The Shell Petroleum Development Company of Nigeria Limited

Group Investment Proposal

Summary Information

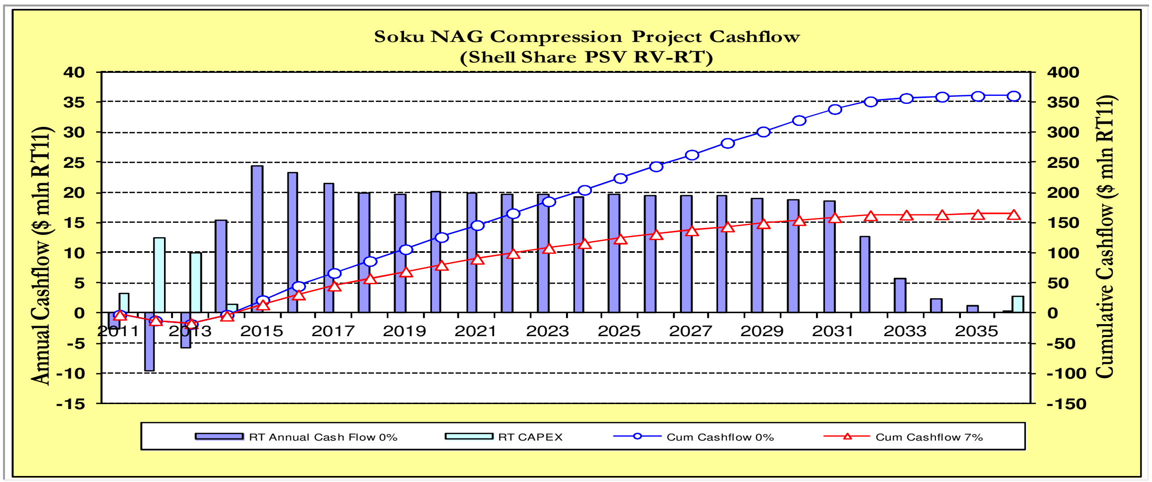
Directorate	Technical Directorate
Group equity interest	100% in SPDC, whereas SPDC is the Operator of an unincorporated JV with a 30% interest.
Other shareholders / partners	Nigeria National Petroleum Corporation (NNPC: 55%), Total: 10%, Nigeria Agip Oil Company (NAOC: 5%) in SPDC-JV
Business or Function	Upstream International
Amount	Shell share cost of US$ 24.8 mln or 100% JV cost of US$ 82.5 mln (Total project cost is US$ 98.1 (100% JV) of which US$ 15.6 mln (100% JV) had been previously approved as pre-FID expenditure).
Project	Soku NAG Compression

Main commitments

	Previously Approved (100% JV $mln)	**Requested Approval (100% JV $mln)**	**Requested Approval (30% Shell Share $mln)**
FEED & Detail Engineering	4.0	-	-
Procurement, Construction, Commissioning & Project Management	11.6	80.1	24.1
SDCR	-	2.4	0.7
Total	**15.6**	**82.5**	**24.8**

Source and form of financing	This investment will be financed with JV funding and Shell share capital expenditure will be met by SPDC's own cash flow.

Summary cash flow



Summary economics

Shell Share, RT-11	NPV7% (USD mln)	VIR7%	RTEP
Base case	164.3	6.64	68.3
Low Realization Forecast (P90)	142.3	5.75	68.7
High CAPEX (+15%)	158.5	5.43	61.22

Section 1: The proposal

1.1 Management Summary

This Final Investment Proposal seeks approval of US$ 24.8 mln (Shell Share) or 100% JV cost of US$ 82.5 mln to execute the Soku NAG Compression Project. A prior amount of US$ 4.7 mln (Shell Share) or US$ 15.6mln (100%) had been previously approved as pre-FID investment for engineering design.

This project is an integral part of the Soku Field Development Plan. The project's objective is to produce 1.17 Tscf of gas and 19 MMstb of associated condensate by compressing non-associated gas from shut in low pressure wells. After over a decade of non associated gas production in the Soku field, reservoir pressures are declining and some gas wells are currently shut-in with more to follow.

This opportunity will be realized by modifying an existing compressor to boost 200 MMscf/d low pressure gas up to the gas plant pressure for processing and export to NLNG. This development plan fits into SPDC's strategy of optimally developing key assets to the technical limit. The opportunity will also be taken to upgrade obsolete safeguarding and control systems in Soku gas plant.

