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Coega Refinery: Fuelling the growth in Africa

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ADEA Summit 13.11.2008

Global trends influencing Energy Security

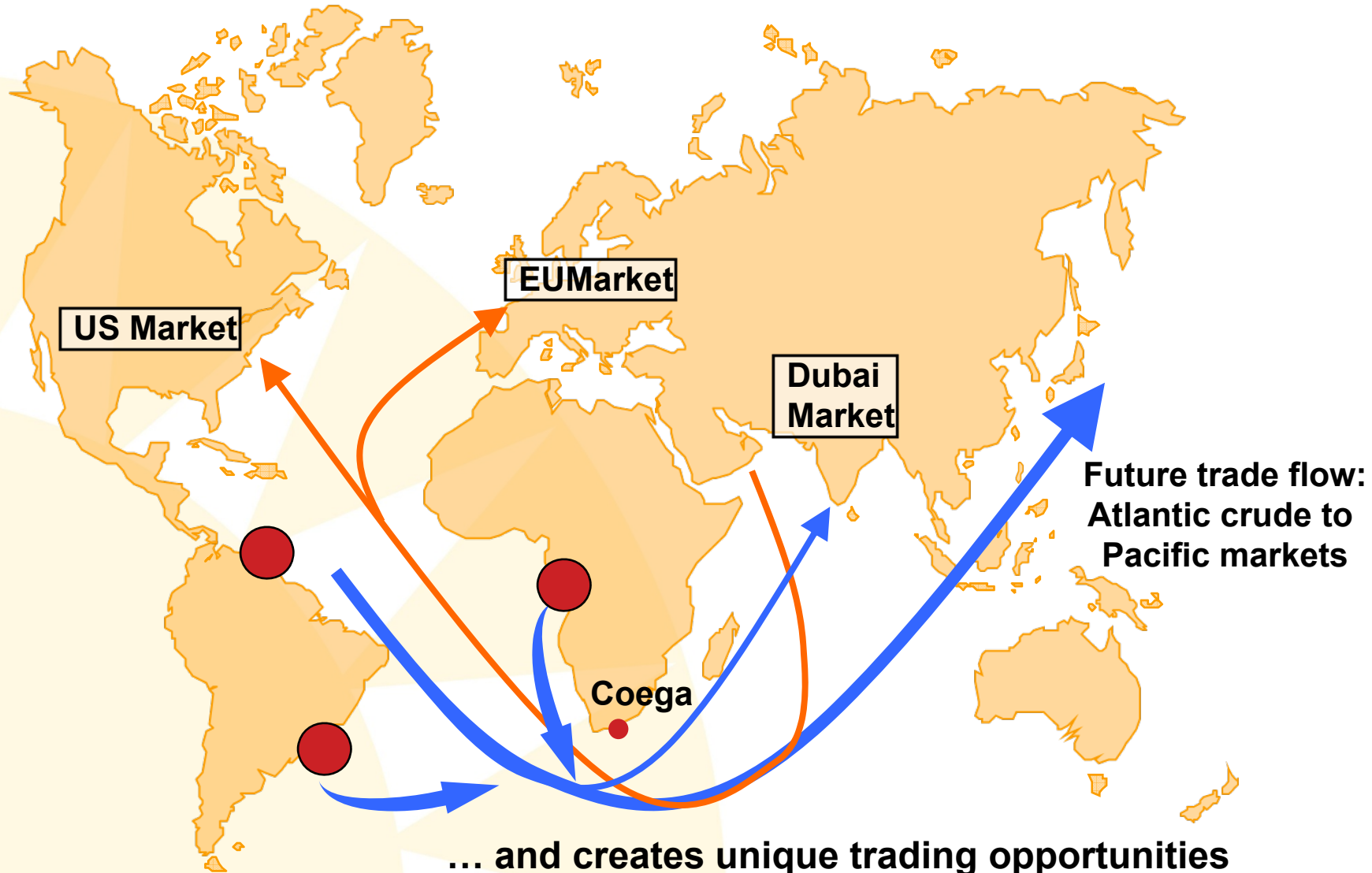
- New refineries (large scale, full conversion) will raise level of competition on crude and push market to clean fuels
- IOC's optimize global network with upstream priority and downstream focus on large markets
- Growing influence of NOC's as manager of limited natural resources and driver of home infrastructure investment
- Global product supply for import will depend on limited Mega-Refineries
- Peak oil scenario: strong global competition crude that gets more challenging to process (heavy and acid crude)
- Diversification of fuels, regional supply sources and feedstock

