The Shell Petroleum Development Company of Nigeria Limited

Group Investment Proposal

Summary Information

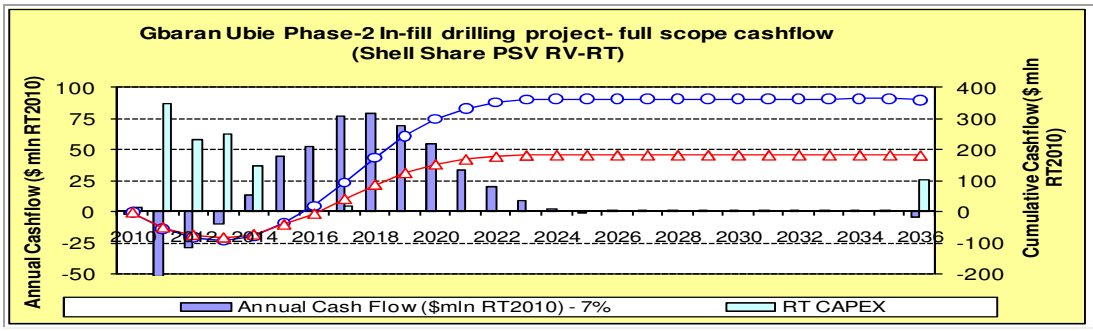
Business unit and company	Technical Directorate Shell Petroleum Development Company of Nigeria Limited (SPDC)
Group equity interest	100% in SPDC, whereas SPDC is the Joint Venture (JV) operator of an unincorporated JV with a 30% interest.
Other share holders/partners	Nigeria National Petroleum Company (NNPC: 55%), Total E&P Nigeria (TEPNL 10%), Nigeria Agip Oil Company (NAOC: 5%)
Amount	US$16.6 mln Shell share, MOD, 50/50 of which US$11.2 mln is requested for approval in this proposal and US$5.4 mln had been approved in previous proposals.
Project	Pre-FID for Gbaran Node Further Development (Gbaran VZTX-2 NAG well, Gbaran VZTX-1 Oil well, Koroama-002 NAG well, Koroama TBUV 1-5 NAG wells, Epu TKVH-1 and TXVE 2-3 NAG well developments as well as Koroama SPUU-1 appraisal well).

Main commitments

Description	Previously Approved (Shell Share)	Requested Increase (Shell Share)	Complete Pre-FID Budget (Shell Share)	Complete Pre-FID Budget[1] (100% JV)
Location Preparation	1.8	2.9	4.8	15.9
Detailed Designs	0.0	5.8	5.8	19.3
Line Pipes Pre-payment (10%)	1.4	1.4	2.8	9.2
Gbaran VZTX-1 Flowline Installation	1.5	0.0	1.5	5.0
Survey, Land Acquisition & Security	0.1	0.3	0.5	1.6
ESHIA	0.0	0.1	0.1	0.3
Project Management	0.1	0.7	0.8	2.6
FEED	0.3	0.0	0.3	1.2
SCD	0.1	0.0	0.1	0.3
Total Pre-FID OPEX (FUS$ mln)	**5.4**	**11.2**	**16.6**	**55.4**

Source and form of financing	This pre-FID 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 (Shell Share)



Note: the complete Pre-FID budget as well as the previous approvals includes $4.41 mln (100% JV) location preparation costs and $5.00 mln (100% JV) for flowline installation for the Gbaran VZTX-1 Oil well. These costs have been made as part of the Gbaran Ubie Phase 1 project.

Summary economics (Shell Share)	Summary Economics	NPV7% (USD mln)	RTEP (%)	VIR7%
	Pre-FID -OPEX VIEW	-7.1	NA	NA
	Pre- FID – CAPEX VIEW	-2.5	NA	-0.24
	Full project -Base Case	182.8	30.4	0.84

Section 1: The Proposal (Management Summary)

1.1 Management Summary

This Pre-FID Investment Proposal requests approval for funding of US$11.2 mln (Shell Share) to progress the wells location preparation, flowlines and facilities detailed designs and line pipes pre-payments for the Gbaran Node Further Development comprising Gbaran VZTX-2, Koroama-002, Koroama TBUV 1-5 NAG wells and SPUU-1 appraisal well, Epu TKVH-1 and TXVE 2-3 NAG wells required to sustain gas supplies to the Gbaran CPF post the Gbaran Phase 1 Project.

