



Upstream South Africa

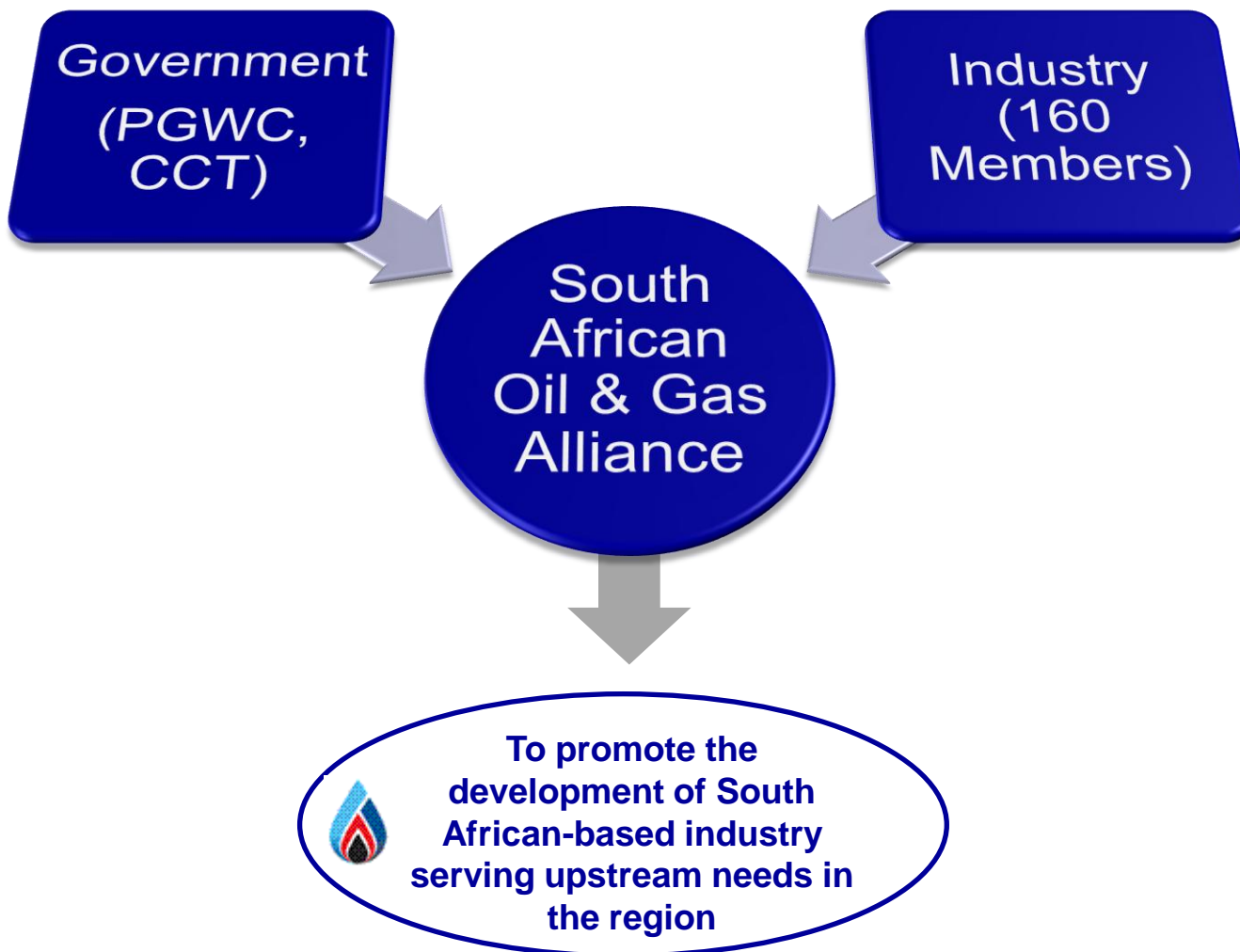
Supplying Africa from Africa

October 2010

Agenda

- **South African Oil & Gas Alliance: Who are we?**
- **Upstream South Africa: What's happening?**
- **The South African Industry: What's here?**
- **Discussion**

