



# CHALLENGES AND SOLUTIONS OF REDUCING GAS FLARING IN IRAQ

Regional Forum on Gas Flaring and Associated Gas Utilisation  
Muscat, May 10<sup>th</sup> -11<sup>th</sup> 2010



**Mounir Bouaziz**  
**Vice President Commercial, New Business, LNG**  
**Middle East and North Africa**  
**Royal Dutch Shell Plc**

# Disclaimer Statement

The companies in which Royal Dutch Shell plc directly or indirectly owns investments are separate entities. In this presentation the expressions "Shell", "Group" and "Shell Group" are sometimes used for convenience where references are made to Group companies in general. Likewise the words "we", "us" and "our" are also used to refer to Group companies in general or those who work for them. The expressions are also used where there is no purpose in identifying specific companies.

The information contained in this presentation contains forward-looking statements, that are subject to risk factors which may affect the outcome of the matters covered. None of Shell International B.V., any other Shell company and their respective officers, employees and agents represents the accuracy or completeness of the information set forth in this presentation and none of the foregoing shall be liable for any loss, cost, expense or damage (whether arising from negligence or otherwise) relating to the use of such information.

All copyright and other (intellectual property) rights in all text, images and other information contained in this presentation are the property of Shell International B.V. or other Shell companies. Permission should be sought from Shell International B.V. before any part of this presentation is reproduced, stored or transmitted by any means.

1.0

## Gas Flaring in Iraq

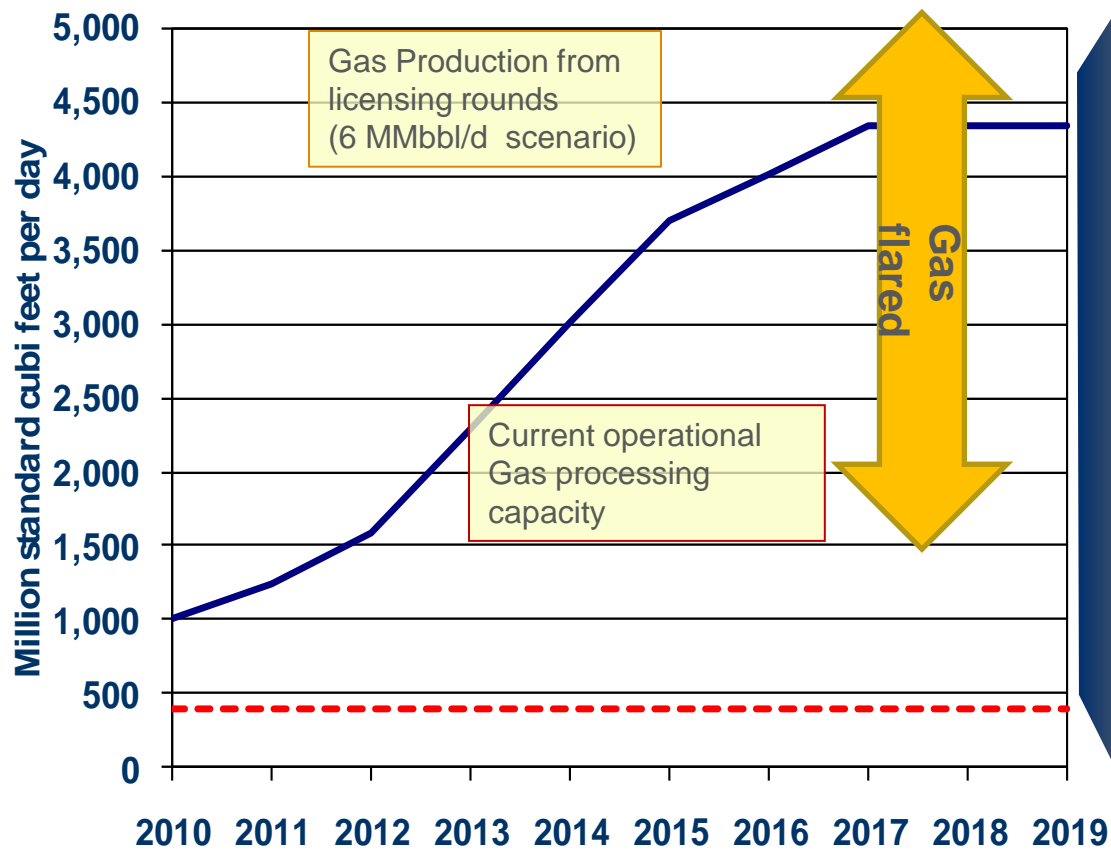
# Iraq's Gas Sector Fundamentals

- 70% of proven gas is associated gas
- Supply highly dependent on oil production
- Non-Associated Gas >15 tcf\*
- Limited gas infrastructure between regions (South Iraq holds 70% of gas)
- Usable power capacity of ~5,000 MW\*
- Iraq needs in excess of 10,000 MW\*