 **Crude oil will be the main source for the coming 20 years!**



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Coega refinery: location on global crude trading route enhances security of supply





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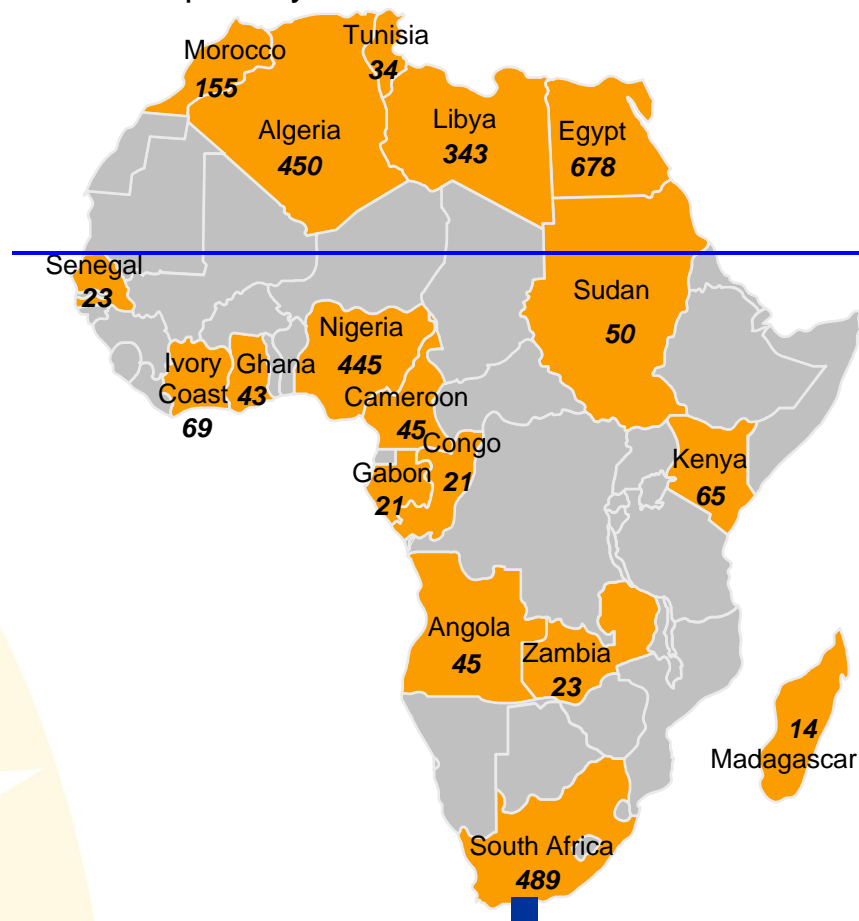
Sub Sahara African crude refining landscape is dominated by small, unsustainable plants

Key characteristics

- 19 refineries in total with 1.3 million barrels per day capacity
- Average refinery size is - **69 000 barrels per day**
- 60 % of capacity is simple (topping/reforming) refineries
- Only 7 refineries have capacities $\geq 100\ 000$ barrels per day
- Low capacity utilization
- Smallest refinery (7 000 barrels per day)
- Crude export – product import drives costs of doing business up!
- Africa supplies 25% of US and 32% of China crude demand

