

Document of
The World Bank
FOR OFFICIAL USE ONLY

Report No: 135192-CI

IMPLEMENTATION COMPLETION AND RESULTS REPORT

ON A

PARTIAL RISK GUARANTEE

IN THE AGGREGATE AMOUNT OF US\$60 MILLION

IN SUPPORT OF

THE GAS SUPPLY AND PURCHASE AGREEMENT BETWEEN THE BLOCK CI-27 JOINT VENTURE
PARTNERS

AND

THE REPUBLIC OF CÔTE D'IVOIRE

FOR THE

BLOCK CI-27 GAS FIELD EXPANSION PROJECT

March 30, 2020

Energy Global Practice
Africa Region

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

CURRENCY EQUIVALENTS
(Exchange Rate Effective January 13, 2019)

Currency Unit = CFA. Franc (CFAF)

US\$1.00 = CFAF 569

FISCAL YEAR
January 1–December 31

ANARE-CI	<i>Agence Nationale de Régulation de l'Electricité de Côte d'Ivoire</i> (Cote d'Ivoire National Regulatory Agency)
BBL	Barrels oil
BCEAO	<i>Banque Centrale des États de l'Afrique de l'Ouest</i> (Central Bank of West African States)
CIE	<i>Compagnie Ivoirienne de l'Electricité</i> (Ivorian Electricity Company)
CI-ENERGIES	<i>Côte d'Ivoire ENERGIES</i> (Energy of Cote d'Ivoire)
CIPREL	<i>Compagnie Ivoirienne de Production d'Electricité</i> (Ivorian Electricity Generation Company)
CPF	Country Partnership Framework
EHS	Environment, Health, and Safety
EHSG	Environmental, Health, and Safety Guidelines
ENERCI	<i>Société Energie de Côte d'Ivoire</i> (Cote d'Ivoire Energy Company)
EPC	Engineering, Procurement, and Construction
FCV	Fragility, Conflict, and Violence
FEED	Front-End Engineering Design
FOXTROT	FOXTROT International LDC
GDP	Gross Domestic Product
GoCI	Government of Côte d'Ivoire
GSPA	Gas Supply and Purchase Agreement
HFO	Heavy Fuel Oil
HLV	Heavy Lift Vessel
ICR	Implementation Completion and Results Report
IPF	Investment Project Financing
IPP	Independent Power Producer
IRR	Internal Rate of Return
ISR	Implementation Status and Results Report
JV	Joint Venture
L/C	Letter of Credit
M&E	Monitoring and Evaluation
MIGA	Multilateral Investment Guarantee Agency
MMBTU	Million British Thermal Units
MMSCF	Million standard cubic feet
NPV	Net Present Value

PAD	Project Appraisal Document
PETROCI	<i>Société Nationale d'Opérations Pétrolière de la Côte d'Ivoire</i> (Cote d'Ivoire National Petroleum Company)
PDO	Project Development Objective
PS	Performance Standard
PSC	Production Sharing Contract

Regional Vice President: Hafez Ghanem
Country Director: Coralie Gevers
Senior Global Practice Director: Ricardo Puliti
Practice Manager: Charles Cormier
Guarantees Practice Manager: Sebnem Erol Madan
Task Team Leaders: Thierno Bah and Patrice Claude Charles Caporossi
ICR Main Contributor: Zhengjia Meng and Ananda Covindassamy

TABLE OF CONTENTS

DATA SHEET	1
I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES.....	4
A. CONTEXT AT APPRAISAL	4
B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)	10
II. OUTCOME	11
A. RELEVANCE OF PDOs	11
B. ACHIEVEMENT OF PDOs (EFFICACY)	12
C. EFFICIENCY	14
D. JUSTIFICATION OF OVERALL OUTCOME RATING	16
E. OTHER OUTCOMES AND IMPACTS (IF ANY).....	17
III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME.....	18
A. KEY FACTORS DURING PREPARATION	18
B. KEY FACTORS DURING IMPLEMENTATION	19
IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME ..	20
A. QUALITY OF MONITORING AND EVALUATION (M&E)	20
B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE	22
C. BANK PERFORMANCE	23
D. RISK TO DEVELOPMENT OUTCOME	24
V. LESSONS AND RECOMMENDATIONS	26
ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS.....	29
ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION.....	31
ANNEX 3. PROJECT COST BY COMPONENT	33
ANNEX 4. EFFICIENCY ANALYSIS.....	34
ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS ...	36



DATA SHEET

BASIC INFORMATION

Product Information

Project ID: P144030	Project Name Côte d'Ivoire Block CI-27 Gas Field Expansion Project
Country Côte d'Ivoire	Financing Instrument Partial Risk Guarantee
Original EA Category A	Revised EA Category N/A

Organizations

Borrower Government of Côte d'Ivoire	Implementing Agency CI-ENERGIES
---	------------------------------------

Project Development Objective (PDO)

Original PDO

The Project's Development Objective (PDO) is to maintain the availability of clean natural gas for lower-cost power generation.



FINANCING

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
World Bank Financing (guarantee)	US\$60 million	N/A	
Total	US\$60 million		

**Non-World Bank Financing
Financing Plan (US\$M)**

Source	Local	Foreign	Total
Senior debt		180	180
Equity	36	30	66
Cash-flows from operations (not distributed to partners)	338	376	714
Total:	374	586	960

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
06/18/2013	08/28/2013	N/A	04/01/2017	04/01/2017
			Original Guarantee Expiry	Actual Guarantee Expiry
			11/14/2022	11/14/2022

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US\$M)	Key Revisions
N/A	N/A	

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Satisfactory	Moderately Satisfactory	Substantial



RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US\$M)
01	08/28/2017	Substantial	Substantial	n/a

SECTORS AND THEMES

Sectors

Major Sector/Sector	(percent)
Energy and Mining (Oil and gas)	100 percent

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3)	(percent)
Financial and private sector development (Primary)	100 percent
Infrastructure services for private sector development (Secondary)	100 percent

ADM STAFF

Role	At Approval	At ICR
Regional Vice President:	Makhtar Diop	Hafez H. Ghanem
Country Director:	Madani Tall	Coralie Gevers
Senior Global Practice Director:		Ricardo Puliti
Practice Manager:	Meike van Ginneken Pankaj Gupta	Charles J. Cormier Sebnem Erol Madan
Task Team Leader(s):	Sunil Mathrani Patrice Claude Charles Caporossi	Thierno Bah Patrice Claude Charles Caporossi
ICR Contributing Author:		Ananda Covindassamy Zhengjia Meng



I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

- 1. Country.** The Republic of Côte d'Ivoire is an important regional hub for the West African Economic and Monetary Union, as the largest economy representing 40 percent of gross domestic product (GDP) in the union. In 2013, the country had a population of approximately 23 million and an estimated GDP per capita of US\$1,415. Côte d'Ivoire is one of the most attractive economies in West Africa, playing a leading economic role in the region with significant industrial and service sectors, a diversified agricultural base, and a favorable geographic position. With its large immigrant population, it is an important source of remittances for other countries in the region. Côte d'Ivoire is the world's top exporter of cocoa and a net (albeit small) oil exporter, and plays a crucial role in the transport of goods to and from landlocked neighboring countries of the Sahel.
- 2.** As a result of the 1999 coup d'état and the eruption of the political and security crisis of 2002, Côte d'Ivoire experienced a long period of poor governance which led to an increase in poverty, erosion of institutional capacity, and deterioration of basic social and economic infrastructure. Following the establishment of a coalition transition government after the Ouagadougou Political Accords in 2007 and the inauguration of the presidency of Alassane Ouattara in 2011, efforts were made to restore security, improve governance, and address the social needs of the population. Despite continuing political uncertainty due to limited progress toward post-conflict national reconciliation, the economy recovered rapidly. After the reopening of banks and financial institutions in April 2011 and the lifting of the European Union embargo at the end of the crisis, GDP increased by 9.8 percent in 2012. Most economic indicators evolved favorably since May 2011 and real GDP was expected to grow at 8.5 percent during 2013–2015.
- 3. Sector.** At the time of appraisal in 2013, approximately 34 percent of Ivorian households had access to electricity. Earlier, before the political and security crisis, Côte d'Ivoire had the highest electricity service access rate in Sub-Saharan Africa at 40 percent. Côte d'Ivoire pioneered the introduction of private sector participation in the power sector in the region, with the awarding, in 1990, of a 15-year lease contract ('*affermage*') to *Compagnie Ivoirienne de l'Electricité* (CIE), a private company majority-owned by Eranove, a pan-African group leader in the management of public electricity and water services. The contract was subsequently extended to 2020, to manage the country's grid and run the existing state-owned generation assets. In 1994, the first independent power producer (IPP) contract in Africa was awarded to *Compagnie Ivoirienne de Production d'Electricité* (CIPREL) in Côte d'Ivoire and then in 1998 the largest IPP contract in the continent, at the time, was awarded to Azito Energie with the support of the first IDA Partial Risk Guarantee.
- 4.** The Government of Côte d'Ivoire (GoCI) retained ownership of the power sector assets managed by CIE and transferred them to Côte d'Ivoire ENERGIES (CI-ENERGIES), an asset holding company, created in 2011. Thermal generation, however, was left to the private sector to develop through IPPs. The regulatory body, *Autorité Nationale de Régulation du Secteur de l'Electricité de Côte d'Ivoire* (ANARE-CI), initially set up in 1998 (formerly known as *Agence Nationale de Régulation de l'Electricité* [ANARE]), had



an advisory role on tariff-related matters while the Ministry of Mine and Energy retained most decision-making authority.

5. Operational and financial gains during the first decade of private sector participation were offset by subsequent political and security crisis which had a direct adverse impact on the operation of the IPPs and investors' perception of risk. Technical and commercial losses rose sharply to nearly 25 percent. The Decree № 2010-200 of December 2010, which guaranteed the stability of remuneration to private sector participants, contributed to the mitigation of the negative effects of the crisis. The decree outlined rules for the management of the financial flows of the electricity sector and established a cash flow distribution mechanism and priority payment order ('cash waterfall') that favored the private sector, which enabled continued private investment in generation despite ongoing civil and political turmoil.

