

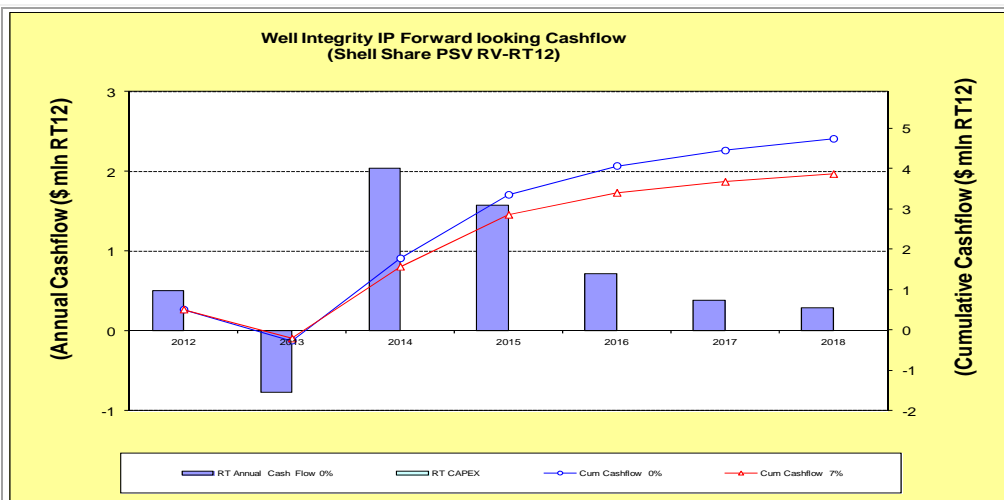
# The Shell Petroleum Development Company of Nigeria Limited

## Group Investment Proposal

### Summary Information

Business Unit and Company	Shell Petroleum Development Company of Nigeria Limited (SPDC)		
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	Nigeria National Petroleum Corporation (NNPC: 55%), Total Exploration & Production Nigeria Limited (TEPNL: 10%), Nigeria Agip Oil Company (NAOC: 5%) in SPDC-JV		
Amount	USD 8.9mln Shell Share, 50/50, MOD (USD 29.6mln 100% JV)		
Project	Swamp East Well integrity Workover		
Main Commitments	<b>Cost Description</b>	<b>100% JV (USD Mln)</b>	<b>Shell Share (US\$ Mln)</b>
	Location Preparation	2.7	0.8
	Workover operations and Rig Move	11.4	3.4
	Oil / Gas Recompletion	10.9	3.3
	Flowline Construction/ hookup	4.0	1.2
	Total Project Opex	29.0	8.7
	SCD Opex	0.6	0.2
	<b>Total (Project Opex + SCD OPEX)</b>	<b>29.6</b>	<b>8.9</b>
Reserves/ Resources	This project will safeguard 2P volume of 3.30 MMboe (100%, Ref 31.12.2011 ARPR) from CAWC-50 and BONN-23 integrity workover and ensure continuous fuel gas supply to Bonny Crude Oil Terminal and safeguard Cawthorne Channel 50 oil production.		
Production	The integrity workover project's base case forecast has a startup date of November 2012 with an initial incremental oil production rate of 1.17 Mbopd (100%) and will peak in 2013 at a rate of 1.49 Mbopd (100%) annualised with associated gas production of 4.35 MMscf/d (100%) and NAG production of 1.92MMscf/d thus safeguarding Oil production and gas supply to Bonny Crude Oil Terminal.		
Source and form of financing	This investment will be financed with JV funding, so formal JV approval will be required. The Shell share of the investment will be financed by SPDC's own resources.		

Summary cash flow



Summary economics

Summary economics	NPV7 (USD mln)	RTEP (%)	VIR
Base Case	3.6	NA	NA
High Opex	2.5	NA	NA

### ***Section 1: The proposal (Management Summary)***

This investment proposal seeks support/organizational approval for US\$ 8.9 million Opex (Shell share, P50, MOD) to enable SPDC fund the execution of two Well Integrity workover activities (make well safe to secure NFA gas and oil production) planned for 2012 - 2013. The affected wells are in Bonny and Cawthorne Channel fields. The project supports SPDC's strategy of maintaining well integrity while ensuring fuel gas supply to Bonny Crude Oil Terminal as well as safe guarding oil production in Cawthorne Channel.