Refining capacity by country

'000 barrels per day



Coega: 400 000 bblpd

* 2002 estimate



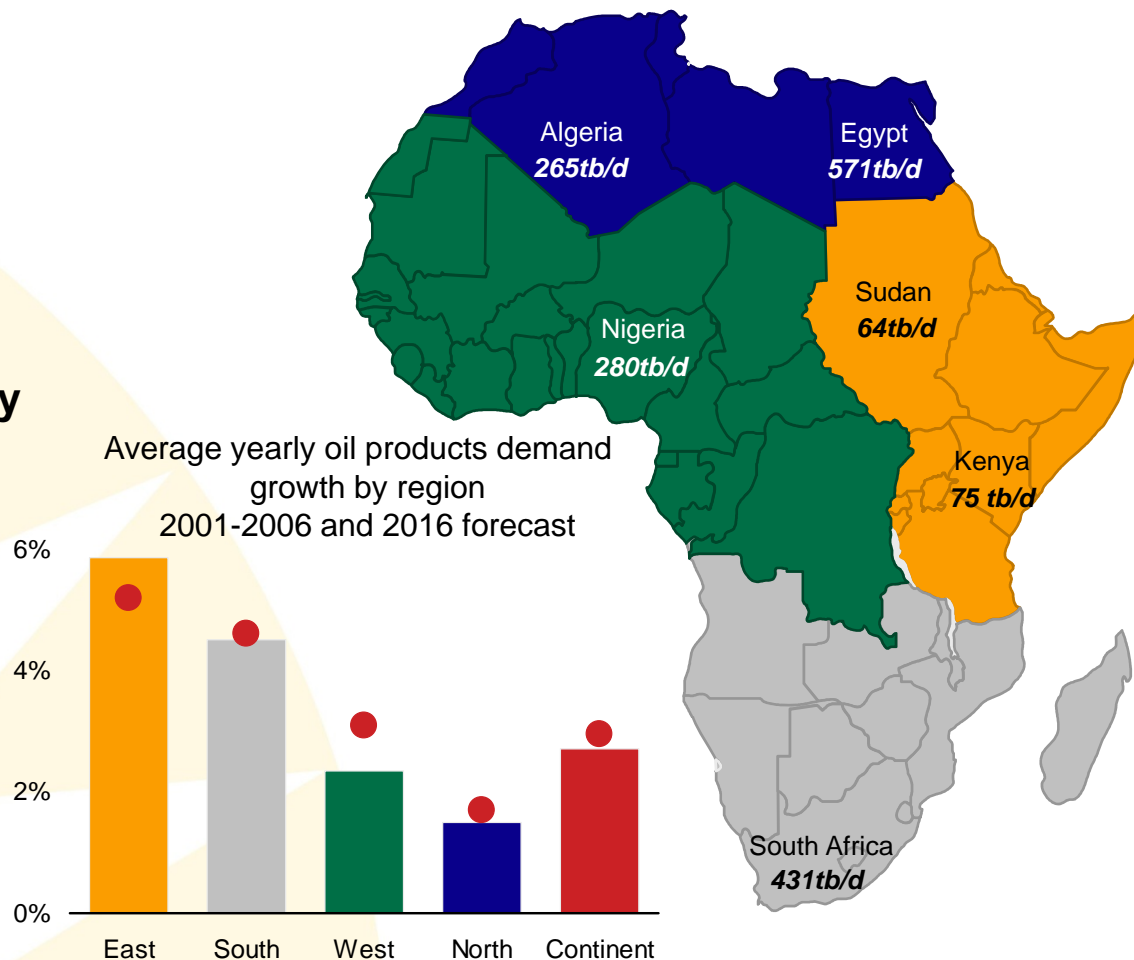
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Oil product demand growth in Africa is forecast to be strong but unequally distributed

- Demand remains quite concentrated
- Fragmented markets
- Political stability
- Lack of infrastructure: pipe, roads and congested ports
- No GDP growth without energy
- Eastern and Southern Africa have seen the strongest growth, drivers are:
 - Industrialization
 - Mining
 - Agriculture
- Growing vehicle fleet
 - South Africa, Nigeria, North Africa