The gas export from this project is critical to satisfying SPDC's contractual gas supply obligations to NLNG Trains 1 – 6. Front end engineering design (FEED) was completed in April 2011 and Detail design is ongoing.

1.2 Project Background and Previous Proposals

In 2007, a pre-FID investment proposal (IP) US$ 2.3 mln (100% JV) was approved for the Front End Engineering Designs (FEED) of the project but at the completion of FEED in 2007 the project was stopped due to lack of funding. The concept at that time was based on installing a new NAG compression package.

In 2010, a team was set up in the NLNG Gas Supply Projects team to restart the project and another pre-FID IP of 100% JV US$ 13.3 mln was approved for design, project management and long lead procurement. A review of the AG forecasts of the fields (Nembe, Ekulama, Soku, Santa Barbara) feeding the 3 x 65 MMscf/d Soku AG compressors show that two of the AG compressors are capable of handling the AG production at Soku node for the foreseeable future. As such one compressor is available for re-staging for NAG compression service as anticipated in the original gas plant design.

Consequently, the project concept was revised to using an existing modified AG compressor rather than installing a new compression package. The compressor manufacturer, Siemens, has confirmed the technical feasibility of this option.The FEED was completed in April 2011 and the project is now progressing to Detail Design. Procurement of long lead items delayed due to lack of NAPIMS approval.

The estimated yearly expenditure phasing for the project is indicated in Table 1 below.

Table 1: Yearly estimated expenditure (FUS$ mln)

	2007	**2010**	**2011**	**2012**	**2013**	**2014**	**Total**
Total 100% JV (FUS$ mln)	2.3	0.7	10.8	43.3	36.0	5.0	**98.1**
Total Shell Share (FUS$ mln)	0.7	0.2	3.2	13.0	10.8	1.5	**29.4**

1.3 Scope of Work

A summary of the scope of work planned to be executed under this proposal is as follows:

- Installation of a new inlet manifold and routing of existing low pressure wells in the plant to this manifold.
- Installation of new NAG inlet separator.
- Re-staging of an existing AG compressor to a single stage machine with inlet at 40-barg and discharge at 98-barg for NAG compression service. The project will re-use the existing (but zero-hour) LM 1600 gas turbine driver, speed reduction gearbox and ancillaries as applicable. But will upgrade the obsolete compressor and gas turbine driver control/safeguarding systems.
- Installation of new compressor discharge cooler.
- Interconnection piping and tie-ins to the existing plant.
- Integration of new field devices to the existing Yokogawa supplied plant automation and control systems.

The new facilities will have a throughput capacity of 200 MMscf/d.

Section 2: Value Proposition and Strategic and Financial Context

2.1 Justification for Expenditure

The proposed expenditure is required to provide 200 MMscf/d of gas production capacity and circa 2,500 b/d of condensate production at Soku NAG plant from wells which would otherwise be shut-in due to declining reservoir pressure. The project represents one of the lowest unit development cost projects in the SPDC portfolio.

Without the project, the Soku gas plant may have to be shut in post 2013, if additional wells are not drilled, as the field reservoir pressure declines to a point that most of the existing gas wells can no longer flow into the gas plant thereby causing us not to meet our NLNG contractual supply obligations for Trains 1 -6.

2.2 Production and Reserves

The Soku NAG Compression Development will develop 1.17Tscf of gas and 19MMstb of condensate and will help to keep the Soku gas plant full. The production forecast from the development is shown in the Figure 1 below:

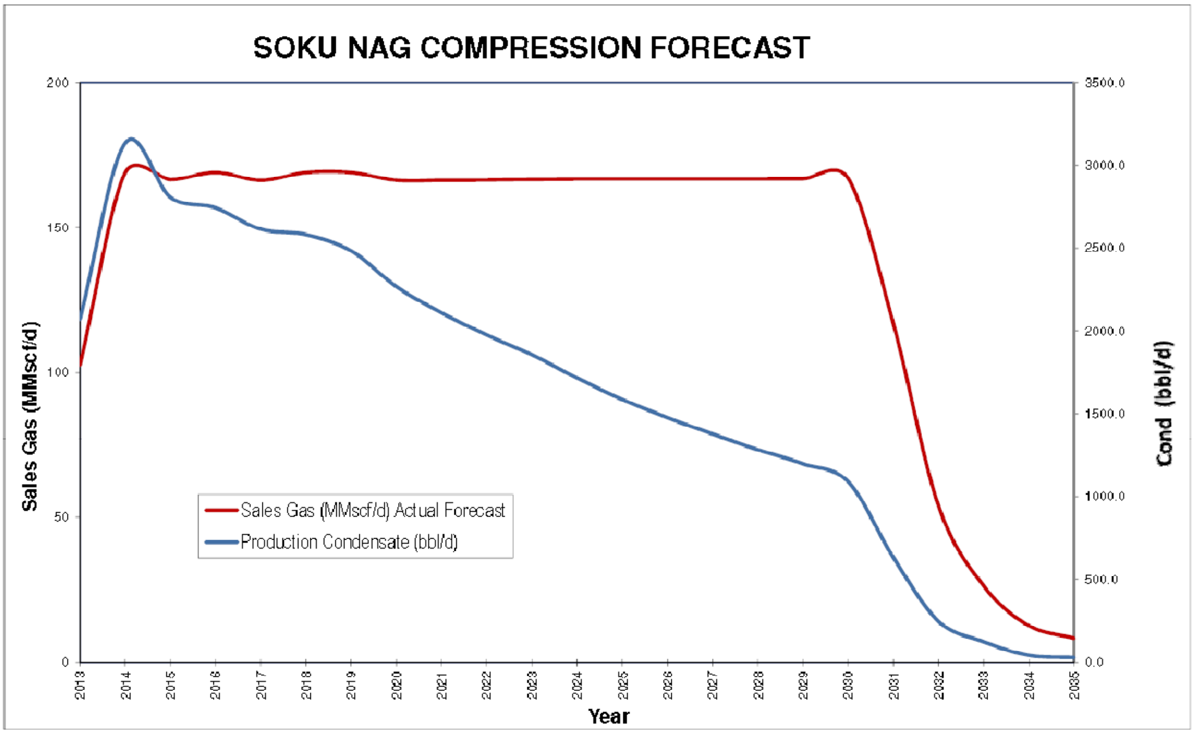


Figure 1: Soku NAG Compression Production Forecast

2.3 Summary of Economics

The project economic evaluation was done on a forward looking basis using the 50/50 CAPEX and expectation production forecasts. The base case returned an NPV7% of $164.3mln, with a VIR7% of 6.64 at RV-RT11. The outstanding profitability of this project is due to the low expenditure incurred- costs were only for activities required to improve reservoir pressure to enable the shut-in production.

Sensitivity analysis was carried out for the project using low realization and high realization forecasts, low and high CAPEX estimates (-10% and +15%), possible loss of fiscal incentive (CITA without AGFA incentive), license expiration in end 2019 and the Petroleum Industry Bill (PIB). Summarized results of the analyses are shown in Table 2 below. Figures 2 show the profitability versus price for the project.

Base case Economics assumptions:

- NAG will be sold to NLNG T1-6 at $1.73/Mmbtu RT-11
- Condensate treated and sold as oil at $70/bbl RT-11
- Project was evaluated under CITA fiscal regime with AGFA incentives
- ARPR 31/12/2010 variable OPEX estimate for Soku GP and facility specific fixed OPEX used for evaluation
- SCD treated as OPEX
- 10% of total project CAPEX RT cost assumed as abandonment cost
- GHV of 1150 btu/scf
- NDDC levy of 3% of total expenditure
- Education tax of 2% assessable profit

PIB House (version 12) Economics assumptions:

- Gas Supply to NLNG T1-6 assumed Gas Sales Price $1.73/mmbtu at PSV RV-RT in 2011
- Condensate treated and sold as oil at $70/bbl RT-11
- Royalty rates based on product (value) prices and production rates per PML (assumed equal to a field).
- National Hydrocarbon Tax (NHT) rate is 50%. Company Income Tax (CIT) rate is 30% of taxable income and is not deductible from NHT.
- Education tax calculated as 2% of its assessable profit and it is not deductible for CIT, but deductible for NHT.
- NDDC levy calculated as 3% of expenditure
- Withholding tax (WHT) of 7.5%
- 20% of overseas cost (30% of SPDC spend) is non-deductible for NHT taxable income
- NHT depreciation schedule is 4x20%, 19% for qualifying expenditure.
- CIT depreciation schedule is 3x25%, 24%, for qualifying expenditure.
- Soku is an already producing field hence no production allowance is applicable.