# Current Status of Flaring in Iraq

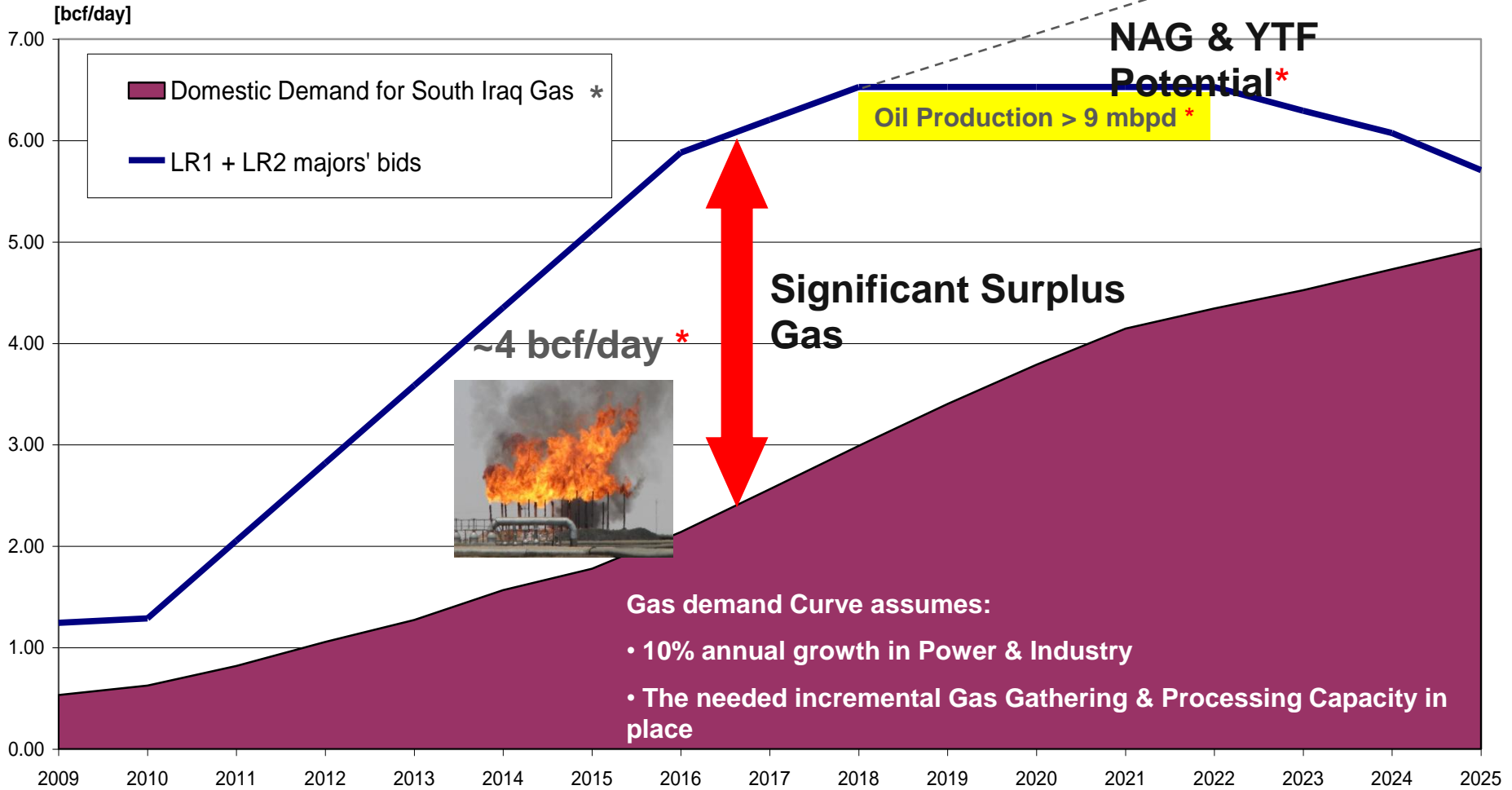
- Substantial volumes of Associated Gas is flared in Basrah Province
- Of the ~1100 mmscf/day produced, greater than 700 mmscfe/day of gas flare
  - This is equivalent to 560 mmscf/day of dry gas \*, sufficient to generate 4500 MW \* (the current operational power generation is 5000 MW)
  - 4000 t per day of LPG \* (equivalent to 320,000 LPG cylinders per day)
  - 770 tons per day of Condensates \*
  - The current gas flare is releasing ~ 14 mtpa of CO2 per year \*
- Significant shortage in dry gas to fuel power plants
- Significant shortage in LPG production forcing import of LPG
- Loss of opportunity revenue from export of surplus LPG or dry gas

