

## The Shell Petroleum Company Limited

### Group Investment Proposal

#### Summary Information

Business unit and company	Shell Petroleum Development Company of Nigeria				
Group equity interest	100% in SPDC, whereas SPDC is the Joint Venture (JV) operator of an unincorporated JV with a 30% interest.				
Other shareholders / partners	NNPC (55%), TotalFinaElf (10%), and Agip (5%)				
Business or Function	Upstream International				
Amount	US\$14.4Mln Shell share, MOD, 50/50 (US\$14.0Mln CAPEX and US\$0.4Mln OPEX Shell share, MOD). Previous IP was \$3.9Mln MOD SS while this proposal is \$10.5Mln MOD SS.				
Project	Facility Instrumentation Upgrade (FIU) for four flow stations in East				
Main commitments		Previously approved IP (SS)	This Proposal (SS)	Total (Shell Share)	Total (100% JV)
	Total Project CAPEX (MOD) 50/50	3.9	10.1	14.0	46.7
	SCD OPEX Estimate P50 MOD	-	0.4	0.4	1.3
	Total Commitment	<b>3.9</b>	<b>10.5</b>	<b>14.4</b>	<b>48.0</b>
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. Formal JV partners' approval will therefore be obtained.				
Summary cash flow	This is a cost-only evaluation without revenue streams; hence cash flow is not applicable.				
Summary economics	The project returns an NPV 7% -\$3.3 mln (Shell share) and VIR 7% -0.26 with an associated maximum exposure of \$9.6mln in 2012				

### ***Section 1: The proposal (management summary)***

This investment proposal (IP) seeks management approval of additional CAPEX of US\$10.5Mln and OPEX of US\$0.4Mln shell share to execute a complete facility instrumentation upgrade for facilities in SPDC east identified in the first set of the Wells and Reservoirs Management (WRM) waves in order to ensure full realisation of the benefits of WRM gas lifting and HC accounting across SPDC.

As part of the drive for increased oil production from SPDC's existing assets, the WRM team has initiated projects to upgrade and automate the operations of gas lifting manifolds, metering systems and data/ information processing in four identified SPDC east flow stations. The Remote Operation and Capabilities Implementation Team (ROCI) is the de facto execution organisation for all these activities, while WRM team is the driver. The four facilities selected were agreed on by ROCI leadership and SPDC management.

An upgrade of the gas lift manifold to ROCI level 3 without a corresponding upgrade of the adjoining flow station (source of lift gas) would introduce incompatibility in the facility's uptime and efficiency of the Associated Gas (AG) gathering for gas lifting. For the above reason, management approved that ROCI facility upgrade team source for and secure budget approval to upgrade the other aspects of the 4 identified flow stations following the WRM WAVES.

In 2006 an oil and gas facility IP was approved for various facility projects corporately. This IP with a value of US\$36.9Mln shell share was meant for a number of facility projects. This IP included Facility Instrumentation Upgrade East(FIU) activities valued at US\$3.9Mln Shell Share. The original duration of the IP was from 2006 to 2010 and was initially approved for Engineering to execute. The FIU-East was to upgrade the oil and gas metering skid, instrument gas systems to instrument air systems, replacement of robertshaw panels and installation of process automations systems in SPDC locations across SPDC east. Total expenditure on the previously approved IP was US\$0.1Mln shell share

In 2008 the scope in the oil and gas facility IP relating to FIU-East activities were officially transferred to the ROCI team. After a re-assessment of the previous facility Instrumentation upgrade work scope and number of facilities to be covered the value was increased from US\$3.9Mln shell share to US\$14.4Mln shell share and the time frame for execution revised to between 2010 and 2013. Hence the request for an approval of an additional CAPEX of US\$10.1Mln and OPEX of US\$0.4Mln shell share.

A total of US\$1.7Mln shell share has been provided for in BP09 and approved by DEVCOM for 2010 facility instrumentation upgrade east activities. Funding for the additional amount of US\$12.6Mln shell share will be provided for in BP10.

The upgrade of the flowstations will complement the WRM efforts to upgrade and automate the gas lifting process thereby bringing the flowstations to at least ROCI minimum compliance (level 1). All upgraded facilities will be integrated to the Divisional Production Management Centre.