Oil bulk products demand in Africa

2006



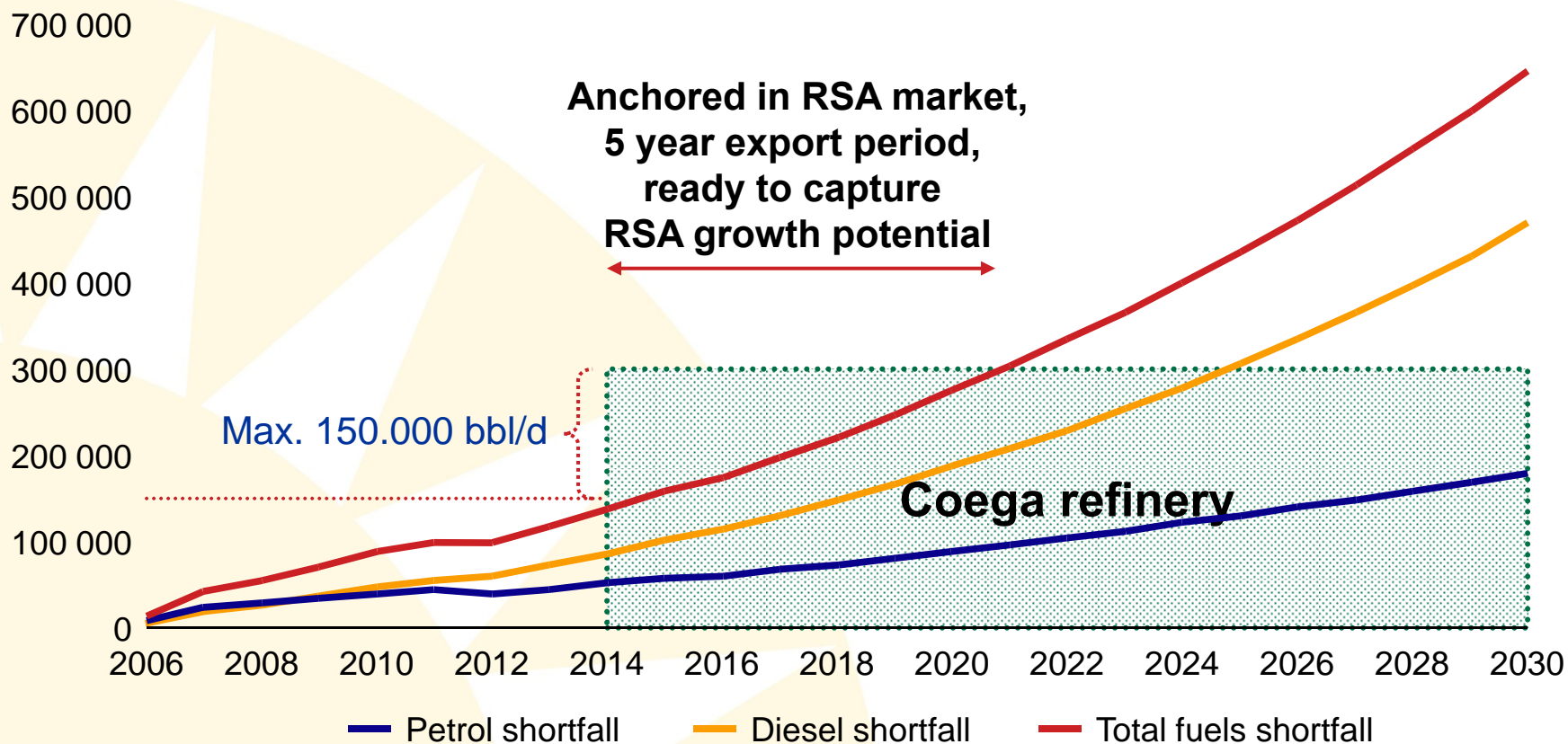


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The growing South African demand will be fully supplied by Coega refinery from 2014 to 2021

Investing into a growing market - linked to global markets!

New product demand bpd



Flexible, lowest-cost producer of top global quality product in Sub-Saharan Africa

Notes:
 Fuel demand growth projections are based on 3% GDP growth:
 • Petrol + 2,9% and Diesel + 6%
 • Assumption of 80% gasoline and diesel yield in new crude refinery



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Coega refinery export volume can readily be placed in Sub Sahara Africa market in 2015