# Flaring Will Increase Across All Licensing Round Fields



\*Source: Shell estimates based on current oil and products prices. A 4 bcf/day gas flare assumes no action is taken over the next 3 years

# Southern Iraq Gas Supply/Demand Scenario (LR data)



\*Source: Shell estimates of gas production and demand

Assumes 80% of domestic demand for the whole of Iraq to be in the South of the country

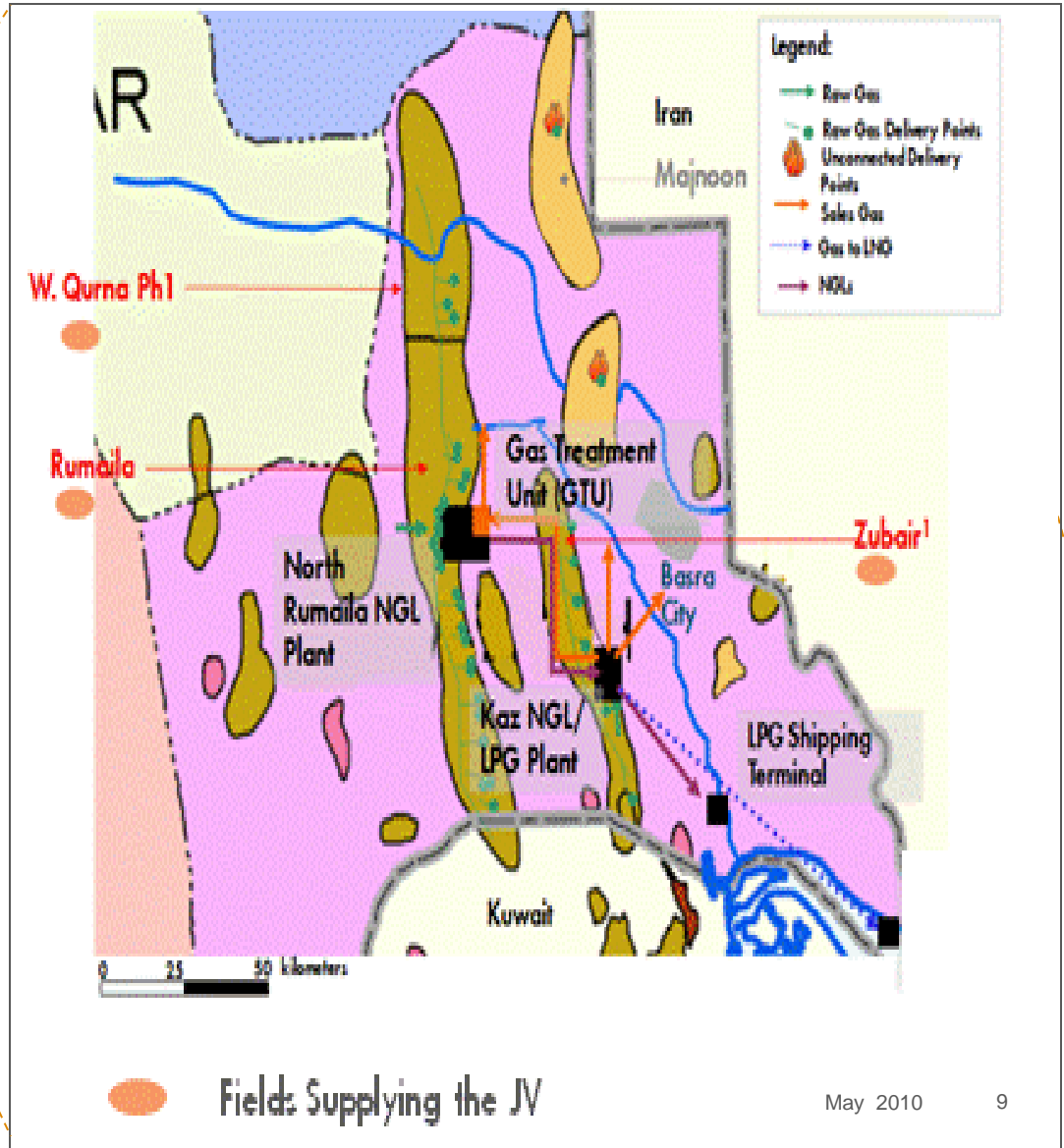
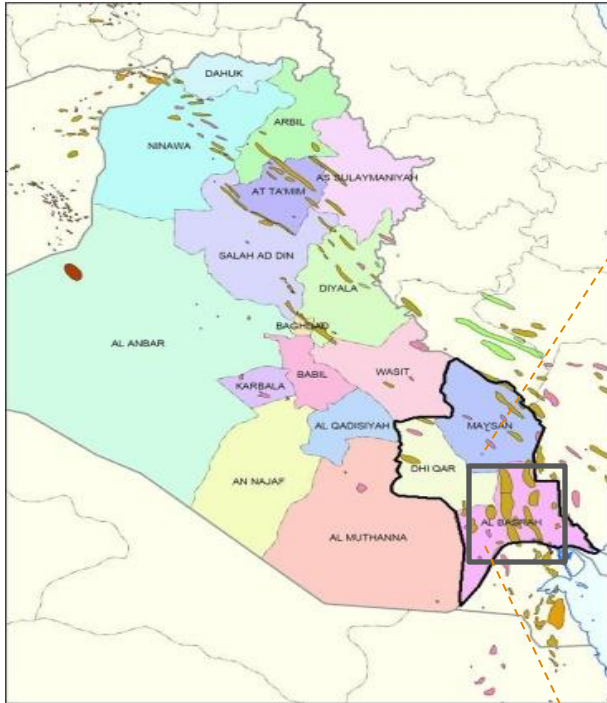
LR :Licensing Round 1 & 2

