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Report No: 141683-AF

PROJECT APPRAISAL DOCUMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION (IDA)
ON A PROPOSED GUARANTEE IN THE AMOUNT OF UP TO US$12 MILLION
IN SUPPORT TO THE ISLAMIC REPUBLIC OF AFGHANISTAN

ON SUPPORT FROM THE IDA18 IFC-MIGA PRIVATE SECTOR WINDOW (PSW) RISK MITIGATION FACILITY (RMF) OF UP TO US$32.5 MILLION FOR THE PROPOSED IFC INVESTMENT
ON SUPPORT FROM THE IDA PSW MIGA GUARANTEE FACILITY (MGF) OF UP TO US$26.5 MILLION FOR THE PROPOSED MIGA GUARANTEES

AND
INTERNATIONAL FINANCE CORPORATION (IFC)
ON A PROPOSED INVESTMENT CONSISTING OF
AN A LOAN IN THE AMOUNT OF UP TO US$ 23.8 MILLION
AND CLIENT RISK MANAGEMENT SWAPS HAVING IN AGGREGATE AN EXPECTED LOAN EQUIVALENT EXPOSURE OF UP TO US$1.5 MILLION
TO THE AFGHAN POWER PLANT COMPANY

AND
THE MULTILATERAL INVESTMENT GUARANTEE AGENCY (MIGA)
ON PROPOSED GUARANTEES IN THE TOTAL AMOUNT OF UP TO US$48.7 MILLION
TO GHAZANFAR NEFT & GAS DMCC OF THE UNITED ARAB EMIRATES; METKA POWER INVESTMENTS LTD. OF THE REPUBLIC OF CYPRUS; AND DEUTSCHE INVESTITIONS-UND ENTWICKLUNGSGESELLSCHAFT (DEG) OF THE FEDERAL REPUBLIC OF GERMANY

FOR THE
MAZAR-E-SHARIF GAS-TO-POWER PROJECT

September 16, 2019

Energy & Extractives (South Asia Region) / Infrastructure, PPPs, & Guarantees, World Bank
Infrastructure and Natural Resources (Asia & Pacific Region), International Finance Corporation
Energy and Extractive Industries Sector Team, Multilateral Investment Guarantee Agency

CURRENCY EQUIVALENTS

(Exchange Rate Effective August 31, 2019)

Currency Unit =	US$
Afghani 77.95 =	US$ 1

FISCAL YEAR
January 1 - December 31

Afghan fiscal year: 22 December – 21 December

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Regional Industry Director:	Isabel Chatterton
Blended Finance Director:	Martin C. Spicer
Transaction/ Regional Industry Manager:	Lubomir Varbanov
Senior Country Manager/Officer:	Nadeem Siddiqui/ Wagma Mohmand
Global Industry Manager:	Nuru Lama (Acting)
Investment Leader:	Kamal Dorabawila
Investment Team:	Zeeshan Ahmed Sheikh, Yuji Kano, Mirza Khurram Baig, Paridhi Agrawal
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Team Leader:	Kyoo-Won Oh
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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AFN	Afghan Afghani
AGE	Afghan Gas Enterprise
AIIM	Anticipated Impact Measurement and Monitoring
APPC	Afghan Power Plant Company
BOC	Breach of Contract
CE	Citizen Engagement
COD	Commercial Operation Date
CPF	Country Partnership Framework
CAO	Compliance Advisor Ombudsman
CO2	Carbon Dioxide
DABS	Da Afghanistan Breshna Sherkat
DEG	Deutsche Investitions- Und Entwicklungsgesellschaft
DFI	Development Finance Institution
EPC	Engineering, Procurement, and Construction
EIRR	Economic Internal Rate of Return
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESRS	Environmental and Social Review Summary
EH&S	Environment, Health & Safety
FIRR	Financial Internal Rate of Return
FCS	Fragile and Conflict-Affected States
FIC	Foreign Investment Contribution
GDP	Gross Domestic Product
GG	Ghazanfar Group
GHG	Greenhouse Gas
GOA	Government of Afghanistan
GPN	General Procurement Notice
GRM	Grievance Redress Mechanism
GSA	Gas Supply Agreement
GW	Giga Watt
GWh	Giga Watt hours
GRS	Grievance Redress Service
GBV	Gender Based Violence
HSE	Health, Safety and Environment
HSES	Health, Safety, Environment and Social

HR	Human Resources
IA	Implementation Agreement
IDA	International Development Association
IFC	International Finance Corporation
IMF	International Monetary Fund
IPP	Independent Power Producer
IDC	Interest During Construction
IMPACT	Impact Performance Assessment and Comparison Tools
IPF	Investment Project Financing
IPG	Infrastructure, PPPs & Guarantees
JV	Joint Venture
kWh	kilo Watt hours
km	kilo meter
kV	kilo Volt
L/C	Letter of Credit
LTSA	Long Term Service Agreement
LEQ	Loan Equivalent Exposure
LEAP	Leading Asia's Private Infrastructure Fund
MW	Mega Watt
MEW	Ministry of Energy and Water
MGF	MIGA Guarantee Facility
MIGA	Multilateral Investment Guarantee Agency
MoF	Ministry of Finance
MoMP	Ministry of Mines and Petroleum
M&E	Monitoring and Evaluation
MFD	Maximizing Finance for Development
MMBTU	Million British Thermal Units
Mcmd	Million cubic meters per day
MCM	Million cubic meters
NEPS	North-East Power System
NESP	National Energy Supply Program
NFPP	Northern Fertilizer Power Plant
NPV	Net Present Value
O&M	Operations and Maintenance
OFC	Offshore Financial Center
OP	Operational Policy
OHS	Occupational Health and Safety
PS	Performance Standard
PP&E	Property, Plant and Equipment
PDO	Project Development Objective

PPA	Power Purchase Agreement
PPP	Public-Private Partnership
PRI	Political Risk Insurance
PSW	Private Sector Window
PLR	Performance Learning Review
RAP	Resettlement Action Plan
RMF	Risk Mitigation Facility
SCD	Systematic Country Diagnostic
SDNRP	Sustainable Development of Natural Resources Project
SEP	Stakeholder Engagement Plan
SBLC	Standby Letter of Credit
SHS	Solar Home System
SMPL	Shebherghan-Mazar Pipeline
SORT	Systematic Operations Risk-Taking Tool
SCD	Systematic Country Diagnostic
ToR	Terms of Reference
TTL	Task Team Leader
USAID	United States Agency for International Development
UNAMA	United Nations Assistance Mission in Afghanistan
UAE	United Arab Emirates
US$	United States Dollar
WTP	Willingness to Pay
WACC	Weighted Average Cost of Capital

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DATASHEET

BASIC INFORMATION

Country	Project Name
Islamic Republic of Afghanistan	Mazar-e-Sharif Gas-to-Power Project

Project ID	Financing Instrument	Environmental Assessment Category
P157827	IDA Investment Project Financing (Guarantee); IFC A Loan and Client Risk Management Swap; IDA PSW RMF; MIGA PRI; and IDA PSW MGF	B

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[ ] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Disbursement-linked Indicators (DLIs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[x] Project-Based Guarantee	[x] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternate Procurement Arrangements (APA)	

Expected Approval Date	Expected Project Closing Date	Expected Guarantee Expiry Date
October 2019	May 2025	March 2040

Bank/IFC/MIGA Collaboration

YES

Proposed Development Objective(s)

The project development objective is to increase the amount of reliable indigenous electricity generated and to mobilize private capital for Afghanistan

Components

Mazar gas to power plant	Cost (USD96.6 million)

Organizations

Borrower:	Islamic Republic of Afghanistan/ Afghan Power Plant Company
Implementing Agency:	Ministry of Energy and Water/Afghan Power Plant Company

PROJECT FINANCING DATA (USD, Millions)

SUMMARY

Total Project Cost	96.6
Total Financing	96.6
of which IDA Guarantee	12.0
Financing Gap	0

DETAILS

World Bank Group Financing and Guarantees

International Bank for Reconstruction and Development (IBRD)(IDA) Payment Guarantee	12.0
International Financial Corporation (IFC) A Loan	23.8
Multilateral Investment Guarantee Agency (MIGA) Political Risk Insurance (PRI)	48.7
IDA PSW Risk Mitigation Facility (RMF) Political Risk Insurance (PRI)	32.5
IDA PSW MIGA Guarantee Facility (MGF) First Loss and Reinsurance	26.5

Non-World Bank Group Financing

Counterpart Fundings (Ghazanfar Neft & Gas DMCC of the UAE and METKA Power Investments Ltd. of Cyprus) Equity	29.0
Borrowing AgencyLoan, including Leading Asia's Private Infrastructure Fund (LEAP)	20.0
Deutsche Investitions Und Entwicklungsgesellschaft (DEG) Loan	23.8
Local Sources of Borrowing Country	0.0

INSTITUTIONAL DATA

Practice Area (Lead)

Energy and Extractives
Infrastructure, PPPs, and Guarantees (IPG)
Infrastructure and Natural Resources (IFC)

Contributing Practice Areas

[Fragile Conflict and Violence]

Climate Change and Disaster Screening

The proposed Project has been screened for climate change and disaster risks. The project location as well as project components were not found to be vulnerable to climate and geophysical hazards for the most part. Only a few areas of slight or moderate expsosure were identified.

Gender Tag

Does the project plan to undertake any of the following?	
a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF	No
b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment	No
c. Include Indicators in results framework to monitor outcomes from actions identified in (b)	No

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	H
2. Macroeconomic	H
3. Sector Strategies and Policies	H
4. Technical Design of Project or Program	L
5. Institutional Capacity for Implementation and Sustainability	H
6. Fiduciary	L
7. Environment and Social	M
8. Stakeholders	M
9. Other	H

10. Overall	H

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [ ] No

Does the project require any waivers of Bank policies?

[ ] Yes [ ] No

Safeguard Policies Triggered by the Project	No	Yes
Environmental Assessment OP/BP 4.01	X	
Performance Standards for Private Sector Activities OP/BP 4.03		X
Natural Habitats OP/BP 4.04	X	
Forests OP/BP 4.36	X	
Pest Management OP 4.09	X	
Physical Cultural Resources OP/BP 4.11	X	
Indigenous Peoples OP/BP 4.10	X	
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37	X	
Projects on International Waterways OP/BP 7.50	X	
Projects in Disputed Areas OP/BP 7.60	X	

PS1 – Assessment and Management of Environmental and Social Risks and Impacts;
PS2 – Labor and Working Conditions;
PS3 – Resource Efficiency and Pollution Prevention;
PS4 – Community Health, Safety, and Security;
PS5 – Land Acquisition and Involuntary Resettlement

PROJECT TEAM

World Bank Staff

Name	Role	Specialization	Unit
Fanny Missfeldt-Ringius	TTL	Lead Energy Specialist	ISAE1
Christina Paul	TTL	Counsel and PPP Specialist	IPGFS
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World Bank Extended Team

Name	Title	Organization	Location
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IFC Team

Name	Title	Specialization	Unit
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Mirza Khurram Baig	Investment Officer	Investment	CTAPS
Paridhi Agrawal	Associate Investment Officer	Investment	CNPYP
Veronique Gubser	Chief Counsel	Legal	CLENG
Audrey Grace Yu	Chief Credit Officer	Credit Risk	CIRIC
Meena Sankar	Principal Risk Officer	Integrity	CBRBC
Lucas Diez Suarez	Counsel	Integrity	CBRBR
Chandrasekeren Subramaniam	Principal Industry Specialist	Power	CNGEN
Thyl Kint	Principal Industry Specialist	Gas	CNGEN
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Cecile Marie Puiggali	Financial Officer	Treasury	CTCEM
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Wagma Mohmand	Senior Country Officer	Region	CPAAK
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Juan Carlos Pereira	PSW RMF Coordinator	Blended Finance	CN3S6
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Maham Iftikhar Warraich	Investment Officer	Blended Finance	CBFNP
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MIGA Team

Name	Title	Specialization	Unit
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Dessislav Dobrev	Senior Counsel	Legal Affairs & Claims	MIGLC
Milton Shapiro	Senior Integrity Compliance Officer	Integrity Compliance	MIGES
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Miriam Ebo	Operations Analyst	Operations	MIGOP
Diego Soto Garcia	Legal Analyst	Legal Affairs & Claims	MIGLC
Samuel Mungai	Operations Analyst	Operations	MIGOP
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I. STRATEGIC CONTEXT

A. Country Context

1. **Substantial improvements in development outcomes have been observed in Afghanistan since 2001, particularly in expanded access to water, sanitation and electricity, education and health services. Macroeconomic management remains strong, government revenues have grown rapidly since 2014, and the government has engaged in an impressive range of business environment and public financial management reforms.** However, some gains are now eroding, and risks are rapidly rising. Economic growth has slowed substantially with a significant reduction in international troop numbers and increased insecurity since 2014. Civilian casualties remain at unprecedented levels: 10,459 killed or wounded in 2017 and 10,993 in 2018. While United Nations Assistance Mission in Afghanistan (UNAMA) reported a 27-percent decrease in casualties in the first half of 2019 compared to the same period in 2018, violence has picked up afterward, especially in August and September. Various efforts towards a political settlement with the Taliban have been ongoing throughout 2019, but the probability of significant improvements in the security situation in the short run seems low. Afghanistan faced severe economic headwinds in 2018, with the economy growing by an estimated 1.8 percent. Two main factors drove the slow growth. Firstly, severe drought had a strong negative impact on agricultural production. Secondly, business and investor confidence deteriorated significantly in the context of elevated uncertainty around: i) the level and duration of international security assistance; ii) prospects of continued or worsening election-related violence (civilian deaths reached their highest level since 2001); and iii) prospects of a peace settlement.

2. **Real GDP growth is expected to have accelerated to 2.5 percent during the first half of 2019, mainly driven by the easing of drought conditions and improved agricultural production.** Growth is expected to accelerate further by 2021 assuming a smooth political transition after the September 2019 elections. With the population growing at 2.7 percent per annum, however, the projected growth path will not be strong enough to improve incomes and livelihoods for most Afghans.

3. **The poverty rate in Afghanistan has increased significantly: from 38 percent in 2011/12 to 55 percent in 2016/17.** It is estimated to have further increased and deepened since then. The drought negatively impacted livelihoods of many of the 82 percent of the poor living in rural areas. Drought-induced displacement reached record levels of 298,582 individuals, mainly to urban areas in adjacent provinces. Poverty is expected to remain high in the medium-term, driven by weak labor demand (despite an increasing labor force) and security-related constraints on service delivery.

4. **For the longer term, growth prospects are predicated on improvements in security, steady progress with reforms, and sustained aid.** Growth could also be enhanced by mobilizing investment in extractives, energy, and connectivity, building and harnessing the skills of Afghanistan's youth and women, and taking steps to realize the job creation potential of agriculture and agribusinesses.

B. Sectoral and Institutional Context

5. Reforms and investments on the extractives and energy sectors are key for Afghanistan to achieve its full growth potential. Reforms are required immediately to both improve general investment confidence and mobilize existing economic potential. Aside from agriculture, extractives and energy are the only areas that harbor significant economic growth potential for Afghanistan.

6. Accelerated development of extractives and electricity sectors is needed for the following reasons: (i) by diversifying sources of electricity supply, more Afghans can be provided with access to the electric grid. Improved electricity supplies would also help in establishment of other industries in Afghanistan wherein electricity is a key input, leading to employment generation and economic growth of the country. This will enable Afghans to lift themselves out of poverty, by allowing them to engage in more productive uses; (ii) diversifying electricity sources will also provide for more stable supply for those who already have access to the electric grid; (iii) increasing the supply of gas-fired power will help technically stabilize the electricity grid as the Government is advancing a 2,000 MW solar energy program (compared to 522 MW domestic power currently installed) as part of a wider green growth agenda; and importantly (iv) over the next 15 years, extractives is the only sector that has the potential to generate exports and revenues at scale, and is able to generate foreign exchange thus providing for greater fiscal stability.

7. It is well recognized that gas power plants by independent power producers (IPPs) with medium to long term power purchase agreements (PPAs) can serve as an anchor for gas sector development and provide security of electricity supply. IPPs also serve as an effective on-the job capacity building opportunity in support of the expansion of gas-based power generation. However, Afghanistan has yet to demonstrate a fully integrated “proof of concept” investment to develop and deliver natural gas. Against this background, the Government of Afghanistan (GoA) has requested the World Bank Group’s support on a dedicated gas-to-power development program, which includes three inter-related initiatives aimed at jump-starting the extractives sector through a combined push-pull strategy.

8. World Bank Group (WBG) is supporting the entire gas-to-power value chain to provide a boost for the sector development. The “push” for the development of the gas sector is provided for by a targeted new project helping develop specific gas supply infrastructure and improve the governance of the gas sector, the Afghanistan Gas Project (A-GASP) prepared in parallel with the proposed Project and expected to be presented to the Board during second quarter of FY20. The A-GASP ensures that enough gas can be supplied for the current consumers, such as Fertilizer Plant that is currently one of the biggest consumers, as well as future consumers, in particular for power generation purpose. It will be proposed to be financed by an IDA grant (P172109). The “pull” is being provided by two small-size gas-fired power plants, both supported by IDA, which will create a cornerstone market for the gas: (i) the proposed Sheberghan Gas-to-Power Project (P166405), a 40 MW gas-fired independent power producer (IPP) to be located at Sheberghan near the existing gas fields which will initially operate for a 5-year term; and (ii) the proposed Project, Mazar-e-Sharif Gas-to-Power Project (P157827), a 58.6 MW gas-fired IPP to be located at Mazar-e-Sharif which will operate over a 20-year timeframe.

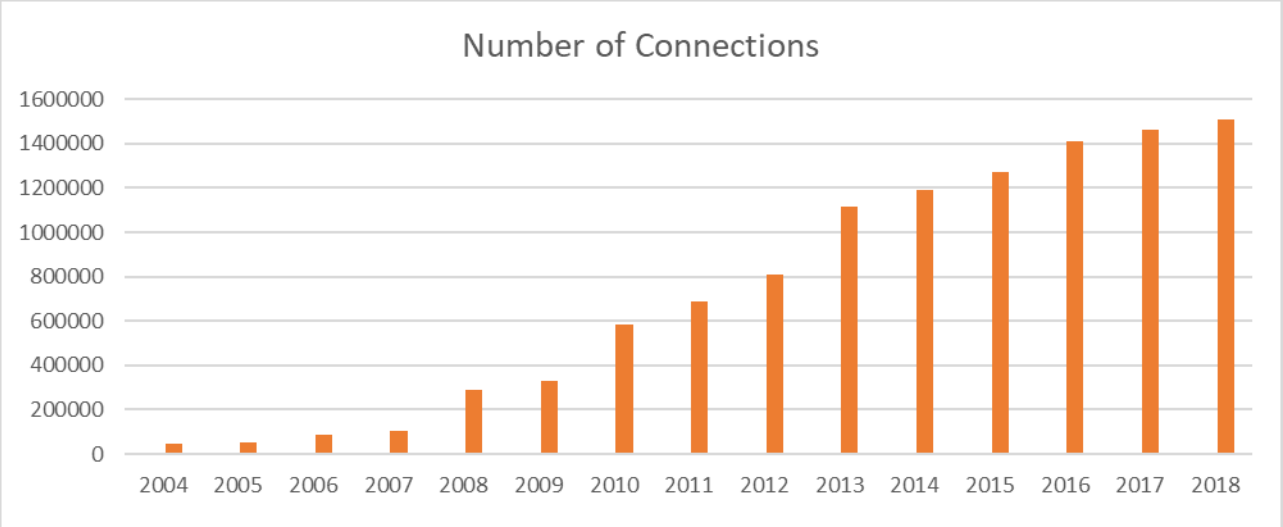
9. The first of these two IPP projects will be supported by an IDA guarantee, whereas the second will be supported by multiple WBG instruments, including IDA and MIGA guarantees, an IFC loan, and IDA PSW. The gas demand of all consumers requires the optimization of gas field facilities, including adequate

dehydration, compression and desulfurization capacity. The completion of construction of the Sheberghan – Mazar Pipeline (SMPL) is another key requirement for the future gas supply to existing consumers, such as Fertilizer Plant located in Mazar-e-Sharif region, as well as other consumers in the area, including the proposed Project. These pieces of infrastructure are proposed to be funded under A-GASP project.

Electricity Sector

10. Access to electricity remains low but has steadily increased since 2004. As of December 2018, Afghanistan's access to grid electricity was estimated at 34 percent. Access to electricity is focused in urban areas and along transmission corridors that are connected to imported energy. Afghanistan's per capita electricity consumption averages 178 kilo Watt-hour (kWh) per person per year, significantly less than the South Asian average of 667 kWh per person and the average electricity usage of 3,050 kWh per person worldwide (based on 2015 data). Nevertheless, electricity access has expanded steadily, and the number of customers has grown from only a few tens of thousands in 2004 to over 1.5 million as of August 2018 (see Figure 1). More than 92 percent are residential consumers and about 6 percent are commercial consumers. The remaining 2 percent include Public Agencies (Government of Afghanistan (GoA) departments, holy places, etc.) and Industrial enterprises (Registered & Unregistered).

Figure 1: DABS Growth of Customers (Source: DABS)

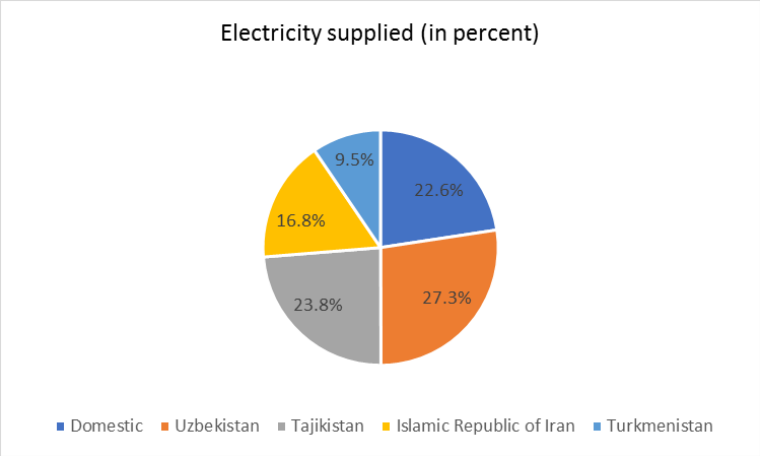


11. However, gains in electricity access are fragile. Afghanistan's grid structure, which is operated on more than four separate grid islands, creates a challenging environment for the continued supply of power. The failure of the transmission lines between Uzbekistan, Tajikistan, and Afghanistan in February 2016, which were expected to provide 81 percent of Afghanistan's electricity in 2015-16, illustrates the fragility of the system and the need for diversifying power supply. Similar failures took place in early 2018. Load shedding and outages even in the urban areas are common so that many homes and businesses continue to rely on private generators. A recent survey indicated that 75 percent of grid-connected households and 57 percent

of business and institutional customers had some sort of backup supply in place1. Enhanced domestic self-reliance on electricity thus means greater security of supply.

12. Afghanistan's electricity mix is dominated by electricity imports that are complemented by domestic hydropower. The country has limited indigenous sources of electricity, with only approximately 522 Mega Watt (MW) of installed capacity. The installed capacity is a mix of hydro (49 percent), thermal (39 percent), and diesel (12 percent). This compares to more than 1,000MW of imported electricity from four neighboring countries: the Islamic Republic of Iran, Tajikistan, Turkmenistan, and Uzbekistan (see Figure 2 below). Imports are based on annual Power Purchase Agreements (PPAs) with these countries. While current prices are low, there is no certainty on pricing or continuity of supply over the longer term. For the period of 2016-2017, electricity imports of 3,841 GWh made up 75 percent of supplied electricity. Imported electricity is core to meeting Afghanistan's electricity demand and has resulted in the supply of electricity consumption almost tripling compared to the 1,289 GWh consumed in 2006.

Figure 2: Electricity Supplied to Afghanistan from Domestic and Foreign Sources (as estimated for 2017/2018) (Source: DABS)



13. The current average retail tariff is 6.8 Afghanis/kWh (equivalent to approximately US cents 9/kWh), which is below the average cost of supply. However, capital investments are largely financed by grants from donors, and the pricing reflects a deliberate choice by Afghanistan's power utility, Da Afghanistan Breshna Sherkat (DABS), to partially pass on the investment subsidies to its customers. In the past, DABS has generally shown positive cash-flow and profits. This was due to several positive factors including donor funding of capital expenditure, exclusion of depreciation charges from the finances, and historical budgetary allocations from the Ministry of Energy and Water (MEW) and the Ministry of Finance (MoF). Nevertheless, the need for sector investment exceeds the availability of donor financing, which decreases DABS ability to continue to maintain tariffs that are below the cost of supply. Furthermore, ongoing depreciation of the exchange rate places increasing pressure on the company's finances as a large percentage of its costs, including the supply of imported electricity, are incurred in US dollars.

[1] Samuel Hall and Associates, Afghanistan Energy Survey 2018-2019, World Bank funded study, unpublished data

14. Plans for generation expansion see a dual role for expanding domestic supplies and enhancing electricity imports. The 2013 Power Sector Master Plan prepared by the MEW2 presented a 20-year electricity demand forecast requiring a base case peak load of 3,502 MW and assessing a gross demand of 18,409 GWh by 2032. To meet this demand, the Power Sector Master Plan identified a combination of increasing domestic energy generation by means of thermal and hydropower plants, as well as imports. The construction of 150 MW of gas-fired power plants in north-western Afghanistan – the envisaged location of the proposed Project – is shown to be the least cost power generation option from 2017 in all scenarios[3].

15. A further challenge related to Afghanistan's energy sector is its transmission and distribution system which is small, fragmented, and underdeveloped. In total, there are 790 km of 220 kV, 140 km of 132 kV, 1,331 km of 110-kV lines, 1,895 km lines at 15 kV to 44-kV as well as about approximately a further 6,000 km of lower voltage lines installed. Of this, about 2,170 km of transmission line and about 3,700 km of distribution line are operating4. The overall network consists of four major working islands linking the different generation sources to the grids: (a) the North-East Power System (NEPS), which consists of multiple small islands and connects 17 load centers including Kabul, Mazar-e-Sherif, and Jalalabad with Tajikistan and Uzbekistan (at 220 kV, 110 kV, and 35 kV); (b) the South-East Power System consisting of Kandahar and linking with Kajaki (110 kV); (c) the Herat System linking with the Islamic Republic of Iran and Turkmenistan (132 kV and 110 kV); and (d) the Turkmenistan System linking Faryab, JawzJan, Sar-e-Pul, and Andkhoy Districts (110 kV). However, there are efforts underway to link some of these islands. A HV transmission line from Turkmenistan to Kabul and from Kabul to the Eastern provinces, financed by the Asian Development Bank (ADB), is under construction, expected to be completed in 2020. A transmission line from Kabul to the Southern provinces, financed by the United States Agency for International Development (USAID), is partly completed, and partly under construction to be completed also in 2020. The proposed Project will be connected to the NEPS.

Gas Sector

16. The U.S. Geological Survey and the Ministry of Mines and Petroleum (MoMP) have assessed the undiscovered conventional, technically recoverable natural gas resources of northern Afghanistan at a substantial 15.7 trillion cubic feet (TCF), placing the country somewhere between Mexico and Pakistan in terms of reserve volumes. It is expected that natural gas will be an increasing component of the fuel mix going forward to balance high-growth across an array of end-use energy demands. Natural gas, which has half the carbon footprint of coal, is a lower-cost means of providing flexible energy solutions, including electricity supply, while it can also contribute to addressing the nation's fiscal and external imbalances, and the crippling environmental, social as well as occupational health and safety issues resulting from weakly regulated coal mining.

[2] Islamic Republic of Afghanistan MEW/ADB/Fichtner. Power Sector Master Plan. Final Report. April 2013.
[3] There is only one other option that the expansion plan evaluates as being lower cost, which is the interconnection of the NEPS and the South-East Power System within Afghanistan and would take longer to be completed.
[4] Multiple transmission rehabilitation and expansion projects are underway, most notably the CASA-1000 Project that will link Kyrgyzstan and Tajikistan (as energy exporters) with Afghanistan and Pakistan (as energy importers).

17. The proposed Project would constitute a proof of concept project both for the gas development and for the expansion of gas-based power generation capable of displacing electricity imports. The most recent assessment of existing field production data and contingent resources for known gas fields – seven fields (Jarquduk, Khoja Gogerdak, Yatimtaq, Khoja Bolan, Juma/Bashikurd and Shakarak – compare Figure 3) in the Sheberghan area – was conducted in July 2016[5]. According to its findings, even its 1C or "low case" estimates (see Table 1) would be adequate to support a stable supply of natural gas at current production volumes and for gas-based power generation such as the proposed Project in the short-term. Natural gas production facilities in two wells at Yatimtaq, one of the gas fields at Sheberghan, have recently undergone rehabilitation work with support from the ADB and are assessed to be in serviceable condition. For the proposed Project this implies that there is adequate gas supply to cover the first five years of the 20-year PPA, based on minor investments in refurbishment and optimization of existing production and field facilities.

Figure 3: Map of gas fields in Sheberghan area

Table 1: USAID/Mc Daniel Assessment[1]

Contingent Resources under Different Scenarios

	2C BCM	2C TCF	1C TCF	3C TCF
Jarquduq	1.233	0.04	0.02	0.10
Khoja Gogerdak	3.424	0.12	0.08	0.18
Yatimtaq	5.666	0.20	0.15	0.26
Shakarak	0.433	0.02	0.00	0.04
Juma Bashikurd	16.394	0.58	0.33	0.79
Khoja Bolan	2.601	0.09	0.07	0.13
Jangali Kalan				
Chekhche				
TOTALS	29.750	1.05	0.64	1.50

[1]The gas measurement refer to billion cubic meters (bcm) of natural gas and trillion cubic feet (TCF)

18. However, long-term gas supply for the proposed Project will require additional investments in field production, gathering and processing as well as gas supply infrastructure. Current production of

[5] Report by McDaniel & Associates Consultants Ltd. (under an USAID funded program).

approximately 300-350 thousand cubic meters per day (Mcmd) comes from four productive fields that have been in production since the 1960s: (i) Jarquduq (10 Mcmd); (ii) Khoja Gogerdaq (70 Mcmd); (iii) Shakarak (80 Mcmd), which has only one well in production; and (iv) Yatimtaq (150 Mcmd). The older fields, Khoja Gogerdaq and Jarquduq, which produce sweet natural gas (low hydrogen sulfide content) are already in decline, with low wellhead pressures (4 bar) that do not meet inlet pressure requirements at the dehydration and desulfurization inlets (50 bar). To guarantee long-term gas supply for the proposed Project beyond the first 5 years of operation, four to seven new wells need to be drilled at the Yatimtaq field at a cost of about US$ 10 million per well. This development plan, however, is based on information gathered before the Soviet departure from Afghanistan in 1988. An updated development plan is now required on the basis of gathered information on the Yatimtaq wells since then. This new field development plan is contemplated among the components of the AGASP project. Once completed, it will be possible to better determine the number, sequencing, location and cost of the new wells. The plan will also help determine the optimal source of financing for these activities. With regards to gas processing, the natural gas extracted from Yatimtaq's wells is 'sour', with high hydrogen sulfide content. The existing amine plant at the Sheberghan gas fields had not been adequately installed. It is operating at only 20 percent capacity and requires optimization, operation and maintenance to sustainably yield its nameplate capacity of 960 Mcmd. Further investments will therefore be needed to ensure continued sustainable and reliable delivery of commercial-quality natural gas; these include i) the optimization of field facilities to deal with projected increased offtake volumes, including dehydration, compression and desulfurization (existing amine plant) to address recently identified fluctuations in gas flow pressures, temperature and composition of natural gas flows; and ii) the construction of the SMPL. To address these bottlenecks and requisite overall gas sector reforms, the World Bank is assisting the GoA through the proposed A-GASP project (P172109), currently under preparation. In the meantime, the GoA, with Bank support, has procured international experts (on site since June 2018) to assist in optimizing and improving operations of the existing amine desulfurization plant and is also in the process of tendering a turn-key contract to procure a new amine plant.