The South African Oil & Gas Alliance is public/private partnership to develop SA-based upstream supply



We focus on 3 basic areas

Our Mission (Where are we going)



Our 3 Strategic Imperatives (What do we need to do)

Build Industry Capacity

Marketing & Business Development

Investment Promotion

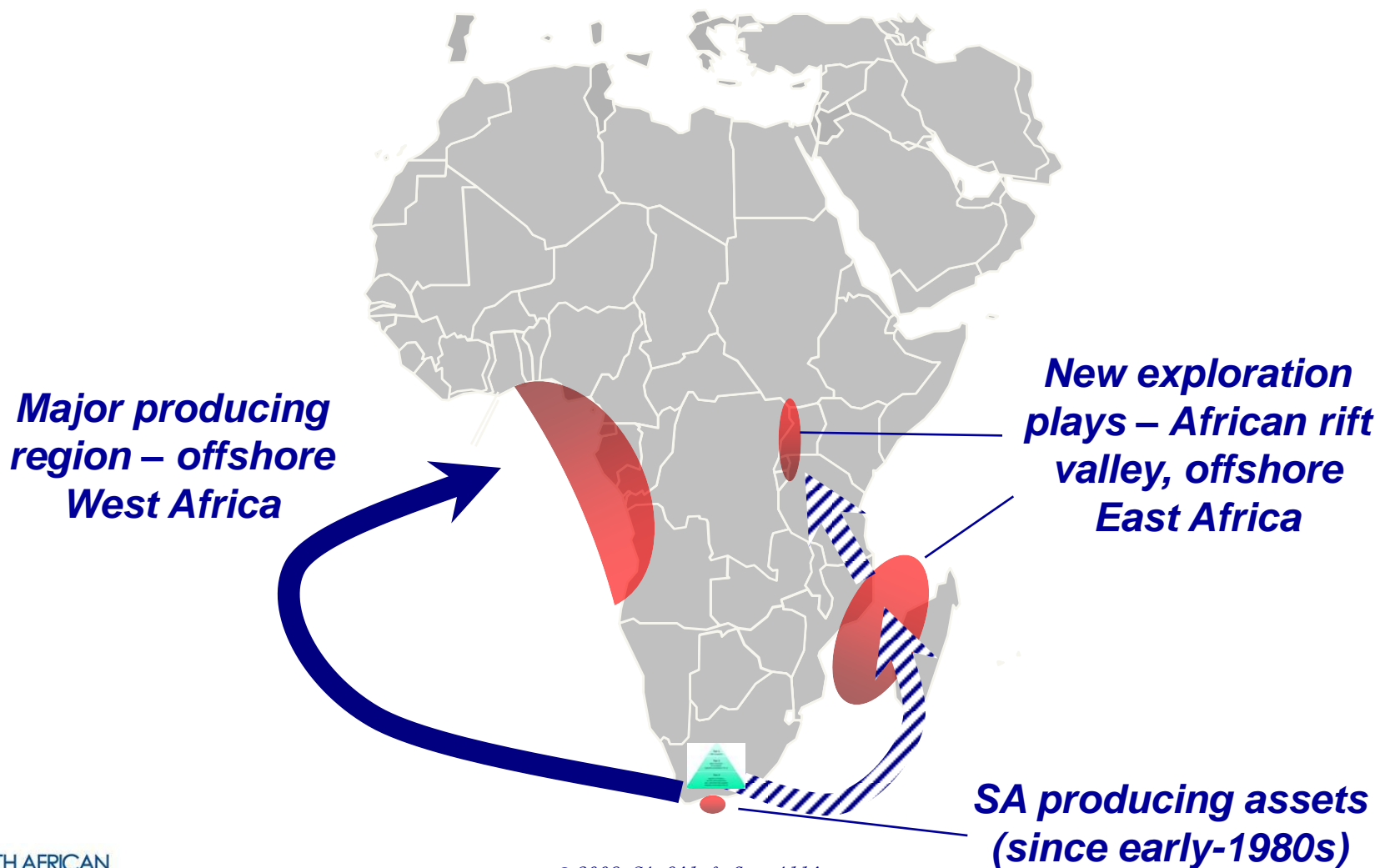
Our Strategic Initiatives (How)

