

## 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	Nigerian National Petroleum Corporation (NNPC: 55%), Total E&P Nigeria Ltd (10%), and Nigerian Agip Oil Company (NAOC: 5%)						
Business or Function	Upstream International (UI)						
Amount	US\$492mln Shell share, MOD, 50/50 is requested for approval in this proposal of the 100% JV estimate of US\$780mln. US\$80mln 100% JV has been approved in the Pre-FID proposal. This proposal includes Shell equity share (30%) of US\$234mln and Shell's MCA commitment to NNPC of US\$258mln						
Project	Trans Niger Pipeline (TNP) Loopline Project						
Main commitments		100% JV			Shell Share (This Proposal)		
	Description	Pre-FID Proposal (\$mln)	Incremental IP (\$mln)	Total JV (\$mln)	Incremental IP (\$mln 30%)	NNPC MCA Carry (\$mln 36.67%)	Total Shell Share (\$mln Equity + MCA Carry)
	Pipelines CAPEX	77	703	780	211	258	469
	Owners Cost (Exclusive of SCD cost)	3	60	63	18		18
	Total CAPEX	80	763	843	229	258	487
	SCD OPEX	-	17	17	5		5
	Total 50/50 MOD	80	780	860	234	258	492
	Source and form of financing	This investment will be financed with Alternative Funding (AF) and Shell share capital expenditure will be met by SPDC's own cash flow and / or the existing shareholder facility. Formal JV partners' approval will therefore be obtained.					
Summary cash flow	Cost only Project. Cash Flow chart not applicable.						
Summary economics	Summary economics (RV-RT12)	NPV7 (USD mln)		RTEP (%)		VIR7	
	Base	-103.5		NA		-0.25	
	High CAPEX	-124.5		NA		-0.25	
	Value at Risk	3,915.7		>50%		NA	

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

This Group Investment Proposal seeks approval for funding of \$234mln Shell equity share (\$780 mln, MOD, 50/50 100% JV) plus additional MCA commitment of \$258mln bringing total Shell Share to \$492mln for the execution of Trans Niger Pipeline Loopline Project.

Trans Niger Pipeline Loopline project will ensure SPDC continuous freedom and license to operate and supports the evacuation of about 110kbl per day (oil and condensate Business Plan 2011) of Land East area, and 204kboe per day of gas from Gbaran, Agbada (under construction), Okoloma and Alakiri gas plants including third party production to Bonny terminal. This new line passes through an alternative route from the existing Trans Niger Pipeline thus providing opportunity for the remediation of existing TNP right of way which has been devastated by crude oil bunkerers and vandals. The evacuation of condensate from Gbaran Ubie and the other gas plants ensures gas supply to NLNG and support Afam Power plant (650MW) that remains a major agenda of the Federal Government.

The need to loop the Trans Niger Pipeline was identified early 2007. The project Contract Strategy was approved by the SPDC Major Tender Board and the Group Project Contract Board respectively. A VAR4 and Estimate & Schedule Assurance Review (ESAR) was held from 30th of May to 3rd of June 2011.

## Project Scope

To mitigate the risk of schedule elongation, the project shall be let in three Engineering, Procurement and Construction (EPC packages) to three different Contractors thus:



**Package1:** This shall cover the first 30" x 12.5km Oghale to Tie-in Point 1 (Eleme/Ogu Bolo) all land terrain.

**Package2:** This shall cover the second 30" x 25.5km Tie-in Point 1 (Eleme/Ogu Bolo) to Cawthorne Channel Junction Manifold and the 8" x 2.4km Alakiri-Ojikiri spurline all swamp terrain.

**Package3:** This shall cover the third 30" leg and the 24" loop leg from Cawthorne Channel Junction Manifold to Bonny Oil & Gas Terminal all swamp terrain.