6. As the affermage contract with CIE did not require it to undertake major investments—these remained the responsibility of the GoCI, political instability led to a significant backlog in investments in the sector. From 2000, when the peak demand was 594 MW, to 2010, when the peak demand reached 912 MW, only 110 MW of new generation capacity had been added to the grid. Consequently, for the first time in almost two decades, the country experienced severe load shedding in 2010 and had to revert to the use of 100 MW of emergency rental power as a stopgap measure.

7. Based on forecasted economic growth, the demand for electricity was expected to increase sharply at a rate of about 9 percent per year, on average, in the five years to follow appraisal in 2013. As a result, it was estimated that an additional 150 MW per year would be needed to meet forecasted demand and maintain a reserve margin. Côte d'Ivoire's hydropower potential was largely untapped and at the time of appraisal, construction had just begun on a major hydropower plant in Soubré, which was planned to be commissioned in 2017. Furthermore, given its role as a key power exporter in the region, there were increasing expectations for exports, further increasing pressure on an overstretched power and gas supply system. Progress in regional power trade under the West African Power Pool was also constrained by the lack of sufficient capacity.

8. The least-cost expansion plan at the time of appraisal was also dominated by gas-fired power generation. The availability of sustainable and affordable gas supply was therefore essential for the expansion of generation capacity as planned. Indeed, for the sector to commit to long-term power purchase agreement (PPA) payments to IPPs, long-term availability of fuel had to be secured to enable investors to raise long-term debt funding. However, there was a significant deficit in gas discoveries at that time. The existing gas suppliers (FOXTROT, Afren, and Canadian Natural Resources (CNR) producing 140, 20, and 30 mmscf per day respectively) had attained the maximum output levels that their gas reserves could sustain in the existing fields. Only FOXTROT could provide sustained additional production within a reasonable time frame over the long term, provided that significant investments are made in Block CI-27. This is because long lead times post discovery meant that even if new discoveries were made soon, despite ongoing exploration works to discover new gas and oil reserves, gas supply from indigenous sources could not be increased for at least another 5–6 years, with significant uncertainty on gas reserves. As a result, the sector continued to use significant amounts of liquid fuel at almost four times the cost of gas. Gas supply needed to be secured urgently to secure generation capacity and mitigate cost impacts on the sector's financial viability.



9. The financial situation of the sector was also critical. As the crisis divided the country over several years, CIE continued to supply power to a large area of the country without being able to bill and collect revenues. Tariff increases were limited despite an increasing reliance on higher-cost gas-based power generation (versus hydropower) for electricity supply, making revenue largely insufficient to cover operational cost and yet make required investments in the grid. Costs continued to increase as well, particularly for gas supply, following a decision to remove a price cap from existing gas supply contracts in 2007. Further, as discussed earlier, expensive emergency power rentals were needed due to the lack of timely investments to expand gas supply and generation capacity. As a result, the sector suffered financial shortfalls exceeding CFAF 100 billion (US\$200 million) per year in the years preceding project appraisal in 2013.

10. A comprehensive power sector Financial Recovery Plan was agreed with the International Monetary Fund in late 2012 with provisions to renegotiate gas prices with all gas suppliers, including FOXTROT, the main gas supplier, increase tariffs for industrial users, and undertake other key activities to reduce costs and increase sector revenues. The GoCI agreed with the Block CI-27 Joint Venture (JV) partners on a retroactive price reduction effective from January 1, 2012, leading to annual cost savings of about CFAF 80 billion (US\$160 million). Although the recovery plan had a significant positive impact on the reduction of the deficit in the sector, it was insufficient to achieve full cost recovery. As the GoCI was reluctant to increase residential user tariffs due to potential socioeconomic impacts, there was a need for complementary measures to support the GoCI's turnaround strategy for the energy sector.

11. At the time of appraisal, the Block CI-27 gas field development was the only advanced project that was able to provide, within a reasonable time frame, certainty on gas deliveries with significant volumes over the long term. Other development options in offshore Ivorian waters were uncertain and had not made significant gas discoveries. Revisions in the Gas Supply and Purchase Agreement (GSPA) for Block CI-27 included a new framework to calculate gas price that reduced exposure to gas price shocks and partially indexed the price to local price consumer index. The revised contract not only had the immediate effect of bringing down the average cost of electricity by reducing the gas price, but also included a clause enabling renegotiation if prices increased or decreased by more than 9 percent. This was a key step toward restoring the sector's financial health. The expansion of the Block CI-27 gas field production further ensured that firm gas supply at current levels of 140 mmscf per day could be sustained until 2024.

12. Given the financial situation in Côte d'Ivoire's energy sector at the time of appraisal, risks of nonpayment from the power sector to private gas developers were significant, and FOXTROT notably had experienced payment delays of up to six months. This limited significant investments in upstream gas development, as CI-ENERGIES had delayed payments to its existing gas suppliers. The financial situation of the sector was such that the mitigation of payment risks through the IDA Guarantee was a condition to making the required investments to support the amendment to the GSPA between the GoCI and the FOXTROT JV for the expansion project and securing gas deliveries up to 2024. For these reasons, the Block CI-27 gas field development investors sought an IDA Guarantee (known at the time of appraisal as a Partial Risk Guarantee) to minimize their payment and regulatory risks and raise financing from their lenders. This was envisaged in addition to a political risk insurance, provided by Multilateral Investment Guarantee Agency (MIGA), given the high political risk perception in Côte d'Ivoire at that time. The IDA Guarantee was also a condition for the investors and their commercial lenders to provide financing to the project. Ultimately the US\$60 million IDA Guarantee enabled an investment of around US\$1 billion.



13. **Rationale for World Bank support and contribution to higher level objectives.** World Bank support for the Block CI-27 expansion project was one of several operations supporting the GoCI's power sector Financial Recovery Plan along with strong sectoral dialogue with the authorities. The IDA-funded Urgent Electricity Rehabilitation Project, approved in 2009, aimed to address bottlenecks in the existing power distribution system. A Development Policy Operation was under preparation at the time of appraisal to support a balanced economic reform program strengthening public sector governance and facilitating private sector-led growth, with a key focus on increasing private investments in the energy sector as part of the pillar on Improvement of the Business Climate and Increased Private Investment.

14. The World Bank provided an IDA Guarantee for the Block CI-27 expansion project to backstop Côte d'Ivoire's guarantee obligations for the gas payments under the GSPA between the GoCI, CI-ENERGIES, and the Block CI-27 JV private partners (SECI, ENERCI and FOXTROT). The IDA Guarantee was expected to contribute in restoring investors' confidence and supporting an inflow of foreign private investment in the gas and power sectors at a time when political uncertainty limited the investment climate significantly. The expansion project was to address the fuel supply needs of the electricity sector thereby reducing recourse to high-cost and more polluting liquid fuel, thus securing production of cheaper electricity.

15. By supporting the expansion and upgrading of the gas field of the main gas supplier in Côte d'Ivoire, the IDA Guarantee contributed directly to the fourth pillar of the World Bank Group's Country Partnership Strategy for the period FY10-FY13¹, which aimed to renew infrastructure and basic services. It was also aligned with the third outcome of the Poverty Reduction Strategy Paper to ensure the well-being of the population through increased access to electricity. In addition, the IDA Guarantee contributed to the achievement of the Africa Strategy's growth pillar by contributing to reliable supply of electricity for growth and private investment.

Theory of Change (Results Chain)

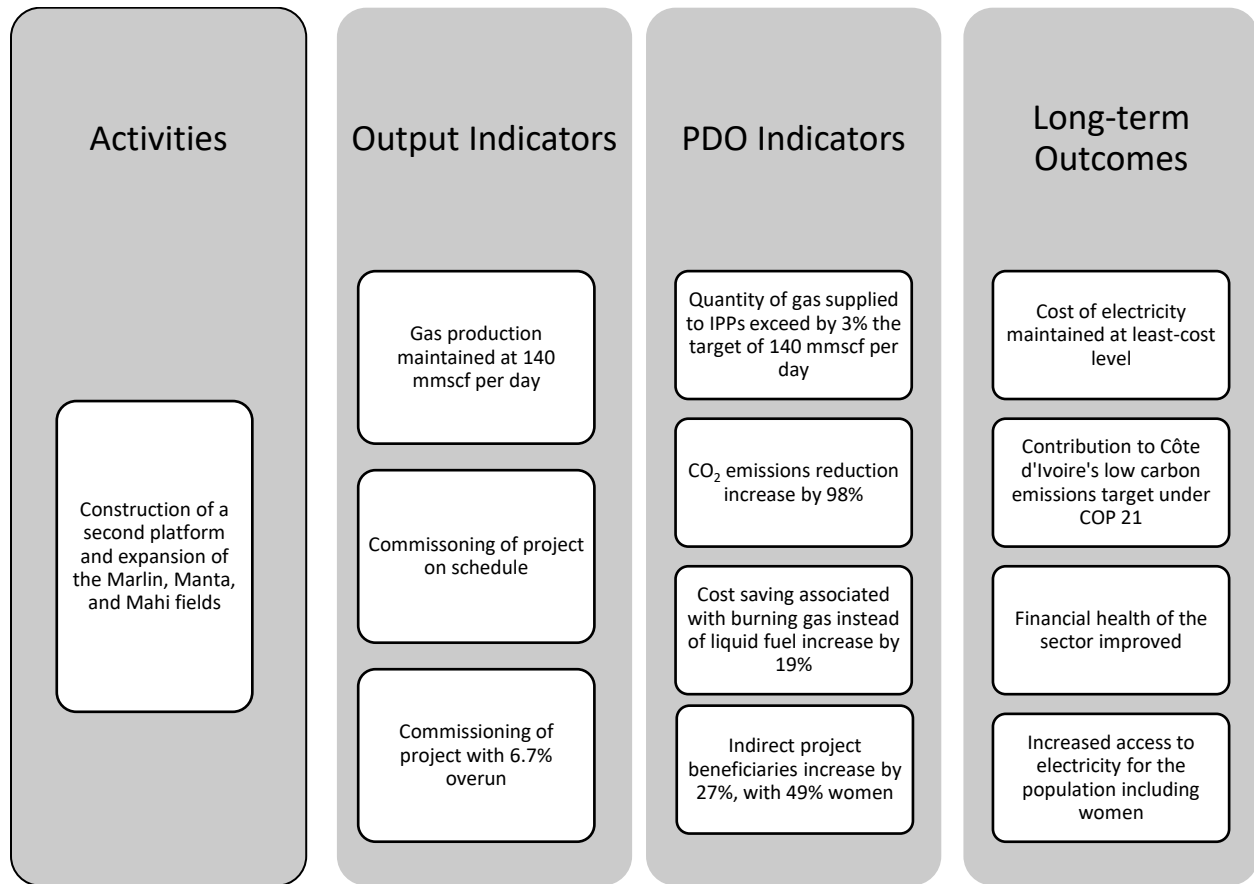
16. The IDA Guarantee operation contributed to securing low-cost electricity production, curbing the deterioration of the power sector's financial health, reducing carbon dioxide emissions, and drawing private sector investment to the power sector. The Project Development Objective (PDO) was to maintain the availability of natural gas for lower-cost power generation, which was achieved through private investment in the expansion of the Block CI-27 gas field and construction of a second platform (Marlin), supported by an IDA Guarantee.