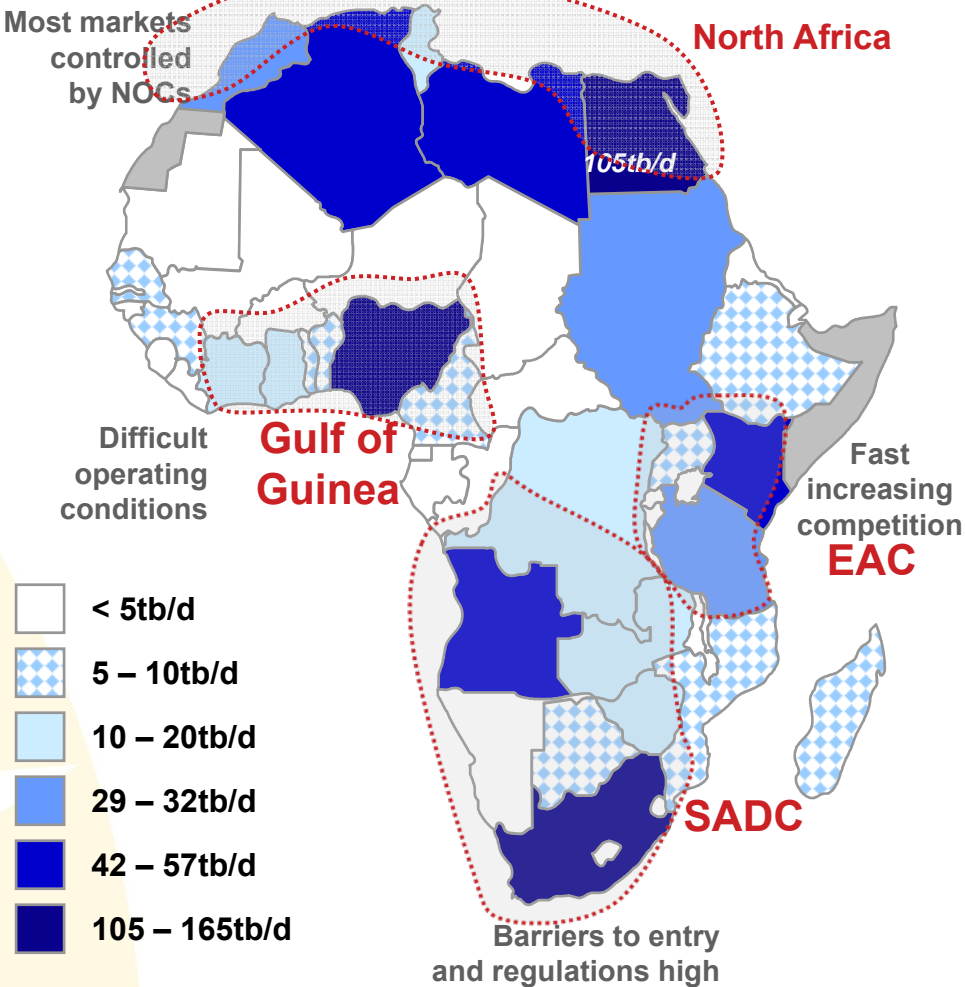
- After decades of low growth, African economy is growing strongly
- Oil product demand growth is forecast to be particularly strong ...
 - 2X world average, with many countries significantly higher
- Pressure on refineries to improve product quality, efficiency and environmental footprint
- ... will drive concentration process and portfolio rationalization

Lowest cost to market as competitive advantage!

Incremental demand volume (diesel/gasoline)

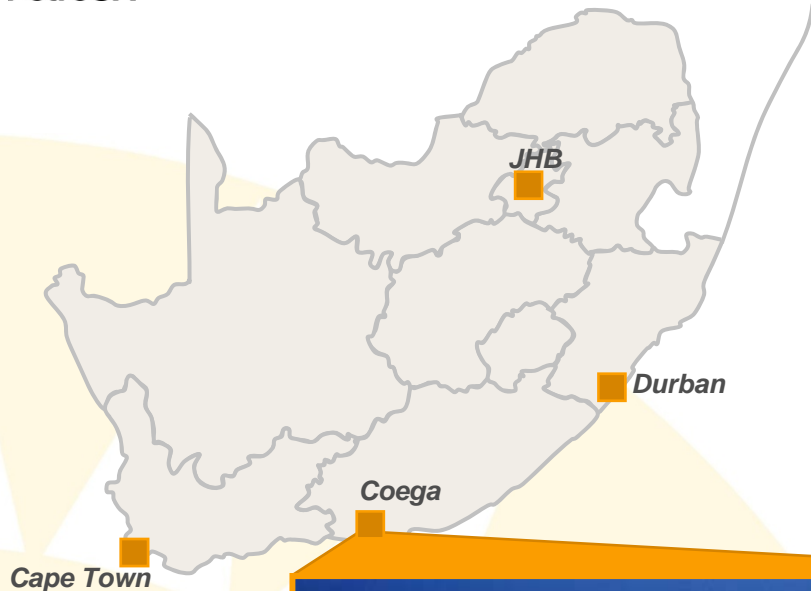
2006 - 2016

Most markets controlled by NOCs





Coega – a world-class location to secure flexible supply to growing markets



- Inner Basin draft = 16.5 ft
- Entrance Channel 18m
- 175,000 DWT Bulk Carriers

- Modern deep water harbour
- Centre of world's main trade routes
- Full government support for investment
- Flexible supply to different markets
- Pipeline to inland markets will reduce refinery logistics costs
- Optimal crude and product logistics incl. new SPM for VLCC
- New growth centre in SA: IDZ and phased development of petrochemical hub
- Can leverage export tax incentives



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Coega Crude Refinery : World Class

- Updated base case: 400,000 bpd
- Refinery will generate own power – not rely on Eskom
- Emissions/Water management will meet best global practice standards
- Fuels yield 95%
- Only highest grade gasoline (95 octane) will be manufactured
- Distillate versus gasoline ratio up to 70%
- Will use heavy/sour/acid base crude – maximise returns
- Economy of scale and proven lowest cost technology will ensure lowest cost gasoline and distillate
- World Class working practices
- Open for phased petro-chemicals integration

