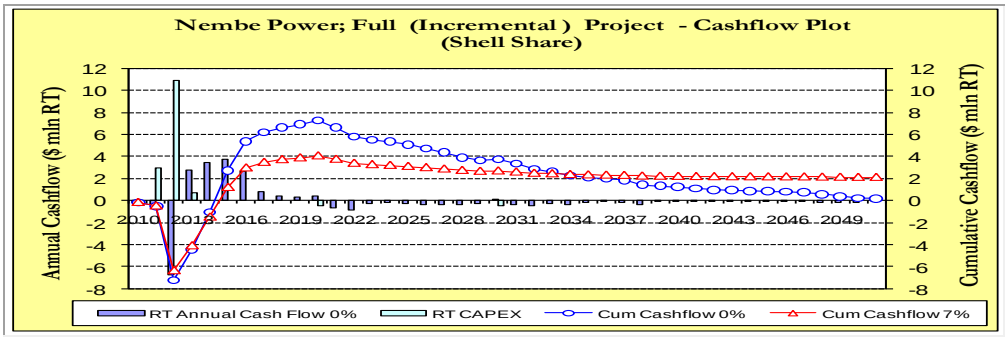
The Shell Petroleum Development Company of Nigeria Limited

Internal Investment Proposal

Summary Information

Directorate	Technical Directorate
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	Nigerian National Petroleum Corporation -NNPC (55%), Total FinaElf (10%), and Nigerian Agip Oil Company –NAOC- (5%)
Amount	US$2.19mln Shell share, MOD, 50/50. (US$7.31mln JV 100%)
Project	**Nembe Electric Power Interdependency Project Updated Pre-FID IP**
Main commitments	

	(US$Mln)	
	Shell Share	**JV**
Geomatic Survey of Gas Line route	0.16	0.53
Soil Survey	0.11	0.35
FEED and Detailed Design	0.40	1.33
EIA Revalidation/PTS	0.03	0.10
SITE PREPARATION (sand search/sand filling)/Jetty construction	1.05	3.50
Procurement of gas line pipes	0.45	1.50
Total	**2.19**	**7.31**

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	

Summary economics

At Ranking PSV ($60/bbl RT10)	NPV7% ($m)	VIR7%	RTEP (%)
Base Case Pre-FID	**-0.3**	NA	NA
Base Case Full Project	**1.9**	**0.01**	NA

Section 1: The proposal (management summary)

This proposal seeks management approval of US$2.19 mln (Shell Share), for funding the activities, which need to be executed prior to Final Investment Decision (FID) currently scheduled for April 2011. This updated pre-FID Investment Proposal is premised on the outcome of the project DRB meeting held on 23rd September 2010 Please refer to attachment-1 for *Minutes of the Nembe Electrical Interdependency Project DRB Meeting*. The initially approved pre-FID IP (Attachment II) did not cover the site preparation and gasline procurement workscope.

Currently, the Nembe Creek district is the largest district in the Eastern swamp and consists of the Nembe-1 to 4 and Odeama Creek flowstations. Nembe Creek is currently the single largest producing field in SPDC East. Premised on BP09, the Nembe 1, 2, 3 and 4 flowstations are planned to export an average of 65Mbopd to Bonny Terminal and 38MMscf/d to NLNG. As at 31.12.09, the Nembe fields had undeveloped oil reserves of 724MMstb and undeveloped gas reserves of 1318Bscf (NNS reserves).

Secondly, SPDC has a total of 4nos. diesel power generating sets (2nos. -1000kVA and 2nos. – 800kVA) installed at Ogbolomabiri and Bassambiri. The monthly diesel requirement for the generator sets is 240,000 liters. Currently, SPDC incurs an annual diesel procurement cost of approximately US$3.9 mln, to ensure the continued operation of the power generating sets. The cost of diesel for power generation is borne by SPDC. Previous instances when SPDC has defaulted in the supply of diesel for the generating sets have resulted in various threats from the communities. Currently, the freedom –to-operate for the Nembe Creek Trunkline replacement works and SPDC operations in the area is under threat.

The Nembe (Ogbolomabiri and Bassambiri) Electrical Interdependency Project is premised on the deployment of gas-driven power generator that will eliminate the need for the diesel generators currently installed in Ogbolomabiri and Bassambiri. The base case option is to lay about 13.7km gas line from SPDC Nembe 4 manifold to the Power Plant, which will be located at the outskirts of Nembe Ogbolomabiri and Bassambiri Communities. Power generated from this Plant will be transmitted to Ogbolomabiri and Bassambiri communities, via a combination of overhead and underground cables and then step down for tie-in to the existing distribution network which would have been upgraded to receive the incoming supply.