19. Transporting the gas from Sheberghan to the power plant in Mazar-e-Sharif requires completion of the construction of a new SMPL pipeline. An existing gas pipeline between Sheberghan and Mazar-e-Sharif has been assessed to be in a state of disrepair at almost its full length. It is therefore unable to meet increasing demand in the Mazar-e-Sharif area, including the proposed Project, and support the high pressure needed. Construction of a new 94.5 km pipeline from Sheberghan to Mazar-e-Sharif is ongoing. Afghan Gas Enterprise (AGE), which operates both gas field and the existing gas pipeline facilities, has completed the construction of about half of the overall length of the replacement pipeline. However, its technical expertise in assessing, testing and ensuring adequate quality control of the welding works, which are crucial for completing the installation of the pipeline, is limited. There are also security and access issues that are preventing the resumption of pipeline construction. Through the World Bank support, the GoA recruited a supervision engineering company to provide adequate engineering, design and quality assurance expertise for completion of the construction, testing, and commissioning of the new pipeline. According to the supervision engineer's inception report, the quality of the work on the portion of the pipeline that has been completed by AGE is of an acceptable quality. For the completion of the remainder of the pipeline, and ensure supply to the proposed Project, among other consumers, the World Bank also plans to support the gas infrastructure and arrangements to supply the gas through A-GASP project. The proposed A-GASP project is expected to finance the equipment needed for completion of the SMPL, including expert supervision, technical assistance, and capacity building, to ensure that the SMPL is built, operated and maintained by AGE in compliance with international quality, operational and safety standards.

20. Labor and civil works costs of the gas pipeline construction will be assumed by AGE, which has been assessed to have the skills and the resources to carry-out this role with adequate project management and supervision by the supervision engineer. The World Bank estimates that completion of the pipeline could be achieved at the earliest by December 2020.

Institutional Context

21. The MEW oversees the energy sector in Afghanistan and is responsible for sector planning (including investment planning), taking the lead on the preparation of the National Energy Supply Program and the Power Sector Master Plan. Afghanistan's power utility was formerly a department of the MEW under the name of Da Afghanistan Breshna Moassassa. In 2008, DABS was established as an independent and autonomous company under the Corporations and Limited Liabilities Law, although its shares remain fully owned by GoA. It is responsible for operating and managing electric power generation, import, transmission, and distribution of electricity throughout Afghanistan on a commercial basis. It is the country's single purchaser of power.

22. The Ministry of Mines and Petroleum (MoMP) is responsible for the governance of natural resources in Afghanistan, and its long-term goals include supporting economic growth and job creation through the exploration, exploitation, and development, of the minerals and hydrocarbons sectors, with an emphasis on encouraging private sector participation.

23. The World Bank has supported MoMP via the Second Sustainable Development of Natural Resources Project (SDNRP II) and envisages to continue doing so under the proposed A-GASP project, currently under preparation. Both projects are geared towards creating a sound policy and institutional framework for the extractive industries and enabling MoMP to transparently and effectively manage the process of rapid and large-scale foreign direct investment in the sector.

C. Relevance to Higher Level Objectives

24. The proposed Project is also aligned with the Country Partnership Framework (CPF) 2017-2020 for Afghanistan, which has been extended by two years to FY2022 during the Performance Learning Review (PLR). The CPF focuses on (i) building strong and accountable institutions; (ii) supporting inclusive growth; and (iii) deepening social inclusion which remain relevant in maintaining the balance between protecting the poor and laying the foundations for longer-term growth. The proposed project fits within the objectives of supporting inclusive growth and building strong and accountable institutions that enables delivery of basic services to its citizens and creating an enabling environment for the private sector to increase participation across strategic sectors such as energy. It was informed and guided by the Systemic Country Diagnostic (SCD) which focuses on reducing poverty and addressing fragility as parallel and mutually reinforcing development imperatives in Afghanistan. The SCD identified both service delivery, including electricity services, as well as fiscal sustainability, as significant contributors to economic growth. By providing for the generation of indigenous electricity, its delivery to customers supplied by NEPS as well as leveraging private sector financing, the project will support both contributors.

25. Furthermore, the proposed Project implements the Maximizing Finance for Development (MFD) and IFC 3.0 strategy through the cascade approach by leveraging the respective WBG institutions to engage programmatically across the energy sector. As a first long-term Independent Power Producer (IPP) in the country, the World Bank and IFC have been jointly engaged from the onset in providing Creating Markets upstream support with the view to achieve bankability of IPPs and large infrastructure projects for future Public Private Partnership (PPP) engagements in the country. MIGA's involvement aims at providing de-risking solutions to the private sector sponsors and a bilateral lender. The involvement of the WBG is critical to building confidence in the commercial viability of IPPs within the Fragile and Conflict-Affected States (FCS) context of Afghanistan. The PLR states, that the agribusiness, energy, information and communications technology and financial sectors have been identified as priority MFD sectors for WBG in Afghanistan. On energy, the focus is to ensure that the IPPs currently supported by WBG reach financial closure. In parallel, the WBG aims at further expanding its support to renewable energy in Afghanistan, supporting additional solar IPPs, as well as hydropower and possibly wind IPPs.

26. Linkage to MIGA Strategy. Afghanistan is an IDA and FCS country and as such the Project is aligned with two strategic priority areas outlined in the MIGA FY18-20 Strategy and Business Outlook. The Project constitutes MIGA's first engagement in the energy sector in Afghanistan.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

27. The project development objective is to increase the amount of reliable indigenous electricity generated, and to mobilize private capital, in Afghanistan.

B. Project Beneficiaries

28. The primary project beneficiaries are electricity consumers supplied by the NEPS, which includes Kabul, Mazar-e-Sharif, and Jalalabad. The proposed Project would make additional power available in the system thus it will enable access to more consumers throughout the system and eliminate load shedding. When commissioned, the proposed Project also promises substantial economic benefits to Afghanistan: (i) it would augment the supply of electricity, thus avoiding a major bottleneck to economic growth; (ii) it would generate savings by reducing costly diesel generated electricity; and (iii) it will reduce the need for public investment in the power sector. The proposed project also (a) mobilizes commercial finance for private infrastructure development; and (b) provides an efficient, low-cost, and well-managed electricity generation facility.

C. PDO-Level Results Indicators

29. Progress towards achieving the Project objectives will be measured by the following indicators:

- Generation capacity of the plant constructed under the Project (MW); and
- Private sector capital mobilized (US$).

III. PROJECT DESCRIPTION

A. Project Components

30. **The Project comprises the development, financing, design, construction and operation of a 58.6 MW green-field Mazar-e-Sharif Gas-to-Power Project (the "Project") on an IPP basis.** The proposed Project will be implemented by the Afghan Power Plant Company (the "Project Company") established as a special purpose vehicle under Corporation and Limited Liability Company Law 2007. The Project is being developed by the Ghazanfar Group ("GG") – established in 1910. GG is a large Afghan conglomerate with more than 3000 employees and headquarters in Mazar-e-Sharif, where the Project is located. Although relatively new to the power generation, GG's long-standing experience in Afghanistan with its diversified business interests in energy (oil refining and products trading), transportation and construction, will assist them in developing this project in addition to its presence in the banking sector. Given GG's limited exposure to the construction and management of power generation facilities, the implementation of the proposed Project benefits from GG partnering with experienced Engineering Procurement and Construction (EPC) and Operation and Maintenance (O&M) contractors. GG through its wholly owned subsidiary Ghazanfar Neft & Gas DMCC ("Ghazanfar DMCC"), is expected to contribute 60 percent of the equity in the Project. Mytilineos Holdings S.A. ("Mytilineos"), a listed Greek company focusing on metallurgy, energy and EPC, is expected to be the technical partner and provide the remaining 40 percent of the equity in the Project through its wholly owned subsidiary METKA Power Investments Ltd. ("METKA"). METKA (through one or more subsidiaries) will also be the EPC contractor for the Project with Wartsila as the equipment supplier. The Project sponsors will be the two shareholders of Ghazanfar DMCC, Mr. Ismail Ghazanfar and Mr. Ibrahim Ghazanfar and four key entities of the Ghazanfar group (together the "Sponsor"). The proposed Project is the first of its kind in Afghanistan, designed as a long-term IPP project, and is serving as a model for development of future projects of the same nature.

31. **The power plant will be located at an industrial site about 20 km southwest of the city of Mazar-e-Sharif in the comparatively stable northwestern part of Afghanistan.** It is expected to operate as a base-load power plant and serve NEPS consumers, which includes Kabul, Mazar-e-Sharif, and Jalalabad. The land at the industrial site, which is owned by GoA, is leased to the Project Company under a 25-years site lease agreement signed in June 2018.

32. **Construction of the Project will be undertaken under a turn-key EPC contract and the Commercial Operation Date (COD) is expected approximately 18 months after the start of construction.** The Project is being developed under a fixed price, lump sum, turn-key EPC contract with METKA (through one or more subsidiaries), a contractor with significant experience in executing EPC contracts globally. The key terms of the EPC contract have been finalized and the contract is expected to be entered into once the financing arrangements are finalized and closer to the PPA effective date. There will also be a parent company guarantee from Mytilineos to backstop its subsidiaries' obligations.

33. Mytilineos teamed up with Wartsila to provide the generating sets. Wartsila is the world's leading manufacturer of reciprocating engines, especially of the capacity range that will be supplied for this

Project. Wartsila has sold 818 of the type of engines being supplied for the Project which has combined operating hours in excess of 24 million.

34. **Operation and Maintenance (O&M) will be performed through a Joint Venture (JV) company which will be indirectly owned by Ghazanfar Neft & Gas DMCC (60 percent) and Mytilineos (40 percent).** The O&M company will benefit from a Long-Term Service Agreement (LTSA) with Wartsila, who will provide spare parts and major maintenance services. Wartsila brings a lot of experience in O&M along with Mytilineos. The O&M and LTSA are also at an advanced stage and expected to be entered into along with the EPC contract.

35. The selection of both, the EPC contractor and technical O&M partner, were procured through a competitive international tendering process. The Sponsors used qualification criteria for the EPC contractor and technical O&M partner acceptable to international financiers and developed template EPC and O&M contracts as part of the bidding process which were based on bankable international precedents.

36. **The Project Company is responsible for the implementation and operation of the Project under a 20-year take-or-pay PPA.** This contract, together with a Gas Sales and Purchase Agreement (GSPA), an Implementation Agreement (IA), a Government Guarantee, and a Lease Agreement, form the key project agreements entered into between GoA (as well as DABS and AGE) and the Project Company in 2018. Under the Government Guarantee, GoA (acting by and through the MoF) agreed to guarantee all of (i) DABS's performance, payment (tariff and termination payments) and other financial obligations under the PPA, and (ii) MoMP and gas supplier's (see next paragraph) performance, payment and other financial obligations under the GSPA.

37. **The proposed Project will be supplied with natural gas by Afghan Gas Enterprise (AGE), the state-owned gas facility operating under MoMP.** To this end, the Project Company and the GoA acting through MoMP and AGE concluded the above-mentioned GSPA, whereby AGE will sell gas to the Project Company at a price of US$2.46 per MMBTU, resulting in an average wholesale electricity tariff of US cents 9/kWh over the 20-year initial term of the PPA. The gas for the Project will be transported via a new 94.5km pipeline from the gas fields in Sheberghan (about 140 km south-west from Mazar-e-Sharif) to the Project site. The construction of this pipeline has already started by AGE, with almost half has already been completed. The construction plan for the remaining 50km is proposed to be supported as part of the A-GASP project (mentioned above). As is customary with similar IPP project agreements, the overall responsibility for the gas supply, including construction of the pipeline, is the GoA's responsibility and long-term failure to supply gas can result in termination of the PPA, thus triggering an obligation to purchase the plant on the part of the GoA.

38. **The proposed Project will be connected through a 180 km 220 kV overhead line between Mazar-e-Shaerif and Sheberghan currently under construction and is expected to be completed by November 2020, along with the Mazar-e-Sharif substation.** This line is being funded by ADB and is being built by Gammon India. The distance between the Project and the tie in point is about 12 km. ADB has obtained approval to fund the 12km 220kV transmission line and the switchyard to connect the proposed Project to the main transmission line located adjacent to the Project site. DABS is in the process of tendering the

contract for the construction of the 12km transmission line. This line is expected to be completed by January 2021.

39. **Under the above-noted PPA, DABS will be the sole off-taker of the power produced by the Project.** The off-take payment obligations provide for a tariff structure comprising (i) unit capacity payments for the plant's net dependable capacity adjusted for availability factor, (ii) energy payments for the plant's net electrical output, (iii) gas payments to cover the pass-through cost of natural gas under the GSPA as well as (iv) supplemental payments to cover other potentially incurred pass-through costs. Gas payments are payable in local currency and are fully pass-through, whereas energy payments (that cover variable O&M) and 20 percent of the capacity payment (meant to cover fixed O&M) are indexed to US CPI and both paid in US dollars.

B. Project Cost and Financing

40. **The total cost of the project is currently expected to be around US$96.6 million**, which include EPC cost, together with contingency, financing fees, and other costs. As shown by the Table 2 below, most of the costs are allocated to the turn-key EPC contract.

Table 2: Project Cost and Financing Sources (in US$ million)

Uses of funds	**Amount**	**percent**	***Sources of funds***	**Amount**	**percent**
Owner's Advisors	2.0	2.1	**Total equity:**	**29.0**	**30.0**
Development Costs	3.0	3.1	- Ghazanfar Neft & Gas DMCC	17.4	18.0
EPC contract	60.0	62.1	- Mytilineos Holdings S.A (through METKA Power Investments Ltd.)	11.6	12.0
Duties and taxes	3.7	3.8			
O&M Mobilization	0.4	0.4			
Lender's Advisors	1.0	1.0	**Total Senior Debt**	**67.6**	**70.0**
Insurance	0.9	0.9	- IFC	23.8	24.6
Working Capital	2.8	2.9	- ADB (including LEAP)	20	20.7
Interest During Construction	6.5	6.7	- DEG	23.8	24.6
Contingencies	12.8	13.3			
Development fee	3.5	3.6			
TOTAL PROJECT COSTS	***96.6***	***100***	***TOTAL FUNDING***	***96.6***	***100***

41. **The financing of the Project is expected to be on 70:30 debt to equity ratio.** IFC is expected to contribute US$23.8 million of the debt financing (or about one third of the debt financing), and other DFIs such as ADB and DEG are expected to provide the remaining balance of US$43.8 million. It is expected that the entire senior debt will be provided solely from DFIs due to the high risks perceived by commercial lenders towards this first long-term gas-to-power IPP project in Afghanistan. The contingencies include potential additional amounts on account of the ongoing delays with respect to achieving the effective date of the PPA due in part to delays in pipeline construction.

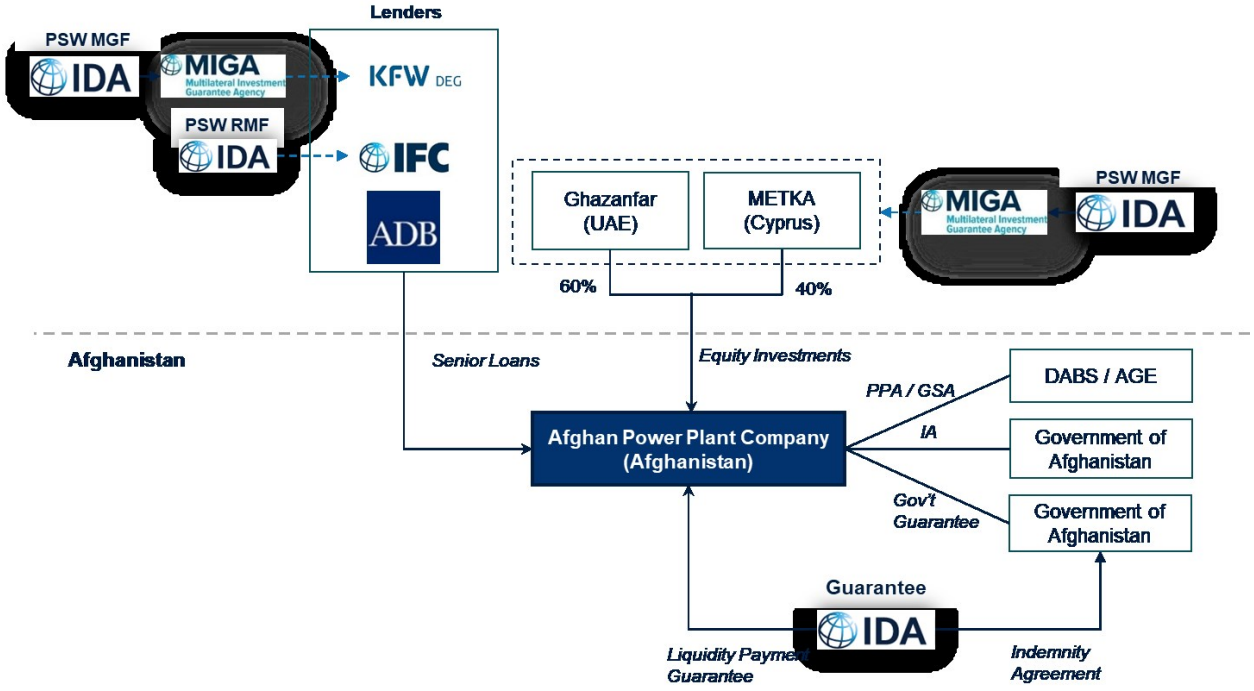
42. On the equity portion, Ghazanfar DMCC will provide the majority equity contribution, with Mytilineos (through METKA), funding the rest of the equity.

C. WBG Instruments

43. Given Afghanistan's Fragile and Conflict-Affected State status, the limited financial strength of the GoA, lack of a cost-reflective tariff, and lack of track record with IPPs or similar concessions where DABS/GoA would have demonstrated its creditworthiness, lenders and equity holders require various credit enhancement tools to mitigate political and security risks.

44. The proposed Project will be supported through a combination of the WBG instruments, which include an IDA guarantee, IFC long-term debt financing (including mobilization of other senior lenders, such as ADB and DEG), and MIGA Political Risk Insurance (PRI) for the equity contributions and DEG loan. IFC will be using PSW Risk Mitigation Facility (RMF) to obtain PRI coverage for its loan and its potential exposure to the Project under the hedging swap(s), and MIGA will use the PSW MIGA Guarantee Facility (MGF), for the first loss coverage and risk participation akin to reinsurance for MIGA's PRI. Figure 4 and paragraphs below, provide more details on the key features of each proposed instruments.

*Figure 4: Proposed Simplified Project Structure and WBG Support**



*For simplicity purpose, the Figure 4 only shows IDA Direct Payment Guarantee option.

IDA Guarantee

45. The proposed IDA Guarantee in the amount of up to US$12 million is expected to be in the form of a payment guarantee. It will backstop ongoing payments obligation of DABS under the PPA, that are also guaranteed by GoA under the IA. More specifically, the IDA Guarantee will support the provision of a payment security requirement by DABS under the PPA. The payment security requirement is sized at approximately six months of the projected capacity payment, under the PPA.

46. The payment guarantee structure could be provided either as a direct payment guarantee or as a payment guarantee utilizing a standby letter of credit (SBLC) facility. The final structure will be determined based on the willingness and ability of international commercial banks to issue a SBLC for Afghanistan. Under the direct payment guarantee structure, a failure on the part of DABS to make certain payments due under the PPA would give a right to the Project Company to demand payment under the IDA Guarantee, subject to an agreed cure period and for an agreed amount of coverage.

47. By contrast under the SBLC structure, DABS/GoA would procure the issuance of a SBLC by a commercial bank for the benefit of the Project Company. In the event of payment delay by DABS, the Project Company would have a right to drawdown the corresponding amounts from the SBLC facility. Upon the drawdown, the amounts drawn would be converted into a short-term loan (up to 12 months) from the SBLC issuing bank to DABS/GoA. Failure by DABS/GoA of timely loan repayment would give a right to the SBLC issuing bank to call for reimbursement by IDA under the IDA Guarantee. The proposed IDA payment guarantee obviates the need for DABS/GoA to provide cash collateral, which would be a requirement in case of SBLC issuance by DABS on a standalone basis.

48. A payment by IDA under the IDA Guarantee, in either structure described above, would trigger the obligation of Afghanistan to repay IDA as per the terms of the Indemnity Agreement (to be entered into between IDA and the GoA). The Indemnity Agreement will require the GoA to repay IDA on demand, or as IDA may otherwise direct. Please refer to the Term Sheet of the Guarantee for further details of the guarantee structures being proposed (Annex 4).

IFC Financing

49. The proposed IFC investment to the Project Company consists of (a) an A Loan of up to US$23.8 million; and (b) Client Risk Management Swaps representing an aggregate Loan Equivalent Exposure (LEQ) of up to US$1.5 million, comprising of one or more interest rate swap(s) to hedge fully or in part the interest rate risk of the Project's US$-denominated floating-rate senior debt provided by IFC and other senior lenders.

IFC Economic Capital

50. The economic capital exposure for the proposed IFC investment is up to US$5.05 million. IFC's economic capital exposure in Afghanistan as of July 31, 2019 was US$13 million. IFC's economic capital exposure limit for Afghanistan is US$833 million.

MIGA Guarantees

51. The proposed MIGA Guarantees will consist of: (i) equity and quasi-equity investment coverage of up to US$ 26.1 million in total on behalf of Ghazanfar DMCC and METKA against the risks of BOC, Expropriation, Transfer Restriction and Inconvertibility, and War and Civil Disturbance; and (ii) DEG's non-shareholder loan of up to US$22.6 million against the risk of BOC. The tenor for the guarantees will be up to 15 years. MIGA coverage is for 90 percent of the equity and quasi-equity investment and for 95 percent of the non-shareholder loan.

52. MIGA is seeking (i) the Board's concurrence to cover Ghazanfar DMCC's and METKA's equity investments in and DEG's loan to Afghan Power Plant Company; and (ii) the Board's approval to cover Ghazanfar DMCC's and METKA's quasi-equity investments in Afghan Power Plant Company.

53. Pursuant to Article 12(a) of the MIGA Convention and Paragraph 1.04(i) of the Operational Policies ("OPs"), eligible investments shall include equity interests. Therefore, the equity investments in Afghan Power Plant Company by Ghazanfar DMCC and METKA are eligible for cover. In addition, Ghazanfar DMCC's and METKA's shareholder loans to Afghan Power Plant Company will be treated as quasi-equity. Pursuant to Article 12(a) of the MIGA Convention eligible investments shall also include other forms of direct investment as may be determined by the Board, and therefore, as per Paragraph 1.04(vi) of OPs and subject to Board approval, the quasi-equity in the form of a shareholder loans by Ghazanfar DMCC and METKA to Afghan Power Plant Company are eligible. Pursuant to Article 12(b) of the MIGA Convention and Paragraph 1.09(b)(i) of the OPs, eligible investments shall include loans made to a Project Enterprise by banks or other financial institutions that are not holders of equity in the Project Enterprise, if such loans relate to a project in which some other form of direct investment is present. Therefore, the non-shareholder loan by DEG to Afghan Power Plant Company is eligible.

54. As provided in Article 12(d) of the MIGA Convention, guarantees shall generally be restricted to investments, the implementation of which begins subsequent to the registration of the application for the guarantee by the Agency. Therefore, the investments by Ghazanfar DMCC, METKA and DEG are eligible as new investments under Article 12(d) of the MIGA Convention and Paragraph 1.13(a)(i) of the OPs.

55. Article 13 of the MIGA Convention sets out the requirements for investors that may be eligible to receive a MIGA guarantee. Pursuant to Article 13(a)(ii) of the MIGA Convention and Paragraphs 1.16 and 1.17(b) of MIGA OPs, a juridical person is an eligible investor if it is incorporated and has its principal place of business in a member, or if such test is not met, then the majority of the juridical person's capital must be owned by nationals of a member or members, other than the host country. Therefore, Ghazanfar DMCC, METKA and DEG are eligible investors under the above as they are incorporated and have their principal place of business in the United Arab Emirates, Cyprus and Germany, respectively, which are members other than the host country.

56. In addition, pursuant to Article 13(a)(iii) of the MIGA Convention, an investor that is a juridical person must operate on a commercial basis, which, under Paragraph 1.21 of OPs, may be assumed if the majority of the equity in the investor is privately owned. Thus, both Ghazanfa DMCC and METKA are assumed to operate on a commercial basis as the majority of the equity in them is privately owned. Further, Paragraph 1.20 of the OPs specifically allows for guarantee holders to be juridical persons wholly-owned by a member, provided that, as required by Paragraph 1.21 of the OPs, the Underwriting Authority determines that the investor operates on a commercial basis in respect of the investment to be covered.

Therefore, DEG is an eligible investor as it is indirectly majority-owned by a member country and has been determined to operate on a commercial basis in respect of the Project.

IDA PSW RMF and IDA PSW MGF – Political Risk Insurance

57. The proposed IDA PSW RMF will provide PRI with Breach of Contract (BOC) cover for up to $32.5 million to cover the IFC "A" Loan principal and future interest of up to US$$27.0 million, and IFC client risk management swap exposure of up to US$5.5 million. The PRI will guarantee 95 percent of IFC's exposure. The BOC cover will backstop GoA's obligations, including early termination compensation, under the IA and Government Guarantee.

58. MIGA's gross exposure of US$48.7 million in total covering both equity and debt is proposed to be supported by IDA PSW MGF. While utilizing PSW MGF, MIGA is nevertheless seeking to achieve the minimum concessionality principle and to take on as much risk to its own balance sheet as prudently possible, including accounting for consumption of the MIGA's economic capital.

59. MIGA's gross exposure for Ghazanfar DMCC's and METKA's equity and quasi-equity investments coverage totaling US$26.1 million is proposed to be supported by the shared first loss layer, which consists of PSW MGF's first loss of US$12.9 million (49.5 percent) and MIGA's first loss participation of US$1.4 million (5.5 percent). This will be combined by MIGA's excess loss facility of US$11.7 million (45.0 percent) to cover the remaining MIGA gross exposure.

60. MIGA is also proposing the deployment of the PSW MGF to cover DEG's non-shareholder loan totaling US$22.6 million, which comprises PSW MGF's risk participation akin to reinsurance in the amount of US$13.5 million (60 percent) and MIGA in the amount of US$9.1 million (40 percent). Under the reinsurance structure (vis-à-vis the first loss layer structure), MIGA will share the same risks alongside PSW MGF and bear its share of losses on a pro-rata basis to its share of project exposure. The structure removes the price subsidy element.

61. In total, MIGA's gross and net exposures, including MIGA's first loss participation on the equity and quasi-equity coverage, would total up to US$48.7 million and US$22.2 million, respectively. The following Table 3 shows MIGA's underwriting structure.

Table 3: MIGA Underwriting Structure

US$ million	Term of Contract	Transfer Restriction	Expropriation	War & Civil Disturbance	Breach of Contract
Equity and Quasi-equity Investment	15 years	26.1	26.1	26.1	26.1
Non-shareholder Loan	15 years				22.6
Gross exposure of MIGA		**26.1**	**26.1**	**26.1**	**48.7**
PSW MGF's first loss (Less)		(12.9)	(12.9)	(12.9)	(12.9)
PSW MGF's reinsurance (Less)		-	-	-	(13.5)
MIGA's first loss participation		*1.4*	*1.4*	*1.4*	*1.4*
MIGA's excess loss		*11.7*	*11.7*	*11.7*	*11.7*
MIGA's risk sharing under reinsurance		*-*	*-*	*-*	*9.1*

Net exposure of MIGA	**13.2**	**13.2**	**13.2**	**22.2**

62. Afghanistan is an FCS country with significant security challenges and continuous conflict. In order for MIGA and IFC to support an important project with strong potential development impact for a long tenor, deployment of the IDA PSW through the MGF and RMF is required. This is critically important for MIGA's and IFC's support on the Project due to the high political risks in Afghanistan and the required strong risk mitigation at the project level. The security situation, combined with energy sector vulnerabilities, the absence of a track record in IPPs by DABS and its lack of creditworthiness, raises project risks and therefore the likelihood of claims under the PRI coverage. MIGA and IFC would not have been able to consider supporting the project in the absence of the risk sharing provided by PSW MGF and RMF. Additionally, MGF will allow MIGA to reduce its economic capital consumption of the project, which could be redirected to support investments in other countries aligned with MIGA's strategy, including Afghanistan.