Key characteristics

- Capacity sized to capture economics of scale
- Will meet projected regional demand in 2021
- Only proven technology selected to mitigate risk
- Designed to process heavy, high sulphur and acidic crudes
- Designed for high conversion: Maximise Distillates and no fuel oil
- Design for Euro V product specifications
- Lowest emission standards

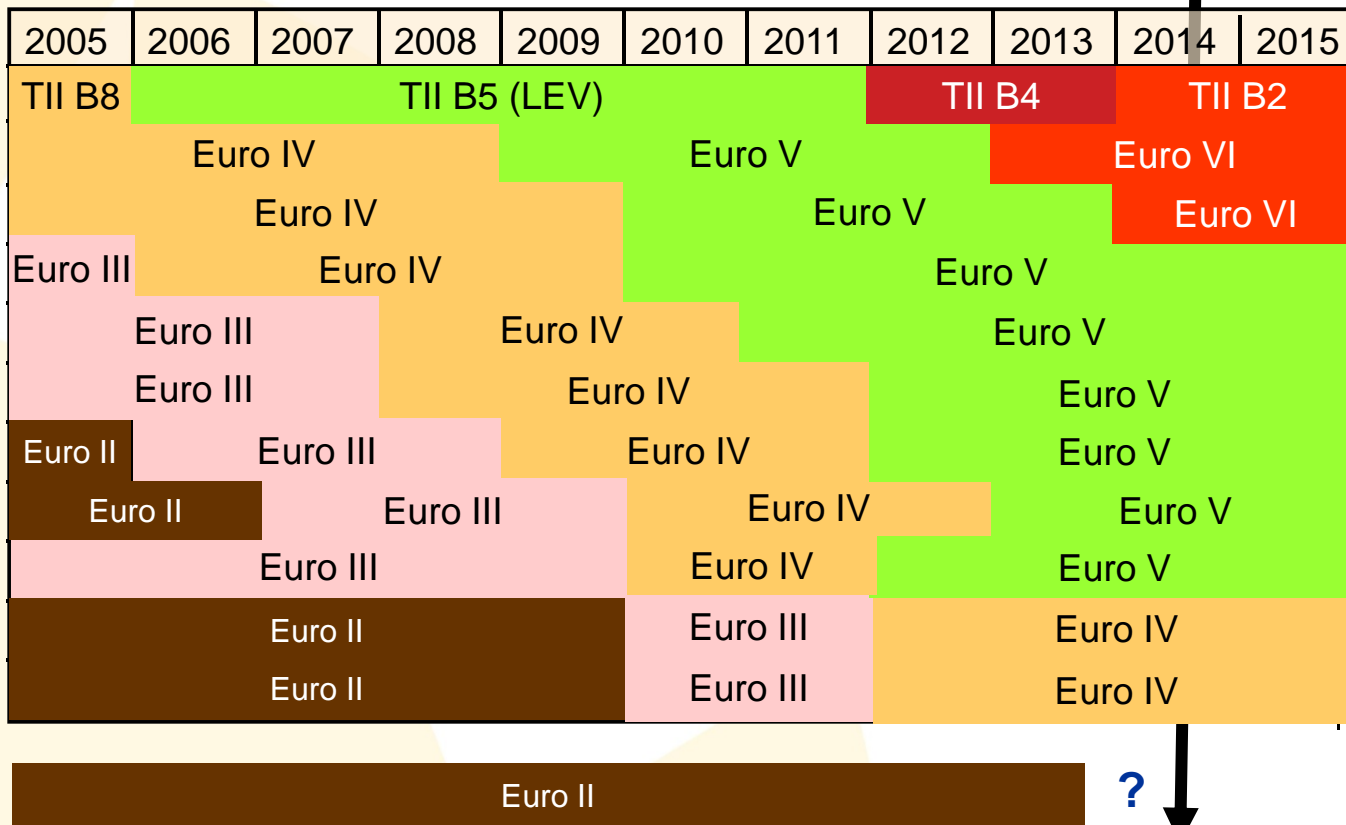
The benefits of a world class 400 000 bbl/d capacity refinery are significant

- Commercially robust due to economics of scale
 - Competitive against imports: 20-30% lower costs per bbl product produced, significant in cyclic margin business!
 - Minimum government support / protection required
 - Allows access to global project finance
 - Attracts FDI to share burden of infrastructure investment
 - Creates opportunity for regional cooperation in energy
- First milestone in cost effective clean fuels implementation for SA oil industry:
 - creates opportunity for other refineries to partner
- Contributes to long term sustainable security of supply
- Allows space (“materiality”) for complementary partnerships to mitigate project risks across the value chain from supply, construction, operations and off take



Coega Refinery will introduce world class product quality in Africa

SA fuel quality far behind even developing countries



Key features

- SA refineries require significant investment to comply with no return
- New Refinery will be competitive in export markets
- Global markets will change over time to new standards

Coega start-up



* tighter specs in larger cities



South Africa is well positioned for a world class new crude refinery !