The scope of work includes

- Preliminary works, which includes route and geotechnical Surveys, land acquisition and site preparation (sand filling and shore protection)
- FEED and Detailed Design for Manifold tie-in, gaslines, Power plant, transmission and Town Distribution Network works
- Power generation works, which covers the procurement, installation and commissioning of 4Nos. 2.6MW Gas generators and ancillaries, 11kV switchgear, auxiliary Transformer, gas handling facilities, Electric pylons.
- Construction of generator house, switchgear, control and utility buildings, jetty, access roads and walkways
- Procurement, coating and Installation of the gas line, including securing and clearing of the gasline right-of-way
- Piled extension at the manifold for tie in of the 6" gas line and procurement, installation and commissioning of pig launcher and receivers.
- Upgrading of Ogbolomabiri and Bassambiri Town Distribution Network
- Construction of the River crossing Electric towers and installation and commissioning of transmission lines.

The cost phasing 100% JV, for the full project is detailed below:

Table 2: Project Cost Phasing (100% JV)

		Prior	2009	2010	2011	2012	2013	Total
OPEX $mln (100%)	Pre-FID			3.3				**3.3**
CAPEX $mln (100%)	Post FID	0.0			9.91	42.09	2.5	**50.5**
	Total	**0.0**	**0.0**	**3.3**	**9.91**	**42.09**	**2.5**	**57.8**

The 2011 budget is included in the SPDC business plan and has been recommended for funding by the JV Partners' lower Committee (Devcom). It is expected that the project will be funded as part of the SPDC base case budget.

Section 2: Value proposition and strategic and financial context

This proposal is consistent with the strategy and objectives of SPDC, which is to reduce deferment due to the 3rd party shutdown, by creating an interdependent "umbilical" relationship between the Nembe flowstations and the main host communities. The project is consistent with the SPDC Business plan and a Step-out approval, from SPDC Community Electrical Interdependency Policy has been obtained to progress this project. The project will add value to the business in form of reduction in the disruption of production at Nembe-1, 2, 3 and 4 flowstations. Additionally, the project will result in a reduction in OPEX, premised on eliminating the need for diesel utilisation by community generators.

Summary Economics

The base economics for this pre-FID IP was evaluated on a forward-looking and cost only basis. The full value of the project would only be achieved on full project execution post-FID.
The pre-FID cost has been treated as OPEX and sensitivity on the capitalizing the Pre-FID cost assuming the project takes FID was also evaluated.

The full project scope was evaluated on a forward-look basis using 50/50 MOD (level 111) cost estimates and the incremental (acceleration) production forecast gained from improvements in 3rd party deferment on BP10 corporate production forecast for the Nembe Node

The '*opportunity*'[1] value of the gas (3MMscf/d) that will be utilized by the electrical interdependency project was treated as a cost to the project, while the savings on diesel ($3.9mln/annum) as well as 4MW diesel generator replacement ($1.7mln RT10 in 2020 and 2030 respectively) was credited to the project.

The incremental values of the various options were evaluated as the difference between the: -

1. NFA production with a 33% improvement on 3rd party deferment, ARPR OPEX net-of the annual diesel cost, the '*opportunity*' value of the fuel gas treated as additional OPEX. And the facility cost was treated as Oil infrastructure[2] cost
2. BP10 NFA production forecast without an improvement in 3rd party deferment and ARPR OPEX (assumed to already include the cost of diesel provided to the Nembe communities annually to enable LTO) for Nembe FS.

[1] The gas will be taken from AG in the node that is usually sold to NLNG T1-6; the fuel gas cost was computed as the value of the fuel gas - if it were sold to NLNG under the T1-6 supply contract.

[2] All Facilities assumed to be owned by SPDC

The results for the full project base case (as described above) and sensitivities are presented in table 4.

Table 3: Economics Grid –Pre FID

PV Reference Date: 1/7/2010	**NPV (S/S $ mln)**		**VIR**	**RTEP**	**UTC (RT $/boe)**		**Payout-Time (yyyy)**	**Maximum Exposure $mln (RT)**
Cash flow forward from: 1/1/2010	**0%**	**7%**	**7%**	**%**	**0%**	**7%**		**AT**
OPEX View								
SV-RT ($50/bbl & $1.37/Mscf RT10)	-0.3	**-0.3**	N/A					
RV-RT ($60/bbl & $1.63/Mscf RT10)	-0.3	**-0.3**	N/A	N/A	N/A	N/A	N/A	0.3 (2010)
HV-RT ($80/bbl & $2.15/Mscf RT10)	-0.3	**-0.3**	N/A					
BEP ($/bbl)					N/A	N/A		
Sensitivities								
CAPEX View	-0.3	**-0.5**	-0.25					

Key Project Parameter Data (Shell Share)

Parameter	**Unit**	**BP10**	**Low**	**Mid**	**High**	**Comments**
CAPEX (MOD)	US$ mln	1.55	-	-	-	BP10 CAPEX is for 2010 only, which is the period covered by the pre-FID request
OPEX (MOD)	US$ mln	0.00	0	2.19	0.0	Pre-FID spend treated as OPEX Per finance recommendation
Sales Volume	mln boe	N/A	0.0	0.0	0.0	
Start Up Date	mm-yy	N/A	NA	NA	NA	