- Infrastructure projects
- Public policy intervention
- Skills development & training
- Supplier Capability Development & Certification

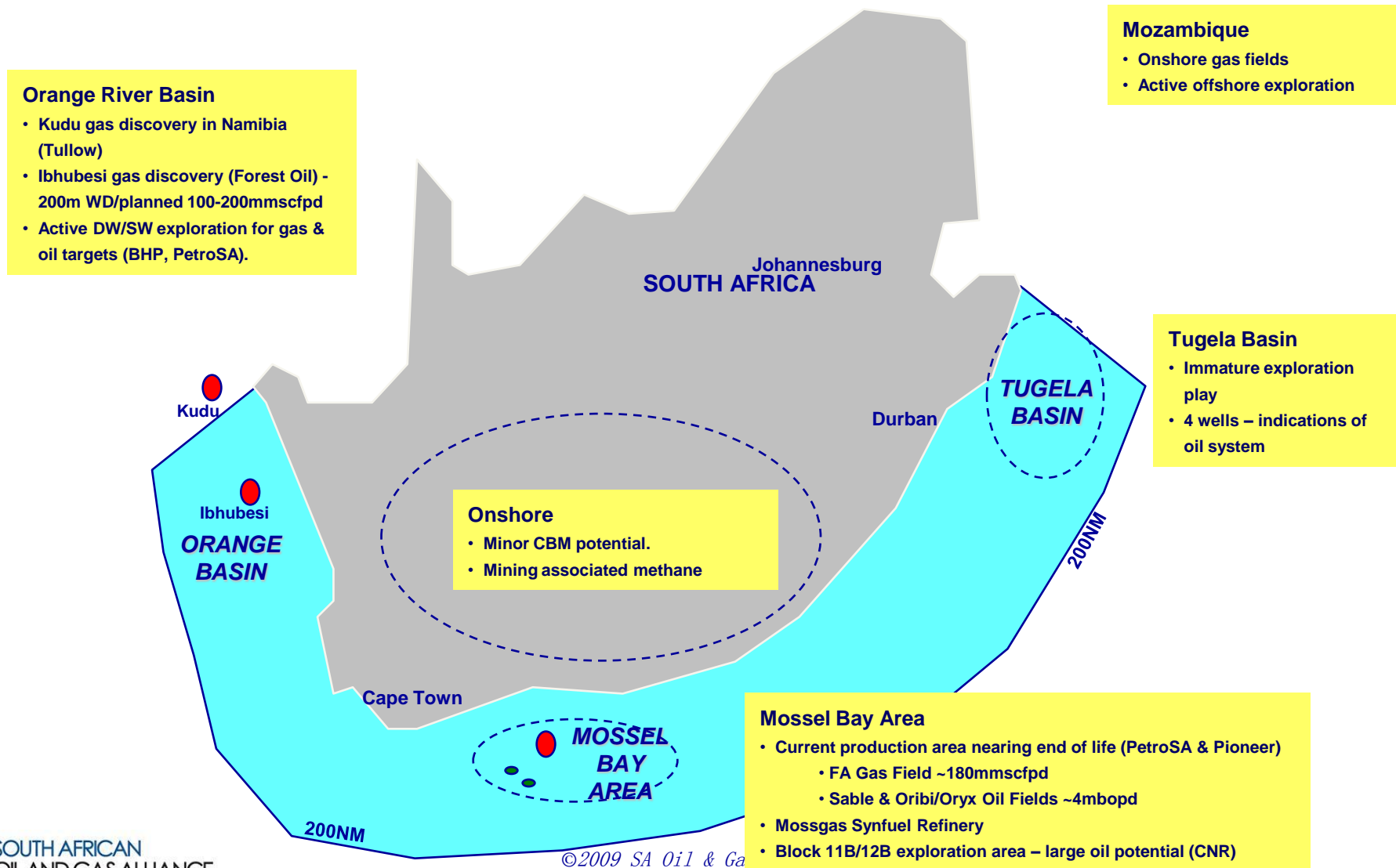
- Trade missions and events
- Networking and matching
- Supplier directory
- Opportunity identification