An earlier Pre-FID cost of US\$80mln (100% JV) was approved to cover the following scope:

- Front End Engineering Design (FEED) - *Completed*
- Survey – *ongoing and to be completed by Q3/12*
- Land Acquisition – *in progress, to be completed by Q3/12*
- Environmental, Social, Health Impact Assessment (ESHIA) – *Awaiting Regulators' approval*
- Project Management Cost - *ongoing*
- Procurement of Long Lead Items (LLIs) – *50% of linepipes ordered overseas have been delivered and coating commenced. The second half ordered in country is expected by end 2012.*

## Target

Contingent upon GIP approval and Funding in place by July 2012, On Stream Date aspiration by Project team P10, P50 (Promise) and P90 are June 2015, October 2015 and March 2016 respectively.

## Funding

The estimated total cost for the TNPL project is \$860mln (MOD, 100%) comprising \$80mln (MOD, 100%) Pre-FID approval and \$780mln (MOD, 100%) current proposal, comprising of a total CAPEX cost of \$703mln (MOD, 100%), Owners Cost (exclusive of SCD OPEX) of \$60mln (MOD, 100%) plus SCD OPEX cost of \$17mln (MOD, 100%). Apart from Shell equity share funded by company cash-flow, NNPC share of funding will be via a Modified Carry Arrangement whilst Total & ENI will provide own funding. The project cost has been agreed with NAPIMS whilst final sign-off by NNPC is expected as a condition precedent to execution of this GIP.

As part of MCA bundles, TNPL is bundled with Soku Pipelines, Awoba FOD and Nembe Creek Phase 2 projects.

The total project expenditure and phasing is shown below. These figures have incorporated all recommended action from the final outcome of VAR4 and ESAR4 concluded in June 2011.

**Table 1: Expenditure Phasing (100% JV, US\$ mln MOD 50/50)**

	Cost Phasing (FUS\$mln)						Total
	Pre-FID	2012	2013	2014	2015	2016	
CAPEX	77	42	236	271	107	47	780
PMT	3	9	18	21	8	4	63
SCD - Opex		0	6	7	3	1	17
Shell Share Equity (30%)	23	12	71	81	32	14	234
MCA Carry (36.67%)		15	87	99	39	17	258
Total Share	23	28	157	180	72	31	492
Total 100% JV	80	51	260	298	118	52	860
Percentage	9%	6%	30%	35%	14%	6%	100%

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

SPDC declared an emergency action on TNPL and was duly supported by NAPIMS and other JV partners due to

- The level of environmental degradation resulting from oil theft and vandalism on the existing 'TNP 24" and 28" pipelines
- Routine maintenance has not been allowed in the past nineteen years due to socio-political crises on the sections of existing TNP that goes via Bomu axis (within Ogoni land).

Indeed, aside potential HSE and social risks, a failure of the existing line will result in deferred oil volumes, condensate and gas production and loss of revenue over a three to four year re-construction period should this loopline not be constructed. The value at risk from greater Port Harcourt oil production and gas production from Gbaran and Okoloma translates into NPV7% of US\$3,915.7 mln (Shell Share).

**Summary Economics**

The TNP Project was evaluated on a forward looking basis using the 50/50 LE cost estimates.

It is expected that the funding of NNPC share will be done via a Modified Carry Agreement (MCA); consequently the economics evaluation has been based on the 2008 MCA model. The same MCA structure is expected to be used for the bundle including Awoba FOD and Nembe Phase2 which are revenue-generating projects currently in the maturation funnel. However, this is contingent on these projects taking Final Investment Decision (FID). Thus, the base case evaluation assumes no revenue available within the MCA, which will therefore only provide for tax relief of the carried Capex, but no compensation in terms of Carry Oil and Share Oil, and the consolidated value of the MCA bundle (TNP, Soku Pipelines, Awoba FOD and Nembe Creek Phase 2) was only evaluated as sensitivity.

The following sensitivities were evaluated: High and Low CAPEX, 1 Year cost delay, Life cycle economics and 1.5% mark up due to BVA (Bench marked verified and approved) issues due to NNPC cost disputes.

The protected value of the NFA and new oil production from the facilities that feed into the TNP based on BP11 forecast was also evaluated. This is evaluated and presented as the value (excluding midstream) at risk in the grid. This is the worst case assumption that, the existing pipeline fails without an alternative evacuation route provided for current throughput.