Table 4: Economics Grid – Full Project

PV Reference Date: 1/7/2010	**NPV (S/S $ mln)**		**VIR**	**RTEP**	**UTC (RT $/boe)**		**Payout-Time (yyyy)**	**Maximum Exposure $Mln (RT)**
Cash flow forward from: 1/1/2010	**0%**	**7%**	**7%**	**%**	**0%**	**7%**		**AT**
Base Case*								
SV-RT ($50/bbl & $1.37/Mscf RT10)	-0.4	**0.8**	**-0.02**					
RV-RT ($60/bbl & $1.68/Mscf RT10)	**0.2**	**1.9**	**0.01**		3.1	11.1	2015	7.9 (2012)
HV-RT ($80/bbl & $2.15/Mscf RT10)	1.2	**4.0**	**0.08**					
BEP ($/bbl)								
Sensitivities (using RV-RT)								
NFA with Nembe Power Project	247.0	**154.9**	**15.65**				2010	0.1 (2010)
NFA without Nembe Power Project	246.9	**153.1**	**0.00**				2010	0.14 (2010)
High Capex (+40%)*	-0.9	**0.4**	**-0.04**				2015	12.5 (2012)

**This represents the value difference between NFA with Power Project and NFA without the Power Project*

Economics Assumptions

- Oil taxed at PPT.
- Gas taxed under CITA with Associated Gas Framework Agreement (AGFA) incentive
- 31/12/2009 ARPR (Annual Review of Petroleum Resources) OPEX for Nembe 1-4 flow stations was used and SPDC Generic OPEX was used for new facilities.
    - SPDC generic OPEX assumptions:
        - Oil fixed OPEX of 3% of cum. oil CAPEX respectively
- NDDC levy of 3% total expenditure.
- Education tax of 2% assessable profit.
- GHV of 1150btu/scf
- Abandonment cost is estimated at 10% of total project RT CAPEX

Section 3: Risks, opportunities and alternatives

S/No.	Risk	Risk Description	Mitigation /Remedial Effort
1	**Commercial / Cost**	Reduced Budget funding caused by inadequate funding from the JV	Project is in SPDC Base Plan under SODA team. If there is reduction in budget from the JV, additional fund required will be sought during BCC alignment.
		Financial incapability of the Contractor	Ensure proper milestone payment breakdown that will align with the Project Execution plan thereby providing for adequate remuneration of actual work down by the Contractor
2	**Technical**	Poor interface management between activity executors	All required interfaces based on the contracting strategy and Execution plan will be identified and collated in the interface plan to ensure proper implementation
		Inability to run the O & M contract and eventually exit from Operations / Improper Operation and Maintenance of the Plant after handling over to Community person	The Community Utility Committee will be integrated from the construction stage to ensure exit from the O & M contract and also there will be provision in the O & M contract to extend the contract for another 1 year
3	**Schedule**	Late Delivery of Equipment	Ensure that FEED deliverables are adequate to place order for LL items and that EPC Contract is awarded on time so that LLIs are ordered has scheduled
4	**Stakeholder**	Potential conflict between the two Host Communities over location of Power Plant and work sharing	The two Host Communities had been engaged and continue engagement is planned throughout the life of the Project. Sharing formula for available work allocation will be agreed up front amongst the two Host Communities and Government and this shall apply to works that are common to the two Communities
5	**Health, Safety, Security and Environment**	HSE Hazards during mobilization and construction	Specific Project HSE Management Plan will be developed in line with SPDC's HSE Contractor HSE Management (EP2005-0110-ST) Also learning learnt from recent Projects will be applied in managing HSE risk to ALARP.
		Improper handling and theft of condensate	An ALARP workshop was held and to mitigate against theft of condensate, an atomizer was suggested to process the

			condensate for re-use as fuel gas for the gas engines. This will be further define during FEED
		Renewed arm struggle in the Niger Delta/ Security of life and Asset of Company/ Contractor	Project security plan will be developed in line with SPDC security policy and Project will strictly adhere to SODA team security arrangements and journey management

Alternatives Considered

(i) **Option 2A**: Gas Engines located adjacent to Nembe-4 manifold and overhead lines used for transmitting power to Nembe-Ogbolomabiri and Bassambiri.

(ii) **Option 2B**: Gas Turbines located adjacent to Nembe-4 manifold and overhead lines used for transmitting power to Nembe-Ogbolomabiri and Bassambiri.

(iii) **Option 3A**: Gas Engines located adjacent to Nembe-4 manifold and sub-marine cable used for transmitting power to Nembe-Ogbolomabiri and Bassambiri.

(iv) **Option 3B**: Gas Turbines located adjacent to Nembe-4 manifold and sub-marine cable used for transmitting power to Nembe-Ogbolomabiri and Bassambiri.

Details of consideration can be found in the concept selection report.

Section 4: Corporate structure, and governance

The existing corporate structure and arrangement of SPDC-JV with SPDC as operator will be used. A Decision Review Board approved for the SPDC Electrical Interdependency Project will govern the project. The Opportunity Realisation Process will be implemented for the project.

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

This proposal complies with the Group Bussiness principles, policies and standards. In order to progress the project through the ORP process relevant functional input and support will be sought to ensure seamless execution, this includes discipline teams, SCM, Finance, Social performance and Community Affairs, HSE, Legal, and Treasury.