These Gbaran Node Further Development fields will develop about 1.3 Tscf of gas to keep the Gbaran CPF full at 1.05 Bscf/d for additional 4 years (additional 3 years in the case of a successful re-rating of the trains to 1.2 Bscf/d) to meet SPDC JV gas supply commitments to NLNG Trains 1 to 6 and Bayelsa IPP.

Experience on the Gbaran Ubie Phase 1 project shows that land acquisition, access roads, wells and manifolds sites preparation, sand filling and flowlines installation require at least two years to complete and thus must commence well ahead of drilling. Approval is thus sought for funding of these pre-FID activities (Table 1), which must be pursued with urgency in order to maintain gas supplies to domestic and LNG customers from 2013.

Table 1: Gbaran Node Further Development cost estimate pre-FID

50/50 MOD Cost Estimate (FUS$ mln)						
Description	**Gbaran VZTX-2 NAG Well**	**Koroama SPUU-1 Appr. well**	**Koroama-002 NAG well**	**Koroama TBUV 1-5 NAG wells**	**Epu TKVH-1 and TXVE 2-3 NAG wells**	**Total**
Location Preparation	0.0	7.9	3.6	0.0	0.0	11.5
Detailed Design	5.7	0.0	4.5	9.2	0.0	19.3
Line Pipes Pre-Payment (10%)	2.5	0.0	2.0	4.8	0.0	9.2
Survey, Land Acquisition & Security	0.3	0.0	0.2	0.8	0.4	1.6
ESHIA	0.0	0.0	0.0	0.1	0.1	0.3
Project Management	0.5	0.0	0.3	1.6	0.1	2.6
FEED	0.2	0.0	0.1	0.5	0.4	1.2
SCD	0.0	0.2	0.1	0.0	0.0	0.3
Total Pre-FID OPEX (100% JV)	**9.1**	**8.1**	**10.8**	**17.0**	**0.9**	**46.0**
Total Pre-FID OPEX (Shell Share)	**2.7**	**2.4**	**3.2**	**5.1**	**0.3**	**13.8**
Previously Approved (Shell Share)	**2.0**	**0.0**	**0.1**	**0.3**	**0.2**	**2.6**
Requested Increase (Shell Share)	**0.7**	**2.4**	**3.2**	**4.8**	**0.1**	**11.2**

1.2 Previous proposals

In November 2007, a pre-FID investment proposal (IP) of $4.57 mln (Shell Share) was approved for the Front End Engineering Designs (FEED) of the initial Gbaran Ubie Phase 2 Project, the Gbaran VZTX-2 NAG well location preparation and procurement of long-lead materials. Following the reframing of the initial Gbaran Ubie Phase 2 project to 3 separate scopes ((a) Gbaran, Koroama and Epu fields, (b)

Kolo Creek Deep field and (c) Ubie field), the initial pre-FID IP approval and expenditure have been allocated to the respective scopes based on the value of each development ((a) $2.62 mln, (b) $1.34 mln and (c) $0.62 mln).

1.3 Project Background

The Gbaran Node Further Development is a part of the initial Gbaran Ubie Phase 2 Project, which passed VAR 3 in November 2006, DG3 in July 2007 and completed FEED in December 2008 but was put on hold due to funding constraints in 2009 and till a reframing workshop with Joint Venture Partners (JVPs) in March 2009. There was agreement in the reframing workshop to itemize the scope and costs of the Gbaran Node Further Development fields for separate Investment Proposals. The following wells and fields are proposed as part of this further development to sustain gas supplies to the Gbaran CPF post the Phase 1 Project:

a. Gbaran VZTX-2 NAG Well
b. New Appraisal Well Koroama SPUU-1
c. Koroama-002 NAG (former appraisal well) recompletion and Hook Up
d. Koroama TBUV 1-5 NAG Wells
e. Epu TKVH-1 and TXVE 2-3 NAG Wells
f. Gbaran VZTX-1 Oil well (FID for Gbaran VZTX-1 Oil well was initially taken as part of Gbaran Ubie Phase 1 Project. However, Gbaran VZTX-1 Oil well was replaced with the higher-ranking Gbaran UKTU-3 Oil well within the Gbaran Ubie Phase 1 MCA (Modified Carry Arrangement) scope and fund. FDP, well pad and flowline are already in place for the VZTX-1 well and thus no pre-FID request is made for this well. However, the drilling of the oil well will be part of the main Investment Proposal for the Gbaran Node Further Development).