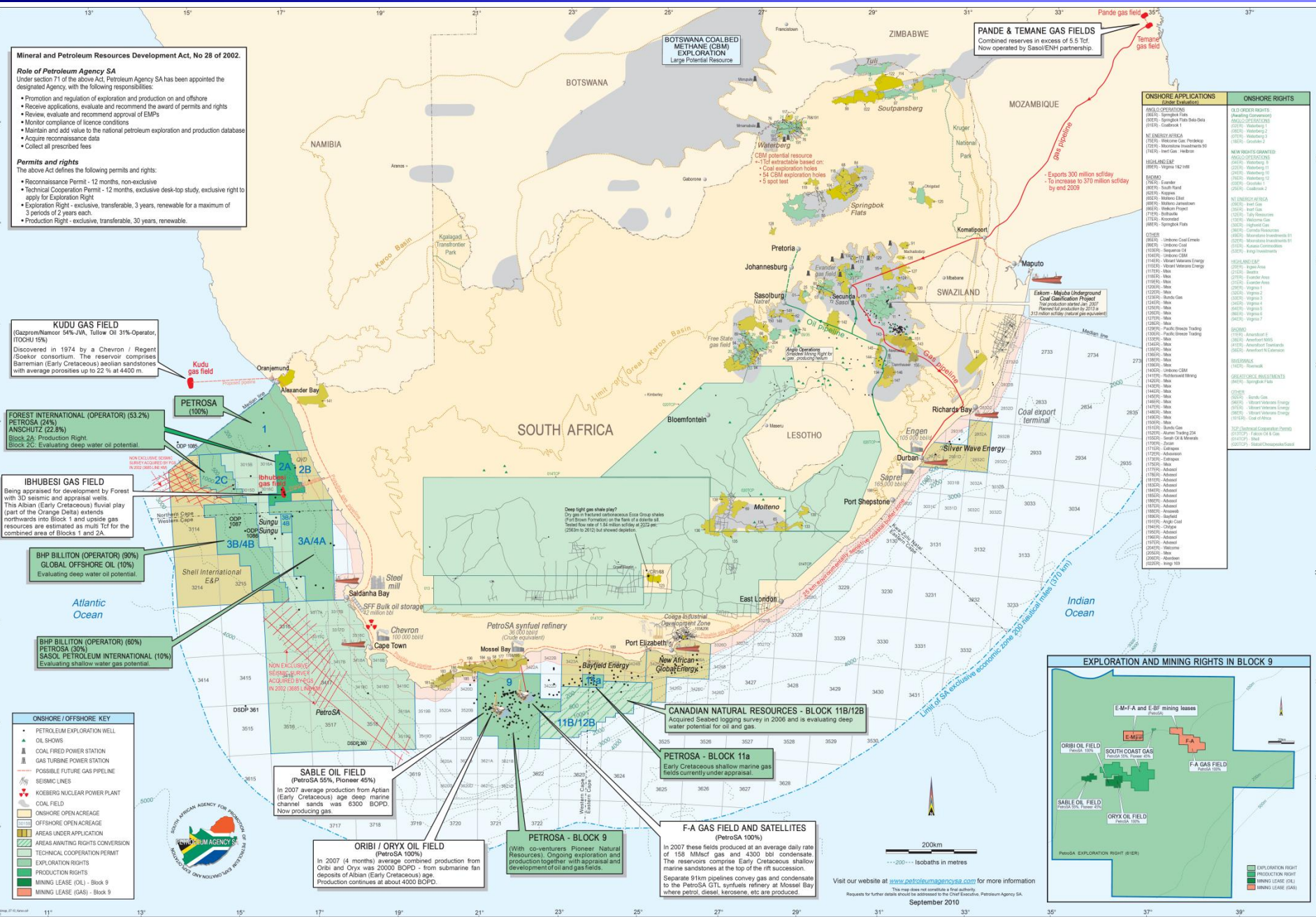
- Encourage partnerships with local firms
- Promote South Africa as a regional base for global upstream players

South Africa is a small producer in the context of Africa but is an economic gateway to the continent



Domestic E&P activity is modest but interest has recently risen with 4 active exploration regions





Mineral and Petroleum Resources Development Act, No 28 of 2002.