Section 6: Project management, monitoring and review

The Nembe Electrical Interdependence team, from SPDC Major Projects has been mobilised for project execution. The Project Manager is on seat and has assumed full responsibility for this project after DRB-2/3. The project team has been constituted and resources is from the SODA/Domgas team which will include a project service group consisting of Contracting and Procurement (SCM), discipline team, Accounting, Information Management, Cost, Planning and QA/QC.

Section 7: Budget provision

The approved budget for 2011 is F$9.9mln, the balance budget requirement for this expenditure will be provided for in the JV programme budgets for 2012 and 2013.

Section 8: Group financial reporting impact

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

US$ mln	2010	2011	2012	2013	2014	2015
Total Commitment	2.19					
Cash Flow						
SCD Expenditure						
Commitment OPEX	2.19					
Capital Expenditure						
Independent OPEX	0.07					
Cash flow From Operations	(0.96)	0.62				
Cash Surplus/(Deficit)	(0.96)	0.62				
Profit and Loss						
NIBIAT +/-	(0.33)					
Balance Sheet						
Avg Capital Employed	0.31	0.31				

Section 9: Disclosure

Disclosures if any will be done in line with the Shell Group and SPDC Disclosure policies and guidelines.

Section 10: Financing

The base case assumption is that SPDC will fund the project. After the deployment of the Interdependency project, SPDC will also fund the operations and maintenance of the facility. However, the option of surcharging a stipulated tariff for power consumption, beyond a certain consumption threshold is also being considered. The tariff structure will be implemented and reviewed by the Nembe Utility Board. This tariff structure if implemented will help SPDC reduce the annual operations and maintenance cost of the Power project.

Section 11: Taxation

The Operating and Capital expenditures are tax deductible at the statutory rate of 85% under the Petroleum Profit Tax Act-2004. Fiscal depreciation in respect of the capital expenditure is given over 5 year's straight line with 1% retention in the fifth year. In addition, a one-off investment allowance of 5% is claimable on capital expenditure.

Section 12: Key Parameters

This investment proposal seeks approval for $2.19mln Shell share, MOD, 50/50 ($57.8mln 100% JV) for the Pre-FID activities for Nembe electric power interdependency project.

Section 13: Signatures

This Proposal is submitted to EPG-TP for organisational approval

Supported by:

Nwoke, Chris

FUI/FB

Date: .../.../...

Approved by:

Birch, Andrew

UIG/T/P

Date: ..../.../....

Initiator: _____

Gbole-Wikina, Ema

UIG/T/PD

Date …/…./….

2010-09 DRB
inutes 23sept2010

Attachment I

IP Nembe Electric
Power Proejct - Pre-F

Attachment II

Minutes: SPDC ORP – 23rd September 2010, DRB Meeting

Date/Gate: 23-September-10/DG3
Venue: PHC B3-146
Decision Executive: Bayo Olarewaju-Alo
Panel Members: Shittu Muhammad, Adeoye Emiloju, Vincent Chukwueke, Oladipo Olanrewaju
Projects: Nembe Electrical Interdependency Project (DG2/3)
Regrets:
Participants: Tony Attah (BOM), Saka Olufunke (for Ema Gbole-Wikina - PM), Emeka Abulokwe, Belije Madu, Lanre Oladiran (Scribe)

Objectives.	*Decision Context*	Decisions Taken.	Action Party.	*Comments.*
Nembe Electrical Interdependency Project DG2/3 **ORP Gate 3: Select (DG3)** *Objective of DRB submission* 1. Approval for the Nembe Electrical Interdependency Project to proceed to 'Definition' phase. 2. Approval to hand over project to the Nembe Electrical Interdependence Execution team (from Major Projects), led by Ema Gbole-Wikina. 3. Formal approval of the Project Control and Assurance Plan. 4. Approval to update the approved pre-FID document to include the following long-lead activities, in a bid to fast-track the project: (i) Site Preparation and preliminary site works. (ii) Procurement, Coating and installation of the 6-inch schd-40 fuel gas line. (iii) Procurement of 3nos. 3.1MW Gas Generators.	The Nembe Electric Interdependency Power Project, seeks to deploy a sustainable and "umbilical" power solution that will ensure constant power supply in the Nembe Ogbolomabiri and-Bassambiri communities and consequently eliminate the current arrangement of power generation via diesel driven generating sets, that cost SPDC approximately $2.9 mln, annually, to fuel. The project seeks to supply electric power to the Nembe communities in an inter-dependent manner, with the SPDC Flowstation in Nembe. The project is to be executed in phases. Phase-1 will involve Nembe 1, 2, 3 and Jalingo communities. Phase-2 will involve Nembe metropolis - Ogbolomabiri and Bassambiri, while phase-3 will involve the other Nembe satellite communities. Based on the criteria developed at the Concept Selection workshop, the option-Utilise Gas Engines (9MW) installed at a select remote location at the outskirts of Nembe-communities, and installation of a gas line from Nembe-4 manifold- was selected, as being the most cost effective and standard solution that can be quickly deployed to meet the aspirations of the host communities, thereby sustaining the SPDC license-to-operate for the area.	Decision 1: Approved; pass DG2/3 Decision 2: Approved Decision 3: Approved; **but new PCAP to be drawn up by the execution team, taking into consideration all the comments made.** Decision 4: Approved; **update pre-FID to include items (i) & (ii), as long as total CAPEX is within MD's approval limit. Team to also explore fast-tracking the FID by using internal cost estimates plus contingencies.** Required Actions: **1. Need to engage TA1 for approval to use of 3.1 MW gas engines. Team to also prompt TA1 to re-look at the earlier request made by West re-entry team to use gas engines with similar capacity.** **2. Need to clearly articulate the implication on CAPEX, of accelerating this project in preparation for DEVCOM.** **3. Need to clearly highlight how SPDC will benefit directly from this project to prevent the risk of the cost being categorised as OPEX.**	**Funke** **Belije/ Funke** **Belije** **Funke** **Belije/ Funke**	**EIA of the exhaust from the Atomizer to be addressed during the definition stage.** **Make provision for good access control into the gas processing plant, to forestall the theft of condensate.** **The interdependency element of this project should be linked to the security of the NCTL; stressing that if the NCTL goes down so will the power being generated.**