The estimated yearly expenditure phasing for the full project work scopes is indicated in Table 2 below, while a detailed breakdown of the full project scope and cost estimate are shown in Appendix 1.

Table 2: Yearly estimated expenditure (FUS$ mln)

	Previously Approved		Requested Pre-FID									
Fields Description	**Prior Years**	**2010**	**2010**	**2011**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**Total**
Gbaran VZTX-1 Oil Well and VZTX-2 NAG Well (FUS$ mln)	9.7	6.4	0.0	2.4	68.4	56.0	0.0	0.0	0.0	0.0	17.6	**160.6**
Koroama (SPUU-1, 02 & TBUV 1-5 NAG Wells) (FUS$ mln)	1.1	0.2	3.8	30.8	151.9	81.8	173.6	0.0	0.0	0.0	0.0	**443.2**
Epu TKVH-1 and TXVE 2-3 NAG wells (FUS$ mln)	0.6	0.1	0.2	0.0	50.5	67.6	55.2	138.0	0.0	0.0	0.0	**312.2**
Total 100% JV (FUS$ mln)	**11.4**	**6.8**	**4.0**	**33.2**	**270.8**	**205.4**	**228.8**	**138.0**	**0.0**	**0.0**	**17.6**	**916.0**
Total Shell Share (FUS$ mln)	**3.4**	**2.0**	**1.2**	**10.0**	**81.2**	**61.6**	**68.6**	**41.4**	**0.0**	**0.0**	**5.3**	**274.8**

Section 2: Value Proposition and Strategic and Financial Context

2.1 Justification for Pre-FID Expenditure

The proposed Pre-FID expenditures are required to enable early commencement of land acquisition, access roads, wells and manifolds sites preparation and sand filling, which require at least two years to

complete. These activities must be pursued with urgency to enable the drilling of the Koroama-002 and appraisal well in 2011 and Gbaran VZTX-2 in 2013 and therefore prevent the risk of gas supply shortfall to the Bayelsa IPP and NLNG Trains 1 to 6 post the Gbaran Phase 1 Project.

Furthermore, the separate E, P and C contracting strategy agreed with NAPIMS entails the execution of detailed designs to enable receipt of commercial bids for the FID decisions.

2.2 Production and Reserves

The Gbaran Node Further Development will develop 1.3 Tscf of gas and 2.7 MMSTB of condensate to keep the Gbaran CPF full at 1.05 Bscf/d for additional 4 years (additional 3 years in case of successful re-rating of the trains to 1.2 Bscf/d) to meet SPDC JV gas supply commitments to NLNG T1-6 and Bayelsa IPP (Figure 1). The Gbaran VZTX-1 Oil well will develop 4.5 MMSTB of oil and 12.4 Bscf of associated gas. The production forecast and contributions of these further developments to the Gbaran CPF is shown in the Figure 1 below:

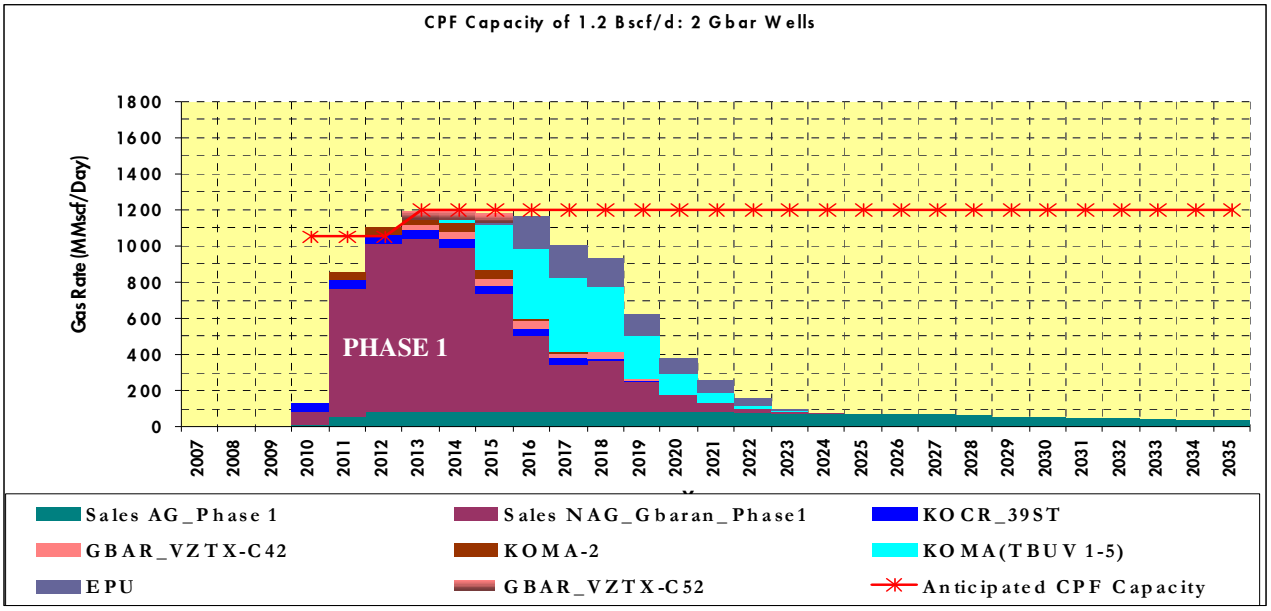


Figure 1: Production forecast to keep Gbaran CPF full at re-rated capacity of 1.2 Bscf/d

2.3 Summary Economics

The pre-FID economics was carried out as a cost only evaluation on a forward-looking basis using the project 50/50, IP headline cost estimates. Two scenarios were considered, the first scenario treats entire Pre- FID cost as OPEX, assuming that FID is not taken, while the second scenario splits the Pre- FID costs into proper costs element (Table 3a). The full project (Post FID) evaluation for the project was done using the 50/50 cost estimates and expectation production forecast (Table 3b). Sensitivity analysis was carried out to determine the values of the project at different subsurface realizations and high CAPEX. Given the uncertainty surrounding JV funding for this project as well as Nigerian EP fiscal regime, additional sensitivities on the base case include sensitivity using the 2009 Modified Carry Arrangement (MCA) terms and sensitivity on the Petroleum industry Bill (PIB version 4.2) to determine its possible impact on the project value.

Table 3a: Summary economics grid for Gbaran Node Further Development (Pre-FID investment)

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 ($50/bbl RT10)	-7.5	**-7.1**	N/A					
RV ($60/bbl RT10)	-7.5	**-7.1**	N/A	N/A	N/A	N/A	N/A	
HV ($80/bbl RT10)	-7.5	**-7.1**	N/A					
BEP ($/bbl)					N/A	N/A		
CAPEX View								
SV ($50/bbl RT10)	-1.8	**-2.5**	**-0.24**					
RV ($60/bbl RT10)	-1.8	**-2.5**	**-0.24**	N/A	N/A	N/A	N/A	
HV ($80/bbl RT10)	-1.8	**-2.5**	**-0.24**					
BEP ($/bbl)					N/A	N/A		
Sensitivities on CAPEX (using RV RT)								
Life Cycle Economics for Pre-FID		**-4.0**	**-0.25**				N/A	

Key project Parameters (Shell share)

Parameter	Unit	Low	Mid	High	Comments
OPEX (MOD)	US$ mln	0	11.2	0.0	Pre-FID spend only
Investment Opex	US$ mln	0	0.0	0.0	
Sales Volume	mln boe	0.0	0.0	0.0	
Start Up Date	mm-yy	NA	NA	NA	

Table 3b: Summary economics grid for Gbaran Node Further Development (FLC investment)

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: 1/1/2010	0%	7%	7%	%	0%	7%		AT
Base Case								
SV ($50/bbl & $1.37/Mscf RT09)	284.9	**139.2**	**0.65**	26.4%	5.6	7.3		
RV ($60/bbl & $1.63/Mscf RT09)	361.1	**182.8**	**0.84**	30.4%	5.6	7.3	2016	102.0 (2013)
HV ($80/bbl & $2.15/Mscf RT09)	513.7	**270.1**	**1.25**	37.1%	5.6	7.3		
BEP (RT $/boe)					NA	NA		
Sensitivities (using RV)								
High Capex (Prob < 0.10)		**171.7**	**0.69**				2016	118.4(2013)
Low Reserves (Prob < 0.85)		**152.4**	**0.70**				2017	102.4(2013)
High Reserves (Prob < 0.15)		**192.9**	**0.89**				2016	97.6 (2013)
Base Case under PIB terms (v4.2)		**-35.6**	**-0.17**					
Base Case with MCA funding		**170.3**	**0.37**				2017	27(2014)
Full Life cycle		**180.9**	**0.82**				2016	103.6 (2013)