17. As indicated in the Results Chain in figure 1, the main outputs were identified as the quantity of gas supplied, the number of users who would benefit from this supply—indirect project beneficiaries—and the amount of private investment leveraged through the IDA Guarantee. As a result, gas supply was to be secured until 2024, ensuring cost savings from the reduced need to use costly and more polluting liquid fuel-based power generation and helping keep the cost of electricity supply in Côte d'Ivoire relatively low. The IDA Guarantee was also expected to support an inflow of foreign private investments in the country at a time when past political instability affected the country's investment climate.

¹ Report No. 53666-CI; May 10, 2010.



Figure 1. Results Chain



Project Development Objectives (PDOs)

18. The PDO as stated in the Project Appraisal Document (PAD) was to ‘maintain the availability of clean natural gas for lower-cost power generation’.

Key Expected Outcomes and Outcome Indicators

19. Key outcomes expected from the project, as indicated in the PAD, were the following:

- (a) A direct impact on private commercial banks providing loans to the project developers and shareholders in the Block CI-27 JV who would benefit from risk mitigation support to their investment, on *Société Nationale d’Opérations Pétrolières de Côte d’Ivoire* (PETROCI) (the Ivorian company in charge of leading research efforts and development of hydrocarbon resources and one of the project’s shareholders), and on the GoCI which would earn substantial revenue from the additional gas to be sold in the following 12 years;
- (b) An indirect impact on consumers of electricity who would benefit from tariffs lower than they would have with the alternative use of high-cost liquid fuel without the availability of



natural gas and on residents of Greater Abidjan who would benefit from better air quality with the lower release of greenhouse gases (GHGs) by using natural gas instead of fuel oil.

20. Outcome indicators to measure progress toward these outcomes were (a) the quantity of gas supplied to power plants (mmscf per day), (b) the amount of greenhouse gas emissions avoided (tons of CO₂ emissions reduced per year), (c) the amount of savings in the power sector associated with burning gas instead of liquid fuel (US\$ per year), (d) the number of indirect project beneficiaries defined as all electricity users (number), and (e) the percentage of female beneficiaries.

21. There were three intermediate indicators to assess progress toward commissioning of the expansion project: (a) gas production capacity achieved by the project (mmscf per day), (b) commissioning of the project completed on schedule (yes/no), and (c) commissioning of within budget (yes/no).

Components

22. Block CI-27 is located offshore near the city of Jacqueline, southwest of Abidjan. At the launch of the project, it included four fields (FOXTROT, Mahi, Manta, and Marlin) and a production platform located 70 km away from Abidjan. The expansion project for this block consisted of (a) the upgrading of the existing FOXTROT platform and (b) the addition of a new production platform, wells, and pipelines to develop the adjacent Marlin and Manta fields within Block CI-27. The FOXTROT field was the only field in Block CI-27 under operation at the time of appraisal and the supply lines and facilities that serviced the existing platform were to be reconfigured to ensure reliable and uninterrupted gas supply after the field expansion. The Marlin field was to be developed as a new separate four-leg fixed platform with eight slots and five wells. The platform was ordered in 2013 after a two-year delay due to the political crisis and significant gas payment arrears from the power sector that discouraged investors. The investment under the expansion project was to enable Block CI-27 to maintain the production at 140 mmscf per day, with a peak production capacity of 154 mmscf per day and allow the production of 12,000 barrels per day of associated liquid (oil and water) with a contractual commitment to produce and sell gas to the GoCI until 2024.

23. The Block CI-27 expansion project was developed by JV partners including FOXTROT (24 percent participating interest in the block), PETROCI (40 percent), SECI (24 percent), and ENERCI (12 percent). All JV partners contributed pro rata to their share to the JV with a significant portion of the sources of funds provided by cash flow generation from existing and to-be-developed assets in Block CI-27. The foreign investors, SECI, ENERCI, and MONDOIL financed their investments in the JV through a combination of equity, cash flows from existing operations, and debt financing from commercial banks. SECI, the main US\$197 million as equity investment (including revenue from operations) and US\$213 million in debt financing for a total amount of US\$410 million. Debt was provided by four commercial banks led by HSBC, appointed by SCDM² as lead arranger, with tenures of 7 years. ENERCI (Suez group) and MONDOIL financed their stake in the JV through a combination of equity cash flows from existing operations for a total amount of respectively US\$123 million and US\$82 million. PETROCI, the local partner in the JV, financed its stake in the JV through a combination of equity cash flows for a total amount of US\$410 million. The shareholding structure of the foreign investors is depicted in table 1.

² SCDM Energie SAS, France, was the recipient of the MIGA coverage and owns 24 percent of the Block CI-27 JV through SECI SA.



Table 1. Shareholding Structure of Foreign Investors

SECI (40%)	ENERCI (12%)	MONDOIL (8%)
410	123	82

24. The World Bank’s support consisted of an IDA Guarantee of US\$60 million to backstop the GoCI’s obligations for the gas payments under the GSPA between the GoCI, CI-ENERGIES, and the Block CI-27 JV private partners (excluding PETROCI as a state-owned petroleum company). The guarantee was to enable the JV to receive timely payments serving both equity returns and payments to commercial banks providing senior loans to SECI SA. This credit enhancement mechanism was to address the low creditworthiness of CI-ENERGIES and prevent commercial banks from eventually claiming payment defaults under the financing agreements or requesting immediate acceleration of their loans in case of missed payments. The project also benefited from a MIGA Partial Risk Insurance of US\$380 million to SECI SA and its lenders, approved by the MIGA Board in November 2012. This insurance covered termination risks only for the SECI SA portion of the equity investment. Thus, the IDA Guarantee complemented MIGA support to secure investors against commercial risks and ensure timely payment for gas supplied. The other JV private partners only sought support for ongoing payments.

25. The IDA Guarantee was delivered through a Letter of Credit (L/C) structure through which a revolving L/C was issued by a competitively selected commercial bank to FOXTROT and SECI. In the event of a failure to comply with contractual payment obligations under the GSPA, the L/C could be drawn and the GoCI would have 12 months to reimburse the drawn amounts and reinstate the L/C. Should the GoCI fail to reimburse the funds in the agreed time period, the L/C bank would have the right to draw from the IDA Guarantee.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

26. There were no changes to the PDOs and outcome targets during implementation.

Revised PDO Indicators

27. There were no changes to the PDO indicators during implementation.

Revised Components

28. There were no revisions to the components during implementation.

Other Changes

29. Given the high demand for gas in the power sector in 2016, FOXTROT and the GoCI temporarily increased the volume of gas sales for two years. Specifically, the following changes were made:

- (a) Increase the ‘take-or-pay’ quantities from 140 mmscf per day to 160 mmscf per day



- (b) Increase the daily available quantity from 154 mmscf per day to 174 mmscf per day
- (c) Fix the sale price at US\$6 per mmbtu
- (d) Suspend the indexation formula provided in the GSPA
- (e) Maintain such temporary provisions during a two-year term, from April 1, 2016, to March 31, 2018

Rationale for Changes and their Implication on the Original Theory of Change

30. In 2016, the gas demand for the power sector exceeded supply at a time when the then envisaged liquefied natural gas import project was delayed. To address that situation, the GoCI requested an increase in gas supply from the Block CI-27 gas field. The two parties negotiated a tariff adjustment, for a two-year period, and an increase in the daily available quantity. However, these changes did not affect the project's Original Theory of Change.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

Rating: High

31. The relevance of the PDO to the most recent Country Partnership Framework (CPF) for the FY16–FY19³ period is rated High. The project contributed to the first focus area of the CPF, which was to accelerate sustainable private sector-led economic growth. The IDA Guarantee supported the development of domestic clean natural gas for sustainable growth and leveraged private sector financing. Under the first focus area, the project contributed more specifically to the second objective aiming to strengthen infrastructure for economic growth through, among other things, the design and mobilization of financing for large infrastructure programs and playing a catalytic role in leveraging innovative sources of financing. Reforms to help improve the electricity sector's financial sustainability and capacity to attract private sector financing are also identified as priorities in the CPF. The CPF also emphasized the need for new gas-fired generation capacity by 2018 and highlighted the issues that would stem from a gas shortage. Maintaining the availability of gas supply to secure low-cost energy production remains a critical factor in the GoCI's strategy for sustained growth with strong private sector participation. The World Bank's involvement in the expansion project through the IDA Guarantee was critical to provide enough mitigation for political and payment risks and enable the needed private investments to secure gas supply for additional power generation capacity and ease the gas shortage that was projected to occur at appraisal.

³ Report No. 96515-CI; October 14, 2015.



B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Each Objective/Outcome

Rating: High

32. The PDO aimed to ‘maintain the availability of clean natural gas for lower-cost power generation’. The principal outcome indicator from the Results Framework used when assessing the achievement of the PDO is the quantity of gas supplied to power plants (mmscf per day). The project’s results indicate a good level of achievement with the quantity of gas exceeding the target value by 3 percent from 2013 to 2017, at project completion. Although the target values at approval were based on the expiration date of the guarantee (in 2022), this Implementation Completion and Results Report (ICR) evaluation is based on the closing date of the project in 2017. Table 2 provides the results for the five PDO indicators and the three intermediate indicators on an annual basis during the project period, 2013–2017.