The Shell Petroleum Development Company of Nigeria Limited

Internal Investment Proposal

Summary Information

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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	Nigerian National Petroleum Corporation -NNPC (55%), Total FinaElf (10%), and Nigerian Agip Oil Company –NAOC- (5%)
Amount	US$ 0.59 Mln Shell share, MOD, 50/50. (US$ 1.97 Mln JV 100%)
Project	**Nembe Electric Power Interdependency Project Pre-FID IP**

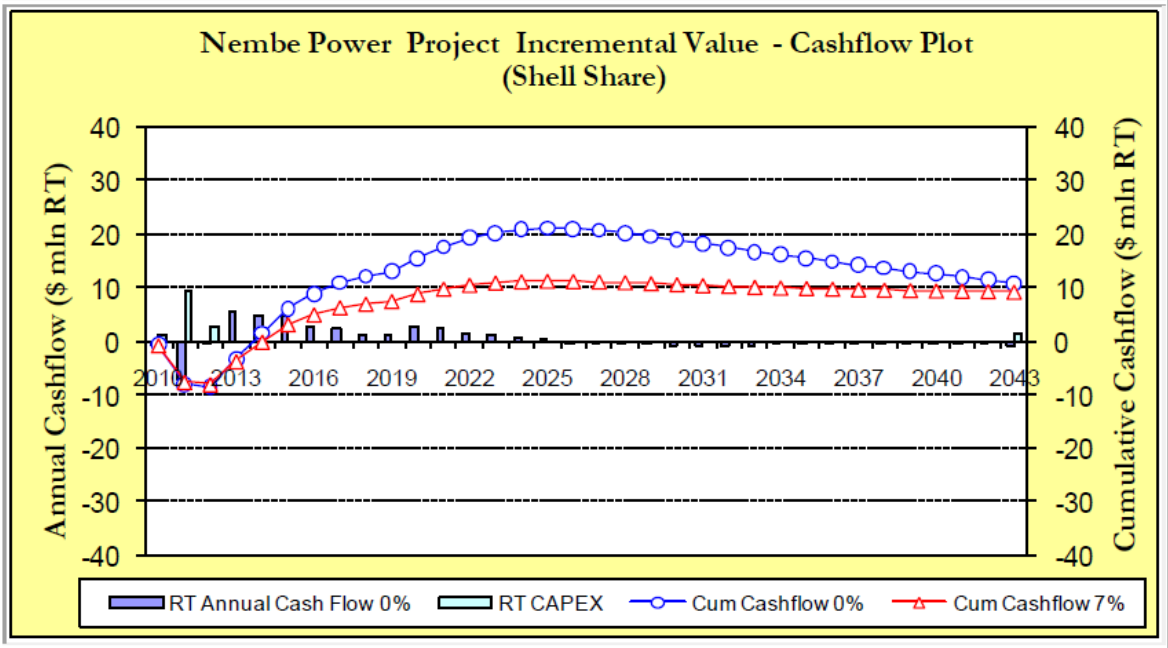
Main commitments

	(US$Mln)	
	Shell Share	**JV**
Geomatic Survey of Gas Line route	0.16	0.53
Soil Survey	0.02	0.07
FEED and Detailed Design	0.40	1.33
EIA Revalidation	0.01	0.03
Total	**0.59**	**1.97**

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



Summary economics

At Ranking PSV ($60/bbl RT10)	NPV7% ($m)	VIR7%	RTEP (%)
Base Case Pre-FID	-0.1	-0.25	N/A
Base Case Full Project*	9.2	0.75	N/A

**Incremental value due from Nembe Power project which represents the value difference between NFA with Power Project and NFA without the Power Project*

Section 1: The proposal (management summary)

This proposal seeks management approval of US$ 0.59 mln (Shell Share), for funding the activities, which need to be executed prior to Final Investment Decision (FID) currently scheduled for Q2, 2011. This pre-FID Investment Proposal is premised on the outcome of the project DRB meeting held on 18th November 2009. Please refer to attachment-1 for *Minutes of the Nembe Electrical Interdependency Project DRB Meeting –18th November 2009.*

Currently, the Nembe Creek district is the largest district in the Eastern swamp and consists of the Nembe-1 to 4 and Odeama Creek flowstations. Nembe Creek is currently the single largest producing field in SPDC East. Premised on BP09, the Nembe 1, 2, 3 and 4 flowstations are planned to export an average of 65Mbopd to Bonny Terminal and 38MMscf/d to NLNG. As a 31.12.09, the Nembe fields had undeveloped oil reserves of 724MMstb and undeveloped gas reserves of 1318Bscf (NNS reserves).