**Table 2: Trans Niger Pipeline (TNP) Economics Grid (Shell Share)**

PV Reference Date: 1/7/2012	NPV (\$/S \$ mln)		VIR	RTEP	VTE	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</b>									
RV (\$70/bbl RT12)*	-73.5	-103.5	-0.25	NA	NA	NA	NA		57.0 (2013)
<b>Sensitivities (using RV-RT12)</b>									
High CAPEX (P90)		-124.5	-0.25						66.4 (2013)
Low CAPEX (P10)		-86.7	-0.25						49.4 (2013)
1 Year Cost delay		-100.3	-0.27						57.0 (2014)
Life Cycle Economics		-107.2	-0.24						
1.5% cost markup due to BVA issues		-113.5	-0.27						
MCA bundle**		102.9	0.11						
Value at Risk***		3,915.7	0.00						

\* Same result applies to SV-RT and HV-RT since there is no revenue stream.

\*\*MCA bundle-consolidated value of TNP, Soku Pipelines, Awoba FOD and Nembe creek Phase 2 under MCA assuming the other projects take FID.

\*\*\* Value of production from facilities that feed into TNP based on BP11 forecast which is at risk if the existing pipelines fails without an alternative evacuation route provided.

**Key Project Parameters Data Ranges (Shell Share)**

Parameter	Unit	BP11 Provision	Low	Mid	High	Comments
Capex (MOD)	US\$ mln	469.0	393.0	469.0	562.3	Based on LE cost estimates
Opex (MOD)_Project	US\$ mln	24.0	20.0	24.0	27.0	Owners cost & SCD Opex
Production Volume	mln boe	NA	NA	NA	NA	Cost only evaluation
Start Up Date	mm/yy	Oct-15	Jun-15	Oct-15	Mar-16	
Production in first 12 months	mln boe		NA	NA	NA	

### Section 3: Risks, opportunities and alternatives

The key risks identified in the project are as follows:

#### Threats

##### Road/Marine Transport Incidents (E, O)

The project involves considerable movement of personnel and materials (linepipes, equipment, etc). The linepipes from SCC Abuja would be moved via road to the coating plants and to site mainly by marine transport. **Mitigation:** Logistics Infrastructure and Risk Assessment was conducted for land and marine routes and a comprehensive Logistics Execution Plan has been developed for the project. A Logistics workshop facilitated by corporate team will be held to assess Contractor's plans for movement of materials and personnel.

##### Water Pollution and Turbidity (P, E)

TNPL project shall cross 19 creeks/rivers along its Right of Way including heavy marine movements of barges and boats. **Mitigation:** The project has actively pursued the use of Horizontal Directional Drilling (HDD) in lieu of traditional dredging methods for river crossing. This would significantly reduce the environmental impact of the pipeline laying activities on the fauna and flora. Effluent discharge from houseboats shall be strictly monitored in accordance with the Project EMP. In general, during detail design, the Contractor will be required to demonstrate how risks would be managed through a Construction HSE Case.

##### Linepipe production by SCC Linepipe manufacturing mill Abuja (T, P)

SCC mill located in Abuja, Nigeria manufactures Helical SAW pipes which are not commonly used in the industry for oil and gas transport. Nigerian Content Act requires all linepipes to be procured in-country, thus the plant is currently overloaded with demands from other IOCs putting pressure on their capacity to meet our tight schedule. **Mitigation:** Active engagement of NCDMB, NAPIMS and the Ministry of Petroleum yielded a waiver to procure 50% of Linepipe demand out-country. Robust review of SCC Manufacturing Procedure Specification and Inspection test Plan by SMEs with support from SGSi carried-out and additional resourcing agreed to meet milling schedule for the in-country pipes.

##### Security & Social Risks (P, E)

The project is located in the swamp of the Nigeria Delta; community interfaces, HSE and security issues are particularly significant in these areas, highlighted by cases of hostage taking, and armed attacks and sabotage of, especially, pipeline systems. There is also a risk of community agitations outside agreed GMOU terms that could lead to delay and cost growth. **Mitigation:** Proactive engagement of communities that transverse the pipeline Right of Way has been adopted. Community interfaces will be managed through the Global Memorandum of Understanding (GMOU). All work will be done according to the approved security plan under the oversight of the Corporate Security team.