Role of Petroleum Agency SA
Under section 71 of the above Act, Petroleum Agency SA has been appointed the designated Agency, with the following responsibilities:

- Promotion and regulation of exploration and production on and offshore
- Receive applications, evaluate and recommend the award of permits and rights
- Review, evaluate and recommend approval of EMPs
- Monitor compliance of license conditions
- Maintain and add value to the national petroleum exploration and production database
- Acquire reconnaissance data
- Collect all prescribed fees

Permits and rights
The above Act defines the following permits and rights:

- Reconnaissance Permit - 12 months, non-exclusive
- Technical Cooperation Permit - 12 months, exclusive desk-top study, exclusive right to apply for Exploration Right
- Exploration Right - exclusive, transferable, 3 years, renewable for a maximum of 3 periods of 2 years each
- Production Right - exclusive, transferable, 30 years, renewable

KUDU GAS FIELD
(Gazprom/Namcor 54%, ITOU 31%-Operator, ITOUGH 15%)
Discovered in 1974 by a Chevron / Regent / Isoekor consortium. The reservoir comprises Barremian (Early Cretaceous) aeolian sandstones with average porosities up to 22% at 4400 m.

FOREST INTERNATIONAL OPERATOR (53.2%) PETROSA (24%) ANSCHUTZ (22.8%)
Block 2A: Production Right
Block 2C: Evaluating deep water oil potential

IBHUBESI GAS FIELD
Being appraised for development by Forest with 3D seismic and appraisal wells. This Albian (Early Cretaceous) fluvial play (part of the Orange Delta) extends northwards into Block 1 and upstage gas resources are estimated as multi Tcf for the combined area of Blocks 1 and 2A.

BHP BILLITON (OPERATOR) (90%) GLOBAL OFFSHORE OIL (10%)
Evaluating deep water oil potential.

BHP BILLITON (OPERATOR) (60%) PETROSA (30%) SASOL, PETROKUM INTERNATIONAL (10%)
Evaluating shallow water gas potential.

ONSHORE / OFFSHORE KEY

- PETROLEUM EXPLORATION WELL
- ▲ OIL SHOWS
- COAL FIRED POWER STATION
- GAS TURBINE POWER STATION
- POSSIBLE FUTURE GAS PIPELINE
- ~ SEISMIC LINES
- ☢ KÖEBERG NUCLEAR POWER PLANT
- COAL FIELD
- ONSHORE OPEN ACREAGE
- OFFSHORE OPEN ACREAGE
- AREAS UNDER APPLICATION
- AREAS AWAITING RIGHTS CONVERSION
- TECHNICAL COOPERATION PERMIT
- EXPLORATION RIGHTS
- PRODUCTION RIGHTS
- MINING LEASE (OIL) - Block 9
- MINING LEASE (GAS) - Block 9

SABLE OIL FIELD
(PetroSA 65%, Pioneer 45%)
In 2007 average production from Aptian 1 (Early Cretaceous) age deep marine channel sands was 8300 BOEPD. Now producing gas.

ORIBI / ORYX OIL FIELD
(PetroSA 100%)
In 2007 (14 months) average combined production from Oribi and Oryx was 20000 BOEPD - from submarine fan deposits of Albian (Early Cretaceous) age. Production continues at about 4000 BOEPD.

PETROSA - BLOCK 9
(With co-venturers Pioneer/ Natural Resources). Ongoing exploration and production together with appraisal and development of oil and gas fields.

CANADIAN NATURAL RESOURCES - BLOCK 11B/12B
Acquired Seabed logging survey in 2006 and is evaluating deep water potential for oil and gas.