Secondly, SPDC has a total of 4nos. diesel power generating sets (2nos. -1000kVA and 2nos. – 800kVA) installed at Ogbolomabiri and Bassambiri. The monthly diesel requirement for the generator sets is 240,000 liters. Currently, SPDC incurs an annual diesel procurement cost of approximately US$3.9 mln, to ensure the continued operation of the power generating sets. The cost of diesel for power generation is borne by SPDC. Previous instances when SPDC has defaulted in the supply of diesel for the generating sets have resulted in various threats from the communities. Currently, the freedom –to-operate for the Nembe Creek Trunkline replacement works and SPDC operations in the area is under threat.

The Nembe (Ogbolomabiri, Bassambiri and Satellites) Electrical Interdependency Project is premised on the deployment of gas-driven power generator, that will eliminate the need for the diesel generators currently installed in Ogbolomabiri and Bassambiri. The base case option is to provide a gasline from SPDC Nembe –1 flowstation to the outskirts of Nembe Ogbolomabiri and Bassambiri, where power will be generated via a gas driven turbine, installed in a remotely located Power Generating House. The generated power will be transmitted to Ogbolomabiri and Bassambiri communities, via overhead cables. The Town Distribution Network will be upgraded, prior to the project being commissioned. The Level-1 cost estimates for the key aspects of the project are detailed in table-1 below:

Table1: Full Project Cost (100% JV):

S/No.	Work Item Description	Estimate (US$mln)
1	Preliminary works, which includes Surveys and FEED.	2.0
2	Power generation, which covers the procurement and Installation of 2Nos. 5.1 MW Gas Turbines.	12.8
3	Procurement and Installation of the gas line, including the securing and clearing of the gasline right-of-way.	14.1
4	Upgrading of Ogbolomabiri and Bassambiri Town Distribution Network.	0.7
5	Construction of the Power Generation House, including land acquisition.	1.2
7	Project contingency, including provision for inflation and Owners cost.	14.3
	Total (100%- JV)	**45.1**

The commercial option, entailing SPDC supply of gas, while a 3rd party Electric Power Solution Provider generates power, installs transmission lines and operates the entire system, is also being considered.

The cost phasing 100% JV, for the full project is detailed below:

Table 2: Project Cost Phasing (100% JV)

		2009	2010	2011	2012	2013	Total
OPEX $mln (100%)	Pre-FID		2.0				**2.0**
CAPEX $mln (100%)	Post FID			33.5	9.7		**43.2**
	Total	**0.0**	**2.0**	**33.5**	**9.7**	**0.0**	**45.1**

The 2010 budget is included in the SPDC business plan and has been approved by the JV Partners. It is expected that the project will be funded as part of the SPDC base case budget.

Section 2: Value proposition and strategic and financial context

This proposal is consistent with the strategy and objectives of SPDC, which is to reduce deferment due to the 3rd party shutdown, by creating an interdependent "umbilical" between the Nembe flowstations and the main host communities. The project is consistent with the SPDC Business plan and a Step-out approval, from SPDC Community Electrical Interdependency Policy has been obtained to progress this project. The project will add value to the business in form of reduction in the disruption of production at Nembe-1, 2, 3 and 4 flowstations. Additionally, the project will result in a reduction in OPEX, premised on eliminating the need for diesel utilisation by community generators.

Summary Economics

The base economics for this pre-FID IP was evaluated on a forward-looking and cost only basis, as the full value of the project would only be achieved on full project execution post-FID. The pre-FID cost has been reflected as OPEX, in the cost phasing. Additional sensitivity for treatment of Pre-FID as OPEX assuming the project does not take FID was also evaluated.

The full project scope was evaluated on a forward-look basis using BP09 NFA production forecast (Oil and AG) of the affected fields, and 50/50 CAPEX estimates. Evaluation was carried out based on two premises

1. NFA with Nembe Power project costs (assumes no third party deferment)
2. NFA without Nembe power project cost (assumes some 3rd party deferment)

Base case results presented in table 4 represent the value difference between NFA with Nembe Power Project and NFA without the Nembe Power Project.

Sensitivities analysis shows the stand alone values of the NFA with Nembe power project and NFA without Nembe power project (see Cash flows in appendix 1). Other sensitivities evaluated include high CAPEX, license expiry in 2019 as well as the value impact of the petroleum industry bill (PIB).