##### Delayed NNPC Award Approvals for EPC Contracts (C, E, P)

Three contracts are proposed to be awarded in July 2012 (one for each package), but approval of award recommendation by NNPC Board can take up to 6 to 12 months period. **Mitigation:** SPDC is actively engaging NAPIMS to ensure alignment of views such that award is based on commercial and technical considerations in the overall interest of the JV. Upon agreement of MCA with JV partners, it is intended to progress with interim award of contract ahead of NNPC Board approval, provided Total and ENI commit to honouring their bills.

##### Crude Theft and Vandalism (P, T)

Incessant vandalism and bunkering of pipelines in the Niger Delta remains a challenge. **Mitigation:** The pipelines will be buried to 4.5m depth (against conventional 1.2m depth) and partially covered 1m above the pipes in all swamp terrains, with 3m water column above for boats patrol & surveillance and installation of protective reinforced concrete slabs on land. Other protective measures include installation of intruder detection and leak detection system along the entire pipeline length and installation of Security Outpost along RoW for prompt response to intrusion alarm.

##### Inexperienced Contractor winning the bid (T, C)

Based on bids received, at least one of the 3 EPC packages (and possibly all 3) could be awarded to local contractors with limited or no experience with SPDC, albeit technically qualified and worked with other IOCs. This will be a

major risk element to manage **Mitigation:** The project team has developed a strategy to provide additional resources for Project Management support during execution for Contractor with residual gaps. Cost for this back-up measure is included in project contingency.

### Funding (C, E)

The base proposal is to fund the project by Alternative Funding (AF). The cost estimates are now agreed with JV partners following opening of the commercial bids for the EPC Contract. However, formal approval by NNPC AF committee is yet to be received. **Mitigation:** SPDC will continue to engage NAPIMS for speedy approval now that costs are agreed.

### Ogoni Issue (P)

Although the TNPL pipeline does not traverse the Ogoni communities, there are misconceptions that the Ogale community is under the Ogoni principalities. This has been severally refuted by the entire Eleme Kingdom (to which Ogale belongs) and Government representatives. It is clear though that any perceived E&P activities in Ogoni by SPDC will result in a negative media backlash for SPDC. **Mitigation:** Engagements with Rivers State Government and community leadership have confirmed that the project route does not traverse Ogoni land. However the project team is closely monitoring activities of all organized groups that may impact the project. Active sensitization and visits to community leaders in the areas along with the support of the State Government is being maintained.

### Cost Recovery (E)

Within same MCA bundle with TNPL, Nembe Creek Phase 2 and Awoba FOD are the revenue generators. Should these other projects not be sanctioned timely or come on stream as planned, it will weaken the capacity for cost recovery. **Mitigation:** Awoba FOD and Nembe Creek Phase2 have been reviewed by the NAPIMS MCA Committee and just awaiting final cost numbers from the NAPIMS JV Operations team. Both projects are mature enough to support TNP and the Soku pipelines with minimal risk of recovering the funds used for these projects. However, these portfolios of projects are being managed within same directorate and therefore receiving similar attentions.

### Opportunities

#### Improve Competition & NCD Compliance By Using New Local Contractors (C, P)

TNPL has provided opportunity for a number of new entrants (local EPC contractors) to SPDC pool of contractors, albeit may require additional level of intervention. Strategy and cost provisions for these additional requirements have been made.

#### Crossing of Major River with HDD Technology (T)

Traditional methods of crossing rivers have serious impact on marine traffic, economic activities (fishing is a major stay of the locals), and increases turbidity of the waters (which is drunk by the communities). **Enhancement:** SPDC is continuing to support all initiatives towards stretching the frontiers of HDD particularly for the 3.6km lower Bonny River crossing. Provision has been made in the contract for third party certification of the design and installation of the lower and upper Bonny River crossing by Lloyds, DNV or Bureau Veritas which would also provide an opportunity for knowledge transfer particularly for the local contractors.