2.4 Economics Assumptions

Pre-FID Investment

- Pre-FID evaluation is treated as cost only
- AGFA incentive applied to base case

Full Project Scope

- AGFA fiscal incentive applied for gas sales to NLNG Trains 1 to 6

- Condensate will be spiked into oil and treated as oil
- ARPR (31/12/2009) variable OPEX for Gbaran GP used for evaluation
- NDDC Levy of 3%
- Education Tax of 2% assessable profit
- GHV of 1150Btu/Scf was used for NLNG
- 10% of total project RT CAPEX assumed as abandonment cost

Section 3: Risks, opportunities and alternatives

3.1 Risks and Mitigation Plans

Risk	***Planned Mitigation***
Funding constraints	Pre-FID funding requirements will be met through the usual JV funding arrangements. However, there is currently no agreed funding mechanism for the post FID phase. IOC partners are currently exploring alternative funding mechanisms, which may be based upon NLNG financing via pre-payment for gas sales. Progress on this must be made during 2010 to support the tendering of major contracts.
Continued insecurity in the Niger Delta region	Mitigation for this risk is handled at a corporate and Nigerian National level and, if situation persists could negatively impact the project schedule and first Gas Date. However, prior the mobilization for drilling and construction works, a detailed security plan will be worked in conjunction with the Area Security Advisor – Major Projects and approved by the Head Security Operations, East.
Community Issues	For the Gbaran Ubie Project (including EGGS-2), a program of sustainable community development activities has been agreed and documented in the Global Memoranda of Understanding (G-MOU) and Project Labor Agreements (PLA) signed by all relevant parties. For the Gbaran and Koroama fields, where there are existing G-MOU, community interfaces will be managed in a consistent manner with the Gbaran Ubie Phase 1 and EGGS-2 projects while a new G-MOU is agreed for the Epu field.
Reductions in Epu volumes	Currently sub surface teams are revising Epu field volumes. There is a possibility that the promised 317 Bscf of NAG recovery will be reduced. Mitigation for this risk has been taken into account by including a low reserves case sensitivity in the economics. Furthermore, the requested pre-FID budget is only for Surveys/Land acquisition, ESHIA and project management for the two locations required in the Epu field. One location is needed definitely for the appraisal well while the other location is needed for two explorations wells into the Epu Deep reservoirs (one Epu development well shares the location with two exploration wells).
Cost escalation	Bid price escalation is now frequent in drilling and facilities tenders due to global market demand and a perceived increase in country risk due to the Niger Delta security situation. The cost estimates have been benchmarked following lessons learnt from Gbaran Ubie Phase 1/EGGS-2 project (such as removing pipeline/facilities contractual interfaces and incentive schemes). However, 15% CAPEX overrun sensitivity has been included in the economics summary table.
Contracting tender approvals from NAPIMS	Prequalification evaluation for the advertised scope of work was put on hold by NAPIMS due to NAPIMS request for 3rd party reserves certification. The reserves certification has been completed and reviewed with JVPs and the prequalification exercise is ongoing. The project schedule is premised on issuing the construction contract technical tenders in January 2011, giving enough time for progression of the detail designs and resolution of the bidder's list approval from NAPIMS.

Tax proposals in the Petroleum Industry Bill	The PIB is being read in the National Assembly. The current interpretation is that if enacted as drafted, it would have a major negative impact on the upstream project's economics and threaten continued investment in the gas supply projects required to sustain midstream revenues. A specific guarantee was obtained from NNPC that the existing gas fiscal terms will continue for NLNG Trains 1-6 supply projects. However, confidence is not high that existing tax agreements and assurances from the Government can be relied on to protect against the effects of policy changes. The PIB sensitivity included in the economics summary table assume this guarantee will not protect the project. PIB fiscal changes are not expected to apply to NLNG's own business, although there is clearly a risk of further fiscal assault.

3.2 Opportunities

Drilling of the Phase2 Gbaran VZTX-2 well immediately after the Gbaran VZTX-1 well (initial Phase 1 well) and the five Phase2 Koroama TBUV 1-5 wells immediately after the three Phase 1 Koroama TBUR 1-3 wells at Koroama NAG Manifold would minimize drilling movement, costs and time.