**2.0**

**Basrah Gas Company:**

**A Gas Solution for South Iraq**

# South Gas Joint Venture – Key Facts

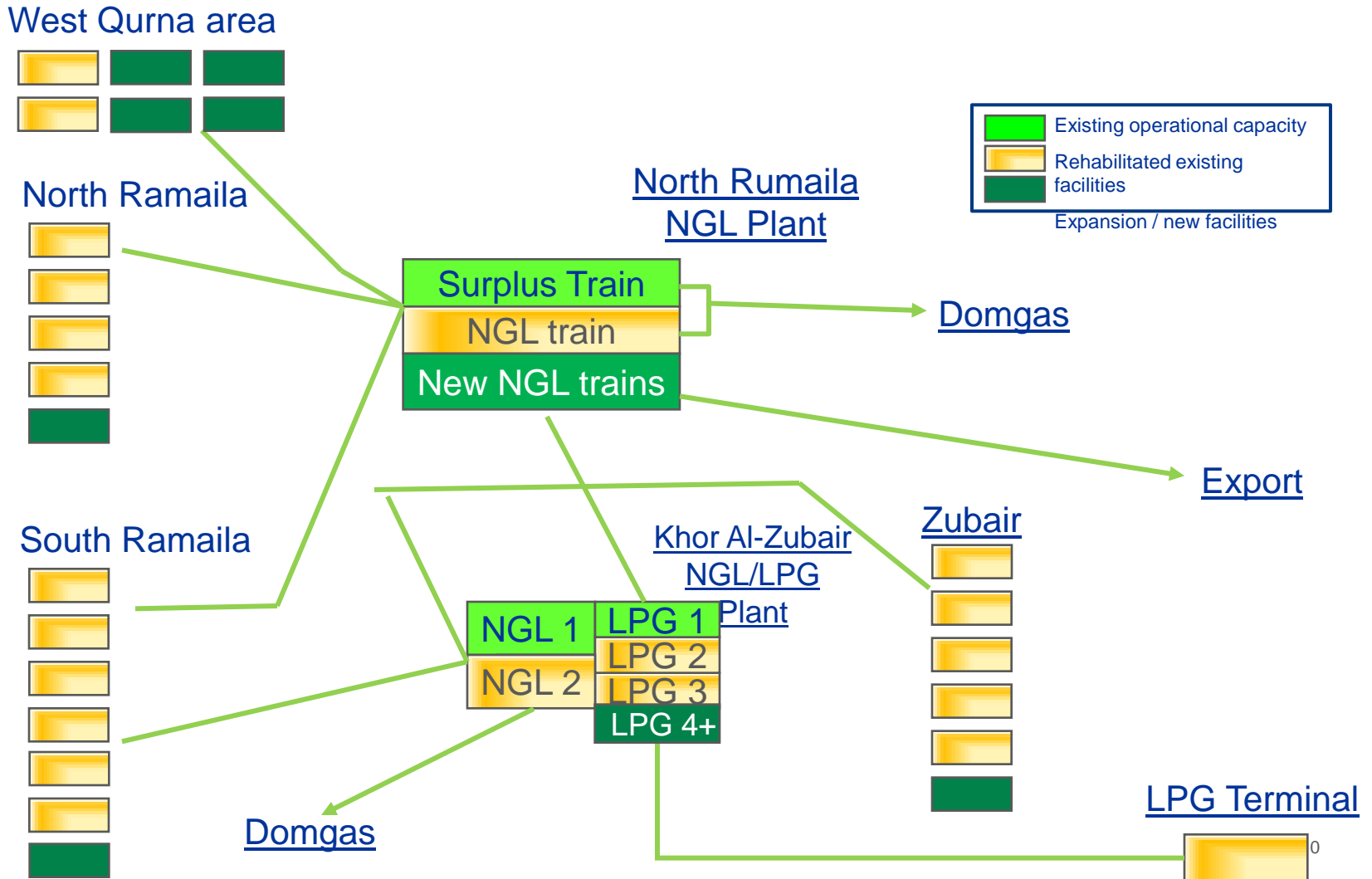


## Shareholders:

South Gas Company (51%), Shell (44%), Mitsubishi (5%)