### Alternatives

1. Continue to produce through the existing TNP: **Rejected:** The existing line is already beyond its design life and has been severally impacted by vandals and oil thieves.
2. Replace the TNP along same Right of Way: **Rejected:** This is not recommended as the new line will be faced with same exposure to oil thieves. It will also not support SPDC's plan to remediate the existing TNP RoW following UNEP report of Ogoni spill.
3. Lay the TNP Loopline through Bonny River to reduce exposure to vandals and oil thieves: **Rejected:** Requires additional pipelines from Alakiri and Cawthorne Channel through the swamps, greatly diminishing the net positive effect of a river route on environmental footprint and sabotage/illegal bunkering. The possibility for future tie-ins as well as operational flexibility will be lost. SCAN report shows that there are no further benefits in the river lay route.

**Section 4: Carbon management**

The project does not directly support carbon management. No equipment installed in the project is expected to contribute to CO<sub>2</sub> emission. However, as a key enabler for the Gbaran Ubie and Okoloma Gas plants which currently recover associated gas that would otherwise have to be flared.

**Section 5: Corporate structure, and governance**

This project fits within the existing SPDC corporate structure and governance. Consequently, it will comply and respect all relevant and existing governance.

**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, Sustainable Development, Supply Chain Management, HSE, Operations, Legal, Treasury and Tax functions.

**Section 7: Project management, monitoring and review**

This is a “P&T executed” project delivered by the UIG/T/PP Major Projects team. The ORP compliant governance structure is in place, including a project specific DRB, DE and BOM. A Project Control and Assurance Plan (PCAP) has been approved to define the applicable controls for the EXECUTE phase. The Fact Sheet supporting the project’s latest cost and schedule view has been reviewed and endorsed by PTE/S.

**Section 8: Budget provision**

It is proposed that at FID, the project budget requirement will be from the alternative funding tranche. In line with current AF agreements, it is expected that project FID OPEX and Project Management cost will continue to be funded via regular JV budgetary process.

**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	Prior Years	2012	2013	2014	2015	2016	Post 2016
<b>Total Commitment</b>	+1	+31	+165	+188	+74	+32	+0
SCD OPEX	+0	+1	+2	+2	+1	+0	+0
Pre-FID	+1	+0	+0	+0	+0	+0	+0
<b>Cash Flow</b>							
Capital expenditure	+0	+30	+163	+186	+74	+32	+0
Cash Flow from Operations	-0	+5	+33	+66	+80	+83	+161
Cash Surplus/(Deficit)*	-0	-25	-130	-120	+6	+51	+161
<b>Profit and Loss</b>							
NIBIAT +/-	-0	+1	+7	+10	+6	+4	-82
<b>Balance Sheet</b>							
Average Capital Employed	+0	+13	+95	+229	+294	+270	+49

**Section 10: Disclosure**

Material disclosure, 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 has been financed with JV funding. It is expected that financing for the main project scopes shall be through the MCA funding mechanism. Formal sign-off is being finalized with JV partners. However, it is planned to make commitments upon NAPIMS approval of MCA figures.

**Section 12: Taxation**

There are no unusual Taxation features.

**Section 13: Key Parameters**

Approval for the total headline size of \$492mln Shell Share (\$780mln 100%JV) 50/50 MOD for the execution of Trans Niger Pipeline Loopline Project. This value is made up of \$234mln Shell equity and \$258mln MCA carry commitment.

**Section 14: Signatures**

This Proposal is for approval.

**Supported by:**

**For Business Support:**

.....

*Bichsel, Matthias F* RDS-ECMBI

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

.....

*Brown, Andrew* RDS-ECAB

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

**Supported by:**

**For Business Approval:**

. ....