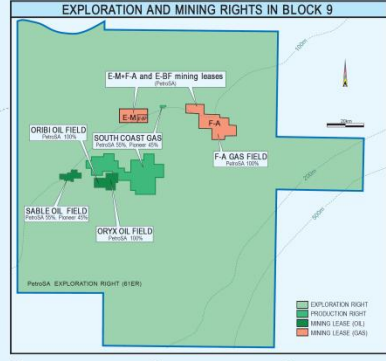
PETROSA - BLOCK 11a
Early Cretaceous shallow marine gas fields currently under appraisal.

F-A GAS FIELD AND SATELLITES
(PetroSA 100%)
In 2007 these fields produced at an average daily rate of 158 MMscf gas and 4300 bbl condensate. The reservoir comprise Early Cretaceous shallow marine sandstones at the top of the reef succession. Separate 91km pipelines convey gas and condensate to the PetroSA GTL, syngas refinery at Mossel Bay where petrol, diesel, kerosene, etc are produced.

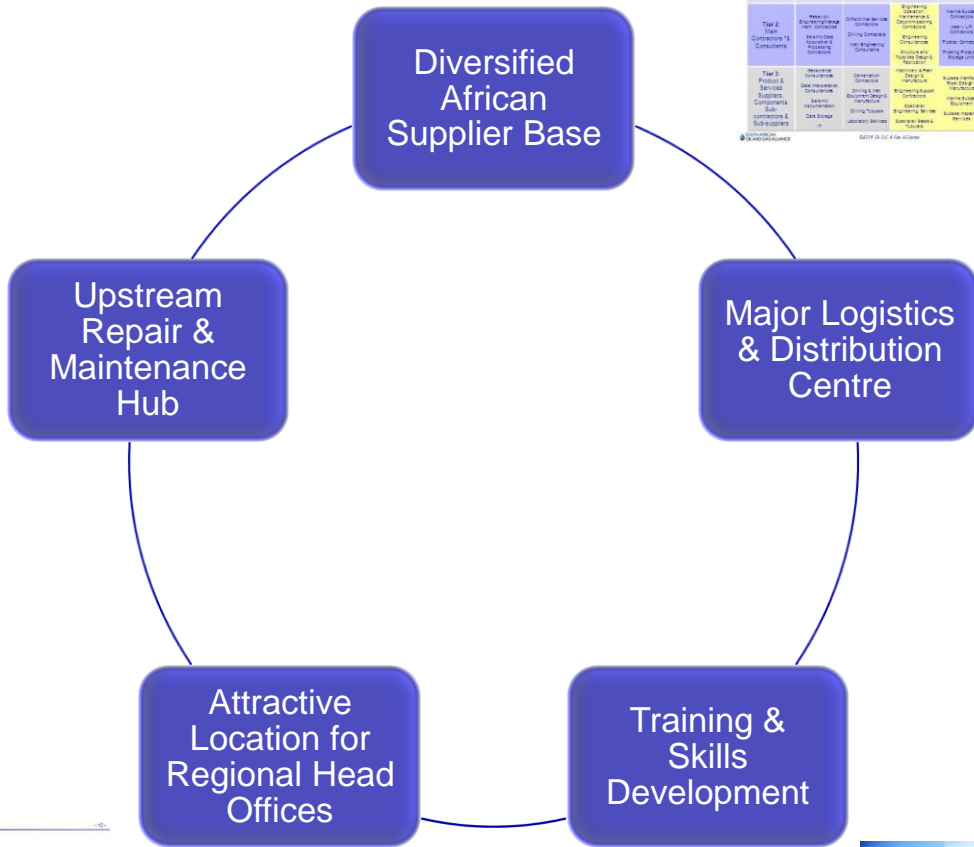
PANDE & TEMANE GAS FIELDS
Combined reserves in excess of 5.5 Tcf. Now operated by Sasol/ENH partnership.