Table 3: Economics Grid –Pre FID

PV Reference Date: 1/7/2010	NPV (S/S $ mln)		VIR	RTEP	UTC (RT $/boe)		Payout-Time (yyyy)	Maximum Exposure $mln (RT)
Cash flow forward from: 1/1/2010	0%	7%	7%	%	0%	7%		AT
Base Case								
SV-RT ($50/bbl & $1.37/Mscf RT09)	-0.1	-0.1	-0.25					
RV-RT ($60/bbl & $1.63/Mscf RT09)	-0.1	-0.1	-0.25	N/A	N/A	N/A	N/A	0.5 (2010)
HV-RT ($80/bbl & $2.15/Mscf RT09)	-0.1	-0.1	-0.25					
BEP ($/bbl)					N/A	N/A		
Sensitivities (using RV RT)								
Pre-FID Costs Treated as OPEX	-0.1	-0.1	N/A				N/A	0.1 (2010)

Key Project Parameter Data (Shell Share)

Parameter	Unit	BP09	Low	Mid	High	Comments
Capex (MOD)	US$ mln	0.59	0	0.59	0.0	Pre-FID spend only
Investment Opex	US$ mln	N/A	0	0.0	0.0	
Sales Volume	mln boe	N/A	0.0	0.0	0.0	
Start Up Date	mm-yy	N/A	NA	NA	NA	

Table 4: Economics Grid – Full Project

PV Reference Date: 1/7/2010	NPV (S/S $ mln)		VIR	RTEP	UTC (RT $/boe)		Payout-Time (yyyy)	Maximum Exposure $Mln (RT)
Cash flow forward from: 1/1/2010	0%	7%	7%	%	0%	7%		AT
Base Case*								
SV-RT ($50/bbl & $1.37/Mscf RT10)	8.0	6.7	0.55					
RV-RT ($60/bbl & $1.63/Mscf RT10)	10.7	9.2	0.75		12.5	11.1	2015	8.7 (2012)
HV-RT ($80/bbl & $2.15/Mscf RT10)	16.1	14.2	1.16					
BEP ($/bbl)								
Sensitivities (using RV-RT)								
NFA with Nembe Power Project	134.9	78.7	6.42				2014	8.7 (2012)
NFA without Nembe Power Project	124.2	69.5	N/A				N/A	N/A
High Capex (+40%)	9.8	8.0	0.47				2016	12.1 (2012)
License expiry (2019)	12.7	7.3	0.60				2015	8.7 (2012)
PIB Sensitivty		7.3	0.60					

**This represents the value difference between NFA with Power Project and NFA without the Power Project*

Economics Assumptions

- 31/12/2009 ARPR (Annual Review of Petroleum Resources) fixed and variable costs for the facilities were used.
- GHV of 1150 btu/scf for gas to NLNG.
- Associated Gas Framework Agreement (AGFA) Fiscal incentive applied.
- Flare penalty of $4/Mscf non-tax deductible.
- NDDC levy of 3% total expenditure.
- Education tax of 2% assessable profit.
- Abandonment cost is estimated at 10% of total project RT CAPEX

PIB_ Version 4.2 Assumptions

- PIB start year is 2010
- Royalty rates based on product (value) prices and production rates per PML (assumed equal to a field). Royalty rates are designed to be higher for easier and bigger producing assets.
- NHT depreciation schedule is 4x20%, 19% for qualifying expenditure.
- No capital investment credit/allowance (ITC or ITA) or uplift is granted under the PIB
- NHT rate is 50% for onshore and shallow water, and 30% for frontier acreages and Deep Water.
- NHT amount is the lesser of applicable tax rate multiplied by the taxable income and 2% of total revenue.
- CIT depreciation schedule is 3x25%, 24%, for qualifying expenditure.
- CIT 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 corporate budget (Expex+Capex + Opex)
- Flaring penalty is calculated at $4mln/Btu MOD flat and it is not tax deductible for both CIT and NHT
- Withholding tax is applicable at a rate of 7.5%
- 20% of overseas cost is non-deductible for determination of NHT taxable income
- Costs that are not benchmarked, verified and approved are not tax deductible

Section 3: Risks, opportunities and alternatives

S/No.	Risk Description	Mitigation /Remedial Effort
1	**Project Funding-** General JV funding issues as applicable to SPDC projects	The need to adhere to SPDC base case budget and if the base case budget is not in line with the Project CAPEX phasing, it might result in Project slippage. – Manage within existing SPDC Business Planning and monthly BCC framework. Provide an execution strategy, which is robust and flexible in terms of deployment.
2	**Inadequate Work Scoping** - Project Cost overrun might be caused by inadequate work scooping due to worksite unavailability, inflation and limited number of technically capable contractors willing to work in the Swamp	Pro-active engagement of communities in other to facilitate worksite availability for SPDC and Contractor visit, prior to execution. Project execution strategy will take the need to involve host communities in certain aspects of the construction.
3	**Local Content Implementation Requirement** - Non-adherence to local content requirements	Continuous engagement with the NCD department in SPDC, during each stage in the project. SPDC FEED team or a competent Design consultant in Nigeria will do detailed Engineering design.
4	**Project Acceleration -** Utilisation Domestic Gas Contract	The opportunity exists to accelerate the Project delivery schedule by the utilisation of the Domestics Gas contracts for the procurement of Gas Generators, cables and site construction works. – Early engagement of NAPIMS is required to ensure that their buy-in is obtained for the execution strategy.
5	**Health, Safety and**	Prior to DG-3 a HAZID workshop aimed at