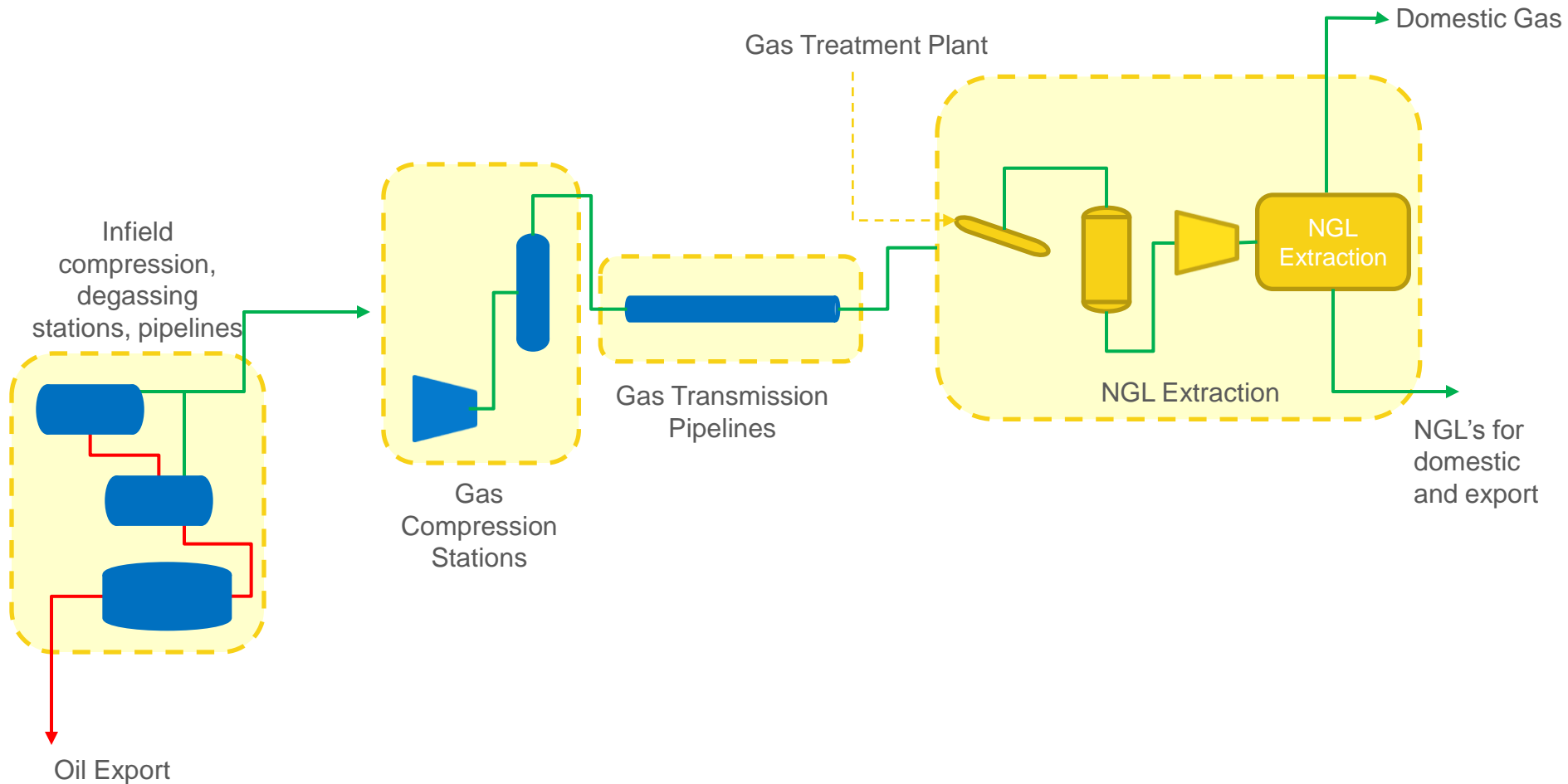
# Infrastructure Master Planning

- Repair/Rejuvenation Plans in place and Development Plans ready for implementation



# Gas Infrastructure Chain - Development and Utilisation

- Shell has gained good insights into the current gas infrastructure and the existing operational issues



# Shell's in country activities and early gas capture

- Development of Iraq Gas Master Plan together with MoO and Mitsubishi (2005)
- First IOC to re-enter South Iraq in September 2008.
- More than 700 site visits to oil & gas facilities in Basra province
- To date, the South Gas Company and Shell have completed the following “quick wins”:
  - Captured 135 MMscf/d (20% of total amount flared)
  - Reduced CO2 emissions by some 4 MT/a
  - \$500mln/annum value created for SGC and \$350mln ‘one off’ savings\*
  - 18MW of power re-established and 52MW of new power in the pipeline
  - Completed early social investment projects

# Shell's in country activities and early gas capture (continued)

“Quick Wins” underway:

- North Rumaila Compression Stations Upgrades – target capture **90MMscf/d**
  - Compressor repairs and re-routing of LP gas to other station
  - Sour Gas 1<sup>st</sup> stage gas capture
  - Repair and replace the gas blowers in all stations
- South Rumaila – target capture **60MMscf/d**
  - Re-instate and repair compressors and re-route 1<sup>st</sup> stage gas