Table 2: Economic Grid (Shell Share)

EP Summary Economics Grid

PV Reference Date: 1/7/2011	NPV (S/S $ mln)		VIR	RTEP	UTC (RT $/boe)		Payout-Time (RT)	Maximum Exposure (RT)
Cash flow forward from: 1/7/2011	0%	7%	7%	%	0%	7%		AT (S/S $ mln)
Base Case								
SV ($50/bbl & $1.30/MMBtu RT11)	235.4	105.8	4.28	53.7	2.9	3.4		
RV ($70/bbl & $1.73/MMBtu RT11)	360.6	164.3	6.64	68.3	2.9	3.4	2015	21.1 (2013)
HV ($90/bbl & $2.27/MMBtu RT11)	518.5	237.9	9.62	83.5	2.9	3.4		
BEP (RT $/MMBtu)					0.25	0.31		
Sensitivities (using RV)								
Low Reserves (P90)		142.3	5.75	68.7			2015	21.1 (2013)
High Reserves (P10)		179.4	7.25	71.9			2014	21.1 (2013)
Low Capex (-10%)		165.0	7.41	72.4			2015	19.0 (2013)
High Capex (+15%)		163.3	5.74	63.2			2015	24.2 (2013)
Licence expiration end 2019		69.0	2.79	66.0			2015	21.1 (2013)
Lifecycle		163.2	6.31	54.7			2015	22.0 (2013)
CITA only		151.9	6.14	53.6			2015	24.7 (2013)
1.5% cost markup due to BVA* issues		159.4	6.14					
PIB House_version 12.0		52.7	2.13					

Key Project Parameter Data Ranges

(Shell Share)

`	Unit	Bus Plan (BP10)	Low	Mid	High
CAPEX (MOD)	US$ mln	37.6	27.8	27.8	27.8
Project OPEX (MOD)	US$ mln	NA	2.4	2.4	2.4
Production Volume	mln boe	42.1	47.3	63.8	68.1
Start Up Date	mm/yyyy	Dec-14	Jul-14	Jul-14	Jul-14
Production in first 12 months	mln boe	NA	0.30	0.37	0.46

*= Note that CAPEX used for economics evaluation includes unspent amount in the Pre-FID IP