IDA Support and Risk Cover

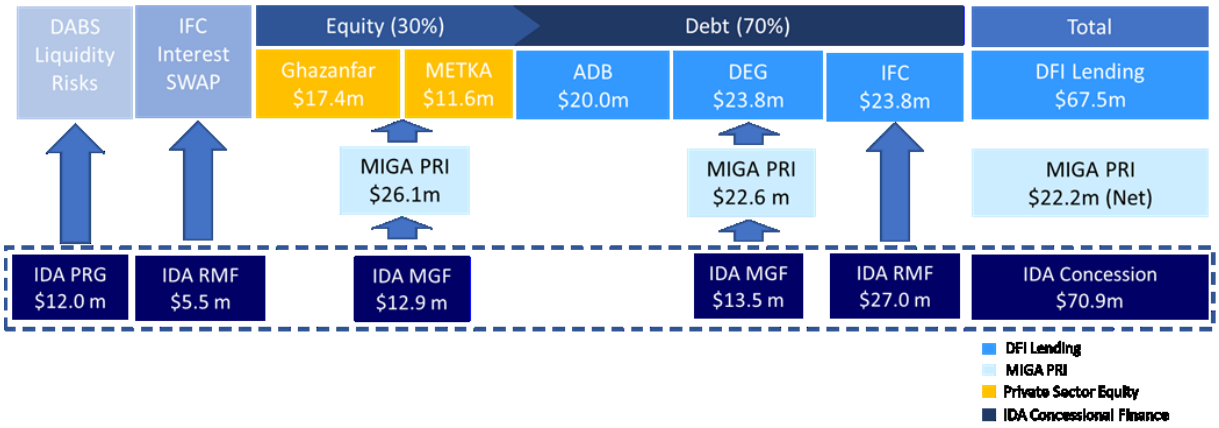
63. The Project greatly benefits from IDA's support and risk cover instruments. The project risks of all project participants (i.e., Ghazanfar DMCC, METKA, IFC, DEG, and MIGA, excluding ADB), are directly or indirectly covered by IDA's financial instruments such as IDA PSW RMF, IDA PSW MGF, and the concessional IDA Payment Guarantee (which indirectly benefits ADB as well). It is mainly due to extremely high risks of the Project in an FCS country with no private project track record that has led to the low level of private sector participation and unavailability of long-term commercial financing and risk mitigation products in the market. IDA's financial instruments are playing an instrumental role to bring in the private sponsors, DFI lenders, and MIGA into the Project.

- *The private equity investments* injected in the Project is US$29.0 million, i.e., 30 percent of the total cost. Due to high political risks, the shareholders wouldn't have been able to consider investing into the Project without political risk insurance offered by MIGA. IDA PSW MGF covers the first loss layer of MIGA insurance with an amount of US$12.9 million.
- *The senior loans provided by DFI lenders* is US$67.6 million in total, i.e., 70 percent of the total cost. While there is no benchmark pricing as the Project is among the first long-term IPP in Afghanistan, DFI lenders' senior loans are priced for 15 years door to door tenor including grace period of up to 2 years. The pricing was determined with the project and country risks having been fully reflected. IFC is also providing Client Risk Management Swaps to allow the Project Company to hedge fully or in part, the interest rate risk of the Project's US$-denominated floating-rate senior debt provided by IFC and other senior lenders. In a country where, long-term commercial financing is virtually non-existent such as Afghanistan, it is considered critically important to have DFIs that have the capacity and willingness to accept high country risks to crowd-in private sector investments. However, it should also be noted that the country and contractual risks in Afghanistan are so high that even DFI lenders would not have been able to consider providing funds to the Project without proper risk mitigation measures. IDA PSW MGF indirectly covers DEG's senior loan through the reinsurance mechanism described above for an amount of US$13.5 million. IDA PSW RMF directly covers IFC's senior loan principal and future interest costs with an amount of US$27.0 million and IFC's potential exposure under the swap(s) of up to US$5.5 million, against the risk of BOC.

- *DABS' liquidity risk* will be covered by IDA Payment Guarantee with an amount of up to US$12.0 million. DABS will benefit from an IDA concessional risk cover without which they will need to provide full cash collateral as security for the commercial bank issuing SBLC, in case of the IDA Payment Guarantee with SBLC option.

64. As shown in Figure 5 below, IDA's total exposure in the Project amounts to ~US$70.9 million, i.e., 73.5 percent of the total project cost. Such a high level of concessionality through IDA financing is an essential component of the Project from a perspective that it will help create a new private sector-enabling framework and a bankable contractual structure for the first time in a highly volatile country like Afghanistan. The structure could be replicated in future project, therefore unlocking additional private investments in the same-kind infrastructure sector. Due to various IDA concessional financing tools deployed to DFI lending and MIGA political risk insurance, the bankability and commercial viability of the Project have greatly improved despite high political risks in the country and the historically weak financial performance of DABS.

Figure 5: IDA's financing



Project Additionality

65. The WBG's additionality in this Project is both financial and non-financial, stemming from: project concept origination, arranging and implementation of a bankable contractual structure, provision of long-term financing, resource mobilization, and provision of commercial and noncommercial risk guarantees (financial); as well as noncommercial risk mitigation via trusted client partnerships, power sector expertise and standard setting (non-financial). As the first long-term gas to power PPP in Afghanistan, the proposed Project benefited from IFC's significant upstream involvement in project development and structuring support to the Sponsors - which has helped pave the way for the project's bankability and its compliance with Environment and Social international best practices -– as well as from WBG's experience in supporting project design. Furthermore, the IDA Payment Guarantee may enable commercial banks to participate in the project as SBLC issuing bank at more favorable terms while MIGA's use of the MGF mitigates political risks faced by the Project Lenders and shareholders. The expected forms of additionality in the Project, their timing, and indicators are summarized below.

Financial Additionality

66. Financing Structure: IFC will be providing long term US$ denominated debt that is currently non-existent in the local market of a highly fragile and conflict-affected state. Over the last five years, no syndicated loans or corporate bonds have been issued in any currency or at any rating level in Afghanistan, reflecting the lack of international and domestic commercial finance. Access to domestic financing not only remains extremely low at less than 4 percent of GDP but is also declining, leaving most firms heavily dependent on the informal financial sector for credit. The long tenor of the loan will improve the viability of the Project by matching the long-term nature of revenue streams to debt service obligations. Without IFC financing, it is highly unlikely that the Project would be able to access the amount of financing, tenor or grace period needed for financial close.

67. Resource Mobilization: As mandated Lead Arranger, IFC will be mobilizing long term debt financing from other DFIs for the first time in Afghanistan's infrastructure sector. Given the political and regulatory environment, there is lack of appetite from international commercial banks to invest in the sector at present. The development of a power project in the country is associated with considerable challenges including security and political risks, technical and financing barriers, and legal and regulatory framework gaps which significantly limit the availability of financing. To effectively manage these risks and barriers, IFC has been involved over the past four years in extensive due diligence and engagement on various facets of the transaction including structuring, financing, credit enhancement, and capacity building to make the Project bankable. The WBG is also leveraging its long-standing experience in Afghanistan and its unique ability to mobilize several long-term guarantees: (i) an IDA Payment Guarantee backstopping DABS ongoing payments obligation under the PPA; (ii) MIGA political risk guarantees for private shareholders, and a DFI lender; (iii) IFC swap instrument to cover interest rate risk for all lenders; and (iv) IDA PSW RMF directly covering IFC A Loan and swap instrument against BOC risk; (v) IDA PSW MGF providing first loss layer and reinsurance to MIGA guarantees. The participants in the transaction significantly benefit from the WBG's wide-ranging engagement and such mobilization would be extremely unlikely in the absence of IFC involvement as the financiers would otherwise not consider such an undertaking.

Non-Financial Additionality

68. Non- commercial Risk mitigation, including trusted partnership: The WBG expects to leverage its trusted partnership with GoA to facilitate the implementation of contractual obligations and reforms for the long-term sustainability of the power sector in the country. Various WBG instruments have played a key role to help ensure bankability of the Project to enable private sector participation in a country with various risks, which serves as a source of comfort to investors and other DFIs that would not have participated otherwise.

69. Facilitation of Private Investments: MIGA's additionality comes from providing long-term tenor political risk insurance in a particularly challenging environment in which PRI is virtually non-existent. MIGA's coverage is supporting the only private sector equity participation in this project. The private sector shareholders have indicated that they would not have been able to proceed without MIGA's guarantees. Due to the high perceived political risks in the country, the shareholders and the senior lenders are seeking PRI coverage to manage risks relating to their equity investments and long-term loans.

However, long-term coverage for Afghanistan's political risks is not readily available in the private insurance market on commercially reasonable terms. MIGA's involvement in the Project provides essential long-term reassurance to the shareholders and the senior lenders for their investment in a context of a highly volatile and risky business environment, helping them reach financial close by de-risking the Project. One of the objectives of the proposed Project is to provide positive demonstration effect so that in the future, other prospective private investors – and commercial lenders – having seen the successful implementation of the proposed Project, will be emboldened to engage in new investment opportunities in the country with similar MIGA risk mitigation tools.

70. Knowledge, Innovation and Capacity Building: The WBG brings extensive knowledge and expertise of IPPs following its long-term involvement in the sector globally and in Afghanistan specifically, to ensure comprehensive coverage of sector risks and optimal risk sharing among stakeholders. The WBG has been involved in the development of the project since inception and has supported the development of bankable project agreements. The Project will implement one of the first long-term IPP in Afghanistan, testing a comprehensive framework for a balanced risk-reward allocation that could be used as a precedent for future projects. In addition, the WBG's ongoing dialogue with, and assistance to, the GoA aims to build capacity of sector stakeholders to improve the execution of their project contractual obligations, in addition to enhancing capacity, transparency and sector governance. While the Sponsor is an established local conglomerate, it has limited experience in developing a power plant and benefits from IFC's experience in the sector. IFC has provided extensive support to the Sponsor for the past few years on several aspects including guidance on key risk allocation and requirements for a bankable structure with robust project agreements and helping appoint and engage with technical, financial, and legal advisors that bring valuable IPP development experience to the group.

71. Standard Setting: The WBG involvement will provide technical support and guidance to help ensure that the Project is developed sustainably and in line with WB/IFC/MIGA Performance Standards (PS). Some of the potential Environment and Social (E&S) risks identified relate to the management of worker and community health and safety during construction and spill contingency measures during operation. The WBG engagement will help the company manage potential key E&S issues and become a model for sustainable development of the power sector in the country.

Risk Allocation

72. The allocation of commercial, technical and political risks between GoA/DABS and the Project Company under the IA and PPA is consistent with industry standards in a limited-recourse project financing in similarly challenging countries and sector environments. In these contexts, risks are allocated to the party best able to mitigate them

73. The allocation of key risks among the Project Company, shareholders, the GoA and DABS is summarized in Table 4 below, including the risks that are expected to be mitigated by various forms of IDA and MIGA support. The Project Company will assume the pre-construction, construction, and O&M risks. The construction risks will be mitigated by securing a fixed price, turn-key EPC contract, with appropriate cushion between construction completion timeline under the PPA and the EPC contract. Moreover, the Project Company, through private shareholders, will also provide completion support to fund cost overruns up to Project financial completion and procure a comprehensive commercial insurance

package as required under IFC's financing terms. A comprehensive O&M contract supported by a Long-Term Service Agreement (LTSA) is expected to be in place with penalties for key performance indicators including availability and heat rate.

74. Gas supply is the responsibility of the GoA, through AGE, and the price is passed-through to DABS under the PPA. The GoA bears the risk of gas unavailability not caused by a failure of the Project Company to perform its obligations. The off-taker will also bear the risk of political force majeure events and other off-taker risk events (e.g., unavailability of the grid). If any such event occurs, net dependable capacity will be deemed available, and DABS will be required to make capacity payments to the Project Company. The IA and PPA include customary termination provisions, with termination compensation amounts that differ depending on the termination trigger event (including but not limited to prolonged force majeure events, project company events of default and off-taker events of default). Under the IA, GoA fully backstops DABS' performance under the PPA and AGE's performance under the GSA.

75. The proposed MIGA guarantees and IDA PSW, through BOC coverage, take the risks of prolonged delays in completion of gas supply infrastructure and power interconnection. A failure on the part of the AGE to complete the pipeline in time for the commissioning of the power plant by the Project Company, will entitle the latter to received deemed capacity payments from DABS. These payments amount to an average of US$25 million per annum. Any prolonged delays could lead to an event of PPA termination and trigger GoA's obligation to pay termination compensation to the Project Company under the Implementation Agreement. This payment can be higher than the total project cost, especially if it's triggered at the time of commissioning of the power plant when the Project Company has not been able to repay any part of the debt, or equity return. Over the term of the PPA, the termination payment declines as the outstanding debt portion is reduced.

76. Given the importance of the GoA undertaking with respect to gas supply and the high risk associated with gas supply infrastructure, the Bank will require the following conditions to be satisfied before the IDA Guarantee is signed:

77. The supervision engineer or another third-party technical expert acceptable to IDA is mobilized and has confirmed each of the following:

i. the engineering and design required for commencement of the remaining construction of the SMPL are complete;
ii. the essential equipment for the commencement of the remaining construction of the SMPL is available at the site;
iii. appropriate work force needed for the remaining construction of the SMPL has been designated and mobilized for the commencement of such construction; and

78. In parallel, IFC proposed conditions to the first disbursement of its loan to the Project Company, include, among others, the signing of the IDA Payment Guarantee. This will also help IFC be satisfied that both, the gas infrastructure and the power plant, are being constructed within a similar timeframe, and reduce the risk that GoA would be exposed to financial liabilities in case the power plant is completed before the pipeline.

Table 4: Risk Allocation

Phase	Risks	Contractual Responsibilities			
		Project Company	GoA/DABS	IDA Payment Guarantee	IDA PSW/ MIGA
Pre-construction	Project design	X			
	Debt and Equity Funding	X			
Construction	Cost Overrun	X			
	Delays in Construction	X			
	Gas supply infrastructure		X	X	X
	Power interconnection		X	X	X
Operation	Operation & Maintenance	X			
	Fuel supply		X	X	
	PPA payments (capacity, energy, and other invoiced amounts)		X	X	X
During PPA	Currency depreciation		X		
	Convertibility and Transfer		X		X
	Political Force Majeure		X		X
	Change in Law		X		X
	Expropriation		X		X
	Natural Force Majeure	X	X		X
General	Security	X	X		X

D. Lessons Learned and Reflected in the Project Design

79. The following lessons were considered when designing the overall project:

80. **Starting small, especially if doing first of its kind project.** With 58.6 MW, the proposed power plant is of comparatively small size compared to the overall installed capacity of some 500MW. GoA has ambitious plans to leverage the private sector to deliver energy generation projects via the IPP model. Starting with a small-sized IPP provides enough room for adjusting the model going forward and allows for learning on the ground. With first-of-a-kind projects, it is also important to keep things simple. Over complicating the project structure can make it too complex to implement in practice and ultimately result in failure.

81. **Significant upstream sectoral level engagement is critical in the success of projects, especially in infrastructure.** Key infrastructure sectors, such as energy with complex reforms and investments needs require a sustained level of effort with all stakeholders, public and private, over a long period of time to ensure that necessary ground work is done before an investment is committed. The amount of upstream sectoral work undertaken by the WBG to unlock the indigenous gas sector and simultaneously to develop a bankable IPP framework--- has also unlocked a viable long-term solution for the country's energy needs.

82. **Generation facilities require robust operations and maintenance capacity.** The current capacity for operations and maintenance of power plants in Afghanistan is weak resulting in high technical losses, operational inefficiencies, and high-cost operations. This will be mitigated through the proposed Project's PPA the design of which ensures that there is sufficient discipline for the Project Company to deliver the stipulated capacity and output. The capacity payments are directly linked to the percentage availability of the power plant, so as long as the power plant is available to be dispatched at the agreed capacity, the Project Company will receive the full capacity payment.

83. **In most countries, but specifically FCS, significant capacity building within the GoA and broader stakeholders' engagement, are critical for success.** Capacity building among GoA counterparts, when doing "first of a kind" transactions in FCS countries, is very critical. First ensuring that GoA counterparts have adequate technical, legal and financial advisors to support them through the design and project development stage. Equally important is enhancing the GoA counterparts' capacity to implementing and manage key project contracts. This is key to any project's success, and an area where IDA and other donors and IFIs can play a role. Not paying enough attention to this issue will likely result in a failure of even the best transaction. The issue is often exacerbated by regular GoA changes. Furthermore, FCS countries normally involve stakeholders beyond the GoA that are equally important (e.g. donor agencies and often related embassies). It is important to invest time in building a broad consensus amongst stakeholders, even if not directly involved in the specific project. Such consensus building can be very helpful in supporting the GoA in making certain policy decisions.

84. **Lessons learned from the World Bank Group's experience with IPP projects, in particular those in challenging FCS IDA countries, have been incorporated into the proposed Project's design.** Deploying the World Bank Group instruments in an optimal manner can help mobilize project financing even in difficult and high-risk FCS countries. Recent World Bank Group supported projects include IPPs in Mali, Senegal, Nigeria, Kenya, and Sierra Leone. In these projects, the IDA payment guarantees de-risked the projects through covering off-taker payment risk, thus helping the country attract investors and lenders, and facilitating the participation of IFC and MIGA. The proposed IDA guarantee operation has incorporated experience from these joint operations, and further built on this experience through the harmonization of respective instruments and due diligence activities to enhance efficient WBG collaboration.

85. **IPPs require a robust utility with an established track-record – or risk mitigation for off-taker risks.** The proposed IDA Payment Guarantee will help mitigate risks, for the benefit of the private sector investors, associated with DABS being a new off-taker for IPPs, without a history of successful operations and payments. The World Bank has been actively involved in the sector through a number of technical assistance engagements, focusing primarily on improving operational performance and commercial viability of DABS. For example, the DABS Planning and Capacity Support Project (US$6 million, P131228), engages DABS to build a new financial model, establish DABS' capacity to preparing its own feasibility analysis for simple project, and train its operational staff, including through the development of a new training center for DABS's staff. The comprehensive WB sector engagement and the expected improvement of DABS performance underpins the proposed Project and the IDA Payment Guarantee instrument.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

86. **The Project will be implemented by the Afghan Power Plant Company, the Project Company, established under the laws of Afghanistan.** The Afghan Power Plant Company will have overall responsibility for the development, design, financing, construction and operation of the gas-to-power plant and will sell its entire power capacity and output to DABS. The Project Company will enter into an EPC contract and an O&M contract with a reputable experienced contractor and operator. While the plant will be provided with gas by AGE under the GSPA, the gas price will be charged back to the off-taker on a pass-through basis. The gas supply risk is allocated to the GoA through MoMP and AGE.

87. **DABS as the off-taker is liable for its performance under the PPA.** In 2008, DABS was established as an independent and autonomous company under the Corporations and Limited Liabilities Law. However, its shares remain fully owned by the GoA. The utility has about 9,000 staff and at present is generally in good financial standing, though some of its key financial indicators have been declining. Financial analysis below provides more details. A financial recovery plan is being developed with support from the World Bank. See Annex 2 for more details on the Implementation Arrangements.

B. Results Monitoring and Evaluation

88. Monitoring of project outcomes and results indicators will be undertaken by the Project Company and DABS. They will be responsible for preparing and submitting progress reports in the case of the Project Company, and Annual Reports in case of DABS, to IDA, IFC, and MIGA as required under IDA Project, Indemnity, and Cooperation Agreements as well as those reports and materials required under the IFC Loan Agreement and MIGA Guarantee Contracts. The results framework for the proposed Project is set out in Section VII of this document.

C. Sustainability

89. **Long-term, efficient operation of the power plant under the 20-year PPA is the obligation of the private project sponsor**. In light of the envisaged procurement of an internationally credible and experienced O&M contractor, the risks to maintenance are considered low.

90. **Sustainability of gas supply for the proposed Project will depend on the implementation of a robust action plan as well as financing for continued gas production capacity at the gas fields in Sheberghan in the long-term.** According to gas reservoir studies undertaken by USAID in March 2015 and recent analysis by MoMP, short-term gas supply for the proposed Project is secured if (i) the existing amine plant at Sheberghan is optimized for increased gas production; and (ii) two wells at Yatimtaq are rehabilitated. Work on the latter which was recently completed, was funded by the ADB. See paragraph 18 above for more details.

91. **The financial sustainability of the proposed Project is linked to the sustainability of payments, by the off-taker (DABS), which has no track record of successful contract performance towards private**

sector projects. Risks associated with DABS' commercial viability and appropriate mitigating measures have been identified, as further described under Section V. (Key Risks). In particular, the IDA guarantee is designed to provide mitigation for this contractual counter-party risk. In the event that DABS is temporarily unable to meet its ongoing periodic payment obligations under the PPA, the IDA-guarantee, provided as payment security under the PPA, functions as a buffer and provides needed time to resolve possible payment issues before the guarantee is called. The IDA Payment Guarantee support is enabled through the World Bank's technical assistance to DABS, which aims to improve its performance and ongoing commercial viability (see more in paragraph 104).

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

Key Risks and Mitigation Measures

92. As indicated in the SORT table, the overall project risk is rated **High**. The key drivers of project risks are described below, including their potential mitigation measures.

Political and Governance Risk: High

93. As a first long-term IPP to be executed in Afghanistan, there was neither a structured process nor existing templates for preparing relevant project documentation. The proposed Project will not be carried out within the new PPP framework currently being put in place for PPP projects, but rather has received an approval from the High Economic Council and National Procurement Committee to proceed. As a consequence, extensive coordination and consultations between the various political stakeholders (particularly MEW, MoMP and DABS) have taken place and will be necessary throughout the IPP's preparation and implementation in order to ensure that there is strong commitment by all relevant parties vis-à-vis the agreed structure and execution. Accordingly, the overall political and governance risk is rated high.

94. Mitigation measures. Ensuring strong buy-in by all relevant ministerial stakeholders and DABS on all important aspects of the structure, is and will continue to be a key focus of the WBG team. As part of project preparation, regular high-level coordination meetings including all relevant GoA stakeholders as well as the WBG teams have been established.

Macroeconomic Risk: High

95. Afghanistan's macroeconomic outlook is subject to high risks. The country remains heavily reliant on aid, and any reduction in security and civilian support below expected levels would put pressure on fiscal sustainability and service delivery. Access to continued external support is most likely to be sustained if progress can be maintained in key structural reforms. Successful implementation of the reforms planned under the Public-Private Partnerships and Public Investment Advisory Project (Board approved on 31 May 2018) will help mitigate this risk as it promotes the maximization of private financing for development.

96. Mitigation measures: Successful implementation of the reforms planned under the proposed Public-Private Partnerships and Public Investment Advisory Project (approved on 27 June 2018) will help mitigate the macroeconomic risk as it promotes the maximization of private financing for development. Further mitigants are the reforms supported under the series of Development Policy Grants which are aimed at improving the country's policy and institutional framework for public financial management, state-effectiveness and private investment. In particular, these reforms include revenue administration, tax administration, expenditure management (including a revised public investment management framework), and improved fiscal transparency, (including regular reporting of revenue performance and cash position).

Institutional Capacity for Implementation and Sustainability: **High**

97. Given the proposed Project concerns the carrying out one of the Afghanistan's first long-term IPP, there is a high risk in terms of a lack of institutional capacity for project implementation and sustainability. MEW, MoMP and other ministerial stakeholders at present do not have sufficient capacity to manage an IPP. Further, DABS does not have sufficient experience vis-à-vis contractual performance under a PPA with IPPs. Equally, the current dependence of DABS on budgetary allocation by the GoA entails concerns around its capacity and ability to honor its financial obligation under the PPA.

98. Mitigation measures. A reputable international law firm of DLA Piper supported GoA during the negotiation of the IPP's key project agreements. Regarding DABS's capacity, a detailed financial assessment has been conducted (as further detailed in Section VI. and Annex 5), which allowed for a better understanding of DABS ability to honor its payment obligation and highlighted the areas in which reforms and capacity-building for DABS staff – supported by the World Bank – need to be undertaken.

Other Project risks: High

99. The following other project risks have been identified and justify the high-risk rating:

100. **Security risk**: While UNAMA reported a 27-percent decrease in casualties in the first half of 2019 compared to the same period in 2018, violence has picked up afterward, especially in August and September. Total civilian casualties reached 10,993 during 2018, higher than 10,459 in 2017.[6] Notwithstanding that the proposed Project will be in the relatively stable northwestern part of Afghanistan, with very limited instances of violence in the last 10-15 years, the overall security risk within the country remains high. The World Bank team will remain working closely together with the country office to monitor all relevant developments in this regard.

101. **Grid integration risk**: The proposed Project will be connected to the Turkmen segment of the NEPS which can absorb approximately 158MW in the short-term. This island network current dispatch scheme allows integration of only local generation sources including IPPs (such as the proposed Project). Power imported from Tajikistan and Uzbekistan can presently not be synchronized with this sub-network due to legal limitation of these import sources. The GoA is in negotiation with neighboring countries and expects that Turkmenistan, Tajikistan and Uzbekistan will allow synchronization of the three importing

[6] Source: World Bank, Afghanistan Development Update, July 2019.

sources inside Afghanistan. Regardless of the negotiation result with the neighboring countries, based on the grid impact study conducted by the Sponsor, only the Turkmen segment of NEPS can evacuate and absorb the all of the energy generated from the proposed Project.

102. **Gas supply risk**: The proposed Project's gas supply arrangements remain a high risk given that the viability and timeliness of completion of the new pipeline currently being constructed by GoA could so far not be fully assessed. In addition, there has neither been investments in upstream nor midstream production, nor processing infrastructure in decades until the investments made with support from the United States Government and ADB during the last 10 years. As a result, gas production has declined over the years and much of the currently explored sweet gas reservoirs in Sheberghan have been depleted, with the majority of remaining reserves requiring desulfurization facilities until the recently completed well rehabilitation programs. Construction of a new 94.5 km pipeline from Sheberghan to Mazar-e-Sharif is ongoing. The GoA, with support of the World Bank, recruited a supervision engineering company to provide adequate engineering, design and quality assurance expertise for completion of the construction, testing, and commissioning of the new pipeline. While the supervision engineer has already commenced its work, due to a difference in interpretation of the contractual terms, the implementation has been delayed. However, both parties are working to resolve the difference.

103. With respect to the sustained gas supply, as noted above (see paragraph 18) recent gas reservoir studies ensure **short-term gas supply** (up to the first 5 years of operation) for the proposed Project. This is contingent upon (i) optimization of the existing amine plant at Sheberghan for increased gas production; and (ii) rehabilitation of two wells at the gas field of Yatimtaq. Works on the latter were completed in May 2018. Also, GoA intends to purchase a new amine plant in the coming fiscal year. This is also proposed to be funded by the A-GASP project. In the meantime, it has procured international experts for improving operation of the existing amine plant, who have been on site since June 2018. To guarantee **long-term gas supply** for the proposed Project, four to seven new wells need to be drilled at a cost of about US$ 10 million per well. This development plan, however, is based on information gathered before the Soviet departure from Afghanistan in 1988. An updated development plan is now required on the basis of gathered information on the Yatimtaq wells since then. This new field development plan is contemplated among the components of the A-GASP project. Once completed, it will be possible to better determine the number, sequencing, location and cost of the new wells. The plan will also help determine the optimal source of financing for these activities. The development and financing of the new wells will have implication on the gas price that AGE is currently selling. While the contracted prices for the proposed Project comes from already discovered and partially developed gas fields whose investment cost are largely sunk, the expansion and sustainability of natural gas supplies for other uses will necessarily rely on private investment in exploration and development of new resource frontiers. These investments, necessary for the sustainable development of natural gas, will not be possible unless a competitive, internationally benchmarked reference price for natural gas sales in the domestic market is adopted. Work on the development of such a natural gas pricing methodology is currently ongoing under the Advisory Services, Implementation Support and technical assistance (ASIST)[7] facility.

[7] The GoA has asked that the World Bank to provide more direct hands-on advisory services, implementation support and technical assistance. Based on this request, a proposal was developed to establish a new window under the Afghanistan Reconstruction Trust Fund (ARTF)—an Advisory Services, Implementation Support and TA (ASIST) window—through which such extended support could be financed. The facility has been operational since 2018.

104. **Commercial viability risk:** The proposed Project poses a risk in terms of DABS commercial viability given current tariff schemes that are lower than the average tariff of US cents 9/kWh (throughout the PPA term) agreed with the Project Company. DABS will need to continue working on improving its financial performance to mitigate this risk. In addition, recent significant cost reduction in imported electricity, which now stands at US cents 5.5/kWh on average, has made this and comparable IPPs financially less attractive for DABS. DABS will need to pay close attention to its loss reduction program and its collections as it will likely prove difficult to increase its selling tariff at this stage, and the gas price is already in the lower range making any price reduction also unlikely. A Partnership Agreement between DABS and MoF was signed on 11 November 2018 under the Afghanistan Incentive Program Development Policy Grant that was approved by the World Bank Board in June 2018. In fulfilment of the Partnership Agreement's commitments, a tariff committee has been set up who has already agreed on a tariff setting Procedure for DABS. It is expected that this Procedure is approved by MEW in October 2019. Further, DABS has established a special counter for fast-tracking commercial and industrial customer requests. DABS is also in the process of selecting staff to constitute a specialized team working on PPP Agreements (including for imports). MOF and DABS are jointly working on measures enabling debt relief for DABS. All these measures constitute parts of a comprehensive plan to turn around DABS' finances. As in 2018, the Government is expected to meet its disbursement condition on energy sector reform under the incentive program.

Overall Risk Rating Explanation

Given the political and governance risk, risks related to sector strategy and policies, institutional capacity as well as others, the risk rating for the delivery of the PDO is assessed as **High**.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

105. The proposed Project will contribute to developing Afghanistan's power sector in an inclusive way that links domestic natural resources, infrastructure and communities. Key benefits of the project include increased security of energy supply through reduced reliance on electricity imports, as well as support for the development of indigenous gas resources. It will also have a substantial economic benefit as increased availability of grid electricity services will displace more costly alternatives and facilitate economic growth. The IPP model as supported by the proposed Project is anticipated to serve as a platform for future similar projects across Afghanistan resulting in future investment opportunities. Financial analysis for both DABS and the project has been conducted during the due diligence process (see paragraph 123 below and Annex 5).

Economic Analysis

106. **Domestic gas-fired power generation is part of the least-cost expansion plan[8] to satisfy growing demands for electricity in Afghanistan in general and in the NEPS in particular.** The plan includes

[8] Compare Islamic Republic of Afghanistan MEW/ADB/Fichtner. Power Sector Master Plan. Final Report. April 2013.

investments in transmission capacity to allow increased imports of power from neighboring countries, rehabilitation of existing generating assets within the country, interconnection of transmission networks to allow optimization of power supply, and development of new generating capacity based on domestic resources. Balancing between domestic and imported supply options was an imposed constraint on the least cost plan rather than an economic choice. However, subsequent analysis using techniques of decision-making under uncertainty validated the premise that domestic gas-fired generation was preferable to imports under a wide range of future scenarios.[9]

107. Evaluating the Project's cost and benefits presents challenges in that it is difficult to estimate or justify a monetary value for the primary benefits (security of supply, support for gas development). **The only readily monetized benefits of the proposed Project are the welfare gains accruing to electricity customers who will have incremental access to grid-based power once the proposed Project is operational**. These welfare gains are measured by the area under the observed demand curve for electricity, often referred to as the willingness to pay (WTP) for electricity supply. This WTP includes the actual customer payments for electricity (consumption times the tariff) as well as the consumer surplus accruing to customers as a result of the avoided cost of alternatives. In the case of household customers, the primary alternative was assumed to be a Solar Home Systems (SHS). In the case of institutional, commercial and industrial customers, the alternative source of power was assumed to be diesel generators. Based on these assumptions, the weighted average customer WTP in the NEPS region was estimated at US$0.14 per kWh. This same methodology and assumptions were used to estimate the benefits of the related Sheberghan Gas to Power Project and the A-GASP gas sector support project. Details of the methodology and assumptions are provided in Annex 5.