## **Project Description**

Implementation of facility upgrade in the four facilities within the period of 2010 to 2013 is an infrastructure project being executed by the production support function. The project aims to align ROCI facility upgrading with the ongoing WRM Gaslift automation projects. This should enable seamless operations of gaslift and oil processing facilities.

In order to realize the increased oil output via gas lifting, as promised by WRM, the present manual gaslift manifolds and the processes have to be upgraded/ automated. This includes the adjoining metering and processing facilities in the flowstation.

Activities for this project include detailed design and upgrade for four flow stations from 2010 to 2013 in Agbada 1, Obigbo N, Bonny and Soku Ph 2.

Upgrade scope for each facility shall include

1. Electrical upgrade (switch gear, cabling, diesel and gas generator, marine power cables, solar, integrated multiple redundant power solutions etc)
2. Control and automation upgrade (control room building, process automation systems, field instruments, instrument cabling, systems hook-up, integration and commissioning, etc)
  - a. Implementation and integration of process automation system
  - b. Implementation a new Fire and Gas protection systems
  - c. Safety/ Safeguarding Systems
  - d. Implementation and integration of Field Integrated Control Center (FICCs)/Collaborative Working Environment(CWE)
    - i. Upgrade and replacement of field instruments in the chemical injection system, instrumented air package equipment, inlet manifolds, separators, export metering skid, flare and ignition systems, fuel gas systems, discharge headers, drainage and relief systems, etc.
3. Mechanical upgrades (piping, pumps and manifolds, instrument air compressor packages etc)
4. Asset management activities
  - a. Imputing of all new assets into SAP
  - b. Updating of finance books with new carrying amount on each upgraded/replaced system.
  - c. Deregistration of replaced existing assets from Fixed Asset Register.

**Table 1: Project Cost Phasing (US \$Mln MOD Shell Share)**

US \$Mln (MOD)	2009	2010	2011	2012	2013	Total (Shell Share)	Total (100% JV)
Total Project CAPEX (MOD) 50/50	0.1	1.7	8.4	3.0	0.8	14.0	46.7
SCD OPEX Estimate P50 MOD	0.0	0.0	0.2	0.1	0.1	0.4	1.3
<b>Total Commitment</b>	<b>0.1</b>	<b>1.7</b>	<b>8.6</b>	<b>3.1</b>	<b>0.9</b>	<b>14.4</b>	<b>48.0</b>

### ***Section 2: Value proposition and strategic and financial context***

The successful upgrade of the four listed facilities will provide the following benefits to SPDC operations:

- Improve oil production, by automation and optimization of the gaslift process.
- Minimize unscheduled deferment and improve asset integrity by identification of process upset and prompt operator intervention.
- Improve efficiency in operations by tying into the existing collaborative work practices, tools and facilities.
- Minimize exposure of staff, reduced logistics costs, improvement environmental records and also to deliver urgent operational solutions to SPDC large footprint and increasing security risk.
- Improved security and access control
- Improve safety in operations processes

### **Summary Economics**

The ROCI-Facilities Instrumentation Upgrade for 4 SPDC east flow stations project was evaluated as a cost only project with aim of assessing the exposure to SPDC on a forward-looking basis. The base case evaluation was carried out using level III CAPEX estimates of \$13.9mln SS, which has been treated as an oil infrastructure cost. No revenue stream is applied in this evaluation.

A full life cycle analysis has been carried out to reflect the full exposure of the project by capturing the \$0.1mln spent from the previously approved IP. A high CAPEX sensitivity was also carried out. Details of the results are shown in table 2 below.