- Largest growth market in sub-Saharan Africa to anchor project
- Regulatory framework supports new refinery in SA
- Political stability with established democracy
- Excellent global credit rating support access to global funding
- Significant existing refinery infrastructure – skills pool available
- Uniquely situated on global crude trade flows
- Coega is a developed modern deep-water port: flexible supply options
- No competing own-crude production – opportunity for all suppliers
- Political influence to integrate fragmented markets (crude/products)
- PetroSA as NOC will co-invest to give other investors confidence



Coega refinery will facilitate a new growing South-South energy trading cluster





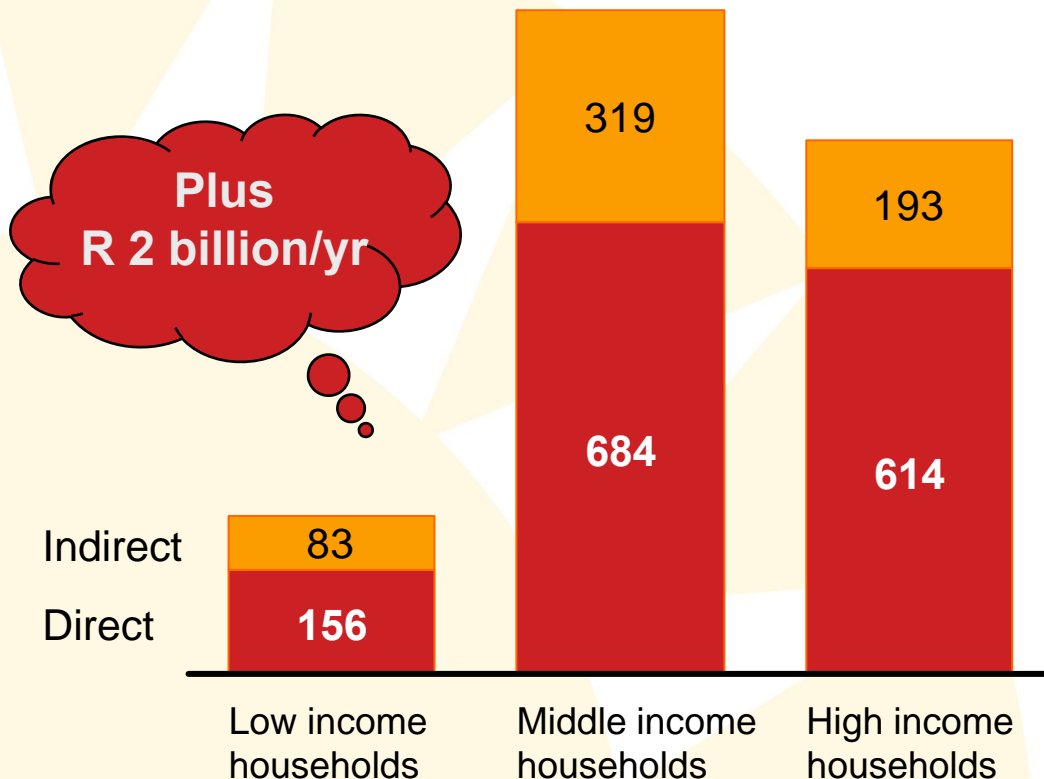
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Macro-economic study: Coega refinery will reduce Balance of Payment by **R18.5bn pa**

Impact 1)

Incremental household income effect during the development/construction phase

Rm p.a.