108. The cost side of the analysis included all of the costs of incremental supply including capital cost of the plant, capital cost of the incremental transmission and distribution networks[10] required to deliver the power to the customers, operating and maintenance costs for the plant and networks, technical and non-technical losses, and the economic cost of gas supply. In the short term, the cost of gas supply is based on supply from existing wells, including the planned investments in gas infrastructure that are being financed under the A-GASP project. In the longer term, the estimated economic cost of gas includes capital investments in field exploration, well drilling and other gas infrastructure needed to ensure supply for the duration of the proposed Project contract. The estimated short-term cost of gas supply is estimated at US$65 per MCM while the long-term cost is estimated at US$150 per MCM. Both costs include a royalty/depletion premium of US$50 per MCM.

109. **The cost-benefit analysis estimated the EIRR of the project at 11.3 percent.** The NPV at 6 percent discount rate is US$44.3 million. **Both values are satisfactory from an economic perspective.** The sensitivity of the proposed Project's economic viability to changes in the underlying assumptions was tested for variances in a range of risk factors. These included the customers' willingness to pay (WTP), the economic cost of gas, the availability of the plant and the magnitude of transmission and distribution

9 Gencer, D., Irving, J., Meier, P., Spencer, R,, Wnuk, C., Energy Security Tradeoffs Under High Uncertainty, World Bank/ESMAP, 2018, Annex 4

10 The incremental power from the Mazar plant will flow both to existing customers to meet growing demands and to customers newly connected to the grid. Thus, an unknown proportion of the distribution network is already in place. Assuming that new distribution infrastructure is needed for all incremental power represents an extremely conservative approach.

losses. In each case, switching values were calculated to determine the extent to which a particular factor could vary before the project's EIRR fell below 6 percent (see Table 5 below).

Table 5: Switching Analysis

Risk Factor	Base Value	Switching Value	Percent Change
Change in customer WTP	14 cents/kWh	12.4 cents/kWh	-12
Change in Economic Cost of Gas	$150 per MCM	$208/MCM	+39
Availability of Plant	80 percent	53 percent	-34
DABS losses	35 percent	43 percent	+24

110. **The switching analysis indicates that the project's EIRR is quite robust against changes in key values.** The highest vulnerability is in the estimation of customer WTP. However, average WTP is heavily influenced by the current tariffs (average 8.6 cents/kWh) which represent a lower bound on the WTP for grid supply. Tariffs have not changed in Afghanistan in over 3 years, and planned increases in the electricity tariff to re-align them with DABS' costs may lead to some demand suppression but given the strong support for grid connection, it is also likely that the observed WTP will rise rather than fall compared with the base-case assumption. The economic cost of gas has a substantial upside margin available, while the availability of the plant may drop by 34 percent to 53 percent. DABS' technical and commercial losses can increase to 43 percent, which seems unlikely given that significant initiatives have been directed towards loss reduction.

111. **As noted earlier, the economic analysis did not attempt to assign a value of other social impacts of electricity supply,** including better access to health and education, and increased income and employment opportunities arising from new business ventures. Nor does it attempt to value the project's importance as a model for development of ongoing and future IPPs, or as a cornerstone market for domestic gas although these benefits in themselves could be sufficient to offset even less attractive economic returns.

112. Environmental impacts are also not included in the base case owing to uncertainty about the net impact of the project on regional emissions. On the one hand, the project will create local GHG emissions. However, the electricity generated could also lead to a reduction in imports from Turkmenistan and Uzbekistan, both of which rely mainly on gas-fired generation. The only net impact of the project might be to reduce emissions from small diesel generators used by Institutional, commercial and industrial customers. Based on the average usage of diesel and petrol generators assumed in the analysis of WTP, the proposed Project would displace less than 300 tons per year of carbon.

113. In the longer-term context, the project also supports an energy strategy relying on a resource whose combustion leads to significantly lower GHG emissions and therefore a lesser environmental impact than that of coal[11], which is readily available in the NEPS region, or other fossil fuels. Simple cycle gas-fired thermal generation is estimated to emit approximately 450 g/kWh of carbon. Based on project

[11] Reference is made to World Bank (2016) "Afghanistan: Energy Security Trade-offs Under High Uncertainty: Resolving Afghanistan's Power Sector Development Dilemma".

operating parameters, the annual carbon dioxide (CO2) emissions from the proposed Project are expected to be approximately 183 thousand tons. The associated social impact, assuming the low scenario for opportunity costs of carbon[12] rises from US$7.5 million in the first year of the project to US$11.4 million by the end. By contrast, using coal-fired generation would produce 900 g/kWh of carbon or a total of 364 thousand tons per year, with a social cost rising from US$14.9 million in 2021 to US$22.7 million by 2040.

Fiscal Impacts

114. The impacts of the proposed Project on the fiscal position of the GoA are most likely to derive from four areas:

a) Direct impacts on the GoA budget related to the cost of domestic gas supply
b) Financial losses to DABS owing to a combination of high transmission and distribution losses and the narrow margin between the purchase price and the average tariff in the NEPS region.
c) Balance of payments effects owing to the difference between the payments to the IPP for electricity (which are denominated in US$) and the offsetting reduction in payments for electricity imports.
d) Taxes paid by the Project Company over the life of the project

115. The cost of gas is the responsibility of the electricity off-taker (DABS) and by extension the GoA. During the first 5 years of the project, gas supply for this and other customers in the region is expected to come from existing wells. Gas payments will flow from one state enterprise (DABS) to another (AGE) with no net fiscal impact. However, once existing wells are depleted, maintaining gas supply will require new investments to maintain and hopefully expand production and the costs of gas supply are much more difficult to predict. Private sector involvement and expertise are expected to play a major role in the future development of the gas resource and the prices that they will command are likely to be influenced as much by perceived risks as by actual development costs. The economic analysis has used a figure of US$ 150 per MCM, which includes a royalty payment to the government of US 50 per MCM. At this price, the expected total cost of gas for Mazar would be US$14.6 million per year, all of which is the responsibility of DABS/GoA. US$8.7 million is incorporated into the tariff paid by DABS leaving a residual of US$ 5.9 million per year to be absorbed by the GoA. Offsetting this, the GoA would earn an annual royalty on the gas sales of US$4.9 million. The present value of the stream of unrecovered gas cost is US$48.9 million while the estimated present value of the royalty stream is US$40.4 million leaving a net deficit of US$8.5 million over the life of the project. The exploration costs and development costs of the Sheberghan gas fields are already incurred independent of the proposed Project and have been considered as sunk for the purposes of this analysis.

116. A second aspect of the project which affects the GoA finances only insofar as DABS' finances are integrated into the government cash flows are the losses that DABS will incur on the purchase and resale

[12] World Bank, Guidance Note on Shadow Price of Carbon in Economic Analysis, November 12, 2017. The 'low' range was used since there are numerous ways to reduce GHG emissions in the region, particularly through improved solutions for cooking and heating, that would fall at the low end of the spectrum of abatement options.

of power from the proposed Project. At current tariffs to customers, and taking into account DABS technical and commercial losses, DABS would incur annual losses arising from US$12 million to US$15 million. The present value of the stream of revenue shortfalls is US$140.5 million. It is important to note, however, that DABS losses on the incremental power sales are not inevitable. Adjustments to electricity tariffs are well overdue, and a working group is currently finalizing recommendations that would bring the tariffs more in line with costs. DABS technical and commercial losses are also excessive relative to international norms and initiatives are being introduced to reduce their levels. If tariffs were increased by 3 percent per year and losses were reduced from 35 to 20 percent (still a relatively high level), DABS would actually earn a profit totaling US$9.8 million (present value terms) on the incremental sales of Mazar power over the 20-year period.

117. The third area of impact is on the GoAs foreign currency balances. Power from the proposed Project is assumed to displace electricity that would otherwise be purchased from neighboring countries. The current average tariff for these imports is US$0.055 per kWh. However, payments to the Project Company rise from US$0.063 to US$0.072 per kWh. The net negative impact over the term of the project would be US$54.1 million. However, it is important to note that the average price of imports is not fixed into the future and the net flow of forex may change over the life of the project. In addition, while the proposed Project will partially displace the more expensive portion of electricity imports in the first couple of years, the Project will increasingly displace solar home systems (SHSs) or diesel generators, which are estimated at a cost of US$0.72 per kWh for SHSs and US$0.33 per kWh for diesel as the distribution grid is expanded.

118. The fourth component of fiscal flows is the taxes to be paid by the Project Company. These include withholding on corporate income tax on the profits of the operation and a Business Revenue Tax (BRT) of 4 percent paid out of the gross revenues. According to the project's pro forma financial statements, the present value of withholding taxes on profits is US$9.9 million while the present value of the BRT is estimated at US$12.9 million.

119. Altogether, with conservative assumptions the project could have a total net negative impact on fiscal flows of up to US$180.3 million (including the cost of gas purchases, DABS operating losses, and net outflows of foreign currency) or US$9.01 million per year over the duration of the project, although modest improvements in DABS tariffs and technical losses would reduce the loss to US$30.0 million or US$1.5 million per year. By comparison, Afghanistan had a fiscal surplus in 2018 in excess of US$100 million on total revenues of US$4.8 billion. Imports of goods totaled US$7.4 billion, US$1 billion of which was mineral fuels. In the larger context, the possible negative fiscal impacts of the project are very small.

120. Notwithstanding the possible but small negative fiscal impacts, there are a number of significant broader economic considerations beyond the fiscal impacts analysis summarized in Table 6 below : (a) the GoA is gaining an incremental source of electricity to meet growing demands of households and enterprises (whose WTP exceeds the cost of supply); (b) reducing its reliance on imported electricity to improve energy security where decision making analysis validated that domestic gas-fired generation as part of the least of cost generation expansion plan was preferable to imports; and (c) creating a market for new domestic gas resources which, if expectations materialize, will reduce the country's long-term reliance not only on imports of electricity but on imports of other energy as well. This last impact could be very significant in attracting investment in exploration and production in Afghanistan's gas sector,

which is considered to have significant potential. Further, the successful demonstration effects of this project and contractual templates created in this project will reduce the development cost and risk perception of future IPPs, which is expected to result in lower cost power supply in the future.

Table 6: Net Fiscal Impacts over Project Term ($ million)

Fiscal Impact	Base case		3% Dabs Tariff Increase		3% Dabs Tariff Increase plus reduce losses to 20%	
	Negative	Positive	Negative	Positive	Negative	Positive
Unrecovered Cost of Gas	-48.89		-48.89		-48.89	
Royalty Received on Gas Sales		40.39		40.39		40.39
DABS Losses on Power Sales	-140.50		-68.82			9.75
Foreign Exchange Balances	-54.08		-54.08		-54.08	
Income Tax Witholding		9.89		9.89		9.89
Business Receipts Tax (BRT		12.89		12.89		12.89
Total	-243.47	63.18	-171.80	63.18	-102.98	72.93
Net	-180.29		-108.62		-30.04	
Net per year	-9.01		-5.43		-1.50	

IFC Anticipated Impact Measurement and Monitoring (AIMM)

121. The Project has an anticipated impact measurement and monitoring (AIMM) rating of Excellent based on an AIMM score of 90. IFC expects the Project to contribute to stakeholder impacts by adding 58.6 MW of locally sourced gas-based generation capacity to help address the huge electricity demand-supply gap in the country. The anticipated market creation effects include improved competitiveness, deriving from the strong demonstration effect of supporting the first long-term IPP in the country. The Project is also expected to help improve the sector resilience through supporting introduction of locally sourced gas generation to diversify the generation mix which is currently more than 80 percent dependent on imported electricity from Central Asian neighbors. (Refer to Annex 8 for details)

MIGA Impact Performance Assessment and Comparison Tools (IMPACT)

122. The Project has an anticipated MIGA IMPACT rating of Excellent based on a score of 90. The Project's main contributions are: (i) the addition of 58.6 MW in generation capacity, increasing the availability of electricity and helping to address the electricity gap , which could lead to an increase in GDP of about 3 percent above a "business-as-usual" scenario and in around 138,500 additional jobs (1.4 percent increase in employment) sustained over the period of the Project's operation; (ii) harnessing indigenous gas resources to generate electricity and diversifying away from energy imports, enhancing energy security; and (iii) demonstration of the viability of private sector participation in Afghanistan's energy sector by introducing a new private sector-enabling framework and a bankable contractual structure for one of Afghanistan's first long-term IPPs that could be replicated in future projects, potentially unlocking additional private investment. (Refer to Annex 9 for details)

Financial Analysis

123. DABS financial performance has declined over the past few years**.** While DABS reported a continuous positive net income from 2012 to 2015, in the last few years it has reported net income loss. This change of trajectory is attributed primarily to the revaluation exercise that lead to an increase in the depreciations cost, an increase in the price of electricity imports, as well as increase in the operational expenditures. Compared to increase in revenues, cost of electricity purchased has been increasing faster. However, in spite of this DABS has been able to generate positive cash flow from operation, thus enabling it to meet its short-term payment obligations. During this period, DABS has also been enjoying the grace period on its debt portfolio,[13] which is on-lend by GoA at a concessional rate, thus putting less pressure on its current liabilities. Going forward, DABS will not be able to maintain this liquidity without taking measures at improving its operational efficiency, finalizing and adapting the new tariff methodology, and addressing technical and commercial losses, which stand at 33 percent. The paragraphs below provide more details of the current financial position and forecasted one.

124. **DABS' overall historical financial performance:** DABS historical financial analysis has been conducted using the audited financial statements for the period FY2016 – FY2018. The fiscal year covers the period of April 1 to March 31. While the auditor's report has historically contained a qualified opinion, there have been some improvements resulting in a reduction of items under the list of qualifications. As of the latest report, the key issues identified by the auditors pertain to: (i) the methodology used for revaluation of Property, Plant, and Equipment (PP&E); (ii) lack of recognition and accounting for certain non-monetary grants that DABS has received throughout the period; and (iii) challenges with physical verification and valuations of the inventory items. Bearing these in mind, the World Bank team has conducted a historical financial analysis using the financial statements as reported by DABS.

125. DABS has a total consumer base of nearly 1.33 million in 31 provinces, as of 2018. More than 92.8 percent (1.330 million) are residential consumers, about 6.7 percent are commercial consumers and the remainder is GoA and others. While DABS reported a continuous increase in revenue from AFN10.2 billion in 2012 to AFN25.5 billion in 2018, it has recorded net income losses in FY17 and FY18 of AFN0.39 billion and AFN1.63 billion, respectively. As indicated above, this is driven primarily by the increase in the cost of power purchase and other general operational expenditures, which have doubled in the last two years compared to the previous year. In addition, there are high losses in distribution and transmission network that currently are estimated at 33 percent. This reflects a combination of both, technical and commercial losses. DABS currently collects only 65-70 percent of electricity billed, which is estimated at 85-90 percent of the electricity sold. In terms of the increase in operational expenditures, part of this increase is driven by depreciation cost, which has increased significantly following revaluation of DABS assets' in 2016 as its asset base more than doubled from AFN47 billion to AFN130 billion. On the revenue side, while DABS reported an increase of only 3 percent in FY18, the cost of power purchase increased by 11 percent. This led to a decrease in gross profit margin from 23 percent in FY17 to 16 percent in FY18. It is worth noting that the increase in revenues had been driven primarily by the increase in sales rather than in tariffs.

126. However, in spite of net losses recorded in the last two years, DABS has been able to generate positive cash flow from operations in the amount of AFN0.59 billion, AFN0.70 billion and AFN1.99 billion in FY2016, FY2017 and FY2018, respectively. Nonetheless, this is not sufficient to cover the need for extensive capital expenditure (Capex). In 2016, DABS undertook significant Capex, increasing its

[13] As a relatively recent entity (DABS was incorporated in 2008), DABS has started borrowing in 2009, primarily in the form of GoA on-lending with long grace period and concessional rate.

investments in 2016 to AFN12.96 billion compared to AFN2.52 billion in 2015. Since then and for the period under review, the investments in Capex has remained relatively stable, amounting to AFN13.39 billion in FY18. The financing for Capex is primarily done through donor funding, and long-term financing in a form of GoA on-lending.

127. While overall DABS historical performance has been relatively stable, it is showing signs of deterioration, as illustrated with the worsening of the gross and profit margins (see Table 7 below). DABS current ratio is very healthy, albeit at a declining trend. Similarly, its overall leverage has increased due to an increased Capex program and funding for it by means of new loans. Currently, its debt portfolio stands at AFN26 billion (UD323 million), with total commitments amounting to US$1.86 billion. GoA, through on-lending, is DABS's main lender on record, as DABS cannot access direct financing yet. While servicing most of these loans is still at a grace period stage, repayment is expected to impose a significant financial burden on DABS. Given the increased investments need going forward and the need to finance them with a combination of donor funding, DABS internally generated resources, and new loans, DABS has agreed with the MoF to convert GoA on-lend existing loans into equity. This is expected to be reflected in FY19 and FY20.

Table 7: Summary of key ratios

Ratios	2016	2017	2018
Efficiency & Profitability Ratios:			
Working ratio	97 %	105 %	85 %
Gross profit margin	14 %	23 %	16 %
Net profit margin	10 %	-2 %	-6 %
Liquidity ratios:			
Current ratio	6.9x	5.6x	4.0x
Quick ratio	5.1x	4.4x	3.2x
Leverage ratio:			
Debt to Equity ratio	40 %	50 %	63 %

128. **DABS forecasted financial performance:** The forecasting analysis covers the period 2019 – 2025. Last year, the World Bank team developed a financial projection of DABS' performance taking into account increase in electricity demand, new supply of electricity from IPPs including the proposed Project, imports, and other domestic generation, as well as DABS's Capex program. While the model is currently being updated, initial assumptions suggest that DABS's revenue will gradually increase but that high operating expenses and DABS' ambitions investment plan (expected to be around AFN222 billion (US$2.7 billion)) for the forecasted period will deteriorate its profitability. Despite an assumed 5 percent annual increase in tariff, DABS is expected to have negative net income throughout the period due to increasing cost of power purchase, and depreciation expense (see Annex 5 for DABS full Income Statement).

129. Looking at cash-flows from operations, DABS is projected to have mixed results, showing negative cash-flow from operations in FY20 and FY21, turning to positive afterwards. The negative cash-flow from operation for these two years is driven by significant increase in the cost of power purchase resulting from the commissioning of the Kajaki Hydroelectric Dam Addition Project, the envisaged Kandahar Solar

Project, and the Mazar Gas-to-Power Project. The cash-flow from operation is expected to remain low suggesting donor funding will be needed for its investment program, and helping it to maintain a positive cash balance during the forecast period (see Annex 5 for DABS' full Cash-Flow Statement and Balance Sheet).

130. Imports are expected to remain the major source of power supply for the forecasted period, thus neutralizing the impact on the cost of purchase from IPPs. Throughout the forecasted period the cost of supply ranges from US$c/kWh of 5.3 to 6.5, whereas the weighted average tariff ranges from US$c/kWh of 8 to 11 (see Table 8 below). The margin between the cost of power and retail tariff is not sufficient to cover all of DABS's operational and capital expenditure. As part of the Partnership Agreement between DABS and the MoF, one of the actions to be undertaken is tariff review and development of the tariff methodology. This would allow a better assessment of the cost component that needs to be reflected in the tariff so that DABS can achieve a full cost recovery tariff level. DABS is currently finalizing this methodology, and it is expected to be completed during September 2019.

Table 8: DABS's average cost of power supply

Average cost of Power Supply	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
In GWh	1	2	3	4	5	6	7
Imports	5,534.0	7,456.0	7,737.0	8,115.0	8,379.0	8,576.0	8,845.0
Domestic Generation (IPP)	244.3	660.9	1,005.8	1,005.4	1,448.9	1,515.8	1,515.4
Domestic Generation (DABS)	886.8	874.2	871.7	871.1	870.6	870.1	869.7
Total Supply	**6,665.1**	**8,991.2**	**9,614.4**	**9,991.5**	**10,698.5**	**10,961.9**	**11,230.1**
IPP as percent of total	**4%**	**7%**	**10%**	**10%**	**14%**	**14%**	**13%**
In US$ million							
Imports	293.0	410.2	442.1	481.1	514.6	541.1	571.6
Domestic Generation (IPP)	19.1	46.0	80.0	80.1	107.4	111.7	111.8
Domestic Generation (DABS)	23.1	20.0	19.5	19.8	20.1	20.5	20.8
Total Supply	**335.2**	**476.3**	**541.5**	**581.0**	**642.2**	**673.2**	**704.3**
IPP as percent of total	**6%**	**10%**	**15%**	**14%**	**17%**	**17%**	**16%**
In US$/kWh							
Imports	5.29	5.50	5.71	5.93	6.14	6.31	6.46
Domestic Generation (IPP)	7.80	6.96	7.95	7.97	7.42	7.37	7.38
Domestic Generation (DABS)	2.6	2.3	2.2	2.3	2.3	2.4	2.4
Total Supply	**5.29**	**5.50**	**5.71**	**5.93**	**6.14**	**6.31**	**6.46**
Retail tariff in US$/kWh (assuming 5 percent increase)	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Residential	0.06	0.07	0.07	0.07	0.08	0.08	0.08
Commercial and Industrial	0.13	0.14	0.14	0.15	0.16	0.16	0.17
Public	0.18	0.19	0.20	0.21	0.22	0.23	0.23
Weighted average	**0.08**	**0.09**	**0.09**	**0.10**	**0.10**	**0.11**	**0.11**

131. **Project Financials:** The project's FIRR is 13.6 percent, comparable with projects in similar markets. This figure includes estimated investment costs of US$96.6 million, O&M costs, and project revenues over the life of the contract (20 years). The calculation of the project revenues is based on the sale of 404GWh per year according to the proposed negotiated tariff with DABS.

B. Technical

132. **The proposed Project scope includes a gas-fired simple-cycle reciprocating engine based facility** with a contractual capacity of 58.6MW consisting of engines, all associated auxiliary equipment and spare parts, gas receiving and interconnection facilities within the boundary limits of the plant.

133. **The gas for the proposed Project will be supplied from the gas fields of Sheberghan, which will be transferred to Mazar-e-Sharif via a new gas pipeline.** Given the above-mentioned concerns (see paragraph 19) with respect to the viability of the existing pipeline, a new 94.5 km pipeline from Sheberghan to Mazar-e-Sharif is under construction. AGE, which owns both gas field and gas pipeline, has completed about half of its overall length. However, its technical expertise in both assessing, testing and ensuring adequate quality control of the welding works, which are crucial for completing the installation of the pipeline, is limited. According to the supervision engineer's inception report, the quality of the work conducted by AGE for the part of the pipeline is satisfactory. Refer to paragraph 102**Error! Reference s ource not found.** above for the gas risk and remainder of the work on completion of the pipeline.

134. **DABS will be responsible for the installation of the electrical interconnection facilities between the gas-to-power plant and the NEPS though the 220kV network.** Through an initial screening of options of connecting the plant to the NEPS, DABS has concluded that the preferred option would be a new 12 km transmission line looped to the under-construction Sheberghan-Mazar 220kV transmission line. Construction of the latter (Sheberghan-Mazar line) is ongoing under ADB financing and is expected to be completed by November 2020. Grid impact study for this new 12 km transmission has been prepared by GG – the project's sponsor and approved by DABS. The grid impact study covered steady-state analysis as well as dynamic assessment of the network for peak load and off-peak load of 2020 and 2021. The study concluded technical constraints for this option and the interconnection scheme fulfills reliability criteria in steady state, dynamic state and under contingencies. The study had also recommended certain grid reinforcement measures to avoid overloading of few transmission lines in the network.[14] These reinforcement measures are recommended even without integration of the proposed Project into the system.

[14] The overloaded transmission line is not directly connected to the proposed plant. These overloading occur during peak load demand and it not as result of connecting the proposed plant into the network. Grid impact study concluded that construction of a new 110 kV transmission line from Ankhoy-east to Andkhoy-west substation resolve the overloading issues in that part of the network, but there are other options like expansion of Andkhoy-east substation and Sheberghan 110/220 substation. As part of incentive program, DABS is working on country wide network loss calculation. Based on result of this study, they will prepare an investment plan to reduce losses of the system and resolve overloading issues of the transmission lines, substation, and other part of the network. The team will make sure that a plan will be considered for mitigating the overloading issues of the Turkmen-NESP network in the investment plan.

135. ADB has agreed to finance construction of the new 12 km transmission line and the interconnection switchyard to connect the power plant with Mazar-e-Sharif grid as part of their Energy Sector Development Investment Program Tranche 1. The invitation for bids for design and construction of this transmission line was announced with July 1 2019, as the last date for submission of bids. Procurement of the contractor is expected to be concluded and the contract to be signed by the end of calendar year 2019. Given the construction period for the transmission line and its associated interconnection facilities is expected to be 12 months, gird interconnection facilities are expected to be available by January 2021. The Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) for this transmission line was prepared by DABS in parallel and completed in May 2019.

136. Under the agreed interconnection scheme, the plant will be synchronized with the Turkmen segment of the NEPS. The GoA is in negotiation with Tajikistan, Uzbekistan and Turkmenistan to synchronize all three import sources inside Afghanistan. It is expected that the three import sources will be synchronized in Afghanistan soon. The discussions among these countries are undergoing. However, even without synchronization of the three import sources, the grid impact study indicates based on data provided by DABS on peak and off-peak load demand, the NEPS Turkmen segment alone can evacuate and absorb the generated energy from the proposed Project and the Sheberghan gas-to-power plant. NEPS Turkmen segment will consist of 10 load centers in Balkh, Jawzjan, Sar-e-pul, and Faryab provinces with peak load demand of around 220 MW and off-peak demand of 158 MW. This island is expected to have three generation sources: i) Mazar Plant; ii) Sheberghan plant; and iii) imports from Turkmenistan.

137. Notwithstanding the above challenge, the envisaged power station design has a number of features which make the installation of the IPP attractive for power development, including the following: (i) short distance between power plant and AGE gas distribution center near an existing industrial plant, the Northern Fertilizer Power Plant (NFPP); (ii) proximity to the new 220kV Sheberghan – Mazar transmission line; (iii) site accessibility by existing roads; and (iv) proposed technology based on modern and efficient gas-fired reciprocating engines, which entails comparatively the shortest installation time and a low maintenance schedule. In addition, minimal environmental and socio-economic impacts are anticipated due to the suggested technology, fuel type, and location.

C. Financial Management

138. Since there will be no IDA-financed procurement, or procurement-related disbursements under the proposed Project, there are no financial management issues to be noted. Should the proposed IDA Guarantee be called, IDA would disburse to the SBLC issuing commercial bank (in case of IDA payment guarantee with SBLC structure) or Project Company (in case of the IDA direct payment guarantee), and GoA would then be obligated to repay IDA, in accordance with the terms of the Indemnity Agreement between GoA and IDA. The Project Company will be responsible for managing the finances of the proposed Project. It will install and maintain adequate financial management systems, including a system of accounting, reporting, auditing, and internal controls, and relevantly qualified staff. Its annual financial statements will be prepared in accordance with internationally accepted accounting principles. The latter will be audited in accordance with international auditing standards. The performance of the proposed Project will be monitored through, inter alia, regular progress reports and audited annual financial statements to be submitted by Project Company to IDA and IFC.

D. Procurement

139. The Project was awarded to GG by GoA in a non-competitive tendering process because the sector was not mature enough to support a different approach yet. Although the Project was not awarded through a competitive bidding process, The Afghan Procurement Law (2016) has specific allowances for single-source procurement, subject to the approval of the Higher Economic Council (HEC) which is the highest decision-making body in the country headed by the President. This Project was approved by the HEC twice to ensure that all requisite procedures for a bilateral project award were followed and to have a strong endorsement from the multi-party National Cabinet of the country.

140. Both the EPC contractor as well as the O&M contractor have been selected through an international competitive bidding process. The bidding process for both the EPC and O&M contracts was initiated in June 2018. Around 22 potential EPC/O&M contractors were invited to submit their proposals in August 2018. As Afghanistan is a highly challenging market for a number of contractors and off limits to some, GG received three binding bids from a consortiums of international firms. In November 2018, based on the technical and commercial review of the bids, GG finalized Mytilineos Holdings S.A. (through one or more subsidiaries) as the EPC contractor with Wartsila as the equipment supplier. Consistent with the World Bank Procurement Regulations for Investment Project Financing (IPF) Borrowers, Section II. General Considerations – 2.2, the Procurement Regulations do not apply to the procurement of goods, works, non-consulting services, and consulting services under projects where the World Bank provides Guarantees. Rather, in such projects, consistent with IDA's Articles of Agreement, the World Bank assesses whether the contracts were procured with due regards to economy and efficiency. The EPC cost estimated at US$60 million are considered in line with industry practice for the scope of work required under the Project and comparable with other WBG financed projects with similar technology. The competitive procurement of the EPC and O&M contracts is consistent with the considerations of economy and efficiency which apply to IDA financings under its Articles of Agreements.

E. Social (including Safeguards)

141. The project is categorized as Environmental Assessment category B.

142. Consistent with the requirements of Performance Standards for Private Sector Activities OP4.03, the proposed Project will follow World Bank Performance Standards of which the following are triggered: PS1 – Assessment and Management of Environmental and Social Risks and Impacts; PS2 – Labor and Working Conditions; PS3 – Resource Efficiency and Pollution Prevention; PS4 – Community Health, Safety, and Security; PS 5: Land Acquisition and Involuntary Resettlement. The project will also follow the World Bank Group General Environmental, Health and Safety Guidelines (EHSGs) and the EHSGs for Thermal Power Plants.

143. The key environmental and social risks and impacts associated with the proposed Project include: security management; construction contractor management, GoA land acquisition and leasing for the 12km transmission line to be constructed to connect the plant with the Mazar-e-Sharif grid, and cumulative impacts to ambient air quality. As the project site is located at an industrial site at the outskirts of Mazar-e Sharif and the respective land parcel is GoA owned and not inhabited, no land acquisition, displacement of people or adverse impacts on livelihoods are expected by the plant itself.

144. The Project Company has prepared and submitted an ESIA which was jointly reviewed by the World Bank and IFC teams. On its basis and upon completion of the team's due diligence, an **Environmental and Social Review Summary (ESRS), including an Environmental and Social; Action Plan (ESAP) was prepared and disclosed on February 1, 2019**.

145. The 12km transmission line, is an associated facility that is financed by ADB which is detailed in para 38. The Resettlement Action Plan has been prepared by DABS on behalf of ADB and disclosed in December 2018 and meets the requirements of PS1 – Assessment and Management of Environmental and Social Risks and Impacts; PS 5: Land Acquisition and Involuntary Resettlement.