**Table 2: Economics grid of base case and sensitivities**

PV Reference Date: 1/7/2010	NPV (S/S \$ mln)		VIR	RTEP	UTC (RT \$/bbl or \$/mln btu)		Payout-Time (RT)	Maximum Exposure (S/S \$ mln)
Cash flow forward from:	0%	7%	7%	%	0%	7%		AT
<b>Base Case</b>								
SV (\$50/bbl RT10)	-2.3	-3.3	-0.26	NA	NA	NA		
RV (\$60/bbl RT10)	-2.3	-3.3	-0.26	NA	NA	NA	NA	9.61 (2012)
HV (\$80/bbl RT10)	-2.3	-3.3	-0.26	NA	NA	NA		
BEP (RT \$/bbl)					NA	NA		
Sensitivities(Using RV-RT)								
High Capex (+20%)		-3.9	-0.26				NA	11.52 (2012)
Life cycle economics		-3.3	-0.26				NA	9.66 (2012)

**Table 3: Key Project Parameters**

Parameter	Unit	BP09	Low	Mid	High	Comments
Capex (MOD)	US\$ mln	1.7	-	13.9	16.7	Full provision expected in BP10
Investment Opex	US\$ mln	NA	-	0.4	-	SCD cost
Sales Volume	mln boe	NA	-	NA	NA	
Start Up Date	mm-yy	NA	-	NA	NA	

#### Economics Assumptions

- NDDC levy of 3% of total expenditure.
- SCD treated as Oil independent OPEX
- 10% of the project CAPEX is assumed as abandonment cost
- PPT tax rate of 85% applied

### ***Section 3: Risks, opportunities and alternatives***

Upgrading the facilities is a multi-discipline project where Instrumentation Control & Automation (IC&A), civil, electrical, mechanical, IT, software tools development and integration aspects converge. Upgraded facilities and gas lift manifold will be integrated into the Divisional Production Management Center(DPMC), Where accurate hydrocarbon accounting, Status and surveillance of facilities and operations shall be immediately available to personnel designed to use such information. There is an opportunity to develop local competence, (i.e., local instrumentation and control companies etc in order to deliver SPDC's growing requirements. Furthermore, future facilities will be considered, thus presenting opportunities and leverage for contracting strategy.

#### **Community Interface Management**

Budget makes provision for 2.5% SCD cost which should cater for GMOU's and other associated community development cost.

The project risks and opportunities tables are presented below.

## RISKS

Area	Risk	Mitigation
Technical	Few number of indigenous vendors with adequate capacity	The technical evaluation criteria will be robust and stringent enough to screen out incompetent vendors  Consortiums encouraged, to ensure all possible aspect of the projects are covered, and also allow for skills transfer to local vendors.
HSE	HSE hazards and interface problems with existing habitation.	Project specific HSE Management Plan has been developed, consistent with SPDC's HSE Management System and the Group HSE-MS. Hazards and Effects Management Process (HEMP) tools are being applied to reduce risks to levels as low as reasonably practical and to manage residual risks in manner consistent with SPDC's HSE Risk Tolerability Criteria. The HSE Management process applied to this project will result in the existing asset's ISO 14001 / OHSAS18001 certification being maintained.
Contracting Process	NAPIMS requires tendering (typically 9 – 12 months duration)	Prior engagement with NAPIMS representatives has been conducted and will continue throughout this project to ensure fast approval timeline.
Manpower and Resourcing	Interface Management	This project has a DRB with the PS&O Manager as the Decision Executive. It will be managed by the ROCI FUP team with interface and support from the following departments/disciplines: IT-Telecommunications, Central Engineering, BSUs, SCM, and HSE.
Security/ Access to Niger Delta	Security to SPDC area of operations	The Nigerian crisis team headed by the MD is in place to manage security issues in our operating environment. Freedom to Operate and security plans will be secured before moving to any site. Additional, the project will ensure it follows any existing Global MOU before working in any community
Commercial Risk	Current Funding situation may lead to delay or rephrasing of project	Early engagements with NAPIMS and SPDC Senior Management to secure funding for the project- NAPIMS have already shown commitment to the project by approval of \$5.8MLN(100% JV) in the 2010 budget.

## OPPORTUNITIES

Area	Description
Technical	Reduction of deferment Integrate facilities into DPMC for improved oil accounting Improve opportunities for collaborative working environment in SPDC
Economic	Reduce associated overhead OPEX (Travels, corrective mtce etc) Improved management of gas lifting Reduce project man-hour cost by combining facility instrumentation Upgrade with WRM projects This local resource will serve to complement existing SPDC IC&A resources
Organization	Standardisation of facilities instrumentation across multiple facilities thereby impacting positively on cost of support and spares. Latch onto WRM projects Use of same recourses and effort by latch facility upgrade instrumentation projects to WRM wave Reduction of travels between facilities
Political	Community Development of local resources to work with Shell standards IC&A to deliver business solutions for SPDC.