	Environment – Hazards encountered during site survey, site works, construction and operation.	identifying the key hazards will be undertaken. Post DG-3, a QRA will assist in ensuring that the selected concept will be executed and operated with a tolerable risk level and in conformance with the principal of ALARP. In addition, contractors to be selected will be competent in managing HSE risks. Lesson learnt from on-going projects will be applied in updating a fit-for-purpose project HSE case to manage all significant risks to ALARP. Also an EIA will be undertaken for the project

Alternatives Considered

Alternative-1: Power Generation at Nembe-1 flowstation and transmission via Submarine cable.

Alternative-2: Power Generation at Nembe-1 flowstation and Transmission via Overhead cables.

Alternative-3: Power Generation at the outskirts of Communities and Gas Supply via Compressed Natural Gas (CNG), transported in Gas Transmission Modules (GTM's).

Alternative-4: Gas supply from Nembe-1 flowstation, Power Generation at outskirts of Nembe, Power transmission via Overhead cables.

Section 4: Corporate structure, and governance

A Decision Review Board approved for the SPDC Electrical Interdependency Project will govern the project. Functional approvals and technical support will be obtained prior each Decision Gate. The Opportunity Realisation Process will be implemented for the project.

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

In order to progress the project through the ORP process relevant functional input and support will be sought to ensure seamless execution. SPDC HSE and SCD policies will be adhered to, with a view to minimise the risk of incidents/accidents and disruptions. In addition, a project specific HSE plan will be put in place.

Section 6: Project management, monitoring and review

The Concept Engineering Team, supported by Project team (nominated to drive the Project), will be responsible for the project maturation to DG3. This will be done in conjunction with the Electrical Engineering Discipline Team. The Project team will be resident in the SODA and Domestic Gas Project team, and will have a reporting line to the SPDC MD.

As part of the ORP requirements, the project team will achieve the following milestones:

- ✓ Opportunity reframing/ risk management workshop.
- ✓ Produce project cost estimate at DG-3 and FID gates.
- ✓ Develop preliminary project execution plan and basis of design.
- ✓ Organise VAR at each ORP gate, health checks, peer reviews and hazard identification etc.
- ✓ Formal handover of selected concept to Project team after DG-3 gate.

Section 7: Budget provision

The 2010 funding requirement of $3.3mln has been captured in BP09 and has been recommended for approval by the JV Partners.

Section 8: Group financial reporting impact

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

US$ mln	2010	2011	2012	2013	2014	Post 2014
Total Commitment	0.59	0.00	0.00	0.00	0.00	0.00
Cash Flow						
SCD Expenditure	0.00	0.00	0.00	0.00	0.00	0.00
Pre-FID Expenditure	0.59	0.00	0.00	0.00	0.00	0.00
Operating Expenditure	0.02	0.00	0.00	0.00	0.00	0.00
Cash Flow from Operations	0.10	0.11	0.10	0.10	0.10	0.02
Cash Surplus/(Deficit)	(0.49)	0.11	0.10	0.10	0.10	0.02
Profit and Loss						
NIBIAT +/-	0.03	(0.01)	(0.01)	(0.01)	(0.01)	(0.06)
Balance Sheet						
Average Capital Employed	0.36	0.65	0.57	0.51	0.45	0.80

Section 9: Disclosure

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

Section 10: Financing

The base case assumption is that SPDC will fund the project. After the deployment of the Interdependency project, SPDC will also fund the operations and maintenance of the facility. However, the option of surcharging a stipulated tariff for power consumption, beyond a certain consumption threshold is also being considered. The tariff structure will be implemented and reviewed by the Nembe Utility Board. This tariff structure if implemented will help SPDC reduce the annual operations and maintenance cost of the Power project.

Section 11: Taxation

The Operating and Capital expenditures are tax deductible at the statutory rate of 85% under the Petroleum Profit Tax Act-2004. Fiscal depreciation in respect of the capital expenditure is given over 5 year's straight line with 1% retention in the fifth year. In addition, a one-off investment allowance of 5% is claimable on capital expenditure.

Section 12: Key Parameters

This investment proposal seeks approval for $0.59mln Shell share, MOD, 50/50 ($1.97mln 100% JV) for the Pre-FID activities for Nembe electric power interdependency project.

Section 13: Signatures

This Proposal is submitted to EPG-TP for organisational approval

Supported by:

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Tunji Mayaki

EPG-L-N

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

Supported by:

.....

Chiedozie Emeka

EPF-G-FCR

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

Supported by:

.....

Emmanuel Adeyeye

EPF-G-FCT

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

Approved by:

.....

Nwoke Chris

EPF-G-TM

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

Approved by:

.....

Andrew Birch

EPG-TP

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

Initiator: _____

Abulokwe, Emeka

(EPG-TPEC)

Date …/…./….