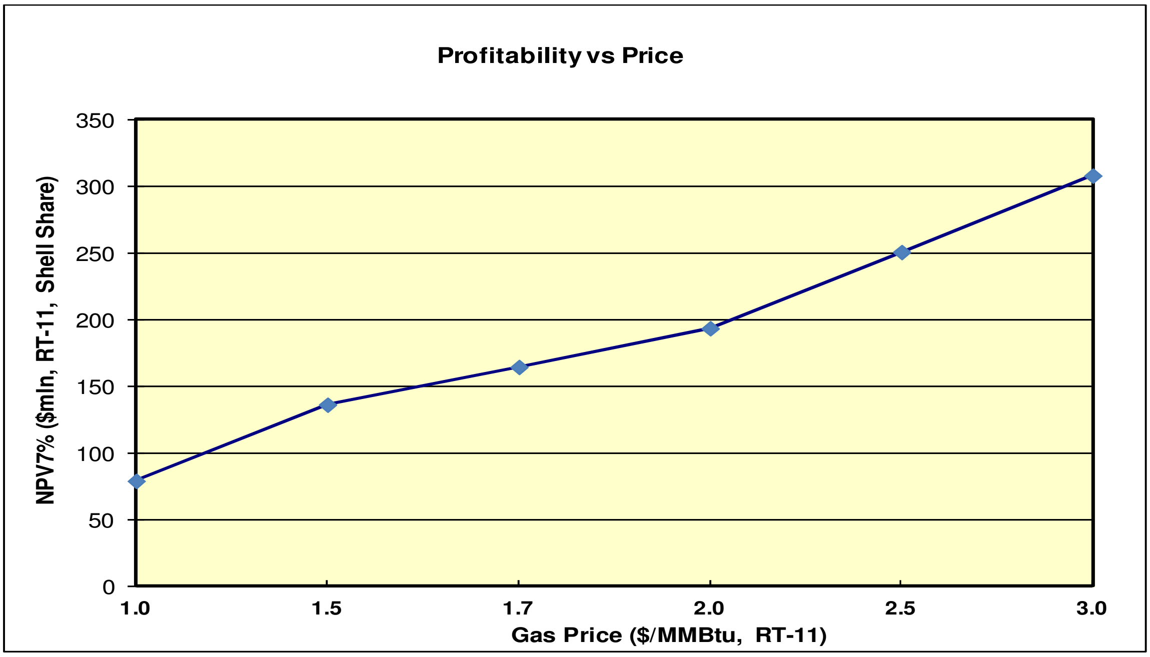


Figure 2: Soku NAG Compression Project Profitability vs. Price Plot

Section 3: Risks, Opportunities and Alternatives

3.1 Risks and Mitigation Plans

Risk	Planned Mitigation
Cost escalation as estimate is not based on actual contractor quotes	The cost estimate is derived from the scope defined at the end of Front End Engineering Design. This risk is moderated given that the estimate further underwent an ESAR led by UIG/T/PS group and includes a robust contingency to mitigate scope definition and execution risks (See Appendix 1). Lessons from the Soku spiking project were incorporated.
Construction in a critical live facility	Due to the brown field nature of the construction works there is the risk that construction works could be delayed (limited construction window, delayed permit to work, lack of gas testing equipment, etc) leading to contractor cost claims. The project has planned a Constructability Value Improvement workshop led by SIEP to further define the construction plans and sequence and to identify further risk mitigation measures. Also, the estimate accounts for this risk.
Poor scope definition	There is the risk that the design being carried out by NETCO does not fully cover all requirements and additional scope could be identified during construction phase to integrate the new facilities with the existing plant. This risk is mitigated with the involvement of discipline specialist from P & T, Siemens and Yokogawa vendors during the design. Also the project PCAP is in place and is approved by the DRB.
Niger Delta security	The Soku facilities are located in an area claimed by three major communities (Oluasiri, Elem-Sangama and Soku) in the two adjoining states of Rivers and Bayelsa. General Memorandums of Understanding (GMoU) have been signed with all three communities. Prior to mobilization for construction works, a detailed security plan will be developed in conjunction with the Area Security Advisor – Major Projects. This risk is also accounted for in the estimate contingency.

Compressor uptime	As the project concept is reliant on a single, unspared machine, there is the risk of low uptime compromising gas production from the project. The project will utilise a new fully tested compressor casing. The test protocol and tests will be supported by the P & T rotating equipment experts. The project provides a spare compressor bundle to be stored on site. The existing obsolete compressor and gas turbine controls will also be upgraded. Working with the commissioning team the project will ensure extended availability of vendor support post the commission phase till the machine stabilises and the target machine availability of 80% is achieved.

3.2 Opportunities

The project has already taken the opportunity of re-staging an existing compressor rather than buying a new compressor, which offers cost and schedule savings. In addition, obsolete Soku gas plant automation and control systems for the existing compressors and LM1600 drivers shall be upgraded as part of this project.

3.3 Alternatives

SPDC has committed to supply NLNG (Trains 1 to 6) for a 20-year period and gas supplies will come from the portfolio of fields connected to the NLNG gas supply pipelines. The Soku NAG compression project is one of the gas supply nodes in the plan. Although there are other gas supply projects under development including Awoba, Kolo creek, Bonny minor reservoirs and other projects are at early stages of maturation, this project is one of the lowest UDC options.

Section 4: Corporate Structure and Governance

The existing corporate structure and governance arrangements of SPDC-JV with SPDC as operator still subsist for this investment.

Section 5: Functional Support and Consistency with Group and Business Standards

This proposal complies with Group Business Principles, policies and standards. Functional support for this proposal is provided by Finance, Social Performance, Supply Chain Management, HSE, Operations, Legal, Treasury and Tax functions.

Section 6: Project Management, Monitoring and Review

This project has been matured in line with the Opportunity Realization Process (ORP) and has undergone all necessary Value Assurance Reviews. DG3 was held in June 2006 and the management of project is fully handed over to SPDC Major Projects. The NLNG Supplies project team is executing the project in order to capture lessons-learnt from similar developments. There is a Decision Review Board in place for the project and regular DRBs have been held for the project. The projects plans for FID are supported by the DRB during the meeting of 18th March 2011.