Table 2. Project Outcomes

	Baseline	2017 Target Values	2017 Actual Values
PDO Indicators			
Quantity of gas supplied to power plants (mmscf per day)	140	Year 1: 140 Year 2: 140 Year 3: 140 Year 4: 140 Year 5: 140	Year 1 (2013): 136 Year 2 (2014): 143 Year 3 (2015):144 Year 4 (2016): 157 Year 5 (2017): 140
Greenhouse gas emissions avoided (tons of CO ₂)	0	Year 1: 419 Year 2: 458 Year 3: 458 Year 4: 458 Year 5: 458	Year 1: 456 Year 2: 741 Year 3: 349 Year 4: 673 Year 5: 908 (98% surplus)
Power sector savings associated with burning gas instead of liquid fuel (US\$ million)	0	Year 1: 123 Year 2: 215 Year 3: 288 Year 4: 217 Year 5: 343	Year 1: 159 Year 2: 138 Year 3: 127 Year 4: 210 Year 5: 410 (19.5% surplus)
Indirect project beneficiaries ^a (million inhabitants)	7.2	Year 1: 7.6 Year 2: 7.9 Year 3: 8.3 Year 4: 8.8 Year 5: 9.2	Year 1: 7.6 Year 2: 8.2 Year 3: 9.0 Year 4: 10.1 Year 5: 11.7 (27% surplus)
Female beneficiaries (percentage)	49	Year 1: 49 Year 2: 49 Year 3: 49 Year 4: 49 Year 5: 49	Year 1: 49 Year 2: 49 Year 3: 49 Year 4: 49 Year 5: 49
Intermediate Results			
Gas production capacity achieved by the project (mmscf per day)	154	154	157
Commissioning of the project completed	—	Yes (2015)	Yes (2015)



	Baseline	2017 Target Values	2017 Actual Values
Commissioning of the project within budget	—	Yes	No

Note: a. Defined as all CIE customers with a multiplier for an average household size of 6 persons and assuming a 5 percent annual increase.

33. The Marlin platform was installed on April 25, 2015, and commissioned on June 16, 2015, two weeks before the planned date. After the preparation phase for drilling, the drilling campaign for the Marlin and Manta fields and actual drilling for the Marlin field was scheduled to be completed by December 2015, but it was actually completed in August 2015. Overall, there was a cost overrun of 6.7 percent—see annex 3—due to higher-than-expected costs for drilling activities. It should be noted that of all the indicators (PDO and intermediate), the intermediate indicator on the commissioning of the project within budget is the only one that was not achieved, with a relatively small cost overrun (6.7 percent). Production in the gas fields has been operating consistently well since commissioning. Production capacity remains aligned with the targets at appraisal. Technical issues with the Block CI-27 fields and platforms were few and without major consequences.

34. Overall gas demand in the power sector was below forecast due essentially to the increased energy efficiency of the Azito and CIPREL power plants with their shifting to combined cycle technology and a change in the production mix of CI-ENERGIES with the commissioning of a new hydropower plant. Forecast for gas demand in the power sector (including gas supplied by FOXTROT but also other producers) anticipated an increase of 4.4 percent over the 2013–2020 period. The actual figures of CI-ENERGIES over the 2013–2017 period indicate an increase of 2.6 percent per year. Despite that, the quantity of gas supplied by FOXTROT exceeded expectations by 3 percent on average over the lifetime of the project, as depicted in table 2.

35. It should be noted that at appraisal, expectations were that power generation capacity would increase by 755 MW over the 2013–2020 period with the addition of five combined cycle plants and one hydro plant. Over the 2013–2017 period, the sector added only 557 MW of capacity (275 MW of thermal capacity—less than projected—and 292 MW of hydropower capacity). The new hydropower plant of Soubré as well as the less-than-projected thermal generation capacity and the decision to build combined cycle power plants could partially explain the overall lower gas demand.

36. Over the 2013–2017 period, the demand for electricity was slightly below forecast. Demand grew by 8.7 percent on average over the 2013–2017 period, whereas the forecast was 9 percent on average. The small difference is due to a growth rate of the economy slightly below forecasts, although the number of consumers—as measured through the indirect project beneficiaries’ indicator—is 27 percent above target. The slightly lower demand growth affected the need for additional power generation capacity and consequently the need for gas.

37. Although overall gas demand for the power sector was slightly below forecast, CI-ENERGIES’ off-take from the Block CI-27 gas fields were above target. As expected, other gas producers saw their production capacity decline over the period decreasing the off-take volumes that CI-ENERGIES could draw. In this regard, the Block CI-27 gas supply was a critical resource to maintain supply to the power sector and secure low-cost generation as expected. Overall gas consumption increased by 2.6 percent annually over the period, but the off-take from Block CI-27 increased faster, by 3.3 percent annually, as declining



production from other gas producers was partly substituted by Block CI-27 gas. The share of Block CI-27 in gas supply increased from 74 percent to 76 percent.

38. The GHG emission target was exceeded because of differences in the estimate of gas use with and without the project, which is significantly higher than initially projected at appraisal. Indeed, based on updated figures with and without the project, provided by FOXTROT, the CO₂ reduction is higher than estimated at approval. The level of achievement of CO₂ reduction targets is 147 percent in 2016 and 198 percent in 2017.

39. The power sector savings target was exceeded in 2017 (120 percent), after a period of underperformance from 2013 to 2016 due to the low price of liquid fuel in the world market during that period.

40. The increase in the number of indirect beneficiaries is dependent on the number of new connections, which has progressed faster than expected. The level of achievement of this indicator has reached 127 percent of the expected figure in 2017. It should be noted, however, that the increase has only little to do with gas production, as the number of households with access to electricity depends also upon numerous other factors including investment in the transmission and distribution network. Finally, the proportion of female beneficiaries in the client base of the power system has not varied significantly. The level of achievement is 100 percent.

Justification of Overall Efficacy Rating

41. The PDO to ‘maintain the availability of clean natural gas for lower-cost power generation’ was achieved successfully with the PDO indicator for quantity of gas supplied to power plants exceeding the target by 10 percent before project closing. It is expected that production capacity in Block CI-27 will be maintained and that the project will continue to perform successfully. To meet expected growth in demand in the short to medium term, two of the existing gas-fired power plants are to be expanded—Azito IV (253 MW) and CIPREL V (390 MW)—with support from IFC and MIGA. Considering the success in achieving the PDO and the expectation of continued value added of this project in the sector, the overall efficacy rating is High.

C. EFFICIENCY

Assessment of Efficiency and Rating

Rating: Substantial

42. The benefits of the Block CI-27 expansion project were assessed economically from the country’s perspective and financially from the shareholders’ perspective in the PAD. An ex post economic and financial analysis of the project was carried out to assess the efficiency of the project at closing. The results are summarized in this section with further details provided in annex 4.

43. **Economic analysis.** The expansion project was expected to create strong cash flow for the state through PETROCI, the state-owned oil company that holds a 40 percent stake in the JV, and the GoCI, itself, under the fiscal agreement over the 12-year contract validity period. The cash-flows and returns figures are in line with expectations, when factored in the on time and almost on budget project delivery,



as well as the up to now gas deliveries -taking into account lower oil prices and higher output between 2013 and 2017. In addition, the GoCI receives a share of gas revenue through the Production Sharing Contract (PSC) of Block CI-27—a critical source of revenue that is transferred to the power sector to make up for the electricity tariff shortfall. Initially, the GoCI shares revenues (after cost recovery) on a pro rata basis with other shareholders. Consequently, the revenue share increases substantially after the end of cost recovery period. According to the PSC of Block CI-27, the investment in the expansion project was recovered with gas sales proceeds from existing and ring-fenced gas production with a cap at 60 percent of gas revenue and 40 percent of oil and condensate revenue. The GoCI’s gas revenue will thus be much higher in 2019 as the project cost has been fully recovered.

44. A separate analysis was carried out to assess the project benefits considering the opportunity cost of not proceeding with the expansion of Block CI-27 gas production facilities—notably the cost of substituting gas with liquid fuel (as the only available alternative at the time). These are in line with expectations, if factoring the elements mentioned in para 43. Annex 4 (confidential) provides details on the project cash benefits.

45. At appraisal, the project was expected to lead to savings in terms of CO₂ emissions avoided equivalent to around US\$500,000 per year based on a carbon price of US\$1 per ton and have largely exceeded expectations. The reevaluation of avoided CO₂ emissions indicates that the implementation of the project has and will reduce CO₂ emissions more than anticipated, using a more realistic evaluation of emissions based on CO₂ release of the use of alternative fuels and using conservative CO₂ emissions of 0.055 tons per mcf of gas and 2.6 tons of CO₂ per ton of heavy fuel oil (HFO) burned—see table 4.

Table 3. CO₂ Emission Reductions

		2013	2014	2015	2016	2017
Revalued reduction of CO ₂ emissions	Tons	393	323	409	673	908
Reduction of CO ₂ emission at appraisal	Tons	419	419	458	458	458

Source: PAD and CI-ENERGIES data.

46. With a faster decrease in the production of gas for other suppliers, gas demand from Block CI-27 was higher than projected during the 2013–2017 period. As a result, cash flow is stronger.

47. **Financial analysis.** The financial analysis conducted for the PAD was repeated using actual values until 2017 to determine if the internal rate of return (IRR) is in line with projections in the PAD. In the PAD, the project team used the financial model developed by the JV, which was completed with the following assumptions:

- (a) Production forecast based on certified reserve
- (b) Gas price over the period maintained constant at US\$5.5 per mmbtu
- (c) Gas production from 2013 onwards maintained constant at 140 mmscf per day



- (d) Conservative oil production forecast with oil price of US\$69 per bbl⁴
- (e) No remaining value assigned at the end of gas purchase agreement and no project liability assumed
- (f) Cumulated capital expenditures over the period at US\$960 million and yearly operating expenditure at US\$36 million

48. At the time of appraisal, the Block CI-27 JV had a solid financial performance, reflecting strong expected cash flow from the project under the terms of the previous GSPA. The modified GSPA was expected to lead to healthy returns with an IRR computed on the incremental cash flow generated from the new investment. The actual IRR at project closing, in 2017, is slightly higher than the appraisal estimates (see PAD for more details).