### **Background**

During a second line well head maintenance activity in 2011, two wells CAWC-50 and BONN-23, were found to be flowing with high casing head pressures with potential well integrity problems and HSSE exposures. Accordingly, a detailed review was conducted with a view to determining the optimal means of managing the wells. The review recommended the two wells for workover at the nearest opportunity; consequently the two wells were put on the Short Term Drilling Well Sequence in line with the overall strategy to improve the well integrity in SPDC and thus maintain our license to operate. A brief summary of the integrity check is outline below;

Well Name	Integrity issue	Ultimate Recovery	Potential	Planned Cost (Shell Share) (US\$ Mln)
CAWC-50	CAwc-50 supplies oil to the Cawthorne Channel flow station. A recent well integrity check carried out by the wellhead maintenance crew reported a High Casing Head Pressure (HCHP) of 2610 psi on the A-Annulus. Bleed off of the gas resulted in no significant drop in pressure suggesting the presence of a large column of gas within the annulus. Whereas the wireline investigation was not successful, the	2.35MMstb	2700 bopd	4.7

	well is being proposed for workover in order to repair the HCHP and ensure well integrity.			
BONN-23	Bonny-23T is a fuel gas supplier to Bonny Crude Oil Terminal. During a second line well head maintenance activity on this well in August 2011 to fix leaking and faulty Christmas tree valves, a casing head pressure (CHP) of about 1900 psi was recorded on the 'A' annulus. An attempt was made to bleed down this pressure but no significant decrease was observed after an hour. Whereas the wire line investigation was not successful, it was decided that a workover would not only identify the source of leak but also fix it through retrieval of the existing completions and running of new upper completion assembly.	5.52Bscf	6MMscf/d	4.0

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

The project driver is to safeguard production and reserves by making the wells safe for routine operations.

The execution of well integrity repairs will minimize risk of loss of containment and associated environmental and health impact. This operation also ensures steady fuel gas supply to Bonny Crude Oil Terminal as well as safeguarding Cawthorne Channel-50 (CAWC-50) production. The project is of HSSE critical importance.

### **Summary Economics**

The economics for this IP was carried out on a forward-looking basis using the project 50/50 level III cost estimate and the production forecast from the CAWC-50 and Bonny 23T wells. The costs associated with the two wells are treated as OPEX since the workover involves production restoration. The base case is the consolidation of the two wells.

The following sensitivities were carried out to reflect how the project stands in different possible scenarios:

- High Reserves
- High & low OPEX
- 1-year schedule delay
- Project with Ring Fencing
- 1.5% Cost mark-up due to BVA issues (provision for costs dispute by NAPIMS).

From the results shown in Table 1, the project returns positive NPV7% showing its robustness. Economics details are shown in Table 1 below:

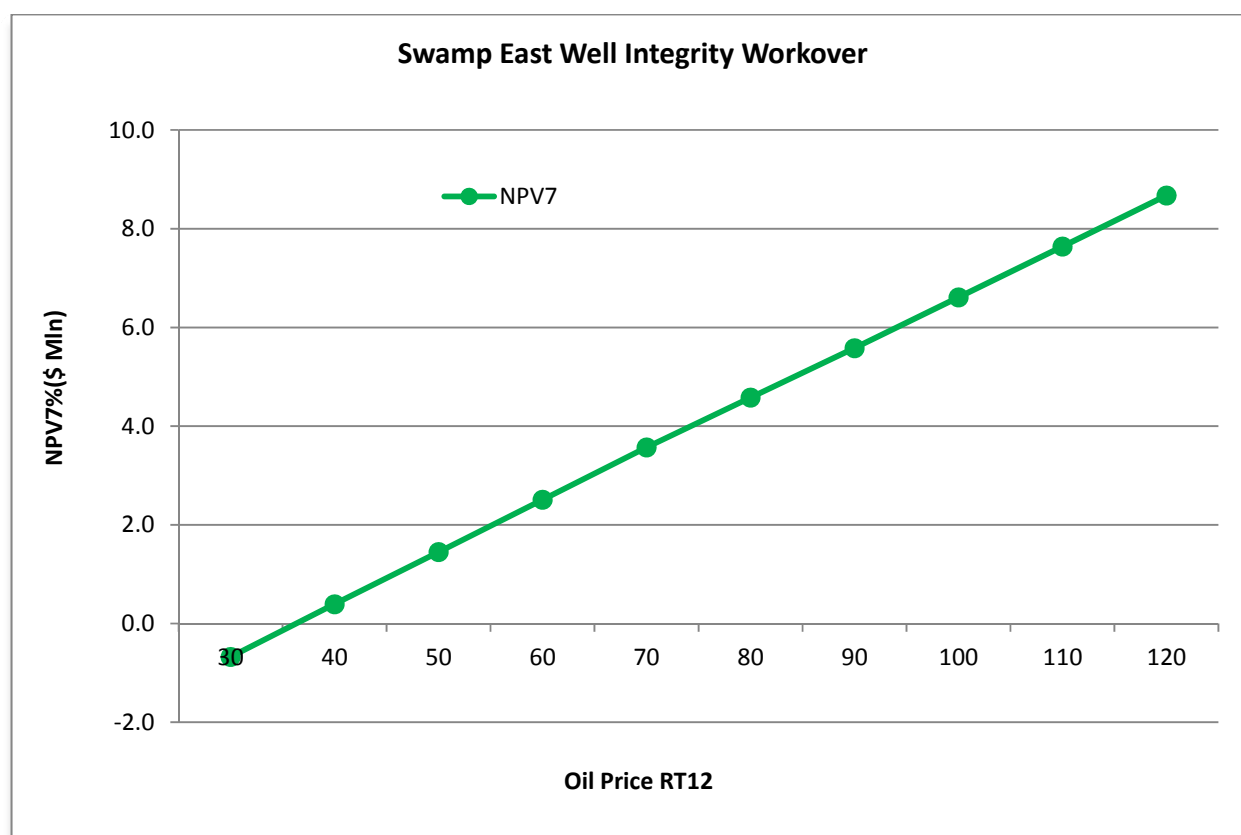
**Table 1: Summary Economics Grid (Shell Share)**