146. **As part of its ongoing commitments under the ESIA, the Project Company has developed and is implementing a Stakeholder Engagement Plan (SEP) and Grievance Redress Mechanism (GRM),** including a series of consultation meetings held with potentially affected communities in 2018. The SEP describes the strategy and program to be implemented for engaging with the stakeholders of the project, at different stages on the project, while ensuring it is done in a culturally appropriate and timely manner.

147. **Ghazanfar Group has a Human Resources (HR) Manual, including measures how to address Gender Based Violence (GBV) in place which will be adopted for use by the Project Company and applied to its staff.** Project Company will develop project-specific HR policy covering non-discrimination, equal employment opportunity, employee grievance mechanism, code of conduct for labor employed for how to address GBV and sexual harassment, respectful treatment, enforcement of law against child labor, performance appraisals, workers' organization, Occupational Health and Safety (OHS), and training and development for its staff.

148. As a condition of IFC's investment and World Bank support, the Project Company has further agreed to: (i) coordinate with DABS on the ESIA and land acquisition process for the associated transmission line and support mitigation of significant environmental and social risks; (ii) require the EPC and O&M contractors to implement construction and operational phase environmental and social management plans (ESMPs) as well as OHS management plans and recruit qualified E&S staff and OHSAS 18001:2007 (now called ISO 45001) or similar certified OHS specialists, and also, including implementation of an employee grievance mechanism; (iii) establish an environmental and social management system for construction and operations with a qualified E&S manager, who will also be responsible for OHS management; (iv) update its human resources manual to ensure consistency with requirements under Performance Standard 2; (v) update its security management plan in line with Performance Standard 4 based on the outcomes of the security risk assessment undertaken; and (vi) implement a greenhouse gas accounting program.

149. There are no indigenous people or areas of high archaeological value in the project area of influence. As a result, Performance Standards (PS) 7 and 8 are not considered applicable to the proposed Project. Performance Standard 6 is not applicable because the ESIA did not identify impacts on significant biodiversity values and since no impacts on biodiversity are expected within the corridor of the transmission line (that will connect the plant to the Mazar-e-Sharif grid) right-of-way.

Citizen Engagement

150. Citizen Engagement (CE) for the proposed Project will include stakeholder consultations, a multi-level Grievance Redress Mechanism (GRM) and a citizen feedback mechanism. Specifically, the ESIA is to include a mechanism for consultations by the Project Company and GoA with stakeholders. This will involve affected communities and customers (both male and female) which will be reached out to during the stages of project preparation, construction and operations. Stakeholder groups will have a chance to review key findings of the draft ESIA and their feedback will be considered in the further preparation of the document. During the operational stage of the proposed Project, DABS (as the sole off-taker of the IPP) and the Project Company are to jointly carry out surveys to evaluate customers' satisfaction of citizen engagement measures.

151. Key CE indicators for the Project will include:

- 80 percent of grievances responded and or resolved within the stipulated service standard for response times; and
- 70 percent of customers reporting satisfaction with key aspects of the consultation process (including the ESIA, ESMP and other information made publicly available).

F. Environment (including Safeguards)

152. The project's expected contribution to cumulative air quality impacts is minimal according to the ESIA. However, there are concerns about overall levels of nitrogen oxides due to the estimated contributions from a nearby glass manufacturing plant and the project is continuing to analyze opportunities for improvement to ambient air quality also in the context of potential cumulative effects of future expansion of the power plant. The main risk and impact are the Occupational Health and Safety risks during construction and operations. An OHS Plan in compliance with international standards will be prepared and implemented. Certified OHS staff will be recruited.

The gas supply for the Project will be transported via a pipeline that is currently under construction. However, this infrastructure is not being built for the purposes of the proposed Project but is an undertaking that GoA had begun way in advance of the proposed Project's inception to ensure continued gas supply to Mazar-e-Sharif. This is because the existing pipeline from Sheberghan to Mazar-e-Sharif is past its lifetime and cannot be repaired to carry the gas needed for the gas-fired power plant and other gas users. Consistent with the definitions and requirements of PS1, a new gas pipeline currently under construction is therefore not considered an associated facility to the proposed Project, because the gas-fired power plant will only use a minor share of the volume to be transported on the gas pipeline. However, the 12 km transmission line to connect the power plant to the grid is an associated facility. An ESIA and RAP have been prepared and found satisfactory by the WBG.

153. A lenders' independent EH&S consultant acceptable to IFC will monitor the Project Company's implementation of its EH&S obligations including implementation of construction and operational phase ESMPs, OHS Plans and other E&S aspects outlined in the ESAP.

G. Climate Co-Benefits

154. As both Afghanistan's real GDP and population are slated to grow in the coming years, so will its demand for electricity. As has been noted, the gap between demand and supply of electricity is wide and a significant portion (~80 percent) of this demand is currently met through imports from neighboring countries. The need to build-up domestic capacity and reduce dependence on imports is critical for price stability and sustained economic growth especially so in the context of a fragile country like Afghanistan. The proposed Project envisages to provide cost-effective, quality power while alleviating energy insecurity.

155. While Afghanistan's GHG emissions are relatively low (around 0.3 metric tons CO2 per capita in 2010[15], making Afghanistan one of the lowest GHG emitters globally, compared to World Average of around 7 metric tons CO2 in 2011[16] and "Fragile and Conflict Affected Situations" which was 0.84 metric tons CO2 in 2010[17]), this is likely to increase in the future as a result of its growth and added capacity. The 2015, Intended Nationally Determined Contribution states Afghanistan's intention to shift to natural gas and renewables by 2030 to contain some of this increase. The proposed Project is a step towards meeting this goal of decarbonizing the country's energy sector. It is also to be noted that a scenario developed under the International Energy Agency Sustainable Development, which examines the lower end of the ambition range concerning Paris-aligned pathways, includes natural gas as an important bridge technology. This scenario amplifies the important role that projects like the one proposed here can play in mitigating climate risks in countries like Afghanistan.[18]

H. World Bank Grievance Redress

156. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

I. IFC and MIGA Project Information Disclosure

157. The IFC Summary of Investment Information and ESRS for the Project were disclosed to the public through IFC's Project Information Portal (https://disclosures.ifc.org) on February 1, 2019. The MIGA

[15] *https://www4.unfccc.int/sites/NDCStaging/Pages/Search.aspx?k=Afghanistan*

[16] *https://www.wri.org/blog/2014/11/6-graphs-explain-world-s-top-10-emitters; https://wriorg.s3.amazonaws.com/s3fs-public/uploads/per_capita_emissions.png*

[17] *https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=F1-AF*

[18] *https://www.wri.org/publication/toward-paris-alignment*

Summary of Proposed Guarantee and ESRS for the Project was disclosed to the public through MIGA's portal (https://www.miga.org/projects) on May 7, 2019.

158. IFC and MIGA support their clients in addressing E&S issues arising from their business activities by requiring its real sector clients to set up and administer appropriate grievance mechanisms and/or procedures to address complaints from Affected Communities in relation to E&S issues arising from IFC's/MIGA's clients' business activities. In addition, Affected Communities have unrestricted access to the Compliance Advisor Ombudsman (CAO), the independent accountability mechanism for IFC and MIGA. The CAO is mandated to address complaints from people affected by IFC/MIGA-supported business activities in a manner that is fair, objective, and constructive, with the goal of improving E&S Project outcomes and fostering greater public accountability of IFC and MIGA. Independent of IFC/MIGA management, and reporting directly to the WBG President, the CAO works to resolve complaints using a flexible, problem-solving approach through its dispute resolution arm and oversees Project-level audits of IFC's/MIGA's E&S performance through its compliance arm. Complaints may relate to any aspect of IFC/MIGA-supported business activities that is within the mandate of the CAO. They can be made by any individual, group, community, entity, or other party affected or likely to be affected by the environmental or social impacts of an IFC/MIGA-financed business activity. Complaints can be submitted to the CAO in writing to cao@worldbankgroup.org.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

Project Development Objectives

The project development objective is to increase the amount of reliable indigenous electricity generated and to mobilize private capital in Afghanistan.

PDO Indicators by Objectives / Outcomes	CRI	Unit of Measure	Baseline	End Target
Generation capacity of the plant constructed under the Project		MW	0	58.6
Electricity generated by the Project		GWh	0	400
Private sector capital mobilized		US$ million	0	29
Completion of plant's construction as scheduled		percent	0	100

Indicator Name	Generation capacity of the plant constructed under the project
Definition/Description	Rated capacity of the power plant installed following Commercial Operation Date (COD), as defined in the PPA .
Frequency	Annual
Data Source	Project Company
Methodology for Data Collection	Progress reports

Responsibility for Data Collection	Project Company
Indicator Name	**Electricity generated by the Project**
Definition/Description	GWh generated measured at the main output meter located at the DABS substation in Mazar-e-Sharif
Frequency	Annual
Data Source	Project Company
Methodology for Data Collection	Progress reports
Responsibility for Data Collection	Project Company
Indicator Name	**Private Capital Mobilized**
Definition/Description	Amount of private capital invested in the power plant
Frequency	Annual
Data Source	Project Company
Methodology for Data Collection	Progress reports
Responsibility for Data Collection	Project Company

Monitoring & Evaluation Plan: Intermediate Results Indicators	
Indicator Name	**Reaching of COD as scheduled**
Definition/Description	Completion of all requisite works by COD
Frequency	Quarterly
Data Source	Project Company

Methodology for Data Collection	Progress reports
Responsibility for Data Collection	Project Company
Indicator Name	**Citizen Engagement**
Definition/Description	Grievances registered related to implementation of mitigation plan are addressed (%)
Frequency	Annual
Data Source	Project Company
Methodology for Data Collection	Project implementation M&E
Responsibility for Data Collection	Project Company

ANNEX 1: PROJECT BACKGROUND

Afghanistan
Mazar-e-Sharif Gas-to-Power Project

Project Background / Upstream Work / MFD

1. Aligned with the GoA's strategy to self-reliance, power generation in Afghanistan is a key priority for the WBG in the country. Since 2014, the WBG has been engaged with the GoA to help it develop the power sector in Afghanistan. This Project is a joint IFC, WB/IDA and MIGA supported/funded project with each institution playing a key role in realizing the proposed Project. Starting in 2014, at the invitation of the GoA, a joint IFC Infrastructure Investment and PPP team developed the project concept, helped in identifying credible sponsors, participated in the selection of the sponsors/ co-developers best suited to deliver the Project, guided the project development support to the sponsors to appoint advisors, participated in the structuring and negotiating of the proposed Project framework and agreements in line with international best practice and engaged together with the sponsors in bankability requisitions IFC has worked with in several other jurisdictions (e.g. Nigeria, Pakistan and others). The proposed Project required an extensive effort to bring all stakeholder discussions with respect to this, at a time, first IPP in Afghanistan which is expected to strike a balanced risk allocation and develop bankable project documents which could be replicated and pave the way for further investment in the fragile the nascent power sector of the country. Moreover, IFC assisted the sponsors on the process of selecting and contracting EPC and O&M contractors, and now finally in addition to providing debt funding for the proposed Project is mobilizing debt financing from DEG and ADB as lead arranger.

2. Given the high risks associated with investments in Afghanistan due to it being an FCS country, there has been a lack of private sector interest and availability of financing. IFC's considerable upstream involvement mentioned above and hand-holding has helped attract investors and other lenders; however, the perceived and real risks of this first-of-a-kind private sector project in an untested market remain high. Hence, over the last few years, the IFC team has been closely working with the IDA teams, as well as the MIGA and the team representing IFC acting as the implementing entity of IDA PSW team, to develop the various aspects of the Project to further risk mitigation and to coordinate on process discussions with GoA. IDA is proposed to provide a Payment Guarantee to support DABS' ongoing payment obligations under the PPA. IDA PSW RMF is providing political risk insurance (PRI) for Breach of Contract (BOC) for IFC investments, while MIGA is providing PRI BOC, Expropriation, War and Civil Disturbance and Transfer Restriction and Inconvertibility risks by way of the IDA PSW- MGF facility for the equity investments made by the private sponsors and the senior loan investment by DEG.

3. Furthermore, IDA has played a very critical role in both, electricity and gas sector. Through a numerous technical assistance activities, IDA has a been actively engaged in the upstream and power sectors providing necessary support. On the extractive side, IDA has supported the GoA by financing the consultancy work focusing on the assessment of the gas pipeline construction and is further preparing a new project A-GASP mentioned above, to provide additional support to complete the pipeline. In addition, it has also supported the funding of a consultant to optimize the existing amine plant, which is critical for the gas supply, so it can expand gas processing/desulphurization capacity. With regards to the electricity

sector, IDA has been working and continues to work very closely with DABS. The support ranges from capacity building at different departments within utility (such as procurement, planning, finance teams, etc) to improving its operational efficiency and financial viability. Few projects to name are (i) the Herat Electrification Project (P162022, US$65million); (ii) the DABS Planning and Capacity Support (P131228, US$6 million); (iii) the Central Asia South Asia Electricity Transmission Project (CASA)-1000 (P145054, US$526.50million); (iv) the Naghlu Hydropower Rehabilitation Project (P132944, US$83 million); etc.

4. IFC's support has gone well beyond just providing upstream structuring support to the sponsors and collaboration with WBG entities. It has extended support in (i) engaging with stakeholders such as the IMF to discuss and get approval on the financial feasibility of the Project (including the Government Guarantee associated contingent liabilities); (ii) onboarding other DFIs and foreign GoA representatives on the rationale for the Project and soliciting support; and (iii) acting as a neutral party amongst all the stakeholders, pushing the Project forward despite many setbacks and political changes in Afghanistan over the last few years. Through the collaborative approach (based on utilization of various WBG products), the Project has been able to create an enabling environment for IPPs which are needed to address the country's electricity demand in the long run. The Project is also demonstrating the impact of the Maximizing Finance for Development cascade approach in the form of substantial upstream involvement, in line with IFC 3.0 creating markets agenda, and strong WBG collaboration.

ANNEX 2: IMPLEMENTATION ARRANGEMENTS

Afghanistan
Mazar-e-Sharif Gas-to-Power Project

Project Institutional and Implementation Arrangements

1. **Project Sponsor:** The Project is being developed by the Ghazanfar group ("GG") – established in 1910, GG is a large Afghan conglomerate with more than 3000 employees and headquarters in Mazar-e-Sharif, where the Project is located. Although relatively new to the energy sector, GG has long-standing experience in Afghanistan with diversified business interests including banking, refining, transportation and construction. Given GG's limited exposure to the construction and management of power generation facilities, the proposed Project's design envisages both the procurement of experienced EPC and Operation and Maintenance (O&M) contractors. GG through Ghazanfar Neft & Gas DMCC is expected to contribute 60 percent of the equity in the Project. Mytilineos Holdings S.A. ("Mytilineos"), a listed Greek company focusing on metallurgy, energy and EPC operations, is expected to be the technical partner and provide the remaining 40 percent of the equity in the Project through its wholly owned subsidiary METKA Power Investments Ltd. ("METKA"). METKA (through one or more subsidiaries) will also be the EPC contractor for the Project with Wartsila as the equipment supplier. The Project sponsor will be the two shareholders of Ghazanfar Neft Gas DMCC- Mr. Ismail Ghazanfar and Mr. Ibrahim Ghazanfar and four key entities of the Ghazanfar group (together the "Sponsor"). The Mazar IPP project represents the first of its kind in Afghanistan and is expected to serve as a model for future and possibly larger projects of the same nature.

2. **Power Purchase Agreement (PPA):** The Project will sell its entire power capacity and output to DABS under a 20-year PPA, signed in January 2018. With respect to the off-taker's lacking track record of successful contract performance in private sector projects the IDA guarantee is designed as a mitigant to the risk that DABS might temporarily be unable to meet its payment obligations under the PPA. As such, the PPA also incorporates provisions to operationalize the IDA-guarantee. Key contents of the agreement are highlighted in the below table.

Table 4: Key Contents of the PPA

Item	Key Highlights
Parties	DABS (Off-taker) Afghan Power Plant Company
PPA Term	20 years from COD
Contract Capacity	57.68 MW (net)
Tariff Structure	

	(i) unit Capacity payments for the plant's net electrical capacity; (ii) Energy payments for the plant's net electrical output[19]; (iii) gas payments to cover the cost of natural gas under the GSA; and (iv) supplemental payments to cover other potentially incurred pass-through costs.
Gas Price	Fully recovered from the off-taker on a pass-through basis
Currency	Gas payments to be made in AFN All other payment to be made in US$
Termination Payments	Obligation of GoA to pay compensation to the Project Company upon early termination which is customary for transactions of this type

3. **EPC and O&M Contracts:** Construction of the power plant will be undertaken under a turn-key EPC contract and the COD is expected 15-18 months from the start of construction. Given GG's limited exposure to the construction and management of power generation facilities, the Project Company has procured experienced EPC and O&M contractor by means of international competitive tendering process.

METKA (through one or more subsidiaries), an internationally known EPC contractor, will be the EPC contractor for the project. The key terms of the EPC contract have been finalized and the contract negotiation is in final stage. There will also be a parent company guarantee from Mytilineos to backstop its subsidiaries' obligations.

METKA teamed up with Wartsila to provide the generating sets. Wartsila brings significant experience in terms of equipment supply. Wartsila is the world's leading manufacturer of reciprocating engines, especially of the capacity range that will be supplied for this Project. Wartsila has sold 818 of the type of engines being supplied for the Project which has combined operating hours in excess of 24 million.

Operation and Maintenance (O&M) will be performed through a Joint Venture (JV) company which will be indirectly owned by Ghazanfar Neft & Gas DMCC (60 percent) and Mytilineos Holdings S.A. (40 percent). This will be backed by a Long-Term Service Agreement (LTSA) with Wartsila, who is providing spare parts and major maintenance services. Wartsila brings a lot of experience in O&M along with Mytilineos. The EPC, O&M and LTSA agreements are in final stage of negotiations

4. **Gas Sales and Purchase Agreement (GSPA):** The proposed Project will be supplied with natural gas by AGE. To this end, the Project Company and the GoA acting through MoMP and AGE concluded a GSPA whose term matches that of the PPA. The gas for the Project will be transported via a 94.5km pipeline from the gas fields in Sheberghan to the Project site. Construction of this pipeline by AGE is

[19] Net electrical output refers to the electricity amount dispatched at the delivery point.

currently underway and expected to be completed before COD.

5. **Implementation Agreement (IA)**: As part of the Project's key agreements, GoA (represented by MEW, MoMP and MoF), DABS and the Project Company likewise entered into an IA the terms of which are dependent on that of the PPA. Most importantly, the IA sets out provisions concerning GoA's support to the Project (amongst others, by means of a Government Guarantee) and concerning the payment of compensation upon early termination of the PPA.

Financial Management

6. As there will be no IDA-financed procurement, or procurement-related disbursements under the proposed Project, there are no financial management issues to be noted. Should the proposed IDA Guarantee be called, IDA would disburse to the L/C bank, and GoA would then be obligated to repay IDA, in accordance with the terms of the Indemnity Agreement between GoA and IDA. Project Company will be the primary responsible party for managing the finances of the proposed Project. It will install and maintain adequate financial management systems, including the system of accounting, reporting, auditing, and internal controls, and relevantly qualified staff. The annual financial statements will be prepared in accordance with internationally accepted accounting principles. The latter will be audited in accordance with international auditing standards. The performance of the proposed Project will be monitored through, inter alia, regular progress reports and audited annual financial statements to be submitted by Project Company to IDA and IFC.

Procurement

7. While GG as the private sponsor for the proposed Project was not selected on a competitive basis, both the EPC contractor as well as the O&M contractor have been procured through an international competitive bidding process. In this context, the procurement guidelines applicable to guarantees are defined in World Bank Procurement Regulations for IPF Borrowers, Section II. General Considerations – 2.2. Procurement Regulations do not apply to the procurement of goods, works, non-consulting services, and consulting services under projects where the World Bank provides Guarantees. Rather, in such projects, consistent with IDA's Articles of Agreement, the World Bank assesses whether the contracts were procured with due regards to economy and efficiency. The EPC cost estimated at US$60 million are considered in line with industry practice for the scope of work required under the Project and comparable with other WBG financed projects with similar technology. The competitive procurement of the EPC and O&M contracts is consistent with the considerations of economy and efficiency which apply to IDA financings under its Articles of Agreements.

Environmental and Social (including safeguards)

8. **Working Conditions and Management of Worker Relationship**: During the project construction period, workforce from the local region (primarily residents of Mazar-e-Sharif and nearby villages) will be employed. According to the ESIA, it is expected that the labor force will peak at about 180 workers, most of which will be in the employ of the EPC contractor. Project Company recognizes the multi-faceted benefits of employing local workers in terms public acceptance, social inclusion and security and has

committed to meeting with elders and stakeholders from the immediately surrounding villages to identify eligible individuals. The workforce requirement during full scale operations is anticipated to be approximately [20] people (excluding security) within the proposed facility.

Human Resources Policies and Procedures: The majority of workers during construction will be employed or contracted by the EPC contractor. During operations most, workers will be employed by the Group O&M contractor. Ghazanfar Group has a Human Resources (HR) Manual in place which will be adopted for use by APPC and applied to APPC staff. As described in the ESAP under item #6, Project Company will develop a project specific HR policy covering non-discrimination, equal employment opportunity, employee grievance mechanism, code of conduct for labor employed for how to address GBV and sexual harassment, respectful treatment, enforcement of law against child labor, performance appraisals, workers' organization, OHS, and training and development for its staff. The Project Company shall also adopt the Ghazanfar Group HR manual and update it to reflect the following: a) project specific terms and conditions of employment, working hours and rest time, weekly rest, minimum wages, termination of contract, decertification, social dialogue, and mechanism for resolution of collective and individual labor disputes; b) make employment contracts consistent with the local Labor Laws and Performance Standard 2 requirements; and d) reflect HR requirements applicability and binding on the contractors and third-party service providers. Last, the Project Company will require its contractors to put in place equivalent policies and procedures.

Worker Grievance Redress Mechanism (GRM): A worker grievance mechanism is included in the ESIA and also a part of Ghazanfar Group's HR Manual. According to the ESIA, the EPC and O&M contractors will be responsible for generating and instituting employee grievance redress mechanisms (GRM) for their employees and subcontractors. These GRMs will be explicitly outlined in their individual HR Policies that will be prior-approved by APPC.

Occupational Health and Safety (OHS): According to information in the ESIA, the EPC and O&M contractors will develop site specific Health & Safety Plans (H&SP) for the construction phase and for the operation phase to ensure that all applicable health and safety legislation and requirements set out in Performance Standard 2 and relevant sub-sections of the World Bank Group General EHS Guidelines are met during the construction and operation phases of the project. These plans will be submitted to APPC for approval prior to initiation of work. As per the ESAP under item #8, APPC will include monthly Health and Safety Implementation Status Report provisions in its EPC & O&M contracts.

Workers Accommodation: Workers will be housed in nearby towns and cities – there will be no on-site workers accommodations. Mazar-e Sharif which has a population of approximate 500,000 is about 12 km to the east and Balkh, with about 80,000 people, is a similar distance to the north. It is expected that the relatively small number of expat workers and nationals from outside the region can be easily housed in the region. During construction, transfer of workers to and from the construction site will be managed by the EPC contractor.

Contractor Safety and Workers Engaged by Third Parties: As outlined in the ESAP under item #6, the Project Company will i) develop and include EHS and labor provisions and compliance conditions in its EPC and O&M contracts which will provide contractors and third party service providers (including security agencies) with clear guidelines on labor performance; ii) develop and implement Contractor Management

Plan to monitor and enforce contractors', sub-contractors' and service providers (including private security agencies) to compliance with APPC policy and procedures; iii) ensure children under the age of 18 are not employed in hazardous work by EPC and O&M Contractor. As outlined in the ESAP under items #7 and #8,the EPC contractor and O&M contractor are to develop an overarching OHS Management Plans and are to also ensure workers are provided with personal protective equipment, and procedures are developed to ensure their use. They will also be properly trained in relevant hazards, safety procedures, emergency procedures and response arrangements. Safety rules and guidelines will be established and regularly communicated to employees through internal circulars and training programs. All new employees will receive a basic safety and security presentation and regular training will be conducted for first aid and cardiopulmonary resuscitation, firefighting, and emergency response. The EPC contractor will be required to conduct regular safety inspections and track all incidents and loss time injuries during the construction phase.

Monitoring and Evaluation

9. Information for the monitoring of results will be obtained from DABS, and the Project Company. DABS prepares its financial annual reports describing the supply and demand situation of its network. Key project performance indicators on the amount and costs of electricity generated by the Project will be provided as part of DABS' normal reporting procedures. In addition, detailed information can be made available from both DABS and the Project Company based on PPA invoicing and payments records. The Project's intermediate outcomes will be monitored through project reports prepared by the Project Company during the construction and commissioning phases of the Project.

Role of Partners

10. Additional DFIs such as ADB and DEG will be providing long-term financing to the Project alongside IFC. They will share construction and operation/maintenance risk with IFC.

ANNEX 3: IMPLEMENTATION SUPPORT PLAN

Afghanistan
Mazar-e-Sharif Gas-to-Power Project

Strategy and Approach for Implementation Support

1. The strategy for implementation support considers the nature of the proposed Project and the complex environment which the Project will operate in. The World Bank, MIGA and IFC team will jointly supervise the Project and coordinate on all matters affecting project performance. The proposed strategy ensures that the World Bank Group's resources and staff are sufficient to supervise the Project and support its implementation.

Implementation Support Plan and Resource Requirements

2. Implementation support will first focus on ensuring timely completion of contractual milestones as per the PPA agreed between the GoA and the Project Company. Once the procurement processes for the EPC and O&M are completed, the World Bank Group will focus on monitoring the lender's requirements for disbursements to the Project and the construction process, environmental and social aspects as well as contract management. Broader sector implementation support will be provided in close coordination with other World Bank support to the energy sector in Afghanistan, such as the Naghlu Hydropower Rehabilitation Project, the DABS Capacity Building and Enhancement Project, and the Herat Electrification Project, and ongoing policy dialogue.

3. Appropriate covenants will be included under the Indemnity Agreement between the GoA and IDA, and the Project Agreement between the Project Company and IDA. Compliance with these covenants will be monitored on a continuous basis.

Key Areas of Supervision

4. The implementation support plan is designed to suitably match the requirements of the Project and the focus will be on anticipating and managing risks that could impact the Project as noted in this document. During the early phase of project implementation, more frequent supervision is envisaged to ensure that timely action is taken. The period between Board approval and financial close will require intensive World Bank involvement in the finalization of legal documentation which is why at least two implementation support missions will be undertaken during that period. Missions will include safeguards, sector expertise, and guarantee related expertise. Maximum utilization will be made of field-based staff. IDA, MIGA, and IFC will conduct joint technical implementation missions. They will coordinate supervision, subject to their respective involvement in the Project to ensure an efficient World Bank Group approach to project supervision.

5. The World Bank team will be composed of a mix of skills and experience for successful project implementation. The below table outlines the expected staff weeks and travel required to ensure the actions and schedule are appropriately resourced.

Table 5.1: Estimated Implementation Resources

Time	***Focus***	**Skills Needed**	**Resource Estimate (Staff Weeks)**
First 24 months	Compliance with the PPA and lender's requirements; Review construction progress of infrastructure; Implementation of environmental and social safeguard plans and mitigation measures; Broader sector related matters impacting the Project.	Guarantee Specialist; Task Management; Technical; Legal; Financial Analyst; and Environmental and Social Safeguards.	70 SWs per annum
24 months onwards	Overall Project progress and implementation support. Social and environmental safeguard implementation support. M&E implementation support.	Guarantee Specialists; Legal; Financial Analyst; Environmental and Social Safeguards; and M&E Specialist.	40 SWs per annum

6. The staff skill mix and focus in terms of implementation support is summarized in the table below.

Table 5.2: Skills Mix

Skills Needed	Number of Trips	Comments
Lead Energy Specialist (co-TTL)	2 per annum	Field based
Legal and PPP Specialist (co-TTL)	2 per annum	HQ based
Senior Guarantee Specialist (co-TTL)	2 per annum	HQ based
Senior Power Engineer	2 per annum	Field based
Financial Analyst	1 per annum	Kabul/Field based
Social Safeguards Specialist	1 per annum	Kabul/Field based
Environmental Safeguards Specialist	1 per annum	Kabul/Field based

7. Based on the implementation support plan, the estimated budget from FY19 to FY21 for IDA is summarized below:

Table 5.3: Estimated Budget FY19 to FY21

Fiscal Year	FY20	FY21	FY22
Amount of Resources Required (US$)	200,000	180,000	100,000

ANNEX 4: INDICATIVE TERMS AND CONDITIONS OF THE GUARANTEE

Mazar-e-Sharif Project Guarantee Term Sheet

This term sheet contains a summary of indicative terms and conditions of a proposed guarantee ("Guarantee") by the International Development Association ("IDA") for discussion purposes only and does not constitute an offer to provide a Guarantee. The provision of a Guarantee is subject, inter alia, to satisfactory appraisal by IDA of the proposed project involving the development, construction, operation and maintenance of a 50 MW gas-fired plant near Mazar-e-Sharif (the "Project"), compliance with all applicable policies of the World Bank, including those related to environmental and social safeguards, review and acceptance of the ownership, management, financing structure (including in connection with shareholders, suppliers, equipment, and Project design and contracts), review and acceptance of project/transaction documentation by IDA, and the approval of the management and Executive Directors of IDA in their sole discretion. Without limiting the generality of the foregoing, IDA is highly selective with regard to the clients and beneficiaries it works with and is diligent with Know Your Customer requirements for all Project participants (equity investors, ultimate shareholders, lenders, contractors, advisors) and will undertake an appraisal of the Project and the Project Company (as defined below) including an assessment on these parameters. This term sheet refers to and relates to certain obligations under signed versions of the following agreements: (i) the Power Purchase Agreement, dated 20 January 2018 (the "PPA"), between Da Afghanistan Breshna Sherkat ("DABS") and Afghan Power Plant Company (the "Project Company"); (ii) the Implementation Agreement, dated 20 January 2018 (the "Implementation Agreement"), among the GoA of the Islamic Republic of Afghanistan ("GoIRA") acting by and through the Ministry of Energy and Water, the Ministry of Mines and Petroleum ("MoMP") and the Ministry of Finance ("MoF"), DABS, the Project Company and Afghan Gas Enterprise ("AGE"); (iii) the Gas Sale and Purchase Agreement, dated 20 January 2018 (the "GSPA"), between GoIRA acting by and through MoMP, AGE and the Project Company; and (iv) the GoA Guarantee, dated 20 January 2018 (the "Government Guarantee"), between GoIRA acting by and through MoF and the Project Company.