3.3 Alternatives

SPDC has committed to supply NLNG (Trains 1 to 6) for a 20-year period and gas supplies to the Gbaran CPF, which is expected to deliver about half of the required volumes, will decline from 2013. The alternative to developing the Gbaran Node Further Development is to develop the Gbaran Deep reservoirs, however these projects are still in the exploration stage. Efforts are made to align these Gbaran Deep exploration wells with the Gbaran Ubie project to save costs and to be able to hook these exploration wells up if prospects are promising.

Section 4: Carbon Management

Gbaran Ubie facilities have been designed not to routinely flare or vent associated gas for disposal. All AG will be compressed, treated and exported; significantly reducing the carbon emissions from the facility to less than 0.2 MTPA average, for both routine and intermittent emissions. The main source of routine carbon emission will not be flared gas but lower quantity emissions of less than 0.1 MTPA. This will largely be from combustion products from the turbines driving the power generation and AG compression systems. The other source is the flared products of hydrocarbon effluents from the TEG reboilers, and the condensate storage tank vent. Current availability studies indicate there could be an estimated carbon emission of up to 0.1 MTPA from intermittent flaring of AG due to unavailability of the AG compression system. The government currently allows production and flaring up to a max of four days on each AG compressor failure event. All the gas turbine drivers are specified as dry low NO_x and the fuel gas supply is sulphur free, hence the Gbaran Ubie facilities will meet the associated World Bank standards in addition to the significant reduction in gas flaring.

Section 5: Corporate Structure, and Governance

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

Section 6: 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 7: 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 (VAR 3 in December 2006). DG3 was held on the 3rd July 2007 and management of project is fully handed over to SPDC Major Projects. The Gbaran Ubie project team is executing the project in order to capture lessons-learnt from earlier development. There is an identified Decision Executive, Business Opportunity Manager, Project Manager and Operations Manager. The existing Gbaran Ubie Phase 1 Project Delivery Advisory Board (PDAB) will control any major change proposals and will monitor value delivery based on regular (PERT) reviews. Projects & Technology oversight will be exercised through membership of the Project Delivery Advisory Board.

Section 8: Budget Provision

The budget for the 2010 pre-FID works has been approved at DEVCOM and is in the SPDC JV Base budget for 2010.

Section 9: Group Financial Reporting Impact

The Financial impact of this activity on Shell Group Financials is as indicated in the Table 4 below:

Table 4: Cash flow/financing impact table/forecast

US$ mln	2010	2011	2012	2013	2014	Post 2014
Total Commitment	1.20	9.97	0.00	0.00	0.00	0.00
Cash Flow						
Pre-FID Expenditure	1.20	9.97	0.00	0.00	0.00	0.00
Capital Expenditure	0.00	0.00	0.00	0.00	0.00	0.00
Operating Expenditure	0.04	0.30	0.00	0.00	0.00	0.00
Cash Flow from Operations	(0.35)	(2.76)	1.43	0.00	0.00	0.00
Cash Surplus/(Deficit)	(0.35)	(2.76)	1.43	0.00	0.00	0.00
Profit and Loss						
NIBIAT +/-	(0.18)	(1.51)	0.00	0.00	0.00	0.00
Balance Sheet						
Average Capital Employed	0.09	0.80	0.71	0.00	0.00	0.00

Section 10: Disclosure

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

Section 11: Financing

The pre-FID portion of this investment will be financed with JV funding and Shell Share capital expenditure will be met by SPDC's own cash flow. However, there is currently no agreed funding mechanism for the post FID phase. Discussions are ongoing with JV Partners to explore alternative funding mechanisms, which may be based upon NLNG financing via pre-payment for gas sales. It is expected that this agreement will be concluded before the project takes FID.

Section 12: Taxation

The main tax risk related to this proposal is the enactment of the Petroleum Industry Bill (PIB), included

as sensitivity in Table 3. PIB version 4.2 has been used as sensitivity to reflect the uncertainty surrounding the applicable fiscal regime. Recent interpretations from government and the industry show that the project economics would be reduced to an NPV of $-35.6mln following enactment of the PIB.

Section 13: Key Parameters

Approval is sought for additional US$11.2 mln (Shell Share, for wells locations preparation; flowlines and facilities detailed designs and purchase requisitions) bringing the aggregate Pre-FID expenditure on the Gbaran Node Further Development to US$16.6 mln (Shell Share).

Section 14: Signatures

This Proposal is submitted to VP Technical, UIG for approval.