49. Project economics were affected by the combined effect of higher-than-expected gas deliveries, marginally higher Capex, and an overall lower-than-expected oil price (average Brent price between 2015 and 2017 was about US\$52 per bbl compared to US\$69 per bbl assumption at appraisal). The HFO price at the time of appraisal was US\$800 per ton as the price of oil was US\$100 per bbl at Brent crude. Actual prices delivered to Abidjan during the project period were between US\$520 and US\$430 per ton, making alternative fuel options cheaper than anticipated at appraisal.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

Outcome Rating: Satisfactory

50. The overall outcome rating for the project is Satisfactory. Project design was appropriate to achieve the PDO. The PDO was still relevant at the project closing date. The project delivered on its expected outcome in maintaining the availability of clean natural gas for lower-cost power generation. However, the project was completed with a small cost overrun of 6.7 percent.

51. The GoCI continued to struggle to raise electricity tariffs at the time of project closing. It faced strong consumer resistance, forcing it to abandon an attempt to increase tariffs in 2016. Considering these ongoing challenges in the sector and a significant decrease in the gas production capacity of other producers, the expansion of Block CI-27 and increase in gas supply from this resource was critical to maintain low-cost electricity during this period. At the contractual gas tariff of US\$5.5 to US\$6.0 per mmbtu (with the state's share of gas) and HFO price of US\$500 per ton (without the state's share of gas), the fuel cost of power generation is US\$0.04 per kWh for gas and US\$0.11 per kWh for HFO. Even though the price of HFO was lower than projected, gas remained by far the least-cost and less polluting option.

⁴ Given limited liquid production, the rate of return is not sensitive to oil prices.



E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Gender

52. The project does not have a specific gender component. However, by enabling the supply of electricity at the least cost to existing and new consumers, it has a positive impact on the 49 percent females in the population.

Institutional Strengthening

53. The project does not contain an institutional strengthening component.

Mobilizing Private Sector Financing

54. The World Bank Group support through an IDA Guarantee, together with the MIGA risk insurance, played a key role in mobilizing private sector financing in the form of equity (US\$401 million from FOXTROT, SECI, and ENERCI) and senior debt (US\$213 million) for the expansion of production in the Block CI-27 gas fields. The World Bank Group involvement de-risked the project and made it possible for lenders to commit to a project in a post-conflict country. More importantly, the de-risking was crucial to provide the comfort required by shareholders to have a long-term commitment to the country's energy sector by investing more than US\$1 billion in the project.

55. Considering the uncertain financial standing of the gas off-taker, CI-ENERGIES, the IDA Guarantee reduced the most immediate risk for investors and lenders, which was the nonpayment of gas deliveries. The impact of the cancellation of the electricity tariff increase in 2016, which affected CI-ENERGIES' creditworthiness, highlights the relevance of the IDA Guarantee in the context of the power sector. The IDA Guarantee was, therefore, instrumental in mobilizing financing for the Block CI-27 expansion project and beyond to gas-fired thermal IPPs with the comfort that there would be sufficient gas to fuel those power plants.

56. Furthermore, World Bank Group support came at a time when additional private investments were contemplated by the sponsors. This support helped improve CI-ENERGIES' negotiating position with respect to the increase in gas supply (as financiers were comforted by the guarantee to mitigate against CI-ENERGIES' credit risk), the related tariff revision, and the extension of the delivery period.

Poverty Reduction and Shared Prosperity

57. The project did not contribute directly to poverty reduction and shared prosperity, but it had an indirect impact on the cost of supply of electricity, as the fuel cost of gas-fired power plants is lower than the fuel cost of HFO-fired units, translating to a reduction of cost of supply of about US\$0.07 per kWh (more than 60 percent reduction). This cost reduction indirectly trickles down to the population as it helps keep electricity prices relatively low, which has a spinning effect on the population's access to a basic service (electricity) and has the potential to boost economic activities. Furthermore, it lowers the need for government subsidies, which would have otherwise resulted in higher taxes. Moreover, the social activities carried out by FOXTROT between 2013 and 2017 amounted to US\$400,000 for the benefit of the populations living near onshore facilities. The key social activities consisted of the construction of



classrooms, construction of shops for income-generating commercial activities and construction and lighting of health centers.

Other Unintended Outcomes and Impacts

58. There are no other unintended outcomes and impacts.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

59. At project preparation time, the main issue threatening the availability of power for the country and neighboring importing countries—mainly Burkina Faso, Mali, and Ghana—was the capacity of the gas sector to meet the demand in the power sector and avoid the need to resort to the use of alternative high-cost fuels. Hence, the project was designed with a simple PDO to maintain the availability of natural gas for low-cost generation in line with sector priorities.

60. The Marlin field development project was originally initiated in 2010 in Houston (Texas) with Mustang Engineering (now Wood Group Mustang) as the engineering, procurement, and construction management contractor but was suspended soon after its inception due to the events that occurred in Côte d'Ivoire around the 2010 presidential election. The project resumed in the last quarter of 2011 and a project management team was established in Houston at the Mustang offices in early 2012, well ahead of the financial closing of the project.

61. Project design was initiated three years before appraisal and this included the preparation of detailed technical and financial studies. These studies and detailed technical assessments informed project objectives, schedule, and cost and provided the World Bank with deep knowledge of the project and sponsors' experience and a thorough understanding of the complexity and risks involved. The World Bank team relied on the deep experience of the sponsors with their track record of designing and implementing equally complex projects in other developing countries. Moreover, the sponsors had designed a high quality and detailed project supervision and monitoring system that was able to keep the World Bank and all stakeholders fully informed of progress and measures taken by the sponsors to keep the project on track. The project's technical risks were well identified and managed during implementation.

62. Political risk was a major factor affecting the project decision making, considering the political situation in Côte d'Ivoire at the time, shortly after the end of the civil conflict. There was uncertainty concerning the stability of the country in the medium to long term, although Côte d'Ivoire had maintained a long history of political stability and sound economic policy before the political and security crisis. It was unknown whether the country would revert to its earlier course of political stability and economic growth or return to the instability of the previous decade. The World Bank Group was best placed to assess and manage this risk, and the allocation of the political and regulatory risk to the World Bank Group was fully justified, corresponding precisely to the mandate of the World Bank Group to encourage private sector investment in countries where political risk is perceived by the market to be prohibitively high. Thorough technical assessments, strong sponsor experience, strong dialogue between the World Bank Group and



the GoCI at senior levels, and a strong suite of energy sector support operations, all contributed to ensuring that the project was adequately ready for implementation.

B. KEY FACTORS DURING IMPLEMENTATION

(i) Factors Subject to the Government and/or Implementing Entities' Control

63. **Coordination and contract management.** After the Front-End Engineering Design (FEED) was completed, the tenders were issued and the contracts for the main equipment were all awarded by the end of the year 2012. Deviations to the FEED were then kept to a minimum and accepted only on an exceptional basis. However, during the endorsement phase, major changes in the design of the platform had to be introduced. Indeed, the contractor had identified that the deck footprint from the FEED was to be enlarged to accommodate all the equipment and guarantee the required space for accessibility of instruments and valves. During the detailed design phase, the deck was further enlarged, and a mezzanine level was added. The deck's total area increased significantly, leading to a substantial increase of the deck lift weight from 2,716 tons in the FEED to 4,600 tons at the hook of the heavy lift vessel (HLV). This major change did not result in a significant increase in the cost of construction of the platform because of tight contract management, overcapacity of the construction work for oil industry at that time, and the lower-than-expected price of steel. All these factors together offset the effect of the weight increase and resulted in contract price for the new design close to the initial estimate before revision. Moreover, the residual additional cost was partly absorbed through a revision of the penalty clauses of the construction contract and bonus sharing in case of early completion of the work. Close monitoring by the project sponsor and coordination with key stakeholders contributed to effective cost control. Ultimately, the construction cost of the 4,600 tons platform was almost identical to the estimated cost of the 2,716 tons platform due to favorable market situation and good project management.

64. The early procurement of the main equipment packages was key to ensure timely supply of vendor's data for the detailed design work and delivery to the yard in sequence of the deck construction. However, the placement of the main equipment orders did not proceed as originally anticipated. The fabrication of the jacket was kicked off in June 2013 at the yard. The deck fabrication commenced in November 2013 by the structure prefabrication. It took one year for the main equipment to be delivered at the fabrication yard and to begin erection because of the delays in the placement of the main equipment orders and the consequently delayed detailed design work. The installation of piping, electrical equipment, and instrumentation was done after achieving mechanical completion.

65. **Timeliness.** The planned startup date of the Marlin platform was June 30, 2015. Actual startup date was June 16, 2015, 15 days ahead of schedule. The drilling was expected to be carried out in two phases, with a first phase of five wells in 2012–2013 and a second phase of seven wells to be completed by December 2015. The actual starting and completion dates were February 2013 and August 2015. The project was implemented and physically completed slightly ahead of schedule.

(ii) Factors Subject to World Bank Control

66. **Adequacy of supervision/adequacy of reporting.** World Bank supervision on this project was mainly focused on ensuring that sector policies were adequate and that planned expansion activities were progressing as planned. There was limited reporting on World Bank supervision of project construction



and operation. However, there was a close supervision of the project by staff on the ground in the World Bank office in Abidjan, including fiduciary specialists as well as social and environmental safeguard specialists. The sponsors and contractors produced periodic progress reports to enable the team to remain up to date on project implementation status during construction and operation.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

67. The M&E framework for the project consisted of a robust, multilayer framework with the following elements:

- Supervision of physical implementation of the platform construction and drilling program by professional engineering firms under contract with FOXTROT.
- Lenders' engineer to monitor progress in project construction as well as implementation of environmental and social management plans through review of monthly and half-yearly progress reports.
- Permanent supervision of the staff of the World Bank based in Abidjan, including two energy specialists, and on demand/ad hoc multidisciplinary supervision missions by staff of the World Bank based in Abidjan office and in Washington, DC, although with limited documentation.
- **Reporting.** FOXTROT released detailed monthly, semiannual, and annual reports to inform the World Bank Group on the status of project implementation. Specific attention was paid to environment, health, and safety (EHS), and labor conditions in the implementation of the project through separate reporting.

68. The M&E arrangements were well designed around the PDO but sought to also capture broader outcomes. Two indicators were chosen to monitor progress toward the key outcomes: (a) the quantity of gas delivered to power plants by Block CI-27 and (b) the avoided cost to the sector of using gas instead of liquid petroleum products. Overall, the choice of these indicators to monitor progress toward the achievement of the PDO was appropriate. The specification of annual figures provided clear, quantitative targets against which to annually monitor progress toward the achievement of the PDO.

