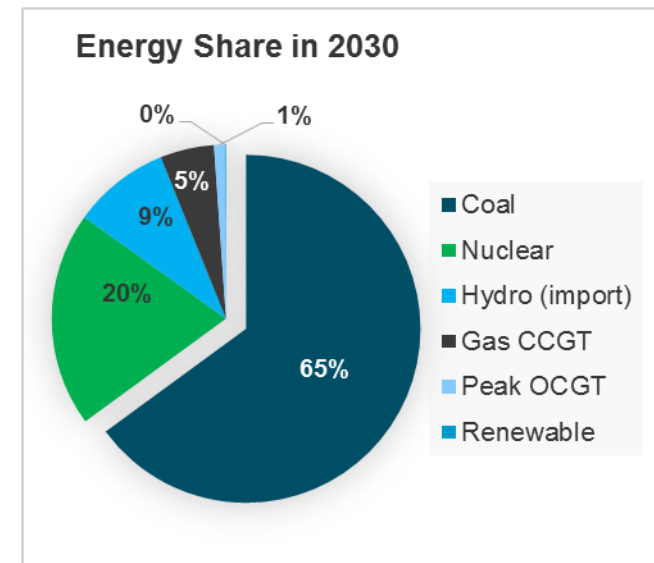
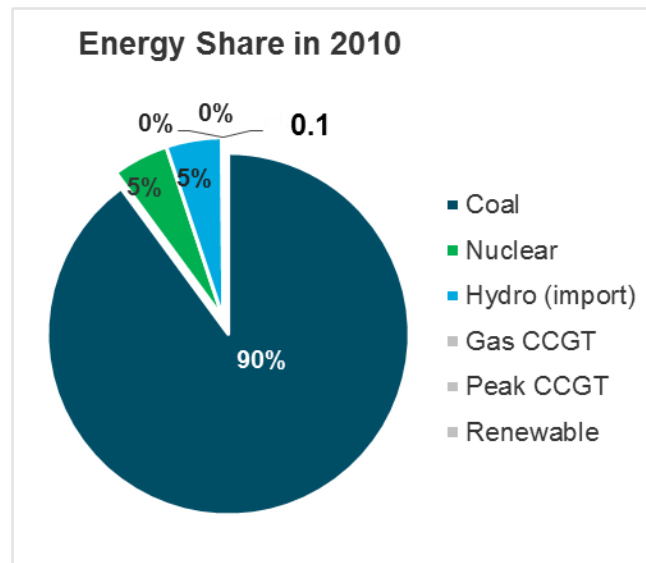
# OVERVIEW OF IPP PROGRAMMES

## IPP Programmes:

- Renewable energy
- Coal Baseload
- Cogeneration
- Small
- Gas
- Hydro

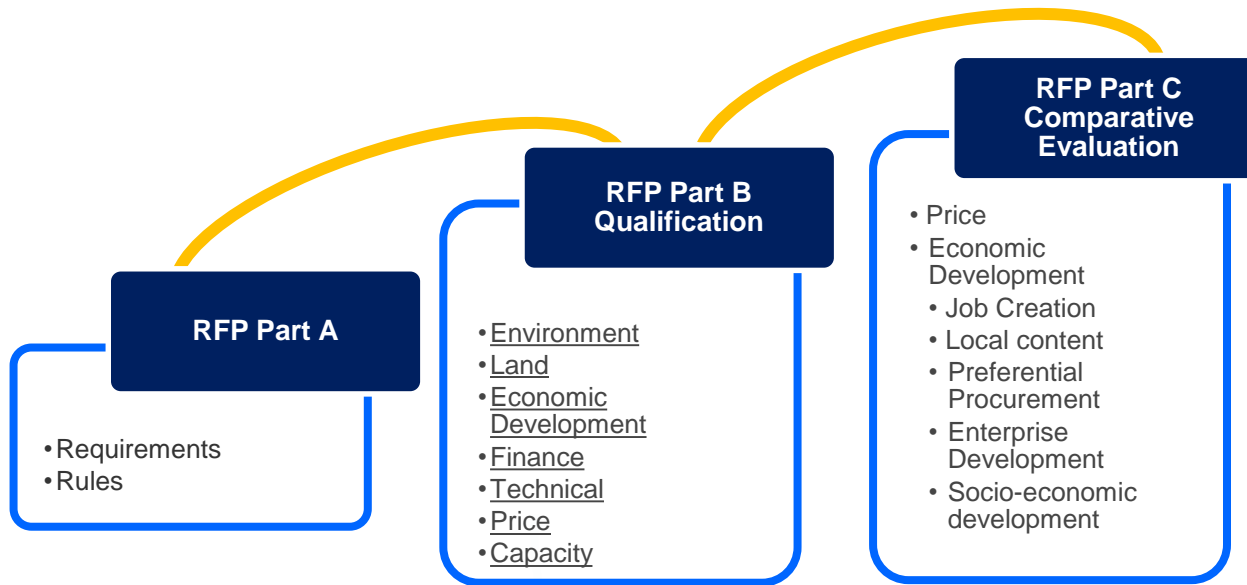
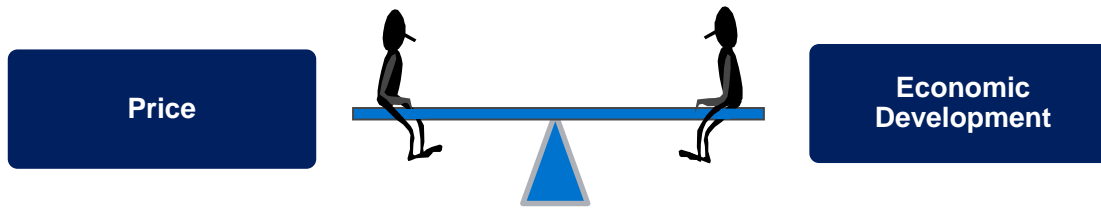
## Other:

- Off-grid
- Captive



# PROCUREMENT PROCESS

## Procurement Process Background



# RISK ALLOCATION

- Technology not yet proven
- Baseload energy
- [20] year PPA
- Security of supply – dedicated and continuous gas supply over term of the PPA
- Availability thresholds, power plant efficiency and penalties - impacted by gas specification certainty? What other factors?
- Rand denominated PPA
- Scheduled COD – strict timelines
- Delivery point of gas supply = inlet flange of the power plant





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# QUESTIONS