Section 7: Budget Provision

The budget for this project is captured under Alternative Funding in the SPDC BP10 and 2011 JV programme.

Section 8: Group Financial Reporting Impact
The Financial impact of this activity on Shell Group Financials is as indicated in the Table below:

US$ mln	Prior Years	2011	2012	2013	2014	2015	Post 2015
Total Commitment	+0.9	+3.2	+13.0	+10.8	+1.5	+0.0	+0.0
SCD OPEX / PRE-FID	+0.9	+0.6	+0.4	+0.4	+0.0	+0.0	+0.0
Cash Flow							
Capital expenditure	+0.0	+2.7	+12.6	+10.4	+1.5	+0.0	+0.0
Cash Flow from Operations	+0.0	+0.5	+2.5	+4.4	+18.8	+30.7	+0.0
Cash Surplus/(Deficit)*	+0.0	-2.2	-10.1	-6.0	+17.3	+30.7	+473.8
Profit and Loss							
NIBIAT +/-	+0.0	+0.1	+0.5	+0.5	+17.1	+27.7	+463.6
Balance Sheet							
Average Capital Employed	+0.0	+1.2	+7.7	+16.2	+19.4	+17.8	+7.3

Section 9: Disclosure
Materials disclosures, if any, will be done in line with the Group and SPDC disclosure policies and guidelines.

Section 10: Financing
This investment will be financed with JV funding and Shell Share capital expenditure will be met by SPDC's own cash flow.

Section 11: Taxation
The main tax risk related to this proposal is the enactment of the Petroleum Industry Bill (PIB), included as sensitivity in the economics.

Section 12: Key Parameters
Approval is sought for additional US$24.8 mln (Shell Share) for the project bringing the aggregate FID expenditure on the project to US$29.4 mln (Shell Share).

Section 13: Signatures
This Proposal is submitted to EVP UIG Sub-Saharan Africa for approval.

Supported by: .... *Bernard Bos* *(VP Finance, Africa FUI/F)* *Date: ..../..../....*	*For Business approval:* .... *Ian Craig* *(EVP, Sub-Saharan Africa, UIG)* *Date: ..../..../....*
Initiator: .... *Ikenna Nwosu* *(Project Leader, UIG/T/PN)* *Date: ..../..../....*	

Appendix 1 (Total Project Cost Breakdown- 100% JV)

All costs in USD million

S/No	DESCRIPTION		Soku NAG compressor (Footprint)	REMARKS
1	Engineering & Design		4.14	Based on FEED/Detailed rates in progress
2	Complete replacement of compressor fluid-end (footprint option)		4.15	Based on Vendors quotes plus 25% cost growth allowance
3	NAG compressor spare bundle		1.87	
4	Additional upgrade of compressor controls (3nos compressors)		1.55	
5	Upgrade of existing gas turbine (driver) controls (3nos turbines)		6.06	
6	Overhaul of LM1600 turbine driver		2.31	
7	NAG Inlet piping		3.20	
8	NAG manifolds: Mini & Major		17.01	
9	NAG Test & Production Headers Extension		3.53	
10	NAG Inlet LP Separator & Associated Piping		4.31	
11	Compressor Scrubbers & Air Cooler lines modification		3.47	
12	Civil works		1.88	Based on drawings/quantities from FEED (REV A01)
13	Compressor Air Cooler Modification		2.55	Based on Vendor quote with 25% cost growth allowance
14	Instrumentation		2.56	See Instr. Worksheet
15	Reliability Test (3 months)		0.70	See basis for computation in the O & M Costs Sheet
16	Owners costs		9.65	Includes SDCR of USD 2.4 mln.
Total Base Estimate (EDM 1/7/2010)			**68.95**	
	VAT	5%	N/A	Gas projects are exempted from VAT
	Project Contingency	18%	12.41	Project TECOP profile
	Construction Premium (applied on selected items)	50%	7.30	
	Selective Tendering Premium	5%	2.76	
Total Project P50 Estimate (EDM-1/7/2010)			**91.41**	
	Inflation		4.43	
	Pre-FID spend		2.30	
Total Project P50 Estimate (MOD)			**98.14**	