*(Henry, Simon P* RDS-ECSH)

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

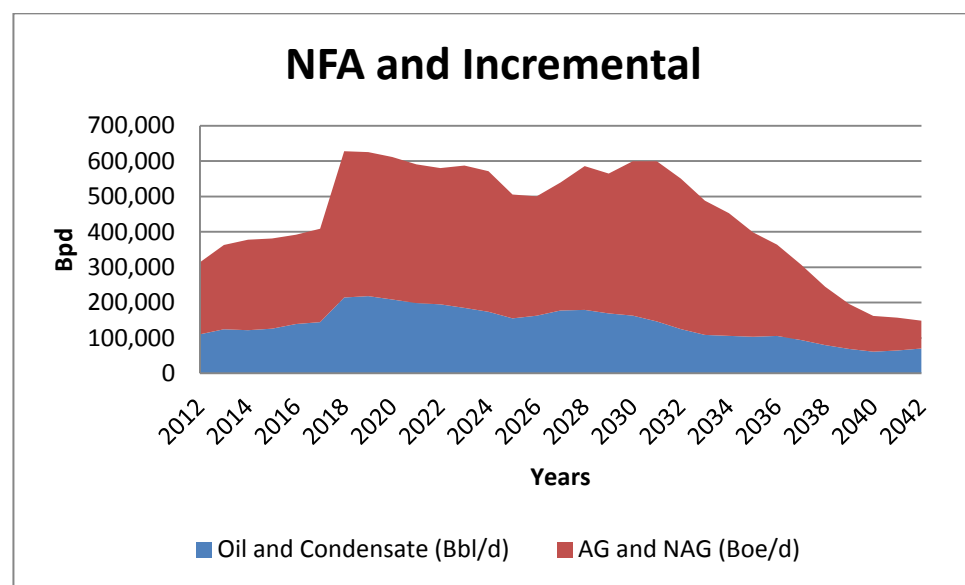
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*(Voser, Peter* RDS-CEPV)

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

**APPENDIX 1****List of Flowstations in BP11 that feed into the TNP (Potentially at Risk if TNP fails completely)**

Flowstation	
1	ADIBAWA1_FS
2	AGBADA 1&2_FS
3	AHIA1_FS
4	ALAKIRI_FS, GP
5	DIEBU_CREEK1_FS
6	EGBEMA_FS, WEST1_FS, GP
7	IMO_RIVER_FS (1,2&3)
8	ISIMIRI1_FS
9	KOLO_CREEK1_FS
10	NKALI1_FS
11	NUN_RIVER_CPF, FS
12	OBELE1_FS
13	OBIGBO _NORTH_FS, GP
14	OGUTA1_FS
15	OKOLOMA_FS, GP
16	ASSA_NORTH_DG, FS, GP
17	GBARAN_DG, FS, GP
18	RUMUEKPE1_FS
19	UBIE1_FS
20	UMUECHEM1_FS
21	PLANNED_OHUR1_FS

**APPENDIX 2****Production Profile**



### **APPENDIX 3**

#### **Economics Assumptions**

- Oil and Condensate prices SV-RT \$50/bbl, RV-RT at \$70/bbl and HV-RT \$90/bbl with applicable offset.
- Domestic Gas NGMP profile and NLNG contracted price RT12.
- Gas taxed under CITA with Associated Gas Framework Agreement (AGFA) incentive.
- Condensate treated as oil and taxed under PPT (PPT tax rate of 85%).
- SCD Cost was provided by project team.
- ARPR 31/12/2011 variable OPEX for Awoba FOD and Nembe Phase 2 was used.
- SPDC Generic Opex was used for new facilities and Value at risk.
  - Oil fixed OPEX - 3% of cum. oil CAPEX,
  - Gas fixed OPEX – 3.5% of cum. gas CAPEX
- Education Tax of 2% assessable profit
- NDDC levy of 3% total expenditure
- GHV of 1000btu/scf for Dom and 1150btu/scf for Export gas
- Flare Penalty of \$3.5/Mscf was applied and is not tax deductible
- 10% of RT CAPEX assumed as abandonment cost.
- Facility life span of 30 Years.

#### **MCA Assumptions**

- Profit ceiling of 8% IRR on carried costs
- Current agreement for recovery of carry costs is maintained
- OPEX and PMT not carried under current MCA arrangement.
- All costs on the MCA would be recovered through cost oil.