PV Reference Date: 1/7/2012	NPV(\$/S \$ mln)		VIR	RTEP	UTC (RT \$/boe)		Payout-Time (RT)	Maximum Exposure (RT-AT)
Cash flow forward from: 1/1/2012	0%	7%	7%	%	0%	7%	(yyyy)	\$mln (yyyy)
<b>Base Case(Consolidated)</b>								
SV-RT (\$50/bbl RT12)	2.0	1.5	NA					
RV-RT (\$70/bbl RT12)	4.4	3.6	NA	NA	9.3	10.3	NA	0.3(2013)
HV-RT (\$90/bbl RT12)	6.0	4.9	NA					
BEP (RT \$/boe)								
<b>Sensitivities (using RV-RT)</b>								
High Reserves		5.8	NA					0.4(2013)
High Opex		2.5	NA					1.5(2013)
Low Opex		3.9	NA					NA
With Ring Fence		3.6	NA					0.3(2013)
1 year Schedule Delay		1.7	NA					1.9(2013)
1.5% Cost mark up due to BVA issues		3.3	NA					

Note: NA: VIR does not apply to the base case due to zero CAPEX (Project cost treated as OPEX)

**Table 2: Key Project Parameter Data (Shell Share)**

Parameter	Unit	BP11	Low	Mid	High	Comments
OPEX (MOD)	US\$ mln	n/a	7.9	8.9	9.7	SCD Inclusive
CAPEX (MOD)	US\$ mln	n/a	n/a	n/a	n/a	OPEX only
Production Volume	mln boe	n/a	n/a	1.1	1.6	NA
Start Up Date	mmm-yy	n/a	n/a	Nov-12	n/a	Expected at installation completion date
Production in the first 12 months	mln boe	n/a	n/a	0.56	n/a	NA

**Table 3: Profitability Chart (Shell Share)**


### **Economics Assumptions:**

- Oil PSVs of \$50/bbl @SV-RT12, \$70/bbl @RV-RT12 and \$90/bbl @HV-RT12 with Bonny offset applied.
- 2012 NLNG T1-6 price was used for gas sales to NLNG.
- Domestic gas PSV based on NGMP as at 21/03/2012 was used
- Oil taxed under PPT (PPT tax rate of 85%).
- Gas taxed under CITA with Associated Gas Framework Agreement (AGFA) incentive
- Condensate was treated as oil and taxed under PPT.
- GHV of 1000Btu/scf for DOMGAS and 1150Btu/scf for export gas
- Flare Penalty of US \$3.5/mscf non-tax deductible.
- ABCM OPEX was provided by the project team
- NDDC levy 3% of total expenditure.
- Education tax of 2% assessable profit
- SCD OPEX was provided by the project team

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

#### *Risks and Mitigation*

The key risks and mitigation factors for the project are discussed in the table below.

<b>Risk</b>	<b>Impact</b>	<b>Mitigation</b>
Technical / rig execution capacity	Execution delay	Adequate forward planning by Well Engineering to ensure rig availability as planned with the project currently on a firm rig sequence.
Community disturbances	Delay in project execution	Application of the existing Global Memorandum of Understanding (GMOU) for continuous engagement of the communities, including resolution of any legacy issues in line with the new GMOU interface model and SCD principles/rules-to guarantee Freedom To Operate (FTO).
Health, Safety & Environment	Damage to the environment Damage to Equipment Loss of life and reputation exposure for SPDC	Strict compliance with all SPDC & Group HSE policies and procedures and adherence to WIMS.
Security	Hostage taking, existence of militant groups and threat of insurgence which could threaten project execution.	With improvements in the Niger Delta security following Amnesty programme, it is envisaged that there will be a reduction in Community related NPT. Specific threats will be managed through the Security & Surveillance Centre (SIS) and communicated in good time to those that need to “Know” and “act”.
Community Interface	Legacy issues	Community relations for the project shall be conducted using existing SPDC frameworks. Drilling campaign is planned in the Bonny field and GMOU is in place
General		As per SPDC procedures the contractor handling the project will develop a security plan, agreed to by the Contract Holder, and then sent to the Area Security Adviser for review. Thereafter, the reviewed plan is sent to the Security Coordinator/Asset Manager for approval. It is only then that the contractor mobilizes to site to commence well operations.