69. The basic M&E design also included several indicators not directly linked to the PDO to capture broader outcomes: (a) avoided CO₂ emissions, (b) number of indirect beneficiaries defined as number of persons benefitting from access to electricity, and (c) percentage of females benefitting from access to electricity. Intermediate indicators of progress were also identified to monitor project implementation: (a) gas production capacity achieved by the project, (b) commissioning of the project completed on schedule, and (c) commissioning of project according to budget. Overall, the M&E design enabled effective monitoring of progress and is considered Satisfactory.



M&E Implementation

70. Over the three-year implementation period, M&E data were collected regularly and analyzed carefully to identify where satisfactory progress was being made and where implementation difficulties were beginning to appear. The collection and analysis of data on procurement and execution of the various engineering, procurement, and construction (EPC) contracts for the project played an important role in achieving timely and on-budget implementation between 2013 and 2015.

71. The Implementation Status and Results Report (ISR) of April 13, 2017, noted that while the project's physical implementation was satisfactory, there was a growing concern with the financial performance of the gas off-taker, CI-ENERGIES. As the guarantee precisely guaranteed CI-ENERGIES' payment performance, this new development was rightfully mentioned and highlighted. There was, however, little indication of follow-up action under the project. Nevertheless, this finding contributed to an effective sector dialogue concerning the financial sustainability of the power sector. It was noted that the World Bank did not allocate a budget for project monitoring and supervision by the World Bank's project team, thereby limiting the capacity of staff to conduct substantial supervision.

M&E Utilization

72. M&E data were effectively used throughout implementation, especially during the first three years when the design, contracting, and construction of the Marlin platform was under way and the project schedule and budget were at risk, in light of the fluctuations in the market of supplies and services for the upstream gas sector. M&E data on safeguard compliance were also continuously highlighted during implementation and used to inform World Bank management on labor safety, relations with local population, and safety in general. These issues were of concern to the project sponsor as well and attracted considerable attention in reporting, including in the supervision mission Aide Memoires. Although the project implementation issues, such as the redesign of the Marlin platform, were well managed by the sponsor and overall the project was implemented technically without significant issues, it should be noted that the documentation available in the M&E system was not used by the World Bank to examine the technical and financial risk issues in detail but focused almost exclusively on safeguards. The technical, fiduciary, and financial aspects of the project have been discussed extensively but informally with the sponsors and CI-ENERGIES. Formal reporting on project performance in these aspects was limited, with only one ISR filed and referring marginally to these aspects of the project. The lack of a project supervision budget had consequences concerning the capacity of the supervision team to monitor and report on project performance.

Justification of Overall Rating of Quality of M&E

73. Design of the project M&E is sound and was adequate to monitor and assess progress toward achieving the development objective. The overall rating of quality of M&E is therefore High.

74. The M&E framework for the project was sound, multilayered, and reinforced by the vigilance of the project sponsors. While some shortcomings were noted (as described earlier) in the M&E design, they were relatively minor.



B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

Social and Environmental Safeguards

75. The Block CI-27 expansion project was rated a Category A operation and triggered six performance standards (PS). The development of the Marlin facility and wells drilling involved major social and environmental risks. The key risks that were identified at appraisal included air quality and emissions, noise, management of drilling wastes and cuttings, oil spills, occupational health and safety, aquatic/benthic life disturbance (marine mammals and turtles), well blowout, community health and safety, accidental ruptures of pipelines, fishing activities, and hazardous materials.

76. The project applied the IFC's PS (which are much more aligned to the World Bank's currently applicable Environmental and Social Framework than the safeguard policies in effect during appraisal) with a focus on (a) PS 1: Assessment and management of environmental and social risks and impacts; (b) PS 2: Labor and working conditions; (c) PS 3: Resource efficiency and pollution prevention; (d) PS 4: Community health, safety, and security; (e) PS 5: Land acquisition and involuntary resettlement; and (e) PS 6: Biodiversity conservation and sustainable management of living natural resources.

77. The Environmental and Social Review Summary provided information confirming that the project followed good international industry practices according to the International Convention for the Prevention of Pollution from Ships American Petrol Institute standards and the Guidelines of the International Association of Oil and Gas Producers. Moreover, the Environmental and Social Impact Assessment was updated to make it consistent with the World Bank Group Environmental, Health, and Safety Guidelines (EHSB) for offshore oil and gas. The project company hired eight EHS experts with the necessary skills to ensure the proper implementation and monitoring of the EHSB. Emergency response procedures in place were found to be compatible with international best practices. The platform has personal protective equipment such as helmets, safety shoes, gloves, hearing protection, and fire extinguishers in working order and in significant numbers for an effective intervention when needed. It also has firefighting means with two installed fire pumps which are tested every week. In addition, the workers of the platform were trained on their proper use and carried out a regular check of their operating condition. Furthermore, the platform had two evacuation shuttles with a capacity of 30 people. The project company also carried out monthly analysis of liquid effluents and wastewater in collaboration with the Ivorian Anti-Pollution Center.

78. Regarding solid waste management, three types of garbage cans existed on the platform: one for biodegradable waste and two for non-biodegradable waste. These wastes were transferred to Abidjan every two weeks for proper waste management by approved structures.

79. Following the approval of the MIGA operation by the Board on November 29, 2012, a situation related to land acquisition surfaced and was addressed diligently by the project sponsor in accordance with World Bank applicable policies. In that regard, the project company developed good relationships with communities in the project area. These relationships are manifested by the realization of economic and health infrastructures (market, health center, and so on). To prevent any friction with the local populations, the project company established a Grievance Redress Mechanism that included community representatives as well as administrative and customary authorities. In addition to these aspects, the



project company recruited local labor to monitor the gas pipeline corridor against possible encroachment and sabotage, creating local jobs.

80. World Bank supervision missions and environmental and social performance reports prepared by the sponsor both confirmed that the project complied with the PS and overall performance on safeguards was satisfactory.

Fiduciary

81. The project instrument being an IDA Guarantee, there was no IDA-financed procurement or procurement-related disbursements under the project. Financial management issues focused on reporting arrangements, organization and staffing, internal control procedures, planning and budgeting, counterpart funding, and external audits. Audited financial reports were submitted to the World Bank for review within the agreed time frame. The project was always in compliance with the audit covenants and there were no overdue audits. Auditors provided an unqualified (clean) opinion on the project financial statements for every year.

82. The L/C bank had to be procured based on a competitive process handled jointly between the GoCI and FOXTROT. The L/C bank was selected from a short list of banks meeting the following criteria: (a) strong experience in the field of structured finance and trade finance activities, (b) creditworthiness acceptable to address the long-term drawdown needs over the L/C tenure, and (c) competitive pricing of the L/C.

83. Procurement for the Marlin platform design and construction was particularly challenging, as all contracts had to be closely coordinated and exhibited numerous complex technical interfaces, but followed industrywide standards of economy, efficiency, and transparency. The bulk of the procurement activities took place by early 2013, before the presentation of the project to the Board. All contracts being lump-sum turnkey EPC contracts, this approach contributed to reduce the risk of project cost overrun after contract execution. Because of the split package approach, careful attention was dedicated to the definition and management of the interfaces between the contractors.

84. As it was anticipated that the Marlin deck installation would require an HLV, FOXTROT decided to contract the transport and installation based on a negotiated contract with a company that owned and operated one of the few suitable heavy lift barges. The other packages were tendered on a competitive bidding basis. Project costs were in line with projects of this type in Africa.

C. BANK PERFORMANCE

Quality at Entry

Rating: Satisfactory

85. The World Bank's performance during project preparation was Satisfactory in a risky post-conflict context. Project design targeted a critical development objective that remains of high priority for the energy sector and the GoCI. The World Bank paid particular attention to the risk profile of the project, as can be expected for an IDA Guarantee, working closely with the MIGA team, to maintain strong sector dialogue and monitor the post-crisis political situation. Significant technical analysis was undertaken to



assess the ownership and governance structure and mechanisms of the Block CI-27 JV and the financial situation of CI-ENERGIES as the gas off-taker. Key risks, including political, financial, and socioenvironmental risks, were identified and corresponding mitigation measures implemented.

Quality of Supervision

Rating: Moderately Unsatisfactory

86. The World Bank’s supervision of the project’s implementation was Moderately Unsatisfactory due to lack of proper documents. While the project team maintained general oversight on key sectoral issues relevant to project performance and monitored overall expansion activities, with two World Bank energy specialists based in Abidjan who maintained regular contact with the project sponsors, Block CI-27 JV, CI-ENERGIES, as gas off-taker, and the Ministry in charge of energy (General Directorate of Electricity and at ministerial level) on the performance and financial risks which may affect the project, the documentation capturing supervision mission outcomes and periodic progress is lacking. Documentation available indicates that over 2013–2017, the World Bank team prepared one ISR dated April 13, 2017, two Aide Memoires dated May 13, 2014, and November 22, 2016, and a memo supporting the no-objection to Amendment Number 5 of the Gas Supply Agreement Memo dated September 16, 2016.

87. Beyond the limited availability of documentation on project implementation, there is also a lack of documentation on the World Bank’s monitoring of some of the key risks to the guarantee. As highlighted in the appraisal report, the financial performance of CI-ENERGIES was a key risk to the guarantee. The GoCI had tabled a Financial Recovery Action Plan to redress the situation and make sector financials stronger. Several actions included in the Financial Recovery Plan have been implemented, but key measures including the renegotiation of CIE’s affermage contract, electricity tariff adjustment, collection improvement, and network efficiency had not been implemented at the completion date. As a result, the sector’s financial performance remained weak and payments to Block CI-27 were at risk. Although this risk is regularly monitored by the World Bank team (regular reporting from the JV on gas deliveries and copies of any nonpayment events) and brought to the attention of World Bank management, it has not been highlighted in any project supervision documentation. Instead, the focus of these supervision reports was almost exclusively on socioenvironmental issues and performance, which were overall Satisfactory.

Justification of Overall Rating of Bank Performance

Rating: Moderately Satisfactory

88. Considering the Satisfactory quality at entry, the significant informal monitoring work done by the energy specialists based in Abidjan, and shortcomings in the formal supervisory function, the overall World Bank performance is rated Moderately Satisfactory.