ONSHORE APPLICATIONS (see Evaluation)	ONSHORE RIGHTS
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This map does not constitute a final authority. Petrosas for further details should be addressed to the Chief Executive, Petroleum Agency SA.
September 2010



South Africa offers a number of attractive propositions to the regional upstream industry



SA upstream suppliers have built on the foundation of a strong engineering and resource economy

Supply Chain Category	Reservoirs	Wells	Facilities	Marine & Support	Support & Services
Tier 1 Contractors	Hydrocarbon	Drilling	Production	Offshore	Onshore
Tier 2 Contractors & Companies	Engineering	Construction	Operations	Logistics	Finance
Tier 3 Service Providers	Engineering	Construction	Operations	Logistics	Finance
Specialized & Sub-suppliers	Engineering	Construction	Operations	Logistics	Finance



SA upstream suppliers have built on the foundation of a strong engineering and resource economy

Tier 1: Operators	Integrated Majors	Large/small Independents	National Oil Companies	Non-Operating Companies	Exploration
Supply Chain Categories	Reservoirs	Wells	Facilities	Marine & Subsea	Support & Services
Tier 2: Main Contractors * & Consultants	Reservoir Engineering/Manage ment Contractors Seismic Data Acquisition & Processing Contractors	Oilfield/Well Services Contractors Drilling Contractors Well Engineering Consultants	Engineering, Operation, Maintenance & Decommissioning Contractors Engineering Consultancies Structure and Topsides Design & Fabrication	Marine/Subsea Contractors Heavy Lift Contractors Pipelay Contractors Floating Production Storage Units	Catering/Facility Management Sea/Air Transport Warehouse/Logistics Communications Recruitment & Training
Tier 3: Product & Services Suppliers, Components Sub- contractors & Sub-suppliers	Geoscience Consultancies Data Interpretation Consultancies Seismic Instrumentation Data Storage IT	Cementation Contractors Drilling & Well Equipment Design & Manufacture Drilling Tubulars Laboratory Services	Machinery & Plant Design & Manufacture Engineering Support Contractors Specialist Engineering Services Specialist Steels & Tubulars	Subsea Manifold & Riser Design & Manufacture Marine/Subsea Equipment Subsea Inspection Services	HSE Services Medical Services Banking & Finance Legal & Insurance Accountancy

Some of the global upstream companies operating from South Africa

Schlumberger



HALLIBURTON

bluewater



South African ports are an important part of the current upstream value proposition

- **The Port of Cape Town has a well developed ship & rig repair infrastructure**
 - Sturrock Dry Dock – 360m length, 45m width, 13.7m depth over entrance.
 - Repair quay – 457m with 12m draft.
 - A-Berth repair/fabrication facility – focused on O&G, 50% common access with upgraded facility open in December 2010.
- **The Port of Saldanha, about 100km northwest of Cape Town, is a deepwater port with a depth of 21.5 metres.**
 - A privately controlled O&G-focused fabrication facility may offer opportunities to companies looking for fabrication work
 - Potential opportunities to locate rig and ship repair operations in the port.
 - West African base operators currently looking to establish upstream supply hub at Saldanha Bay
- **Port of Durban has a long established ship repair and offshore fabrication capability.**