OPTION 1: PAYMENT GUARANTEE WITH LETTER OF CREDIT	
IDA Guaranteed Letter of Credit ("L/C")	
L/C Applicant:	[GoIRA][DABS]
L/C Beneficiary:	Project Company
L/C Bank:	A commercial bank acceptable to IDA, the L/C Applicant and the L/C Beneficiary
Maximum L/C Amount:	The maximum amount available for draw under the L/C shall not exceed US$ [12] million. The Maximum L/C Amount may be reduced from time to time in accordance with the terms of the L/C and the Guarantee Agreement.
L/C Effective Date:	[Commercial Operations Date]
L/C Validity Period	[From (a) issuance of the L/C (under paragraph 2(c) of Schedule 9 of the PPA, Full Payment Security is required to be delivered on the date that is 90 days before the Target Commercial Operations Date, which is defined as the date that is 18 months after the Effective Date under the PPA) until (b) [*Scheduled final maturity date of the senior Project debt*]]

Guaranteed L/C:	Revolving standby irrevocable letter of credit issued in favor of the L/C Beneficiary by the L/C Bank at the request of the L/C Applicant to backstop relevant payment obligations of DABS under the PPA following the occurrence of a Guaranteed Event (as defined below). Any amounts drawn by the L/C Beneficiary under the L/C that are repaid by the L/C Applicant to the L/C Bank within the L/C Reimbursement Period (as defined below) would be reinstated. The obligation of the L/C Applicant to repay the L/C Bank amounts drawn under the L/C would be guaranteed by IDA up to the Maximum Guaranteed Amount. Any amounts drawn by the L/C Beneficiary under the L/C that are repaid by IDA to the L/C Bank under the Guarantee would not be reinstated. That is, any principal amount repaid by IDA would be deducted from the Maximum L/C Amount.
Guaranteed Events (Permitted Drawdown under L/C):	Failure of DABS to comply with its ongoing payment obligations under the PPA.
L/C Fees:	To be payable by the L/C Aplicant to the L/C Bank. Level of L/C Fees has to be acceptable to the L/C Applicant and IDA.
L/C Reimbursement & Credit Agreement (RCA)	
The Borrower:	L/C Applicant
The Lender:	L/C Bank, as lender.
L/C Reimbursement Period:	Following a draw under the L/C by the L/C Beneficiary, the L/C Applicant would be obligated to repay the L/C Bank the amount drawn under the L/C together with accrued interest thereon within a period of twelve (12) months (the "L/C Reimbursement Period") from the date of each draw pursuant to a Reimbursement and Credit Agreement to be concluded between the L/C Applicant and the L/C Bank. In the event of a timely repayment, the L/C will be reinstated by the amount of such repayment. In the event of a non-payment on the due date, the L/C Bank would have the right to call on the Guarantee for principal amounts plus accrued interest due by the L/C Applicant under the Reimbursement and Credit Agreement.
Interest Rate Charged by the L/C Bank:	An appropriate spread above [LIBOR] acceptable to the L/C Bank and the L/C Applicant and agreed by IDA. The maturity of the selected [LIBOR] base rate should ideally be 1 month.
IDA Guarantee Agreement	
Guarantor:	International Development Association (IDA)
Guaranteed Beneficiary:	L/C Bank, as guaranteed lender

Guarantee Face Value:	US$ [12] million
Guarantee Support:	IDA will backstop the payment obligations of the L/C Applicant under the Reimbursement and Credit Agreement to the extent that said obligations result from Permitted Drawdown under the L/C and the L/C Applicant has failed to repay the L/C Bank in respect of such Permitted Drawdown in accordance with the Reimbursement and Credit Agreement. That is, if the amount remains unpaid after the expiry of the L/C Reimbursement Period, the L/C Bank would have the right to call on the Guarantee for the principal amount (equal to the amount drawn under the L/C) plus accrued interest due from the L/C Applicant.
Maximum Guaranteed Amount:	Maximum Guaranteed Principal plus accrued interest thereon in accordance with the Reimbursement and Credit Agreement. IDA may cover compound interest but IDA will not cover penalty interest, default interest or charges of similar nature.
Maximum Guaranteed Principal:	The Guarantee Face Value. Any principal amount paid by IDA to L/C Bank under the IDA Guarantee would be deducted from the Maximum Guaranteed Principal and those amounts would not be reinstated.
Maximum Guarantee Period:	The L/C Validity Period plus 14 months.
Signing:	If the Guarantee-related legal agreements are not signed within 24 months following approval by the Board of Executive Directors of IDA, IDA may withdraw the offer of the Guarantee.
Exclusions, Withholding, Limitation/Suspension & Termination Events:	Standard exclusion, withholding, limitation/suspension and termination events for transactions of this nature.
Substitution of Guarantee:	If IDA exercises remedies against the L/C Bank under the Guarantee Agreement for reasons attributable to the L/C Bank, then IDA may enter into a new Guarantee Agreement with a substitute L/C Bank in substantially the same terms and conditions as the Guarantee Agreement and for the remaining term of the Maximum Guarantee Period.

Conditions Precedent to Effectiveness of the IDA Guarantee:	Usual and customary conditions for financing of this type, including but not limited to the following: (a) Firm commitment for sufficient financing to complete the construction of the Project, including satisfactory contribution of equity; (b) Execution, delivery and effectiveness of all Project and financing agreements, in form and substance satisfactory to IDA, including the PPA, the Implementation Agreement, the GoA Guarantee, the GSPA, the Guarantee Support Agreement, the Indemnity Agreement, the Project Agreement, the Cooperation Agreement and the Reimbursement and Credit Agreement; (c) Delivery of all relevant host country environmental approvals required for the operation of the Project, and compliance with all applicable World Bank requirements relating to Sanctionable Practices and environmental and social safeguards, including the World Bank Performance Standards; (d) [Effectiveness of all required insurance (to include IDA as an additional insured on third-party liability insurance);] (e) Satisfaction of all conditions precedent for first disbursement under the financing documents, save for any condition that requires the effectiveness of the Guarantee Agreement to have occurred; (f) Provision of satisfactory legal opinions; (g) Payment in full of the Initiation Fee and Processing Fee, the first installment of the Guarantee Fee (if applicable) [and the reimbursement of IDA's outside legal counsel expenses]; (h) Satisfactory integrity due diligence of Project Company (and related parties) and guaranteed parties.
Subrogation:	If and to the extent IDA makes any payment under the Guarantee, IDA will be subrogated immediately to the extent of such unreimbursed payment to the L/C Bank's rights under the Reimbursement and Credit Agreement.
Governing law:	English law or New York Law.
Guarantee Support Agreement	
Guarantee Support Agreement	The L/C Applicant would enter into a Guarantee Support Agreement with the L/C Beneficiary under which the L/C Applicant would undertake to apply for and make available an L/C that may be drawn by the L/C Beneficiary following the occurrence of certain Guaranteed Events, on the basis of drawdown and dispute resolution mechanisms and supporting documentation to be agreed between the parties and satisfactory to IDA.

OPTION 2: DIRECT PAYMENT GUARANTEE	
IDA Guarantee Agreement	
Guarantor:	International Development Association (IDA)
Guaranteed Beneficiary:	Project Company
Guarantee Face Value:	US$ [12] million
Guarantee Support:	Guarantor agrees to pay to the Guaranteed Beneficiary up to the Maximum Guaranteed Amount upon the occurrence of any Guaranteed Event and receipt of a conforming demand notice from the Guaranteed Beneficiary.

Guaranteed Events:	Failure of DABS to comply with its ongoing payment obligations under the PPA and failure to cure such payment default within an additional 9-month cure period.
Maximum Guaranteed Amount:	Guarantee Face Value. Any amount paid by IDA to the Guaranteed Beneficiary under the IDA Guarantee would be deducted from the Maximum Guaranteed Amount and would not be reinstated.
Maximum Guarantee Period:	[From (a) date that the Full Payment Security is required to be provided under the PPA (*i.e.,* under paragraph 2(c) of Schedule 9 of the PPA, the date that is 90 days before the Target Commercial Operations Date, which is defined as the date that is 18 months after the Effective Date under the PPA) until (b) [*Scheduled final maturity date of the senior Project debt*]]
Signing:	If the Guarantee-related legal agreements are not signed within 24 months following approval by the Board of Executive Directors of IDA, IDA may withdraw the offer of the Guarantee.
Exclusions, Withholding, Limitation/Suspension & Termination Events:	Standard exclusion, withholding, limitation/suspension and termination events for transactions of this nature.
Conditions Precedent to Effectiveness of the IDA Guarantee:	Usual and customary conditions for financings of this type, including but not limited to the following: (a) Firm commitment for sufficient financing to complete the construction of the Project, including satisfactory contribution of equity; (b) Execution, delivery and effectiveness of all Project and financing agreements, in form and substance satisfactory to IDA, including the PPA, the Implementation Agreement, the GoA Guarantee, the GSPA, the Indemnity Agreement, the Project Agreement and the Cooperation Agreement; (c) Delivery of all relevant host country environmental approvals required for the construction and operation of the Project, and compliance with all applicable World Bank requirements relating to Sanctionable Practices and environmental and social safeguards, including the World Bank Performance Standards; (d) Effectiveness of all required insurance (to include IDA as an additional insured on third-party liability insurance); (e) Satisfaction of all conditions precedent for first disbursement under the financing documents, if applicable, save for any condition that requires the effectiveness of the Guarantee Agreement to have occurred; (f) Provision of satisfactory legal opinions; (g) Payment in full of the Initiation Fee and Processing Fee, the first installment of the Guarantee Fee (if applicable) [and the reimbursement of IDA's outside legal counsel expenses];

	(h) Satisfactory integrity due diligence of Project Company (and related parties) and guaranteed parties.
Subrogation:	If and to the extent IDA makes any payment under the Guarantee, IDA will be subrogated immediately to the extent of such unreimbursed payment to the Guaranteed Beneficiary's rights under the PPA to the extent of the unpaid amount under the PPA that gave rise to the payment under the Guarantee.
Claims and disputes:	If there is a dispute between the Guaranteed Beneficiary and DABS, as to DABS's obligation to pay or the amount of its liability under the PPA, the Guarantee would be callable only in respect of amounts that DABS is obligated to pay and fails to pay. For the avoidance of doubt, Guarantor will pay only up to DABS's liability that has been determined, whether through expert determination, settlement agreement between the parties, arbitral award, or in accordance with contractual procedures acceptable to Guarantor, so long as such determination is final and binding (*i.e.,* an arbitral award is not necessarily required).
Governing law:	English law or New York Law.
TERMS COMMON TO A PAYMENT GUARANTEE IN SUPPORT OF A LETTER OF CREDIT OR A DIRECT PAYMENT GUARANTEE	
Conditions Precedent to Signing of the IDA Guarantee:	The supervision engineer or another third-party technical expert acceptable to IDA is mobilized and has confirmed each of the following: (i) the engineering and design required for commencement of the remaining construction of the SMPL are complete; (ii) the essential equipment for the commencement of the remaining construction of the SMPL is available at the site; and (iii) appropriate work force needed for the remaining construction of the SMPL has been designated and mobilized for the commencement of such construction
Indemnity Agreement	
Parties:	IDA and the Islamic Republic of Afghanistan (the "Member Country")
Indemnity:	The Member Country will reimburse and indemnify IDA on demand, or as IDA may otherwise direct, for all payments under the Guarantee and all losses, damages, costs, and expenses incurred by IDA relating to or arising from the Guarantee.
Covenants:	Usual and customary covenants included in agreements between member countries and IDA.
Remedies:	If the Member Country breaches any of its obligations under the Indemnity Agreement, IDA may suspend or cancel, in whole or in part, the rights of the Member Country to make withdrawals under any loan, credit or grant agreement with IDA or IBRD, or any IBRD loan or IDA credit to a third party guaranteed by the Member Country, and may declare the outstanding principal and interest of any such loan or credit to be due and payable immediately. A breach by the Member Country

	under the Indemnity Agreement will not, however, discharge any guarantee obligations of IDA under the Guarantee.
Governing Law:	The Indemnity Agreement will follow the usual legal regime and include dispute settlement provisions customary for agreements between member countries and IDA.
Project Agreement	
Parties:	IDA and the Project Company
Representations and Warranties:	The Project Company will represent, among other standard and project-specific provisions, that: (a) it is in compliance with applicable environmental laws and the applicable World Bank guidelines, environmental and social safeguard requirements, including the World Bank Performance Standards and other applicable requirements; and (b) neither it (nor its direct and indirect shareholders and any other relevant project participants, as determined by IDA), nor any of its affiliates has engaged in any Sanctionable Practices20 in connection with the Project.
Covenants:	The Project Company will covenant, among other things, that it will: (a) comply with applicable laws, including environmental laws, and the applicable environmental and social safeguards requirements under the World Bank Performance Standards; (b) provide annual audited financial statements and other reports; (c) provide certain notices and other information to IDA; (d) provide access to the Project; (e) not engage in (or authorize or permit any affiliate or any other Person acting on its behalf to engage in) any Sanctionable Practices in connection with the Project; (f) comply with World Bank requirements relating to Sanctionable Practices regarding individuals or firms included in the World Bank Group list of firms debarred from World Bank Group-financed contracts; and (g) obtain IDA's consent prior to agreeing to any change to any transaction document which would affect the rights or obligations of IDA under the Guarantee Agreement or any other guarantee related agreement.
Payment of Fees to IDA:	Payment of fees due to IDA is the obligation of Project Company.

[20] "Sanctionable Practices" include corrupt, fraudulent, collusive, coercive, or obstructive practices, as defined in IDA's Anti-Corruption Guidelines.

Initiation Fee:	15 bps of the Guarantee Face Value (but not less than US$ 100,000).
Processing Fee:	50 bps of the Guarantee Face Value.[21]
Guarantee Fee:	75 basis points per annum. The IDA guarantee fee is charged on that portion of the guaranteed amount that IDA has contractually committed and for which IDA has financial exposure under the guarantee. The Guarantee Fee must be paid in advance semi-annually on regular payment dates. Where the Guarantee Fee is payable in installments, IDA will have the right to terminate the Guarantee in the event the Project Company fails to pay any installment of the Guarantee Fee.
External Legal Costs:	Reimbursement of IDA external legal counsel expenses by the Project Company.
Cooperation Agreement	
Parties:	IDA and DABS
Cooperation agreement:	DABS will covenant, among other things, that it will: (i) comply with all its obligations under the PPA and the other transaction documents; (ii) obtain IDA's consent prior to agreeing to any change to the PPA and any other transaction document which would materially affect the rights or obligations of IDA under the Guarantee Agreement or any other transaction document; (iii) provide certain notices to IDA; (iv) take all action necessary on its part, in accordance with and as required by the terms of the PPA and the other project-related agreements to which it is a party, to enable the Project Company to perform all of the Project Company's obligations under the Project Agreement, the PPA and other relevant transaction documents; (v) cooperate with IDA and furnish to IDA all such information related to such matters as IDA shall reasonably request; and promptly inform IDA of any condition which interferes with, or threatens to interfere with, such matters; and (vi) reimburse and indemnify IDA on demand, or as IDA may otherwise direct, for any payments under the Guarantee related to a Guaranteed Event attributable to DABS.

[21] In exceptional cases, projects can be charged over 50 bps of the guarantee amount.

ANNEX 5: ECONOMIC AND FINANCIAL ANALYSIS

1. The proposed Project is one of a trio of inter-related projects[22] which are intended to increase security of energy supply through reduced reliance on electricity imports, promote the development of indigenous gas resources, and increase the availability of grid electricity to meet growing demands for a robust and reliable source of power for households, institutions and commercial and industrial enterprises. The IPP model as supported by the proposed Project is anticipated to serve as a platform for future similar projects across Afghanistan resulting in future investment opportunities. A financial analysis for both DABS and the project has been conducted during the due diligence process.

2. Domestic gas-based generation represents a component of the least cost plan to satisfy growing demands for electricity in Afghanistan in general and in the NEPS in particular[23]. The plan includes investments in transmission capacity to allow increased imports of power from neighboring countries, rehabilitation of existing generating assets within the country, interconnection of transmission networks to allow optimization of power supply, and development of new generating capacity based on domestic resources. Balancing between domestic and imported supply options was an imposed constraint on the least cost plan rather than an economic choice. However, subsequent analysis using techniques of decision-making under uncertainty validated the premise that domestic gas-fired generation was preferable to imports under a wide range of future scenarios.[24]

3. As part of the assessment of the proposed Project, a cost benefit analysis was carried out for the power plant and related infrastructure, and EIRR and NPVs were calculated. The following sections outline the key assumptions and results of the analysis. A summary of assumptions is provided in Table 13 at the end of this section.

Project Costs

4. The economic costs included in the analysis were as follows:

- The capital cost of the proposed power plant, net of taxes, duties and interest during construction;
- The capital cost of the transmission and distribution investments required to deliver the output from the plant to the grid;
- Annual fixed O&M costs of the plant;
- Variable O&M costs;
- Transmission and distribution losses, and
- The economic cost of the gas consumed.

5. The financial cost estimate for the power plant was adjusted to exclude taxes and duties, interest during construction and costs related to initial working capital. The net economic cost totaled US$ 79 million. The cost estimate for the related transmission connections (US$ 5 million) was taken to be

22 The other two projects are the Sheberghan Gas-to-Power project (P166405) and the Afghanistan Gas Project (P172109)
23 Compare Islamic Republic of Afghanistan MEW/ADB/Fichtner. Power Sector Master Plan. Final Report. April 2013.
24 Gencer, D., Irving, J., Meier, P., Spencer, R,, Wnuk, C., Energy Security Tradeoffs Under High Uncertainty, World Bank/ESMAP, 2018, Annex 4

equivalent to the economic cost. Costs for the power plant were assumed to be incurred over the 2019 to 2020 period in a ratio of 67/33 percent while transmission investments were assumed to be equally divided between 2019 and 2020. Capital expenditures for distribution networks were based on cost estimates for distribution network expansion in Herat Province. Total investment was estimated at US$0.17 per kWh of plant output and was implemented over 10 years.

6. Fixed O&M expenses were assumed to be equivalent to 1 percent of the gross capital cost or US$ 0.97 million/year, while variable O&M expenditures were assumed to be US$ 0.01 per kWh. Based on the anticipated output of the plant, variable O&M totaled US$ 4.1 million per year. Incremental distribution O&M was estimated at USE 0.013 per kWh delivered (again based on Herat). It is assumed that equipment and labor will largely be procured offshore, so no standard conversion factor was applied, although this may overstate the cost of O&M which might involve a significant local labor component.

7. In the short term (i.e. through the first 3 years of operation) gas will be sourced from existing wells. Incremental investments in desulfurization will be needed as well as investments to complete a new pipeline from the gas processing plant to Mazar (to be financed under the related A-GASP project), but the basic costs of gas supply are sunk. For the first three years of the project, the incremental cost of gas supply, including construction of gas treatment facilities at Sheberghan and a pipeline from Sheberghan to Mazar, is estimated at US$ 65 per MCM. Beyond this time frame, however, it will be necessary to drill additional wells at existing fields and to develop and exploit additional fields in the Basin. The economic cost/value of exploiting additional resources will depend on many factors but particularly on the extent of GoA versus private sector involvement and the risk adjusted returns that private capital will require in order to participate. Several studies have been carried out to estimate the average cost of future gas supplies, with findings ranging from US$ 120 to 200 per MCM. For purposes of this analysis, a figure of US$ 150 per MCM was used for the base case with switching analysis applied to determine the Project's sensitivity to higher values. Both the short term and long-term estimates of the economic value of gas include US$ 50 per MCM to cover resource depletion costs.

Project Benefits

8. The project's primary benefits of security of energy supply and under-pinning gas sector development are very difficult to value in monetary terms. The only readily monetized benefits of the proposed Project are the welfare gains accruing to electricity customers who will have incremental access to grid-based power once the proposed Project is operational. These welfare gains are measured by the area under the observed demand curve for electricity, often referred to as the willingness to pay (WTP) for electricity supply. This WTP includes the actual customer payments for electricity (consumption times the tariff) as well as the consumer surplus accruing to customers as a result of the avoided cost of alternatives. In the case of household customers, the primary alternative was assumed to be a Solar Home Systems (SHS). In the case of institutional, commercial and industrial customers, the alternative source of power was assumed to be diesel generators.

9. The posted tariffs in the NEPS region were multiplied by the average consumption for each of the key customer types (household, institutional, commercial and industrial) to derive the average tariff and monthly/annual payment of the various customer classes. The welfare gain associated with the consumer surplus accruing to customers as a result of the avoided cost of alternatives was also estimated for each

customer class. Survey data indicate that the primary choice of households that do not have grid access is to install a SHS. In addition, SHS was also the primary backup for grid connected customers, at least for lighting. The avoided cost of such systems (net of the tariff) was added to the base tariff pro-rata based on SHS output relative to the customers' average total grid consumption. Details of the estimates of cost and usage of SHS's are given in Table 9. Similar approaches were taken for institutional, commercial and industrial customers. In the first two instances, the alternative source of power was assumed to be a 12-kW diesel generator, operating for 6 hours per day. For industrial customers, the alternative was assumed to be a 1 MW diesel generator operating on average for 12 hours per day. Table 10 outlines the assumptions used to estimate the cost and usage of these generators.

Table 9: SHS Costs and Outputs

	Mid-Size SHS
Output - watts	100
Panel Cost - USD	75
Panel/kW - USD	750
BOS/kW - USD *	500
Total Capital/kW - USD	1,250
Life - years	3
Annual Capital/kW @ 10% - USD	$502.64
Hours/Day	3
Cappital Cost/kWh - USD	0.459
kWh/year	109.5
Annual O&M Cost (AFN)	2,244
Annual O&M Cost (USD)	28.03
O&M Cost per kWh	0.26
Total Cost per kWh	0.72
* Balance of system - includes inverter, wiring, storage batteries	

Table 10: Diesel Generator Costs and Outputs

Size	kW	200	3	12
Fuel		Diesel	Petrol	Diesel
Fuel price	$/liter	$ 0.66	$ 0.71	$ 0.66
BTU/l		36645		
BTU/kWh		3412		
Conversion efficiency		25%		
L/hr				
l/kWh		0.37	0.40	0.40
Fuel cost	per kWh	$ 0.246	$ 0.284	$ 0.264
Capital Cost	per kW	$ 1,000.00	150.00	333.33
Total Cost	US$	$ 200,000.00	$ 450.00	4000
Life	years	10	4	7
Discount Rate		10%	10%	10%
Annual Capital	US$	$32,549.08	$141.96	$821.62
Annual Capacity Factor		40%	20%	20%
Total Output	kWh	700,800	5,256	21,024
Capital Cost	per kWh	$ 0.046	$ 0.027	$ 0.039
Consumables	per kWh	$ 0.025	$ 0.025	$ 0.025
Total Cost	per kWh	$ 0.317	$ 0.336	$ 0.328

10. The weighted average customer WTP in the NEPS region was estimated at US$ 0.14 per kWh. Total benefit in each year of the project was calculated as the product of the average WTP and the net power delivered to customers. Plant output available to customers was calculated based on an 80 percent plant factor, and 35 percent technical and commercial losses.

EIRR/NPV

11. The estimated EIRR of the project is 11.3 percent. NPV at a 6 percent discount rate is US$ 44.3 million. Table 11 summarizes the cost and benefit streams and the EIRR and NPV calculations.

Table 11: Project Costs, Benefits and Rates of Return

	Capex Plant	Capex Trns	Capex Distn	Fixed O&M	Variable O&M	Fuel	Distribution	Total Costs	Customer WTP	Net Cash Flow
	$ million	$ million	$ million	$ million	$ million	$ million	$ million	$ million	$ million	$ million
2019	53.06	2.5				-		55.56	-	- 55.56
2020	26.14	2.5				-		28.64	-	- 28.64
2021			6.88	0.966	4.05	6.33	3.52	21.74	36.89	15.15
2022			6.88	0.966	4.05	6.33	3.52	21.74	36.89	15.15
2023			6.88	0.966	4.05	6.33	3.52	21.74	36.89	15.15
2024			6.88	0.966	4.05	14.60	3.52	30.01	36.89	6.87
2025			6.88	0.966	4.05	14.60	3.52	30.01	36.89	6.87
2026			6.88	0.966	4.05	14.60	3.52	30.01	36.89	6.87
2027			6.88	0.966	4.05	14.60	3.52	30.01	36.89	6.87
2028			6.88	0.966	4.05	14.60	3.52	30.01	36.89	6.87
2029			6.88	0.966	4.05	14.60	3.52	30.01	36.89	6.87
2030			6.88	0.966	4.05	14.60	3.52	30.01	36.89	6.87
2031			-	0.966	4.05	14.60	3.52	23.13	36.89	13.75
2032			-	0.966	4.05	14.60	3.52	23.13	36.89	13.75
2033			-	0.966	4.05	14.60	3.52	23.13	36.89	13.75
2034			-	0.966	4.05	14.60	3.52	23.13	36.89	13.75
2035			-	0.966	4.05	14.60	3.52	23.13	36.89	13.75
2036			-	0.966	4.05	14.60	3.52	23.13	36.89	13.75
2037			-	0.966	4.05	14.60	3.52	23.13	36.89	13.75
2038			-	0.966	4.05	14.60	3.52	23.13	36.89	13.75
2039			-	0.966	4.05	14.60	3.52	23.13	36.89	13.75
2040			- 25.80	0.966	4.05	14.60	3.52	- 2.67	36.89	39.56
									EIRR	**11.31%**
								6%	**NPV**	**$44.27**

Other Costs/Benefits

12. The above analysis is based only on those costs and benefits that can be readily quantified, and on the team's best understanding of current circumstances with respect to resource development. The analysis does not attempt to assign a value to other social impacts of electricity supply, including better access to health and education, and increased income and employment opportunities arising from new business ventures. Nor does it account for the Project's importance as a means of diversifying sources of electricity and reducing reliance on imports, or on the role that it plays in the integrated initiative to under-pin gas resource development by providing a secure market.

13. Environmental impacts are also not included in the base case owing to uncertainty about the net impact of the project on regional emissions. On the one hand, the project will increase local GHG emissions. However, the electricity generated could also lead to a reduction in imports from Turkmenistan and Uzbekistan, both of which rely mainly on gas fired generation. The only net impact of the project might be to reduce emissions from small diesel generators used by Institutional, commercial and industrial customers, but this is not expected to be substantial. Based on the average usage of diesel and petrol generators assumed in the analysis of WTP, Mazar would displace less than 300 tons per year of carbon.

14. In the longer-term context, the project supports an energy strategy relying on a resource whose combustion leads to significantly lower GHG emissions and therefore a lesser environmental impact than

that of coal[25], which is readily available in the NEPS region, or other fossil fuels. Simple cycle gas fired thermal generation is estimated to emit approximately 450 g/kWh of carbon. Based on project operating parameters, the annual CO2 emissions from Mazar are expected to be approximately 183 thousand tons. The associated social impact, assuming the low scenario for opportunity costs of carbon[26] rises from US$ 7.5 million in the first year of the project to US$11.4 million by the end. By contrast, using coal fired generation would produce 900 g/kWh of carbon or a total of 364 thousand tons per year, with a social cost rising from US$14.9 million in 2021 to US$22.7 million by 2040.

Sensitivity Scenarios

15. The sensitivity of the project's economic viability to changes in the underlying assumptions was tested for variances in a range of risk factors. These included the customer WTP, the economic cost of gas, and the availability of the plant. In each case, switching values were calculated to determine the extent to which a particular factor could vary before the projects EIRR fell below 6 percent. The results of the analysis are summarized in the below table:

Table 12: Switching Analysis

Risk Factor	Base Value	Switching Value	Percent Change
Change in customer WTP	14 cents/kWh	12.4 cents/kWh	-12
Change in Economic Cost of Gas	$150 per MCM	$208/MCM	+39
Availability of Plant	80 percent	53 percent	-34
DABS losses	35 percent	43 percent	+24

16. **The switching analysis indicates that the project's EIRR is quite robust against changes in key values.** The highest vulnerability is in the estimation of customer WTP. However, average WTP is heavily influenced by the current tariffs (average 8.6 cents/kWh) which represent a lower bound on the WTP for grid supply. Tariffs have not changed in Afghanistan in over 3 years, and planned increases in the electricity tariff to re-align them with DABS' costs may lead to some demand suppression but given the strong support for grid connection, it is also likely that the observed WTP will rise rather than fall compared with the base-case assumption. The economic cost of gas has a substantial upside margin available, while the availability of the plant may drop by 34 percent to 53 percent. DABS' technical and commercial losses can increase to 43 percent, which seems unlikely given that significant initiatives have been directed towards loss reduction.

[25] Reference is made to World Bank (2016) "Afghanistan: Energy Security Trade-offs Under High Uncertainty: Resolving Afghanistan's Power Sector Development Dilemma".

[26] World Bank, Guidance Note on Shadow Price of Carbon in Economic Analysis, November 12, 2017. The 'low' range was used since there are numerous ways to reduce GHG emissions in the region, particularly through improved solutions for cooking and heating, that would fall at the low end of the spectrum of abatement options.