### Alternatives

Alternatives considered were:

- Do nothing: Failure to execute these projects would imply that the anticipated gains of WRM upgraded of Gaslift manifold implemented at huge cost, will not be fully realized. Increased and sustained production will be threatened. The do nothing alternative does not appear a viable alternative as this will ultimately lead to loss of revenue to the company. Additionally there will be increased occurrences of production deferment as critical instrumentation devices required for smooth production operations breakdown due to obsolescence/ageing issues.

### ***Section 4: Corporate structure, and governance***

The existing corporate structure and arrangements of SPDC-JV with SPDC as operator will be utilised. Direct responsibility for project execution and supervision rest with the ROCI Facility Upgrade Project team, within ROCI and the production support functions of SPDC Production

Directorate. The ROCI project operates under the guidance of the Decision Review Board with the Decision Executive being PS Manager.

### ***Section 5: Functional Support and consistency with Group and Business Standards***

This proposal is consistent with strategy and objectives for the Corporate Production Operations philosophy for remote operations of assets and Smart well/field implementation plan. The investment proposal is supported by:

- Production Surveillance & Optimization Manager of SPDC.
- SEPCiN Country Chair, SPDC Managing Director and UIG/P Vice President of Production
- Finance/Economics
- Legal
- SCD
- Contracting and procurement

### ***Section 6: Project management, monitoring and review***

Project performance is reviewed and reported regularly (weekly and monthly) through SPDC Management and at the monthly Projects review with JV Partners.

### ***Section 7: Budget provision***

Provisional activity phasing for 2010-2011 has been made in the BP2010 capital budget proposal. Facilities upgrade project implementation budget was approved in the 2010 budget by the DEVCOM.

### ***Section 8: Group financial reporting impact***

The financial impact of this proposal on Shell Group Financials is as indicated in the table below.

US\$ mln	Prior Years	2010	2011	2012	2013	2014	Post 2014
<b>Total Commitment</b>	0.10	1.90	8.50	3.10	0.80	0.00	0.00
<b>Cash Flow</b>							
SCD Expenditure	0.00	0.20	0.10	0.10	0.00	0.00	0.00
Capital Expenditure	0.10	1.70	8.40	3.00	0.80	0.00	0.00
Operating Expenditure	0.00	0.06	0.26	0.09	0.02	0.00	0.00
Cash Flow from Operations	0.02	0.25	1.74	2.32	2.43	2.36	3.14
Cash Surplus/(Deficit)	0.02	(1.45)	(6.66)	(0.68)	1.63	2.36	3.14
<b>Profit and Loss</b>							
NIBIAT +/-	0.00	0.05	0.37	0.18	0.11	(0.17)	(2.17)
<b>Balance Sheet</b>							
Average Capital Employed	0.12	1.16	7.23	14.03	16.24	15.40	50.24



### ***Section 9: Disclosure***

Project compliance to the requirements of Risk & Internal Control Policy, Media Relations Protocol, Investor Relations Protocol and Market Abuse Directive Guidelines as appropriate shall apply and in accordance with SPDC guidelines.

### ***Section 10: Financing***

This capital expenditure will be met through SPDC's own cash flow

### ***Section 11: Taxation***

The income tax from the project would be in accordance with Petroleum Profit Tax Rate and relevant income tax applicable

### ***Section 12: Key Parameters***

This proposal seeks organisational support and approval for the:

- Upgrading instrumentation in four SPDC east facilities for a sum of US\$14.4 Mln Shell share, MOD, 50/50.

### ***Section 13: Signatures***

This Proposal is submitted to UIG/P for approval.

For Business approval:

Supported by:

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Mutiu Sunmonu

(UIG/P)

Date .... / .... / ....

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Bernardus Bos

(FUI/F)

Date .... / .... / ....

*Initiator:*

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*Mr Godwin Okuns (UIG/P/SRF)*

Date ... / .... / ....