Wells builds pressure after kill	Use of inaccurate reservoir pressure for the determination of kill brine weight could lead to well not dying after kill operation	Ensure most recent reservoir pressure data is used in the calculation of brine weight. Provision should be made for extra sacks of salt if the need arises.
HSE management	Compliance	<p>The HSE management of the project shall be coordinated by the Well Engineering department with implementation actions agreed by key stakeholders. All activities are to be planned and delivered under the current drive to achieve 'Goal Zero'. Controls will be put in place to mitigate the identified hazards and effects, subjected to continual supervisory oversight to ascertain their adequacy and effectiveness throughout the execution phase.</p> <p>Recent experience has shown that, poor attitude and non-compliance with procedures remain the main root causes in most of the HSE incidents recorded in SPDC. On a company-wide scale, huge exposures have also been identified in non-core drilling contractors and secondary logistics activities. These areas require closer supervision. Learning from incidents is important to bring about the desired improvements in HSE practice during repair and restoration of the wells. The learning will be disseminated to all the staff involved in the project, including contractors and their sub-contractors to avoid incidents.</p>

### ***Opportunities***

This campaign is hinged on ensuring continuous fuel gas supply to Bonny Crude Oil Terminal and safeguarding Cawthorne Channel 50 oil production.

### ***Alternatives***

Do-Nothing scenario is not an option considering the safety enhancement opportunity.

### ***Section 4: Carbon Management***

The produced gas from the well will be processed and used as fuel gas in the terminal. Carbon emission will be minimal as is currently the practice in the field.

### ***Section 5: Corporate Structure and Governance***

This proposal is within the SPDC corporate structure and governance framework.

### ***Section 6: Functional Support and Consistency with Group and Business Standards***

This proposal and the execution of the project are consistent with the Group Business standards. Functional supports for this proposal have been provided by Technical, Finance, Legal, Treasury, Social Performance and Tax functions etc.

### ***Section 7: Project Management, Monitoring and Review***

The execution of the project is managed through the Swamp East Field Development & Execution Team, Wells and Engineering Hub Teams in line with the SPDC organizational model. The Sustainable Development and Community Relations directorate is instrumental in creating the cordial community environment that that allow the team to operate. There will be regular progress

report of the well delivery activities to Asset Development Manager, the Development General Manager and to the JV Partners. All significant reviews and follow up actions had been done in the Development and Engineering Teams. Following successful completion, the wells will be handed back to the Swamp East Production Operations Team.

### ***Section 8: Budget provision***

This project is included in BP11 budget as well as the 2011/12 JV Programme.

### ***Section 9: Group financial reporting impact***

The financial impact of this proposal on Shell Group financial is as outlined in the Table below:

US\$ Mln	2012	2013	2014	2015	2016	Post 2016
Total Commitment	4.84	4.03	0.00	0.00	0.00	0.00
<b>Cash Flow</b>						
SCD Expenditure	0.10	0.08				
Project Opex	4.75	3.95				
Capital Expenditure						
Operating Expenditure	0.26	0.36	0.21	0.17	0.11	0.12
Cash flow From Operations	-1.41	-0.55	2.77	1.72	1.09	1.08
Cash Surplus/(Deficit)	-1.41	-0.55	2.77	1.72	1.09	1.08
<b>Profit and Loss</b>						
NIBIAT +/-	0.50	-0.83	1.96	1.54	0.76	0.75
<b>Balance Sheet</b>						
Avg Capital Employed	0.96	1.78	1.24	0.75	0.49	0.01

### ***Section 10: Disclosure***

Material disclosures, if any, will be done in line with the Group and SPDC Disclosure policies and guidelines.

### ***Section 11: Financing***

This investment will be financed with JV funding, so formal JV approval will be required. The Shell share of the investment will be financed by SPDC's own resources.

### ***Section 12: Taxation***

There are no unusual Taxation features.

### ***Section 13: Key Parameters***

The following are the main aspects of this proposal:

Approval for the total headline size of US\$8.9 Shell Share MOD (50/50) to execute two Integrity work over Project from 2012 to 2013.

***Section 14: Signatures***

This Proposal is submitted to UIG REVP for approval.

Supported by:

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Bos, Bernardus

(SEPA FUI/F – VP Finance  
Africa)

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

For Business approval:

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Lismont Bart

(SEPA UIG/T VP Technical Africa)

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

Initiator:

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Simon Roya

(UIG/T/DSSE)

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