Selected recent projects

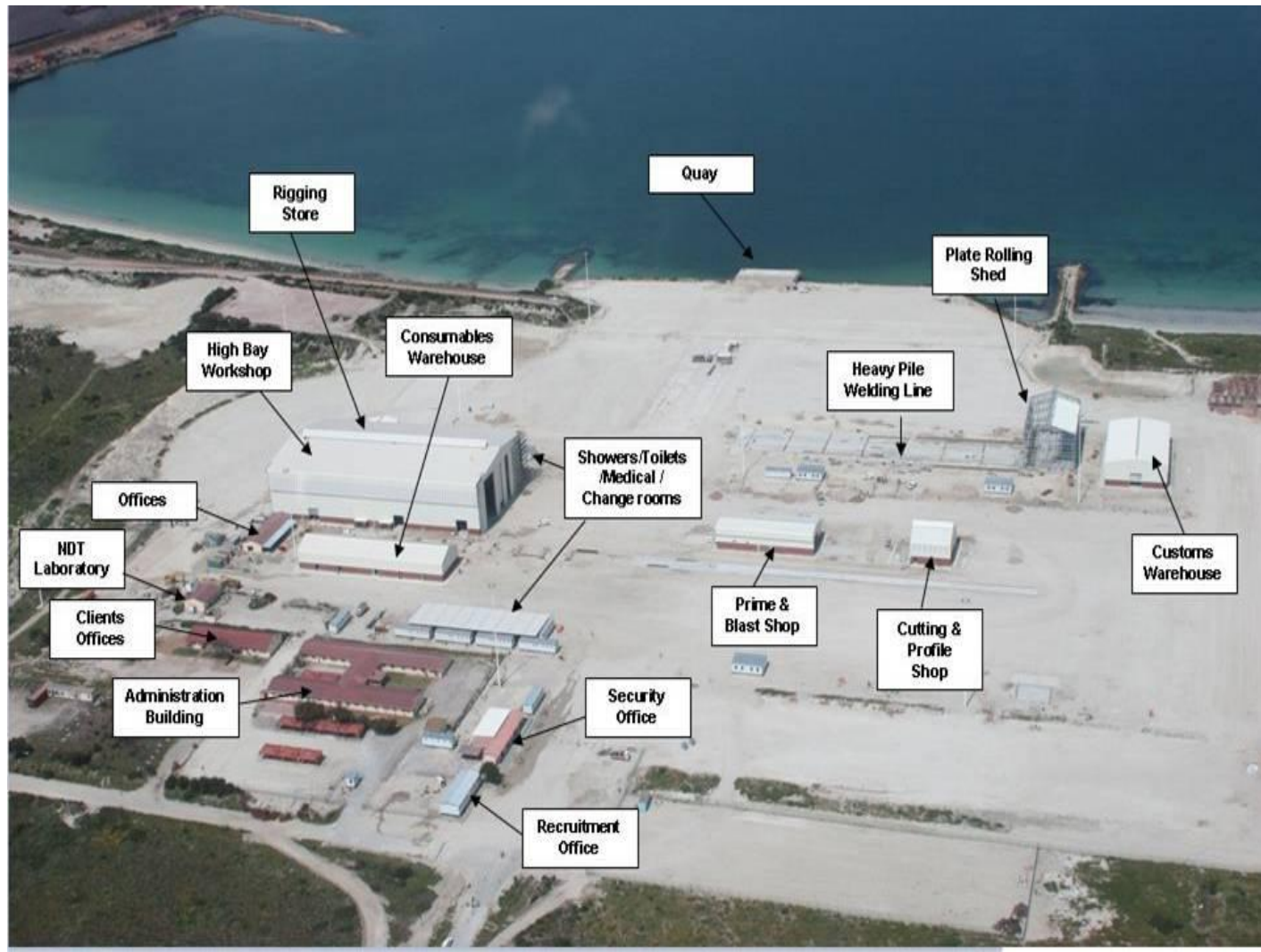
- **South coast gas project subsea tieback to FA Platform.**
 - Fabrication and construction of 9 subsea structures, tie-in spools and jumpers.
- **FPSO Dalia, Angola (Total, Esso, StatOil, Norsk Hydro).**
 - Docking and berthing of 190,217t FPSO and provision of equipment and services for remedial works and pre-commissioning works.
- **Repair and maintenance of Acergy Polaris pipe lay crane barge.**
 - Overhaul and refurbish of ballast water tanks, side shell, ramps - ladders - platforms - decks, thrusters, repair crane hook, alternators, transformers, engines, pipe work, paint work.
- **Life extension and upgrade of Chevron's Escravos LPG FSO.**
- **Repair and maintenance of Saipem FDS J-Lay pipe-laying vessel.**



Saldanha Bay is a deepwater port little more than an hour north of Cape Town with plenty of development potential



Fabrication facility at Saldanha Bay port



Port of Cape Town



Possible areas of opportunity and collaboration

- **Supply of services and product from South Africa.**
- **Partnerships and joint venture opportunities between upstream suppliers in Cameroon and South Africa.**
 - West African base for offering repair and maintenance services to Gulf of Guinea oilfields.
 - Etc.
- **Training opportunities – can we work together to create more upstream capability on the continent?**
- **Integration of logistics and distribution activity.**



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