- West Qurna compression & North Rumaila Plant – target capture **150MMscf/d**
  - Complete gas pipeline to Rumaila plant, re-instate sweetening facilities at NR plant
  - Construct compression booster station at North Rumaila plant
- Zubair compression and KAZ Plant – target capture **80MMscf/d**
  - Complete Zubair compression stations, and installations of pipelines to KAZ plant

\*Source: Shell estimates

Total Quick Wins target of over **515MMscf/d\*** of flared gas and over **15MT/a CO<sub>2</sub>** May 2010

# Technical Quick Wins (under the HoA)



**K03 Compressor Repair**



05-06-2009 17:22



01.04.2009 12:16

**Joint team at KAZ Plant**



01.04.2009 13:39

**Joint work at KAZ**



1 5 2008

**Frame 5 Procurement**

# Working Jointly with SGC



## North Rumaila Plant Shut Down Inspections October 09



# Shell in Basrah since 2008



**1<sup>st</sup> Joint Mgt Com. in Basrah**

(outside the Shell Office)



**Stakeholder Town hall meetings in Basrah**



**Shell staff at KAZ Plant**



**Handover of refurbished Workshop to Vocational Training Center**

# Shell in Basrah since 2008

Vocational Training Centre



Shell solar-powered street lighting project



Celebration of Quick Wins with South Gas



Basra Oil Training Institute



Training Certificates Award in Basra

3.0

## **Challenges and Solutions**





غاز البصرة  
Basrah Gas

# Q & A