Supported by:	For Business approval:
.....	.....
Bernard Bos	*Bart Lismont*
(VP Finance, FUI/F)	*(VP Technical, UIG/T)*
Date:..../..../....	Date:..../..../....

Initiator: Joseph Ike, UIG/T/PNP

Appendix 1: Details and Cost Estimate (MOD 100% JV) for the Full Scopes of the Gbaran Node Further Development

The following fields are proposed to sustain gas supplies to the Gbaran CPF post the Phase 1 Project:

a. Gbaran VZTX-2 NAG Well: The Gbaran VZTX-2 NAG well will develop 121 Bscf of NAG from the C5.2 and C4.2 reservoirs and will be connected directly to the CPF via a 10 inch, 6 km carbon steel flowline with corrosion inhibition.
b. New Appraisal Well Koroama SPUU-1 as Requested by DPR: DPR has requested that an additional appraisal well should be drilled to appraise the western flank of the Koroama field prior to approving the Koroama FDP. The current objective for this well is to provide additional subsurface data and thus only location preparation and drilling will be executed.
c. Koroama-002 NAG Well: The Koroama-002 NAG well was drilled as an appraisal well in 2005. It is planned to complete and hook-up this well to develop 87 Bscf of NAG. The Koroama-002 well will be connected directly to the CPF via a 10 inch, 5.5 km carbon steel flowline with corrosion inhibition.
d. Koroama TBUV 1-5 NAG Wells: The TBUV 1-5 wells will develop 672 Bscf of NAG and will be tied in to an extension of the Phase 1 Koroama NAG Manifold. An extra 5.6 km, 24 inch carbon steel bulkline (with inhibition) will be installed to connect the Koroama NAG Manifold extension to the Gbaran CPF.
e. Epu TKVH-1 and TXVE 2-3 NAG Wells: It is planned to drill and complete Epu remote TKVH-1 and TXVE-2 NAG wells in a cluster and hook-up to the Epu manifold together the Epu TXVE-3 NAG well located adjacent to the manifold. A 16 inch, carbon steel (with corrosion inhibition), 5.2 km long bulkline will connect the Epu NAG Manifold to the Koroama Manifold for production to the Gbaran CPF. The 3 Epu wells will develop 317 Bscf of NAG to the Gbaran CPF.
f. Gbaran VZTX-1 Oil Well: The well will be hooked-up to the Gbaran Oil Manifold via a 4.5 km, 6 inch carbon steel pipeline from where the oil will be transported to the CPF via existing 4.9 km, 10 inch XXHP and XHP carbons steel bulklines and a 6 inch testline. The Gbaran VZTX-1 oil well will develop 4.5 MMSTB of oil and 12.4 Bscf of associated gas.

50/50 MOD Cost Estimate (US$ mln)							
Description	**Gbaran VZTX-1 Oil Well**	**Gbaran VZTX-2 NAG Well**	**Koroama SPUU-1 Appr. well**	**Koroama-002 NAG well**	**Koroama TBUV 1-5 NAG wells**	**Epu TKVH-1 and TXVE 2-3 NAG wells**	**Total**
Location Preparation	4.4	8.1	15.2	8.0	13.2	65.3	114.2
Drilling and Completion	24.4	44.2	26.1	10.8	156.2	120.5	382.1
Pipeline and Hook-up	5.0	19.2	3.5	19.3	5.0	15.1	67.0
NAG/Oil Facilities	0.0	41.7	0.0	31.4	110.7	83.1	267.0
SILS	0.0	4.2	0.0	3.1	8.7	8.8	24.8
ESHIA	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Project Management	0.0	5.2	0.0	3.4	17.0	11.4	37.0
Total CAPEX (100% JV)	**33.8**	**122.6**	**44.7**	**76.0**	**311.0**	**304.2**	**892.4**
FEED	0.0	0.2	0.0	0.1	0.5	0.4	1.2
SCD	0.8	3.1	1.1	1.9	7.8	7.6	22.4
Total OPEX (100% JV)	**0.8**	**3.3**	**1.1**	**2.0**	**8.3**	**8.0**	**23.6**
Total (100% JV)	**34.7**	**125.9**	**45.9**	**78.0**	**319.4**	**312.2**	**916.0**
Total (Shell Share)	**10.4**	**37.8**	**13.8**	**23.4**	**95.8**	**93.7**	**274.8**