Impact 2)

- Balance of Payments Savings of **R18,5 billion per annum** for the period 2014 – 2035
- Increased economic activity through direct, indirect and induced multiplier effects



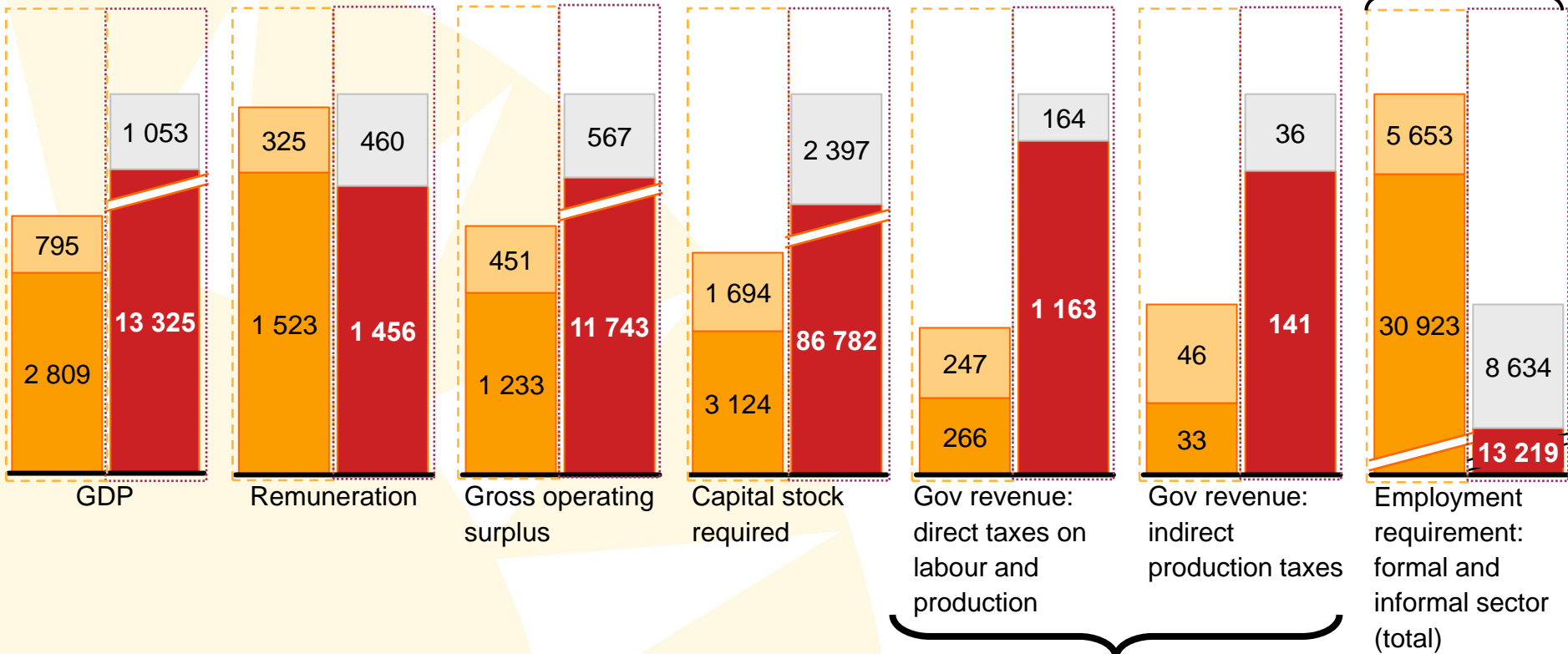
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... and will create between **22.000 – 37.000** jobs in Eastern Cape

Rm p.a., 2007

- Development/construction phase
- Operational phase
- Direct
- Direct

22.000 – 37.000
People employed



Government tax return: R1.5 billion/yr

Coega Refinery presents a number of attractive opportunities

1. To crude suppliers

- An attractive market for challenging crude:
 - configuration, size, long term supply agreements
- An attractive refinery location
 - optimize transport costs & regional off take diversification

2. To product off takers

- Access to world class products with flexible supply options
- Cost effective security of supply to countries and marketing organisations; option to diversify supply
- Access to growing Southern African markets

3. Equity participation and Debt funding

- Commercially attractive investment, ready for the future !
- Guiding principle: no equity – no supply and/or off take

4. Supply of Technology, Equipment, EPC services



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What does Coega mean for South Africa?

- Security of supply
- Lowest cost producer
- World class manufacturer
- Foreign investment attractor
- Reduce reliance on imports
- Job creator

- Anchor project in Coega
- Unlock region growth potential
- Alleviate poverty
- Develop skills & technology
- Enable car industry to expand
- Create BEE opportunities



- Meet best clean fuels standards
- Beneficiate petro-chemicals
- Improve SA's supply logistics
- Relieve Durban congestion
- New supply to Inland market
- Diversify crude sourcing

- Commercially viable
- Pride in SA capability
- World class achievement
- Confidence builder
- Spirit of the country
- Commitment to the future