D. RISK TO DEVELOPMENT OUTCOME

Rating: Moderate

89. The IDA Guarantee has proved to be a successful instrument in attracting private investment to deliver critical public service in Côte d’Ivoire, a post-conflict country at the time of project approval. The private sector sponsor, working together with the Government and the World Bank, delivered the project



on time, with only a slight cost overrun of 6.7 percent, and achieved the development outcome. However, with the planned construction of new gas-fired power plants in the next few years, and in the absence of further investments in the upstream gas field development given the financial difficulties in the downstream power sector, there is a risk of disruption in the supply of clean natural gas to these new gas-fired power plants. Since the project closing date, some developments occurred which could have an impact on the project's ability to achieve its development outcomes over the long term. These developments are mentioned below for information purpose and occurred after the project closing date. They are therefore not accounted for in the project rating.

90. Despite the cash waterfall system that is in place, which prioritizes payments to IPPs and gas suppliers, a large amount of payment arrears to Block CI-27 has started to accumulate since 2017 due to cash shortage and challenges relative to the convertibility of local currency to the currency of payment of the GSPA (U.S. dollars). In addition to lower-than-expected growth in demand for electricity from domestic users and importing countries, as well as lower-than-expected billing collection rates, the situation of the sector has been negatively affected by significant arrears from major neighboring importers (Mali and Benin) who are struggling to pay. Because of the 'take-or-pay' nature of CI-ENERGIES contracts with IPPs and gas suppliers, operating costs have not reduced proportionally. In June 2017, the cash flow situation of the power sector was critical: IPPs and gas producers (including FOXTROT) were owed CFAF 140 billion (approximately equivalent to US\$250 million), averaging 5–6 months of billing. In response, the sector took on expensive short-term credit lines from commercial banks for a further CFAF 170 billion (approximately equivalent to US\$300 million); totaling CFAF 310 billion (approximately equivalent to US\$550 million). Because of strong operational performance and a relatively low level of debt and operational costs, Block CI-27 and its shareholders (including the government-owned PETROCI) shielded the lenders from the issue of delayed gas payments and effectively compensated the cash shortfall to the detriment of the shareholders' return, thus avoiding the need to call on the L/C.

91. Foreign exchange risk is one of the key issues relative to payment concerns on this project and the GoCI and CI-ENERGIES have not been making all payments in U.S. dollars as specified by the GSPA. The GoCI/CI-ENERGIES and FOXTROT and its shareholders have a different understanding and interpretation of the applicability of the Central Bank of West African States (*Banque Centrale des États de l'Afrique de l'Ouest*, BCEAO) regulation on the GSPA which specifies payments to be made by USD. A legal clarification on the convertibility issues raised by BCEAO is needed as it may have a wider effect on future investments, in the oil and gas sectors or the extractives in general in the sub-region. Without an agreement on the terms of payment, there is a risk that additional investments to expand the production of gas will not be made and gas supply needed for the sector from 2020 onward—for CIPREL and Azito extensions—will not be secured on time.

92. The fact that there has been no call on the guarantee since the project closing date, despite the risks described above, is partly a result of the World Bank Group's convening power and strong relationship with the GoCI, which has allowed them to focus on the financial recovery of the sector. In line with that focus, the World Bank's Board approved a guarantee operation to help raise capital for CI-ENERGIES to refinance its short-term liability in 2018, which was signed in April 2019. With this refinancing, arrears owed to local commercial banks were entirely repaid, while the arrears to IPPs and gas suppliers have decreased to 1 to 2 months of billing. Additional measures are needed to restore the financial health to the sector, including increasing the billing collection rate, avoiding excessive capital investment without matching financing or revenue, and gaining access to more concessional financing.



CI-ENERGIES will need to carefully manage risks (such as demand, performance, and foreign exchange risks) as any materialization of these risks would reduce cash availability and increase the risk of nonpayment to private companies, including FOXTROT.

93. Since the project closing date, the World Bank's engagement in the sector has focused on actions to restore the confidence to the sector and attract private investment. Otherwise, there would be a strong risk of the loss of the impact of the Block CI-27 expansion project on long-term development outcomes, such as increasing private sector investment and promoting private-sector led growth, in the absence of a sound and conducive environment. The then high level of arrears had damped FOXTROT's confidence in making new gas field exploration investments.

94. If sector revenues are not improved and payment issues not resolved, the project company could draw on the IDA Guarantee and gas supply to the sector could be affected, which is a high risk on the PDO. For the above reasons, the project should continue to be closely monitored by the World Bank throughout the period of validity of the guarantee (as per Investment Project Financing [IPF] policies), during which a periodic assessment of the financial risk to the IDA Guarantee should be carried out.

V. LESSONS AND RECOMMENDATIONS

95. Lessons and recommendations drawn from the World Bank's experience during the preparation and implementation of the IDA Guarantee for the Block CI-27 expansion project are outlined in the following paragraphs.

96. **While the investments made by FOXTROT effectively enabled the power sector to secure its gas needs and contributed to the sustainable growth of the power sector, the financial viability of the power sector may require more actions and resources, such as reforms and additional public and private investments.** The World Bank should remain involved in solving those sectoral issues post project completion, which the guarantee operation cannot address on its own and which in turn enables a safer environment for the project and future private investments in the sector.

97. **Such projects should be carefully designed and implemented so that they fit properly into the sector organization.** The project has enabled the power sector to benefit from cheap, domestic gas resources at a time when significant private sector investments in that field were needed, in a challenging country risk context when it was difficult to attract private sector investments. Proper due diligence gave comfort to the project team that this project was the only viable one at the time of appraisal to supply the much-needed additional gas to the power sector within a reasonable time frame. However, the presence of the IDA payment guarantee in favor of FOXTROT established incentives for GoCI to make efforts to pay FOXTROT gas payments even in a sector difficult financial situation. That payment support has to be designed in conjunction with the application of the laws and regulations governing the sector revenues allocation, in order to continue to attract private sector investments over the long term.

98. **For large and complex projects, the sponsor's past experience with projects of similar complexity is a determining factor for success.** The quality of the sponsor, its commitment to the project, its capacity to negotiate when needed and its experience were key for the successful completion of this project, with its magnitude and complexity, almost within the budget and on schedule. It should be noted



in this context that the downturn in the oil and gas exploration and operation business during 2013–2015 opened a window of opportunity for the sponsor to offset the cost overrun related to the revised scope of works for the platform through timely renegotiation of the contract.

99. **The IDA Guarantee should be negotiated in parallel with the rest of the project agreements to ensure that the terms of the agreements fully reflect the availability and terms of the guarantee for the benefit of the project.** The IDA Guarantee was a prerequisite for the sponsors and the group of project finance lenders to reach financial close for this project. However, the request for the guarantee only reached the World Bank when most project contracts had been signed and risks were already allocated and priced by the different parties. Although the guarantee was factored into the negotiations between CI-ENERGIES, GoCI, and FOXTROT, the sponsors did not have any insurance at that time that the guarantee would be provided. This might have increased the sponsors' perception of CI-ENERGIES' credit risk. With a proper timeline for the processing of the guarantee operation and more certainty on the availability and terms of the guarantee instrument, the World Bank could have played a stronger 'honest broker' role in the project negotiations.

100. **Close coordination between institutions, clear allocation of roles, and careful allocation of risks between IDA and MIGA improve the quality of due diligence of the World Bank Group.** This is achieved through sharing of knowledge and insights in the various facets of technically complex projects in a high-risk sector and country context, while accelerating the due diligence and appraisal process. This operation was one of the first ones to support a private sector project using a joint World Bank Group approach with complementary instruments from IDA (to mitigate the credit enhancement risk of the off-taker) and MIGA (to mitigate the political risk). Each institution factored in its investment decisions and negotiations for the support to be provided by the other institution. As such, this is one of the first operations applying the Maximizing Finance for Development concept of the World Bank Group.

101. **Collaboration across different World Bank Group agencies can help bring effective support to private sector development in fragile, conflict, and violence (FCV) countries.** IDA and MIGA carried out joint due diligence in the appraisal stage of the operation. MIGA benefited from IDA's long-term sector dialogue with the Government and physical presence in the country while the World Bank team gained a lot from MIGA's latest deal and relevant knowledge of Côte d'Ivoire.⁵ It was also one of the first operations where the World Bank Group used the IFC's Environmental and Social PS.

102. **Availability and higher frequency of reporting for guarantees is important, and is required as per IPF procedures, to maintain archives on monitoring of key project factors.** As a complement to sponsors' monitoring and reports as well as informal project and sector dialogue, thorough documentation of supervision missions and activities helps keep World Bank management fully informed about project performance so that appropriate actions can be undertaken in due course if need be. This also allows for an accurate assessment of the quality of the country and sector portfolio.