Table 13: Assumptions for Economic Analysis

List of Assumptions	Unit	Value
Discount Rate		6%
Exchange Rate	AFN/USD	80.05
Capital Cost of Power Plant	USD million	96.60
Taxes, Duties and IDC	USD million	17.40
Net Economic Cost	USD million	79.20
Capital Cost of Transmission Line	USD million	5
Capital Cost of Distribution Networks	USD/kWh	0.17
Project Life	years	20
Capex year 1		67%
Capex year 2		33%
First Power		January 1, 2021
Plant conversion efficiency		39%
Gas thermal content	BTU/cf	1,030
Gas consumption	m3/kWh	0.241
Short term cost of gas	USD/MCM	65.00
Long term cost of gas	USD/MCM	150.00
Plant availability		90%
Plant dispatch		89%
Fixed O&M - Annual	% of Capex	1%
Variable O&M - Annual	USD/kWh	0.01
DABS Losses		35%
Electricity Sales - NEPS Turkmen Region - household	% of total	71%
Electricity Sales - NEPS Turkmen Region - institution	% of total	9%
Electricity Sales - NEPS Turkmen Region - commercial	% of total	12%
Electricity Sales - NEPS Turkmen Region - industrial	% of total	7%
Average tariff - household	USD/kWh	0.061
Average tariff - institution	USD/kWh	0.166
Average tariff - commercial	USD/kWh	0.162
Average tariff - industrial	USD/kWh	0.103
Weighted Average Tariff - NEPS region	USD/kWh	0.086
Average WTP - household	USD/kWh	0.098
Average WTP - institution	USD/kWh	0.211
Average WTP - commercial	USD/kWh	0.325
Average WTP - industrial	USD/kWh	0.155
Weighted Average WTP - NEPS region	USD/kWh	0.140

FISCAL IMPACTS

1. The impacts of the proposed Project on the fiscal position of the GoA are most likely to derive from four areas:

- Direct impacts on the GoA budget related to the cost of domestic gas supply (cost of required gas investments to supply the power needed minus royalty received on gas sales)
- Financial losses to DABS owing to a combination of high transmission and distribution losses and the narrow margin between the purchase price and the average tariff in the NEPS region.
- Balance of payments effects owing to the difference between the payments to the IPP for electricity (which are denominated in US$) and the offsetting reduction in payments for electricity imports.
- Taxes paid by the Project Company over the life of the project

2. The cost of gas is the responsibility of the electricity off-taker (DABS) and by extension the GoA. During the first 5 years of the project, gas supply for this and other customers in the region is expected to come from existing wells. Gas payments will flow from one state enterprise (DABS) to another (AGE) with no net fiscal impact. However, once existing wells are depleted, maintaining gas supply will require new investments to maintain and hopefully expand production and the costs of gas supply are much more difficult to predict. Private sector involvement and expertise are expected to play a major role in the future development of the gas resource and the prices that they will command are likely to be influenced as much by perceived risks as by actual development costs. The economic analysis has used a figure of US$ 150 per MCM, which includes a royalty payment to the government of US$ 50 per MCM. At this price, the expected total cost of gas for Mazar would be US $14.6 million per year, all of which is the responsibility of DABS/GoA. US$ 8.7 million is incorporated into the tariff paid by DABS leaving a residual of US$ 5.9 million per year to be absorbed by the GoA. Offsetting this, the GoA would earn an annual royalty on the gas sales of US$ 4.9 million. The present value of the stream of unrecovered gas cost is US$ 48.9 million while the estimated present value of the royalty stream is US$ 40.4 million leaving a net deficit of US$ 8.5 million over the life of the project. The exploration costs and development costs of the Sheberghan gas fields are already incurred independent of the proposed Project and have been considered as sunk for the purposes of this analysis.

3. A second aspect of the project which affects the GoA finances only insofar as DABS' finances are integrated into the government cash flows are the losses that DABS will incur on the purchase and resale of power from the proposed Project. At current tariffs to customers, and taking into account DABS technical and commercial losses, DABS would incur annual losses arising from US$ 12 million to US$ 15 million. The present value of the stream of revenue shortfalls is US$ 140.5 million. It is important to note, however, that DABS losses on the incremental power sales are not inevitable. Adjustments to electricity tariffs are well overdue, and a working group is currently finalizing recommendations that would bring the tariffs more in line with costs. DABS technical and commercial losses are also excessive relative to international norms and initiatives are being introduced to reduce their levels. If tariffs were increased by 3 percent per year and losses were reduced from 35 to 20 percent (still a relatively high level), DABS would actually earn a profit totaling US$ 9.8 million (present value terms) on the incremental sales of Mazar power over the 20-year period.

4. The third area of impact is on the GoAs foreign currency balances. Power from the proposed Project is assumed to displace electricity that would otherwise be purchased from neighboring countries. The current average tariff for these imports is US$ 0.055 per kWh. However, payments to the Project Company rise from US$ 0.063 to US$ 0.072 per kWh. The net negative impact over the term of the project would be US$ 54.1 million. However, it is important to note that the average price of imports is not fixed into the future and the net flow of forex may change over the life of the project. In addition, while the proposed Project will partially displace the more expensive portion of electricity imports in the first couple of years, the Project will increasingly displace solar home systems (SHSs) or diesel generators, which are estimated at a cost of US$0.72 per kWh for SHSs and US$0.33 per kWh for diesel as the distribution grid is expanded.

5. The fourth component of fiscal flows is the taxes to be paid by the Project Company. These include withholding on corporate income tax on the profits of the operation and a Business Revenue Tax (BRT) of 4 percent paid out of the gross revenues. According to the project's pro forma financial statements, the present value of withholding taxes on profits is US$ 9.9 million while the present value of the BRT is estimated at US$ 12.9 million.

6. Altogether, with conservative assumptions the project could have a total net negative impact on fiscal flows of up to US$ 180.3 million (including the cost of gas purchases, DABS operating losses, and net outflows of foreign currency) or US$ 9.01 million per year over the duration of the project, although modest improvements in DABS tariffs and technical losses would reduce the loss to US$ 30.0 million or US$ 1.5 million per year. By comparison, Afghanistan had a fiscal surplus in 2018 in excess of US$ 100 million on total revenues of US$ 4.8 billion. Imports of goods totaled US$ 7.4 billion, US$ 1 billion of which was mineral fuels. In the larger context, the possible negative fiscal impacts of the project are very small.

7. Notwithstanding the possible but small negative fiscal impacts, there are a number of significant broader economic considerations beyond the fiscal impacts analysis summarized in Table 14 below : (a) the GoA is gaining an incremental source of electricity to meet growing demands of households and enterprises (whose WTP exceeds the cost of supply); (b) reducing its reliance on imported electricity to improve energy security where decision making analysis validated that domestic gas-fired generation as part of the least of cost generation expansion plan was preferable to imports; and (c) creating a market for new domestic gas resources which, if expectations materialize, will reduce the country's long-term reliance not only on imports of electricity but on imports of other energy as well. This last impact could be very significant in attracting investment in exploration and production in Afghanistan's gas sector, which is considered to have significant potential. Further, the successful demonstration effects of this project and contractual templates created in this project will reduce the development cost and risk perception of future IPPs, which is expected to result in lower cost power supply in the future.

Table 14: Net Fiscal Impacts over Project Term (US$ million)

Fiscal Impact	Base case		3% Dabs Tariff Increase		3% Dabs Tariff Increase plus reduce losses to 20%	
	Negative	Positive	Negative	Positive	Negative	Positive
Unrecovered Cost of Gas	-48.89		-48.89		-48.89	
Royalty Received on Gas Sales		40.39		40.39		40.39
DABS Losses on Power Sales	-140.50		-68.82			9.75
Foreign Exchange Balances	-54.08		-54.08		-54.08	
Income Tax Witholding		9.89		9.89		9.89
Business Receipts Tax (BRT		12.89		12.89		12.89
Total	-243.47	63.18	-171.80	63.18	-102.98	72.93
Net	-180.29		-108.62		-30.04	
Net per year	-9.01		-5.43		-1.50	

FINANCIAL ANALYSIS

1. Below are DABS's financial statements, representing historical performance and projections for the period 2019 - 2025.

Table 15: DABS Income Statement

In Afs billion	2016 (H)	2017(H)	2018 (H)	2019	2020	2021	2022	2023	2024	2025
Operating revenues	17.68	24.66	25.47	26.30	29.69	41.96	46.97	50.92	56.88	60.61
Other revenues (as per CASA PPA)							1.95	1.96	2.04	2.07
Total revenues	17.68	24.66	25.47	**26.30**	**29.69**	**41.96**	**48.93**	**52.87**	**58.92**	**62.68**
% increase	*14%*	*39%*	*3%*	*3%*	*13%*	*41%*	*17%*	*8%*	*11%*	*6%*
Total Cost of Sales	15.18	18.98	21.32	**22.18**	**28.97**	**40.82**	**43.33**	**48.67**	**51.71**	**53.87**
Power purchase (Imports and IPPs)	14.32	17.98	19.92	*20.08*	*27.12*	*39.21*	*41.77*	*47.08*	*50.10*	*52.23*
% increase	*35%*	*26%*	*11%*	*1%*	*35%*	*45%*	*7%*	*13%*	*6%*	*4%*
Cost of generation by DABS (O&M)	0.86	1.00	1.40	*2.10*	*1.85*	*1.60*	*1.56*	*1.58*	*1.61*	*1.64*
Gross Profit/Losses	**2.49**	**5.68**	**4.15**	**4.12**	**0.72**	**1.15**	**5.59**	**4.21**	**7.20**	**8.81**
Gross margin	*14%*	*23%*	*16%*	*16%*	*2%*	*3%*	*11%*	*8%*	*12%*	*14%*
Operating Expenses	**2.96**	**5.03**	**5.42**	**2.68**	**2.83**	**3.16**	**3.36**	**3.53**	**3.75**	**3.93**
General expenses	2.23	4.04	4.38	*2.00*	*2.08*	*2.16*	*2.25*	*2.34*	*2.43*	*2.53*
BRT	0.73	1.00	1.04	*0.53*	*0.59*	*0.84*	*0.94*	*1.02*	*1.14*	*1.21*
Other expenses	-	-	-	*0.15*	*0.16*	*0.16*	*0.17*	*0.18*	*0.18*	*0.19*
Depreciation expenses	3.10	2.80	3.45	**3.24**	**3.24**	**4.13**	**5.73**	**7.47**	**9.70**	**11.62**
Existing assets				*2.04*	*2.04*	*2.08*	*2.13*	*2.18*	*2.23*	*2.28*
New assets				*1.20*	*1.20*	*2.05*	*3.60*	*5.29*	*7.30*	*8.97*
Assets from New Investment Program (To be financed)				-	-	-	-	-	*0.18*	*0.36*
Other operating income	6.39	0.63	0.60	1.00	1.04	1.08	1.12	1.17	1.22	1.27
Rental income	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Donation income	1.53	0.97	2.52	-	-	-	-	-	-	-
Exchange gain (loss)	(0.59)	0.02	(0.35)	-	-	-	-	-	-	-
Total other expenses (losses on collection, etc..)	(3.59)			-	-	-	-	-	-	-
Operating Profit/Losses	**0.19**	**(0.50)**	**(1.94)**	**(0.77)**	**(4.29)**	**(5.05)**	**(2.35)**	**(5.61)**	**(5.02)**	**(5.46)**
Financing cost: Interest on loans	0.04	0.05	0.02	0.85	1.07	1.26	1.69	2.25	2.62	3.17
Profit before tax	0.15	(0.56)	(1.96)	(1.62)	(5.36)	(6.31)	(4.04)	(7.86)	(7.64)	(8.63)
Income Tax	(1.61)	(0.17)	(0.33)	-	-	-	-	-	-	-
Net Income	1.77	(0.38)	(1.63)	**(1.62)**	**(5.36)**	**(6.31)**	**(4.04)**	**(7.86)**	**(7.64)**	**(8.63)**

Table 16: DABS Cash Flow Statement

In Afs billion	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Net income	0.15	(0.56)	(1.97)	(1.62)	(5.36)	(6.31)	(4.04)	(7.86)	(7.64)	(8.63)
Adjustment for non-cash items:										
Add depreciation	3.10	2.80	3.34	3.24	3.24	4.13	5.73	7.47	9.70	11.62
Cash-flow pre WC adjustments:	6.93	4.39	1.38	*1.62*	*(2.12)*	*(2.18)*	*1.69*	*(0.40)*	*2.06*	*2.99*
(Increase)/decrease in current assets										
Stores and spares	(0.41)	1.06	(0.52)	-	(0.18)	(0.19)	(0.20)	(0.21)	(0.22)	(0.23)
Trade Debts	(3.23)	(4.23)	0.32	(1.75)	(3.39)	(0.12)	0.39	(0.08)	0.64	2.88
Advances and other receivables	0.74	0.16	(0.79)							
Increase/(decrease) in current liabilities										
Trade and other payables	0.91	(0.66)	1.52	0.44	1.60	0.65	0.51	0.77	0.49	(0.80)
Short-term deposits	(0.04)	(0.00)	0.01	-	-	-	-	-	-	-
Change in Working Capital	(2.03)	(3.66)	0.54	(1.31)	(1.97)	0.35	0.71	0.48	0.91	1.85
Cash inflow/(outflow) from operations	**4.89**	**0.73**	**1.92**	**0.31**	**(4.09)**	**(1.84)**	**2.39**	**0.09**	**2.97**	**4.83**
Cash-flow from investments										
PPE additions	(1.81)	(0.87)	(0.75)	20.49	36.38	44.46	33.61	36.62	25.46	25.12
PPE disposal	-	0.00	-	-	-	-	-	-	-	-
Intangible assets additions	-	-	(0.00)	-	-	-	-	-	-	-
Net movement in capital WIP	(8.94)	(10.57)	(12.63)	-	-	-	-	-	-	-
Net movement in capital stores and spare	-	-	-	-	-	-	-	-	-	-
Cash flor from Investments	**(10.75)**	**(11.45)**	**(13.38)**	**(20.49)**	**(36.38)**	**(44.46)**	**(33.61)**	**(36.62)**	**(25.46)**	**(25.12)**
Cash-flow from financing										
Proceeds from new loans	5.14	6.52	6.72	18.27	33.99	40.23	28.65	23.48	8.83	3.20
Repayment of loan	-	-	-	-	-	-	-	-	-	-
Grants received	1.39	3.82	7.16	2.23	2.39	2.44	1.48	0.26	0.26	0.16
Movement in deferred revenues	-	0.00	-	-	-	-	-	-	-	-
Contingencies and Commitments	-	-	-	-	-	-	-	-	-	-
Grants by USAID and ARTF/WB	-	-	-	6.31	13.61	17.18	8.69	8.34	-	-
Cash-Flow from financing	**6.53**	**10.34**	**13.88**	**26.81**	**49.99**	**59.86**	**38.82**	**32.08**	**9.09**	**3.36**
Change in CF	(0.43)	(0.70)	1.04	6.62	9.52	13.56	7.60	(4.45)	(13.40)	(16.92)
Beginning of period CF	4.87	4.43	3.73	4.77	11.39	20.91	34.47	42.07	37.62	24.23
End of period CF	**4.44**	**3.73**	**4.77**	**11.39**	**20.91**	**34.47**	**42.07**	**37.62**	**24.23**	**7.30**

Table 17: DABS Balance Sheet

ASSETS	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Non-Current Assets										
Property, Plant & Equipment	106.92	116.24	124.86	**144.64**	**185.86**	**215.34**	**246.23**	**264.22**	**279.64**	**289.61**
Intangible Assets	-	-	1.49	-	-	-	-	-	-	-
Investments properties	0.96	0.96	0.96	-	-	-	-	-	-	-
	107.88	**117.20**	**127.31**	**144.64**	**185.86**	**215.34**	**246.23**	**264.22**	**279.64**	**289.61**
Current Assets										
Stores and spares	5.50	4.44	4.96	8.15	8.15	8.33	8.51	8.71	8.92	9.13
Trade debts	10.34	12.99	11.90	10.77	12.62	16.16	16.38	16.08	16.26	15.69
Advance and other receivables	0.69	0.51	1.30	-	-	-	-	-	-	-
Advance business receipt tax - net	0.42	-	-	-	-	-	-	-	-	-
Other current assets	-	-	-	-	-	-	-	-	-	-
Cash and marketable securities	4.43	3.70	4.72	11.35	21.17	35.49	44.28	41.44	30.22	16.31
Total Current Assets	**21.38**	**21.64**	**22.88**	**30.27**	**41.93**	**59.98**	**69.17**	**66.23**	**25.18**	**24.83**
Total Assets	**129.25**	**138.84**	**150.20**	**174.91**	**227.80**	**275.32**	**315.40**	**330.45**	**304.82**	**314.44**
LIABILITIES	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Equity										
Shareholder capital	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Retained Earnings	7.48	7.04	5.91	4.28	(0.69)	(6.18)	(9.01)	(15.23)	(20.69)	(26.63)
Reserves (Re-valuation)	57.71	57.71	57.71	57.71	57.71	57.71	57.71	57.71	57.71	57.71
Total Equity	**90.18**	**89.75**	**88.62**	**86.99**	**82.02**	**76.53**	**73.70**	**67.48**	**62.02**	**56.08**
Non-Current Liabilities										
Long-term debt (loans signed)	13.55	19.57	25.96	37.91	58.28	81.33	101.29	116.43	125.26	128.46
Deferred Grants	21.76	25.16	29.80	38.34	54.34	73.97	84.14	92.74	93.00	93.16
Deferred revenue	0.03	0.04	-	-	-	-	-	-	-	-
Deferred tax liability	0.64	0.46	0.13	-	-	-	-	-	-	-
Long-term debt (loans TBF)	-	-	-	-	-	-	0.80	6.25	13.40	23.20
Other long-term liabilities	-	-	-	-	-	-	-	-	-	-
Total Long-Term Liabilities	**35.98**	**45.23**	**55.89**	**76.25**	**112.62**	**155.30**	**186.23**	**215.42**	**231.66**	**244.81**
Current Liabilities										
Trade and other payables	2.45	2.25	3.43	3.42	3.91	5.56	6.27	6.84	7.68	8.24
Accrued mark-up	0.29	0.48	0.67	-	-	-	-	-	-	-
Current portion of LT finance	0.31	0.76	1.44	-	-	-	-	-	-	-
Provisions for BRT	-	0.36	0.04	-	-	-	-	-	-	-
Short term deposit	0.06	0.05	0.11	-	-	-	-	-	-	-
Other short-term liabilities	-	-	-	-	-	-	-	-	-	-
Total Current Liabilities	**3.11**	**3.90**	**5.69**	**3.42**	**3.91**	**5.56**	**6.27**	**6.84**	**7.68**	**8.24**
Contingencies and Commitments	-	-	-	8.25	29.24	37.93	49.20	40.71	3.45	5.31
Total Liabilities	**39.10**	**49.13**	**61.58**	**79.67**	**116.54**	**160.86**	**192.50**	**222.26**	**239.34**	**253.05**
Total Equity and Liabilities	**129.28**	**138.87**	**150.20**	**174.91**	**227.80**	**275.32**	**315.40**	**330.45**	**304.82**	**314.44**

Project Financial Analysis (Project)

Key assumptions used in the following financial analysis on the Project are summarized in the Table 18 below.

Table 18: Assumptions Summary

Assumptions	Remarks

Total Project Cost	US$96.6 million	Please refer to the Table 2: Project Cost and Financing Sources (in US$ million) for detailed breakdown
EPC Cost	US$60.0 million	Excludes contingency and taxes
Availability	90 percent	Committed availability in the PPA
Dispatch Factor	89 percent	
Capacity Factor	80 percent	Availability × Dispatch Factor
Gas Price	US$2.46 per MMBTU	Passthrough to offtaker
Capacity Tariff	5.00 US$c/kWh;	20percent of the tariff will be adjusted for US inflation every year
Variable Tariff	0.75 US$c/kWh;	100percent of the tariff will be adjusted for US inflation every year
Debt : Equity Ratio	70 percent : 30percent	
Debt Tenor	15 years	Includes 2 yrs grace period
Depreciation	15 years with a straight-line method	

2. The total project cost is estimated at US$96.6 million which includes EPC cost, contingencies for cost over-runs, development costs, owner's costs, financing costs, and capitalized interest during construction. The estimation for breakdown of the project cost and financing plan is shown in the Table 2 above.

3. The EPC cost is estimated at US$1.0 million per megawatt and US$0.2 million per megawatt (or 30percent of the unit EPC cost) is assumed as contingency of the construction. Comparing with gas power projects in other countries, the level of contingency to EPC cost can be viewed as excessive, but given the proposed Project is located in Afghanistan it would be beneficial to have sufficient contingency to cover unexpected events during the construction period.

4. Under the assumptions in the Table 18 and other capital and operating expenditures in the financial model, the capacity charge and variable charge have been negotiated as part of the PPA. Overall tariff including pass-through gas price starts at 7.96 cents/kWh from first year of operations and 20percent of the capacity charge and 100percent of the energy charge is subject to annual escalation as agreed in the PPA.

5. The Project will be financed on a project finance basis with expected debt to equity ratio of 70:30.

The project's shareholders are expected to provide close to US$29.0 million in a form of shareholder's loan and equity to the Project Company, which will be injected into the Project before the senior debt. Ghazanfar DMCC is expected to contribute 60 percent of the total equity and METKA is expected to contribute the remaining 40 percent. The entire senior debt will be provided solely by the DFIs due to the high risks perceived by commercial lenders in Afghanistan. IFC is expected to contribute US$23.8 million of the debt financing (or about one third of the debt financing), and other DFIs such as ADB and DEG are expected to provide the remaining amount. The tenor of the debt will be 15 years which includes up to 2 years of grace period for construction.

Financial Performance of the Project

6. The Project revenue is generated mainly from sales of electricity under capacity payment and variable payment in the PPA. Calculation of the revenue is based on the sale of 404GWh per year according to the proposed negotiated starting tariff of (US$7.96 cents per kWh) with DABS. Capacity tariff was negotiated to cover the capital expenditure of the project and variable tariff was to cover O&M costs of the Project and gives reasonable return to the project sponsors. Corporate income tax is estimated at 20percent of the taxable income.

7. **Key Indicators**. Under the assumption that project costs and operating expenses are within reasonable range and provided that the Project Company manages construction and operation risks properly to supply stable electricity and prevent any unexpected events, the cashflow forecasted in the Project would be sufficient to cover O&M costs, debt service payments to the lenders and gives reasonable return to the project sponsors. The financial model shows that the average debt service coverage ratio over the life of the project is 1.6, which is expected to be well above minimum debt service coverage ratio lenders require and would provide more comfort in terms of loan repayment. Level of equity IRR (14.4percent) is also adequate for the region. Below table summarizes key indicators that represents performance of the project.

8. The project will also help AGE and MoF to generate revenues of about US$ 75 million (US$ 8.8 million annually) and US$ 44 million, respectively, over the twenty years life of the project.

ANNEX 6: DFI ENHANCED BLENDED CONCESSIONAL FINANCE PRINCIPLES

1. On July 24, 2019, IFC's Blended Finance Committee (BFC) approved the IDA PSW RMF of up to US$32.5 million from IFC acting as implementing entity of PSW to support the Project. The proposed use of IDA PSW MGF has been assessed and approved at MIGA's Project Review Committee (PRC) meeting held on July 11, 2019 with the participation of IDA PSW Representatives from DFCII and the Afghanistan Country Management Unit. IDA PSW RMF is providing Political Risk Insurance for Breach of Contract to enable IFC to proceed with their investments in the Project. IDA PSW MGF is providing (i) equity and quasi-equity investment coverage of up to US$ 26.1 million to Ghazanfar and METKA against the risks of BOC, Expropriation, Transfer Restriction and Inconvertibility, and War and Civil Disturbance; and (ii) non-shareholder loan coverage of up to US$ 22.6 million to DEG against the risk of BOC. The IDA PSW investment meets the DFI Enhanced Blended Concessional Finance Principles for private sector projects as follows:

a. Economic Rationale for Using IDA PSW: Without the support from IDA PSW, the Project would not be able to proceed at this time. Afghanistan is a low-income, deeply conflict affected, IDA and FCS country suffering from a weak security situation, inadequate infrastructure, lack of adequate electricity supply and low levels of private sector investment. Although the Project benefits from the upstream support of the WBG, which has resulted in a bankable contractual structure with appropriate risk allocation, the fact remains that it is the country's first long-term IPP of this size. It is an untested market and none of the off-taker, gas-supplier or GoA have any track record of being a counterparty to project documents such as the ones negotiated for this Project. As a result, two of the lenders require risk mitigation in the form of a PRI cover for Breach of Contract and the equity holders require PRI cover for Expropriation, Transfer Restriction and Inconvertibility, and War and Civil Disturbance. Together with the IDA Payment Guarantee, which mitigates the risk related to the off-taker, the use of MGF and RMF would unlock the needed long-term investment from the shareholders and the lenders. As political risk insurance products are non-existent at an affordable price for projects in Afghanistan, the Project could not have been realized without the PRI support provided by PSW MGF and RMF at this time.

b. Crowding-in and Minimum Concessionality: The minimum concessionality principle will be maintained by reducing the amount of subsidy needed in support of the transaction:

(i) The RMF PRI is charging full price based on MIGA's pricing model, therefore, there is no estimated pricing subsidy being provided under the RMF. The RMF PRI enables IFC, one of the senior lenders to the Project, to consider long term financing which would otherwise not be possible due to the high termination payment risk.

(ii) PSW MGF covers both the equity investments, by providing a first-loss layer to MIGA's guarantee to the shareholders, and DEG's loan through an akin-to-reinsurance participation. This is the first project where MIGA will be utilizing the reinsurance structure under the MGF. Under this structure MIGA will share the same risks alongside PSW MGF and bear its share of losses on a pro-rata basis to its share of the Project exposure. This structure helps reduce the risk IDA PSW is taking, vis-à-vis the first loss layer structure, while also eliminating the need for a price subsidy.

(iii) The subsidy from the MGF's first loss cover for equity investments is estimated at US$ 2,493,026 – US$ 2,655,969 for the duration of the MIGA guarantee, equivalent to 9.4 – 10 percent of the PSW MGF allocation of US$ 26.5 million and 2.6 – 2.7 percent of the total Project cost of US$ 96.6 million.

PSW Instrument	Subsidy
RMF	N/A
MGF reinsurance	N/A
MGF First-Loss layer	US$ 2,493,026 – US$ 2,655,969 for the duration of the guarantee

(iv) IDA PSW support also enables the equity investments of Ghazanfar DMCC and METKA and helps crowd-in investment from ADB and DEG. The combination of WBG instruments used in support of the Project helps align incentives and more evenly distribute risks and responsibilities between the public and private sectors, to the benefit of end-consumers. As this is the one of the first IPPs in Afghanistan, its success will help attract further private sector investment and long-term financing to future infrastructure projects with similar structures in Afghanistan.

c. Commercial Sustainability: The Ghazanfar Group has a long track record of operating in Afghanistan and GoA has shown strong commitment to the Project. WBG's economic assessment finds a sound Economic Internal Rate of Return and NPV. Project sponsors and investors are committed to make this Project a success, to help develop track record for GoA and demonstrate the economic viability of a private sector infrastructure project in Afghanistan. GoA would be unlikely to take adverse actions against a Project in which major donors and partners are involved. Moreover, GoA is likely to prioritize DABS obligations under the PPA to avoid a draw on IDA Guarantee, which would cause significant negative consequences for its IDA program.

d. Reinforcing Markets: This is a transformative engagement for the WBG in a highly fragile and conflict affected state with significant need for power and private sector investment. In addition to IFC's role as the transaction structurer and lead arranger for debt financing, IFC and World Bank teams have been closely collaborating over the last few years to make the Project a reality. World Bank's engagement in the gas and power sector is complimenting IFC's support to the IPP sector, by providing upstream (to MoMP) and downstream (to DABS) support in terms of various activities, which among other things, include support on sectoral reforms, capacity building, training, and engineering oversight and quality control over certain critical ancillary infrastructure. MIGA's involvement provides a long-term de-risking solution to facilitate IPPs' participation into the energy sector.

e. Promoting High Standards: Given the nature and purpose of blended concessional funds, promoting adherence to high standards of conduct, including in the areas of corporate governance, environmental impact, social inclusion, results measurement, transparency, integrity, and disclosure have special importance. The proposed Project adheres to IFC's investment standards (including for integrity, sustainability, and tax transparency), IDA PSW criteria, and these Blended Finance principles, as reviewed and assessed by IFC BFC and MIGA PRC with the participation of IDA PSW Representatives.

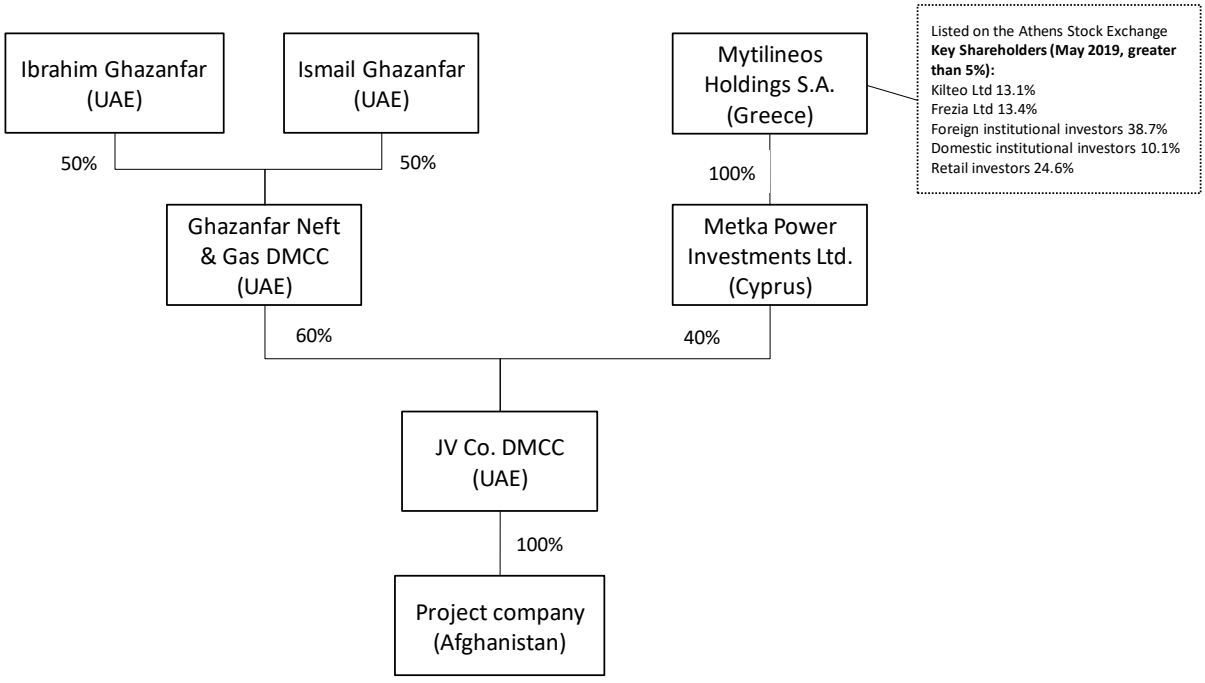
ANNEX 7: IFC POLICY ON TAX TRANSPARENCY

This proposed investment was subject to the policy on the use of intermediate jurisdictions in IFC operations approved by the Board (IFC/R2014-0206) (the "OFC Policy") and was found to be acceptable. Under the OFC Policy, IFC performed its standard transactional due diligence, with emphasis on the business and tax planning rationale for the structure. Based upon the information available to IFC and the analysis conducted, IFC is satisfied that, from a transactional standpoint, the structure was put in place for legitimate reasons.

Cyprus was chosen as an Intermediate Jurisdiction for Mytilineos Holdings S.A.'s investment in this Project because METKA Power Investments Ltd. (Cyprus) is the holding company used by Mytilineos Holdings S.A. for its interest in the Project and its regional hub for its EPC and O&M activities due to tax neutrality, ease of doing business and high quality of service providers.

The revenues of Mazar IPP will be subject to tax in Afghanistan, and payments of interest and dividends will be subject to 20 percent withholding tax by Afghanistan. Cyprus were found to be eligible as Intermediate Jurisdictions in this Project by reference to reviews by the Global Forum for Transparency and the Exchange of Information for Tax Purposes (the "Global Forum") and the OFC Policy. Details are as follows:

Cyprus underwent a Phase 1 review for which there is a Peer Review Report dated April 5, 2012, and received a positive assessment. A Phase 2 Report was published on November 22, 2013, and Cyprus was assigned a rating of "Non-Compliant". Based on the Supplementary Phase 2 Peer Review Report dated October 30, 2015, Cyprus was found to be "Largely Compliant" with the Global Forum's requirements on tax transparency.