103. **A suitable supervision budget and a supervision team should be allocated for large and complex guarantee operations like this one, for the entire period when the guarantee is still running.** Supervision of guarantee operations involves the same magnitude of challenges and risks for the World Bank Group

⁵ In December 2012, MIGA issued guarantees totaling US\$116.1 million covering an investment by Globeleq Holdings (Azito) Limited of Bermuda in the Azito Thermal Power Plant in Côte d'Ivoire.



as IPF operations, and even more, since the guarantee usually runs beyond the project completion date when the project is officially closed in the World Bank systems. The fact that this guarantee operation was not allocated a supervision budget reduced the capacity of the project team to monitor the project as needed and assess the risk profile of the operation over time. Strong presence of the World Bank in Côte d'Ivoire, with an international senior energy specialist and a local energy specialist based in Abidjan, and a high level of dialogue with the Ivorian authorities, has however helped mitigate the impacts of the lack of budget. This is not usual and the World Bank may be led to take on riskier projects in the future, especially with its focus on FCV countries where the World Bank has less experience and exposure and other entities of the World Bank Group might even not be present. Furthermore, the World Bank system should be designed in such a way that it allows for better supervision of the guarantee until it is no longer running (as opposed to the project closing date). Finally, the sector's financial health and the electricity service utility's financial capacity should periodically be assessed by the World Bank in light of the World Bank's portfolio and importance of the dialogue in the power sector in the country.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Values Achieved at Completion or Target Years
PDO Indicator 1:	Quantity of gas supplied to power plants (mmscf per day)			
Value (quantitative or qualitative)	140	140 from year 1 to year 5	n.a.	Year 1 (2013): 136 Year 2 (2014): 143 Year 3 (2015): 144 Year 4 (2016): 157 Year 5 (2017): 140
PDO Indicator 2:	Greenhouse gas emissions avoided (tons of CO ₂)			
Value (quantitative or qualitative)	0	Year 1: 419 Year 2 to 5: 458	n.a.	Year 1: 383 Year 2: 323 Year 3: 409 Year 4: 673 Year 5 (2017): 908
PDO Indicator 3:	Power sector savings			
Value (US\$, millions)	0	Year 1: 125 Year 2: 215 Year 3: 288 Year 4: 317 Year 5: 343	n.a.	Year 1: 159 Year 2: 138 Year 3: 127 Year 4: 210 Year 5 (2017): 410
PDO Indicator 4:	Indirect project beneficiaries (million)			
Value (quantitative or qualitative)	7.2	Year 1: 7.6 Year 2: 7.9 Year 3: 8.3 Year 4: 8.8 Year 5: 9.2	n.a.	Year 1: 7.6 Year 2: 8.2 Year 3: 9.0 Year 4: 10.1 Year 5 (2017): 11.7
PDO Indicator 5:	Female beneficiaries (percent)			
Value	49	Year 1: 49 Year 2: 49	n.a.	Year 1: 49 Year 2: 49



(quantitative or qualitative)		Year 3: 49 Year 4: 49 Year 5: 49		Year 3: 49 Year 4: 49 Year 5: 49
Intermediate Indicator 1	Gas production capacity achieved by the project (mmscf per day)			
Value (quantitative or qualitative)	154	154	n.a.	154
Intermediate Indicator 2	Commissioning of the project completed			
Value (quantitative or qualitative)	-	Yes	n.a.	Yes
Intermediate Indicator 3	Commissioning of the project within budget			
Value (quantitative or qualitative)	-	Yes	n.a.	Yes

B. KEY OUTPUTS BY COMPONENT

The project has two components, the drilling and the platform, which are interdependent. Output cannot be assigned to each component, but for the whole project. See previous section.



ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Sunil W. Mathrani	Task Team Leader
Patrice Caporossi	Task Team Leader
Manuel Berlengiero	Task Team Leader
Mark Walker	Senior Counsel
Neil Pravin Ashar	Counsel
Zhengjia Meng	Infrastructure Finance Specialist
Nabil M. Chaherli	Program Leader
Janine A. Speakman	Operations Analyst
Hocine Chalal	Lead Environment Specialist
Amadou Mamadou Watt	Team Member
Supervision/ICR	
Thierno Bah	Task Team Leader
Patrice Claude Charles Caporossi	Task Team Leader
Maurice Adoni	Procurement Specialist
Robert Wallace DeGraft-Hanson	Financial Management Specialist
Aissatou Seck	Counsel
Lu T. Ha	Team Member
Nathalie Tchoumba B	Team Member
Abdoulaye Gadiere	Safeguards Specialist



B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
Preparation		
FY11	8.177	46117.14
FY12	0.08	1206.04
Total	8.257	47,323.18
Supervision/ICR		
FY13	0.917	5887.87
FY14	1	6051.2
Total	1.917	11,939.07



ANNEX 3. PROJECT COST BY COMPONENT

Project Components	Description	Year of Drilling	Cost Estimate at Appraisal	Actual Cost at Completion	Delta	Variation
			(US\$, millions)	(US\$, millions)	(US\$, millions)	Percent
Drilling	Exploration well Homard-1X	2011	24	30	6	25
	Mahi 1 well (renamed Mahi-A1)	2012	41	55	14	34
	Mahi 2 well (renamed Mahi-A2)	2012	54	63	9	17
	FOXTROT A well 5	2012	40	51	11	28
	FOXTROT A well 6	2012	55	43	-12	-22
	2011 and 2012 campaign		214	242	28	13
	Evaluation well	2016	45	48	3	7
	Marlin well reentry (renamed Marlin-B1)	2015	15	32	17	113
	Marlin well 1 (renamed Marlin-B2)	2016	35	34	-1	-3
	Marlin well 2 (renamed Marlin-B3)	2016	35	54	19	54
	Marlin well 3 (renamed Marlin-B4)	2016		41	41	
	Manta well 1 (renamed Mahi-B1)	2016	50	49	-1	-2
	Manta well 2 (renamed Mahi-B2)		50		-50	-100
	2015 and 2016 campaign		230	258	28	12
Subtotal - Drilling			444	500	56	13
Marlin platform	Fabrication and hook-up		170	193	23	14
	Hook-up and commissioning			8	8	
	Transport and installation		35	33	-2	-6
	Pipelay		80	80	0	0
	Shore approach and onshore tie-in		19	17	-2	-11
	FOXTROT A modification		15	13	-2	-13
	Project management and engineering		46	49	3	7
	Contingency		30	0	-30	-100
	Insurances			10	10	
Subtotal - Marlin platform			395	403	8	2
Others	Engineering studies and geoscience		9	9	0	0
	Other investment and exploration		97	97	0	0
	Overall management		15	15	0	0
Subtotal - Others			121	121	0	0
Grand total			960	1024	64	7



ANNEX 4. EFFICIENCY ANALYSIS

1. The benefits of the Block CI-27 expansion project were assessed economically from the country's perspective and financially from the shareholders' perspective in the PAD. An ex post economic and financial analysis of the project was carried out to assess the efficiency of the project at closing.
2. A separate economic analysis was carried out in the PAD to assess the project benefits while considering the opportunity cost of not proceeding with the expansion of Block CI-27 production facilities. This analysis was done by assessing the benefits from avoided cost of substituting gas not made available through an expansion with liquid fuel, as the only available alternative at the time of appraisal. There was no viable immediate alternative to the expansion of the Block CI-27 production fields at the time of appraisal. There were only scattered discoveries of smaller offshore natural gas fields, but no large and low-extraction-cost field was available. The only way to meet short- to medium-term demand was to use liquid fuels—at high cost and with a high environmental footprint.
3. Indicative figures of annual savings in the power sector were calculated based on a liquid fuel price of US\$15 per kWh. Carbon savings reached 2,706 thousand tons during 2013-2017 vis-à-vis planned 2,212 thousand tons.
4. In the PAD, the volume of gas substitution was calculated as the difference between gas production without the project and the targeted 140 mcf per day off-take. The actual values for the ICR are calculated as the difference between the revised estimated production of the field without the project provided by the Block CI-27 JV in 2018 and the actual off-takes from Block CI-27 provided by CI-ENERGIES. The reduction in gas emissions was expected from the substitution of HFO-based power as a result of the project. The amount of gas reduction depends upon the volume of gas substitution and the difference between CO₂ emissions from gas and HFO.
5. Power sector savings are attributable to the avoided use of liquid fuel (mainly HFO and marginally diesel fuel) in the power plants, which would have occurred if the gas supply capacity of Block CI-27 was not increased through the implementation of the project. Power sector savings were affected by an increase in gas demand from Block CI-27 (relative to the decrease in gas supply of other producers) and a decrease in the price of petroleum products compared to expectations at appraisal which has reduced the advantage of using gas as opposed to an HFO alternative. Realized net benefits are estimated at US\$2.2 billion.
6. The environmental benefits expected in the project were nearly doubled. Reduction of CO₂ constituted 908 tons in 2017 vis-à-vis 458 tons planned. The initial methodology to calculate carbon savings used conservative assumptions concerning CO₂ emissions leading to a low estimate of the difference in CO₂ emissions between the 'with-' and the 'without-' project cases. Using a direct evaluation of fuel consumption based on CO₂ emissions per unit of fuel burned with and without the project, the revalued CO₂ emissions avoided are higher than at appraisal. The revaluated reduction in CO₂ emissions are higher than at appraisal because the volume of saved gas was capped conservatively at 55 mmscf per day whereas the figures of FOXTROT production with and without the project in the PAD led to an estimate of 104 mmscf per day in 2017, consistent with the revised estimate of 105 mmscf per day.



7. Financial analysis. The financial analysis conducted for the PAD was repeated using actual values until 2017 to determine if the IRR is in line with projections in the PAD. In the PAD, the project team used the financial model developed by the JV. At the time of appraisal, the Block CI-27 JV had a solid financial performance, reflecting strong expected cash flow from the project under the terms of the previous GSPA. The modified GSPA was expected to lead to healthy returns with an IRR computed on the incremental cash flow generated from the new investment. The actual IRR at project closing, in 2017, is slightly higher than the appraisal estimates (see PAD for more details).



ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

Comments received from CI-ENERGIES

Corriger la puissance installée d'Azito qui est de 253 MW au lieu de 280 MW.

Comments received from FOXTROT

Concernant les problématiques de change

Nous souhaitons rappeler que :

- Foxtrot applique strictement les engagements contractuels pris avec l'Etat (tant au niveau du CPP que du TOP) ;
- pour encourager les investissements étrangers futurs en Côte d'Ivoire, la Banque Mondiale devrait apporter son soutien pour infléchir la position de la BCEAO sur le contrôle des changes en particulier pour l'activité pétrolière et gazière, qui nécessite par essence de vastes investissements en US dollars.

Concernant les problématiques de traitement préférentiel

Le rapport de la banque indique « Cependant, la présence de la garantie de paiement de l'IDA en faveur de FOXTROT peut avoir conduit à un traitement préférentiel par rapport aux autres acteurs privés du secteur (PIE et autres fournisseurs de gaz) dans un contexte de détérioration de la santé financière du secteur. Cette situation ne doit pas être encouragée à long terme, car elle pourrait dissuader les investissements privés dans le secteur sur le long terme et amener d'autres partenaires de développement à remettre en question l'application des lois et règlements régissant l'affectation des recettes du secteur. Une stratégie de sortie devrait être élaborée afin que la garantie ne soit utilisée qu'en cas de besoin pour créer un environnement favorable à la participation du secteur privé, avec des conditions de concurrence équitables. ».

Foxtrot souhaite souligner que sans la mise en place d'une garantie par la Banque Mondiale, le financement du projet n'aurait pas pu voir le jour et par conséquent la Côte d'Ivoire n'aurait pas pu bénéficier de gaz additionnel nécessaire à la croissance du pays.