ANNEX 8: IFC Anticipated Impact Measurement and Monitoring (AIMM) Rating

1. **Summary:** The Project has an anticipated impact measurement and monitoring ("AIMM") rating of **Excellent**, based on an AIMM score of **90**. Afghanistan is a highly fragile and conflict affected state with significant need for power and private sector investment. After nearly three decades of conflict, much of Afghanistan's infrastructure has been destroyed. Almost 70 percent of the population currently do not have access to grid connected electricity and expensive diesel-based generation is prevalent. Even those connected to the grid suffer from frequent power blackouts of up to 9-15 hours a day. The main project-level outcome is contributing to stakeholder impacts through adding 58.6 MW of locally sourced gas-based generation capacity to help address the very large electricity demand-supply gap in the country. Beyond the Project, the expected market-level impact is through improving market competitiveness with strong demonstration effects of supporting the first long-term IPP in the country. Successful implementation of the Project is anticipated to unlock additional private investment by demonstrating the feasibility and bankability of similar projects. In addition, the Project will contribute to enhance the sector resilience through supporting introduction of locally sourced gas generation to diversify the generation mix which is currently more than 80 percent dependent on imported electricity from Central Asian neighbors.

2. Assessment of Project Outcomes: The Project-level outcome rating is **Very Strong** with **Low** likelihood of achievement. The risks associated with the Project relate to: (i) potential delays in the construction of the ancillary infrastructure for the Project (including new gas pipeline for gas supply and interconnection for transmission line); (ii) gas supply risks; (iii) weak financial position of the electricity off-taker; and (iv) security & political risks. The Project has been in the works for more than 4 years and several mitigating factors have been developed, including Government initiatives aimed at increasing gas supply over the medium-term, liquidity support to the off-taker, and EPC contractor with significant international experience in the power sector. Nonetheless, there are considerable risks mainly due to the inherent risks of operating in Afghanistan's highly fragile and conflict-affected environment, where the Project will be the first long-term IPP in the sector. The framework for private investment in Afghanistan's infrastructure sector is still evolving and hence there is a high dependence on regulation by the project contracts and agreements.

3. The main Project outcomes include:

a. *Stakeholder effects* – electricity access & quality of supply: IFC anticipates that the Project will help address very large electricity supply shortage in the country, especially for Kabul, Mazar-e-Sharif and Jalalabad. Afghanistan remains in the bottom 10 percent globally in electricity consumption per capita (~100 kWh per year) and only 34 percent of its population is connected to the grid, one of the lowest rates in the world. In addition, reliability remains a pressing issue, many electricity consumers experience prolonged outages, up to 9-15 hours a day, due to load-shedding especially during periods of peak demand. This has implications not only for citizens' quality of life and health prospects, but for national economic potential as well. In the World Bank Group's *Doing Business Report* 2019, Afghanistan ranked 168 out of 190 countries for the ease of getting electricity, a significant impediment for businesses and entrepreneurial activity.

b. Over the past several decades Afghanistan's local generation capacity has remained stagnant

at about 340 MW, no new hydropower, gas or coal generation has been added since the 1980s. In the past decade, only one new generation project has been built - a 105 MW diesel project in Kabul, which has been little used due to diesel fuel shortages and high operating costs. Within this context, Mazar IPP will increase installed capacity in the country by 11 percent utilizing locally sourced gas supply. The Project is thus expected to have significant ensuing positive effects on access and quality of supply by providing 400 GWh per annum of reliable baseload generation. To measure progress against this outcome, IFC will track annual electricity generation (see results measurement below).

c. *Economy-wide effects* – After decades of conflict and underinvestment in Afghanistan's infrastructure, the Government has identified energy infrastructure as a critical sector for investment as the lack of power supply is a considerable inhibitor to the country's economic development. Based on an internal analysis[27], IFC estimates that successful implementation of Mazar IPP project could lead to an increase in Gross Domestic Product ("GDP") of about 3 percent above a business-as-usual scenario and around 138,500 jobs (1.4 percent increase in employment) sustained over the period of the project's operation. This estimated growth is based on an increase in supply of electricity from the project that could enable additional economic activity in the country[28]. The estimates are based on the assumption that in the short-run the full amount of electricity produced from the Project will be used to alleviate electricity supply in the economy. To measure progress against this outcome, IFC will track annual electricity generation, which is a key input in the estimation (see results measurement below).

4. The WB estimates the Project's economic rate of return at 11.3 percent. According to IFC guidance on carbon pricing, the national grid is considered as the counterfactual for providing the similar output as the Project. Specifically, the GHG emission rate for this power plant will be about 478 gCO2/kWh and around 10 percent less than the average grid emission factor in Afghanistan of 533 gCO2/kWh. As a result, the Project's gross GHG emissions are estimated to be 194,100 tCO2eq, and its net GHG emissions -21,528 tCO2eq compared with the national grid providing the same amount of electricity. When applying carbon pricing to the annual gross GHG emissions of the plant, the ERR becomes negative (lower bound of carbon price of $41/tCO2 in 2021 and upper bound of carbon price of $51/tCO2 in 2021). When carbon pricing is applied to the net GHG emissions of the plant to account for the associated social benefits, the ERR increases to 12.5 percent and 12.8 percent with the same lower and upper bound of carbon price, respectively.

5. Assessment of Contribution to Market Creation: The contribution to market creation rating is **Very Strong** with **Low** likelihood. The likelihood assessment is primarily based on the substantial regulatory and political risks associated with the sector that may delay or constrain the expected

[27]The estimates were generated through a power sector empirical model developed by the IFC that estimates the impact of additional power generation on the GDP. Job creation is computed using the GDP increase in response to electricity supply expansion and employment elasticities are based on the GDP decomposition into changes in employment and labor productivity. The estimates do not include the impacts from construction and operations and maintenance activities that are expected to be of a much smaller magnitude.
[28]The estimates do not include the impacts from construction and operations and maintenance activities that are expected to be of a much smaller magnitude.

demonstration effects from this Project. The framework for private investment in Afghanistan's infrastructure sector is still evolving. Since the Project will be the first long-term IPP in the country, there is associated regulatory risk in this untested market for private sector. In addition, political risk in the country remains high as it is a low-income, deeply conflict-affected, IDA and FCS country which is likely to affect private sector investment in the sector. The bankability of IPPs in Afghanistan in the short- to medium will depend on how major risks are managed, including creditworthiness of the off-taker (DABS), the security situation, and general perceptions of country risk.

6. The Project's main contributions to market creation are as follows:

7. *Competitiveness: through increased private sector participation*: IFC expects the Project to significantly contribute to market competitiveness by supporting the first long-term IPP in Afghanistan and through the complementary upstream support provided by WBG (IFC and IBRD) on developing a bankable contractual structure for private sector participation in the power market. Currently there are very few private sector players in the power sector. Given the scale of Afghanistan's needs, the private sector has the potential to be transformative in supporting the country's infrastructure development. This will be Afghanistan's first long-term IPP, and if successful, has the potential for strong demonstration effects to attract much needed private investment into Afghanistan's power sector. IFC has played an instrumental role in developing this Project over the last 4 years, through heavy IFC upstream work in strong collaboration with IBRD and IDA.

8. A joint IFC Infrastructure Investment and Advisory team has provided upstream structuring support to develop a bankable transaction structure for the Project. Since 2014, IFC has been engaged with the Sponsor and working with its legal and technical advisers on development of the Project, while having extensive discussions with the various Government counterparts, as well as other stakeholders including the IMF and DFIs active in Afghanistan's energy sector. The final Project Agreements (PPA, GSPA, Implementation Agreement (IA) and Government Guarantee (GG)) will not only support this initial IPP, but also become the foundation of future IPPs in Afghanistan. For example, the project structure and risk reward balance developed by the Project is being used as a base for other ongoing and planned IPPs in the country.

9. Given the number and complexity of issues to develop Mazar IPP, the Government requested assistance from the International Development Association (IDA), through the Sustainable Development of Natural Resources Project II (SDNRP II) implemented by Ministry of Mines & Petroleum (MoMP), to hire transaction advisors. The advisors have worked closely with MoMP as well as other public parties, including AGE (public gas supply company), MEW (Ministry of Energy and Water), DABS and MoF, during the structuring and closing of the Mazar IPP transaction. Advisors are providing "on the job training" to the different public entities involved in the Mazar IPP to build capacity associated with the implementation of PPP-type transactions more broadly.

10. The Project, if successful, will demonstrate the viability of private sector participation in the infrastructure sector, which is expected to encourage other potential investors to help close Afghanistan's energy deficit. To measure progress against this impact, IFC will track the number of IPP projects in the country (see results measurement below).

11. *Resilience - diversification of sources of electricity supply:* The Project is expected to contribute to improve resilience of the power sector by diversifying the country's energy supply, particularly by harnessing indigenous gas resources to supply electricity. Currently, 80 percent of Afghan power supply is imported through short-term contracts from Central Asian neighbors, which is not only costly but also raises concerns on the reliability of this supply. Utilizing indigenous resources (such as gas) for electricity generation to become more energy independent is a key strategic objective for Government.

12. In Afghanistan, energy security and supply diversification have for a long time been subordinated to quick energy supply solutions of expansion through imports. Its local generation capacity has remained stagnant (340 MW), with rapid growth in consumption primarily met by imports (80 percent of the total) especially from Uzbekistan, suggesting a high vulnerability to interruption in energy supply. Such over-reliance on a single source entails significant risk due to potential impacts in the event of interruption (be it from security or natural causes) as well as the possibility of supply contraction if the previously available surpluses decline due to increasing domestic needs of Afghanistan's neighbors.

13. This vulnerability was demonstrated by the loss of power to Kabul in February 2015 and again in January 2016, when first an avalanche and then insurgent action brought down several towers of the 220kV line that transfers electricity from Uzbekistan to Kabul; for the time that the line was out of commission Kabul had to rely entirely on the very limited domestic supplies, leading to significant load shedding.

14. Mazar IPP is expected to demonstrate harnessing indigenous gas resources to supply electricity to help increase the share of domestic electricity production in the country's generation mix to increase resilience. To measure progress against this impact, IFC will track increase in gas power generation capacity utilizing domestic gas resources in Afghanistan's electricity mix (see results measurement below).

15. **Results Measurement:** The key AIMM indicators that will be tracked throughout the life of Project are outlined in the table below:

Table 19: AIMM Indicators Table

Description of Outcome	**Indicator**	**Baseline**	**Target**	**Indicator Category** (check where applicable)		
				Project Outcomes	**Market Creation**	**Reporting**
Stakeholder & Economy-wide Effects:	Electricity delivered to off taker (gigawatt-hours per year)	N.A.	400	X		X
	Payments to the	N.A.	At least $30 million over			X

	government during operations		the life of the loan			
Employment:	Total # of permanent jobs provided	N.A.	[20] in 2021			X
Competitiveness: *Increased private sector participation*	The number of IPP projects in in the country (#)	[2] in 2019	[4] By 2024		X	
Resilience: *Diversification of electricity supply*	Share of gas in electricity generation mix using domestic gas resources (MW)	0 in 2019	110 MW By 2024		X	
Gender reporting	Number of direct employees	14 in 2019	Track yearly			X
	Number of female direct employees	2 in 2019	Track yearly			X
	Number of executive management (C-suite) positions	3 in 2019	Track yearly			X

16. Additional Information on Financial Additionality

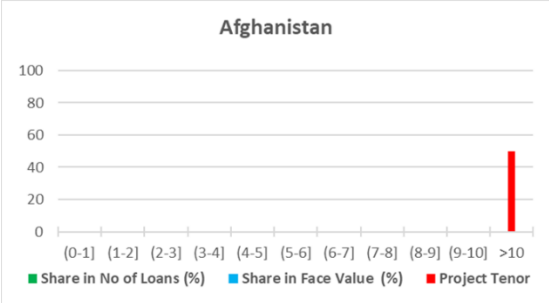
Financial Additionality Benchmarks		
Macro Financial		Notes

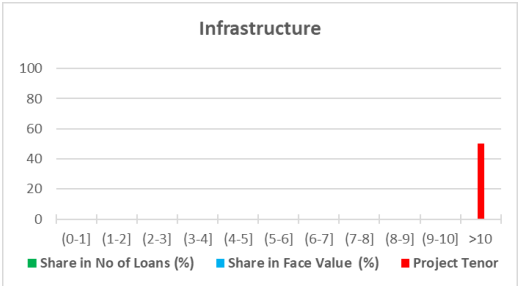
Barometer	Credit Availability	LOW (-)	Afghanistan's Access to Domestic Financing is not only very low, but declining. Domestic Credit to Private Sector and Bank Credit Penetration are both below all comparator averages (MENA, low-income, overall EM, IDA, and FCS). The current levels for both variables are also below the 5- and 10-year averages. Afghanistan's Access to International Financing is also low. FDI flows are below all comparator averages and are declining. Portfolio Equity Flows have a recorded value of zero, which is comparable to the MENA, low-income, IDA and FCS averages. Afghanistan's Private Debt is far below all comparator averages.
	Private Investment	(N/A)	
Market and Sector Financing Metrics (Data over the last 12 months)	Afghanistan		
	Over the past 5 years, no syndicated loans or corporate bonds have been issued in any currency or at any rating level.		
	Infrastructure		
	Over the past 5 years, no syndicated loans or corporate bonds have been issued in any currency or at any rating level.		

Source: IFC Staff calculations based on various sources including World Development Indicators, International Financial Statistics, Bank for International Settlements, World Federation of Exchanges, Dealogic and Bloomberg. **The data is as of July 1, 2019**.

Note: The country is rated "LOW" if the country-specific indicators are lower than its comparators, "MEDIUM" if they are within 95 and 105 percent of the country's regional, income and emerging markets comparators, and "HIGH" if they are higher. The signs (-), (0), and (+) indicate whether the indicators deteriorated, remained stable and improved over the course of last five years, respectively. Data for loans and bond issuances does not include data for IFIs but only for other commercial entities. Loan data includes only syndications but not bilateral loans. Some of the benchmark averages might not be representative as the number of observations in the country and sector might be limited and/or not all the details of the deal might be available.

Annex Figure: Distribution of the face value and number of syndicated loans in US$ (Afghanistan and Infrastructure over past 12 months), by tenor, in percent





Source: IFC staff calculation based on Dealogic database spans a one-year range; i.e.. [2-3] brackets reflect tenor longer than 2 years, and shorter than or equal to 3 years.

ANNEX 9: MIGA IMPACT PERFORMANCE ASSESSMENT AND COMPARISION TOOLS (IMPACT) RATING

The Project, a greenfield investment in the energy sector, has an IMPACT rating of **Excellent**, based on a score of 90.[29]

Assessment of Project Outcomes: The Overall Project Outcome rating is *Very Strong* with a *Low* likelihood of achievement.

The Low likelihood assessment is based on possible implementation delays (including for e.g. in the construction of ancillary infrastructure or the new gas pipeline), payment delays given DABS's financial weaknesses, insufficient gas supplies[30] and interruptions caused by security incidents, all of which could raise costs and decrease profits, affecting negatively Business Performance. Similar concerns could affect Economic Sustainability by lowering the output of power generated or preventing the power from reaching consumers (e.g. due to security incidents that interrupt transmission). The likelihood assessment is also informed by the inherent risks of operating in Afghanistan's highly fragile and conflict-affected environment, where institutions lack experience in dealing with IPPs, potentially giving rise to disputes. These risks are mitigated in part by strong WB/IFC and donor support for Afghanistan's energy sector aimed at improving the sector's financial sustainability, by WB/IFC and donor engagement in the Project itself, and by GoA's strong overall support for the Project; by progress in the construction of ancillary infrastructure and the construction of the new gas pipeline with WB support, which is expected to reach full completion before the operation of the Project; and by confidence that the existing gas supply at present is adequate to meet the Project's needs, with two additional gas wells, as well as the refurbishment of the amine plant, expected to increase gas production by up to 600-700mcm/day by end-2019,[31] together with the fact that the Project has the right of first gas from the additional wells before other IPPs. While the Sponsor is an established local conglomerate, it does not have technical experience of developing a power plant. This is partly mitigated by the involvement of METKA/Mytilineos S.A. in the Project, an EPC contractor with significant international experience in the power sector, the hiring of Owners' Engineer to supervise the construction of the plant, as well as strengthening the Ghazanfar team with individuals with extensive energy sector experience. METKA would be backed by a Long-Term Service Agreement with Wartsila, which will also perform O&M.

The specific Project Outcomes are discussed below.

- ✓ *Business Performance*: The Project FRR is estimated at 13.6 percent, which is 1.25 times the Weighted Average Cost of Capital (WACC) of 9.6 percent.[32] Business performance may be affected by construction delays and cost overruns, disruptions during operations, and by DABS's weak financial position, which may lead to delays in payments affecting profitability.

[29] This score is based on IMPACT's scoring parameters (scale 1-100): Excellent 86-100; Good 51-85; Satisfactory 31-50 and Low ≤ 30.

[30] The Project requires around 300 mcm/day, which is available (current extraction rate is 405 mcm/day), however, GoA has signed multiple MOUs for providing gas to potential IPPs in the coming years, which could strain the existing reserves.

[31] Proven gas reserves are 63.7 bm^3.

[32] WACC of 9.6 percent was calculated based on (i) equity cost of 13.66 percent, (ii) debt cost of 9.75 percent, and (iii) a tax rate of 20 percent.

- ✓ *Economic Sustainability*: The World Bank estimated the EIRR of the Project at 11.3 percent (detailed in paras 106 - 113 and Annex 5). The World Bank's sensitivity analysis, indicates that the underlying assumptions are quite robust. Additional benefits not taken into account in the economic analysis include social impacts arising from increased supply of electricity, e.g. increased income and employment opportunities from new business ventures.

- ✓ *Environmental and Social Performance*: As a part of its environmental and social due diligence IFC has developed an Environmental and Social Action Plan (ESAP) and is working with the Project Enterprise to address identified gaps. The Project is expected to comply with MIGA Performance Standards (PSs) upon successful implementation of the ESAP items.

Assessment of Foreign Investment Contribution: The Overall Foreign Investment Contribution (FIC) rating is *Very Strong* with a *Low* likelihood of achievement.

The Low likelihood assessment is based on the Project operating in a highly fragile and conflict-affected environment, which could jeopardize its operation and prevent the materialization of the FICs. The transmission and distribution system in Afghanistan is fragmented and under-developed, which could challenge the Project's ability to reach consumers. The interconnection of transmission networks in the future could allow for optimizing the supply of power to consumers. Transmission lines in connection to the Project, or other ancillary infrastructure (e.g. the substation and the 11 km transmission line to the 220-kV overhead line), may become damaged (e.g. from security incidents), thereby reducing the amount of power reaching consumers and jeopardizing the materialization of FICs. World Bank support is expected to help overcome any hurdles for the timely completion of the gas pipeline. During operation, the supply of gas to the Project may be interrupted due to pipeline disruptions, insufficiency of gas reserves, security incidents or other factors, also jeopardizing the operation of the Project and the materialization of FICs. Mitigating these risks (in addition to those described under Project Outcome Likelihood) is the consideration that certain repairs are possible within a relatively short time period and therefore may not lead to prolonged disruptions. GoA is responsible for the ancillary infrastructure and it would be to its interest that it is maintained and repaired quickly in case of damage.

The specific FICs are discussed below.

- ✓ *Market Development*: The Project will allow Afghanistan to utilize its local power generation potential to provide baseload output of around 400 GWh annually, boosting the country's domestic capacity by 11 percent and the electricity supply by up to 30 percent, contributing towards meeting the growing demand for power and bridging the power infrastructure gap. Total installed capacity in the country is estimated at 522 MW, while peak demand is around 2,000 MW. Over 80 percent of the gap between installed capacity and demand is filled by imports. Power generated by the Project will eliminate an estimated 20 percent of the remaining gap, i.e. after imports, or 4 percent of the gap in the absence of imports, while improving energy security.

- ✓ *Development Reach*: With around 100 kWh per capita, Afghanistan has one of the lowest electricity consumption rates in the world (at the bottom 10 percent globally). Only 25-30 percent of the population is connected to the grid. Those connected to the grid regularly suffer from power interruptions of up to 15 hours a day, especially during peak demand. Nearly half of all

businesses depend on diesel generators, with the lack of electricity identified as a critical constraint for the development of the private sector. In conjunction with complementary initiatives aimed at bringing off-grid consumers online, the Project would be expected to increase access for households, including those at the bottom 40 percent, as well as industrial and commercial customers, decrease power interruption, and improve the reliability of electricity supply.

- ✓ *Demonstration Effect*: The Project, if successful, will demonstrate the viability of private sector participation in Afghanistan's energy/infrastructure sectors, which would be expected to encourage other potential investors to enter this largely untapped market. As a first long-term IPP in Afghanistan, the Project will provide a comprehensive framework for a balanced risk-reward allocation that could be used as a template to compensate for weak legal and regulatory frameworks. The bankable PPP structure and project documents, which were developed with IFC's advisory support, are likely to set industry standards and demonstrate the viability of an appropriately structured transaction, which could potentially help to unlock future IPP investments.

ANNEX 10: STANDARD DESCRIPTION OF MIGA'S COVERED RISKS

1. CURRENCY INCONVERTIBILITY AND TRANSFER RESTRICTION

Currency Inconvertibility and Transfer Restriction Coverage protects against (i) the inability to convert, from local currency into guarantee currency, loan payments, dividends, profits, and proceeds from the disposal of the guaranteed investment; and (ii) host government actions that prevent the transfer of the guarantee currency outside the host country, including the failure of the Government to grant an authorization for the conversion or the transfer of such currency. Compensation is based on the guaranteed percentage of any payments that cannot be converted or transferred.

2. EXPROPRIATION

Expropriation Coverage protects against losses attributable to measures taken or approved by the host government that deprive the guarantee holder of its ownership or control over its investment, or in the case of debt, results in the Project enterprise being unable to meet its obligations to the lender. Both direct and indirect (creeping) expropriation are covered. Compensation for equity is based on the guaranteed percentage of the net book value of the guaranteed investment in the Project enterprise. For debt, compensation is based on the guaranteed percentage of the principal and interest that is in default as a result of expropriation.

3. WAR AND CIVIL DISTURBANCE

War and Civil Disturbance Coverage protects against losses arising as a result of military action or civil disturbance in the host country, including sabotage and terrorism, that destroys or damages tangible assets of the Project enterprise or interferes with its operations (business interruption), or, in the case of debt, results in the Project enterprise being unable to meet its obligations to the lender. Compensation is based on the guaranteed percentage of the value of the assets destroyed or damaged or, in the case of business interruption, the net book value of the guaranteed equity investment. For debt, compensation is based on the guaranteed percentage of the principal and interest that is in default as a result of war and civil disturbance.

4. BREACH OF CONTRACT

Breach of Contract Coverage protects against losses arising from a repudiation or breach by the host government of a contract entered with the guarantee holder, provided that a final and binding arbitration award or judicial decision has been rendered in favor of the guarantee holder and cannot be enforced against the host government. Compensation is based on the amount that the guarantee holder is entitled to recover from the host government in accordance with the terms of the arbitration award or judicial decision.[33]

5. NON- HONORING OF SOVEREIGN FINANCIAL OBLIGATIONS

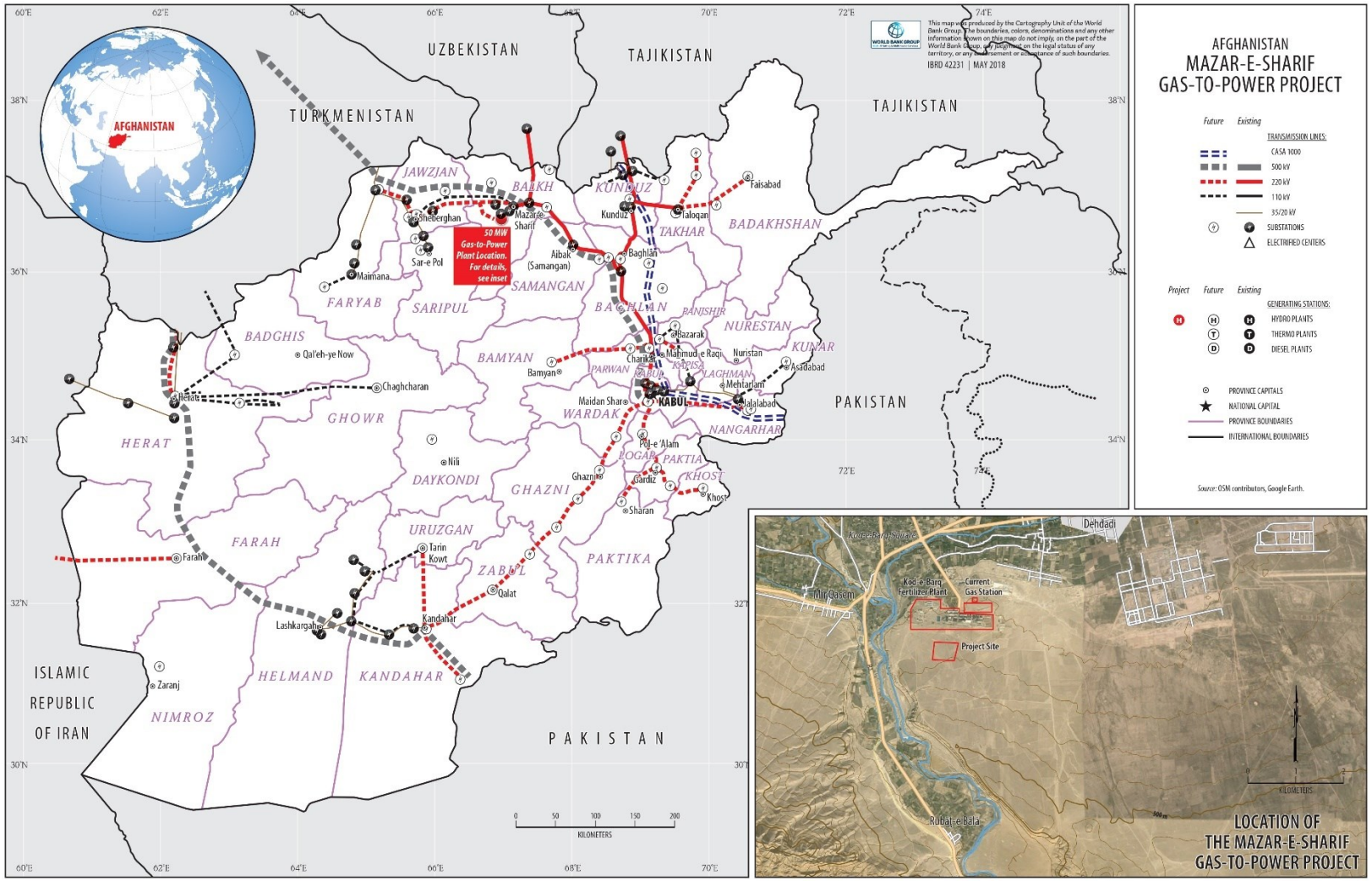
[33] MIGA's Convention provides for coverage under Breach of Contract in three different scenarios: (i) when the Guarantee Holder does not have recourse to a judicial or arbitral forum to determine the claim; (ii) a decision by such forum is not rendered within a reasonable period of time; or (iii) such a decision cannot be enforced.

Non-Honoring of Sovereign Financial Obligation Coverage protects against losses resulting from a government's failure to make a payment when due under an unconditional financial payment obligation or guarantee given in favor of a Project that otherwise meets all of MIGA's normal requirements. It does not require the investor to obtain an arbitral award. This coverage is applicable in situations when a sovereign's financial payment obligation is unconditional and not subject to defenses. Compensation is based on the amount that the guarantee holder is entitled to recover from the host government pursuant to the terms of the obligation.

6. NON-HONORING OF FINANCIAL OBLIGATION BY A STATE-OWNED ENTERPRISE

Non-Honoring of Financial Obligation by a State-Owned Enterprise Coverage protects against losses resulting from a state-owned enterprise's failure to make a payment when due under an unconditional financial payment obligation or guarantee given in favor of a Project that otherwise meets all of MIGA's normal requirements. It does not require the investor to obtain an arbitral award. This coverage is applicable in situations where the financial payment obligation is unconditional and not subject to defenses. Compensation is based on the amount that the guarantee holder is entitled to recover from the state-owned enterprise pursuant to the terms of the obligation.

ANNEX 11: Map


AFGHANISTAN
UZBEKISTAN
TURKMENISTAN
TAJIKISTAN
PAKISTAN
ISLAMIC REPUBLIC OF IRAN
50 MW Gas-to-Power Plant Location. For details, see inset
Mazar-e Sharif
Kunduz
Faisabad
Taloqan
Baghlan
Aibak (Samangan)
Sheberghan
Sar-e Pol
Maimana
Qal'eh-ye Now
Herat
Chaghcharan
Bamyan
Charikar
Mahmud-e Raqi
Nuristan
Asadabad
Mehtarlam
Jalalabad
KABUL
Maidan Shar
Pol-e 'Alam
Nili
Ghazni
Gardiz
Khost
Sharan
Farah
Tarin Kowt
Qalat
Kandahar
Lashkargahe
Zaranj
JAWZJAN
BALKH
KUNDUZ
TAKHAR
BADAKHSHAN
FARYAB
SARIPUL
SAMANGAN
BAGHLAN
BADGHIS
BAMYAN
PARWAN
KAPISA
LAGHMAN
PANJSHIR
NURESTAN
KUNAR
GHOWR
HERAT
WARDAK
NANGARHAR
LOGAR
PAKTIA
KHOST
DAYKONDI
GHAZNI
URUZGAN
FARAH
ZABUL
PAKTIKA
HELMAND
KANDAHAR
NIMROZ
KILOMETERS
AFGHANISTAN
MAZAR-E-SHARIF
GAS-TO-POWER PROJECT
Future
Existing
TRANSMISSION LINES:
CASA 1000
500 kV
220 kV
110 kV
35/20 kV
SUBSTATIONS
ELECTRIFIED CENTERS
Project
GENERATING STATIONS:
HYDRO PLANTS
THERMO PLANTS
DIESEL PLANTS
PROVINCE CAPITALS
NATIONAL CAPITAL
PROVINCE BOUNDARIES
INTERNATIONAL BOUNDARIES
Source: OSM contributors, Google Earth.
Dehdadi
Kod-e-Barq Fertilizer Plant
Current Gas Station
Mir Qasem
Project Site
Rubat-e-bala
LOCATION OF THE MAZAR-E-SHARIF GAS-TO-POWER PROJECT