



PROPOSAL FOR RESTRUCTURING, DIVESTITURE AND TRANSFER OF ASSETS

SUSTAINABLE DEVELOPMENT OF NATURAL RESOURCES PROJECT (PHASE-II) IN AFGHANISTAN

**Consultancy Services for Improving the Business Environment –
Reform of the Afghanistan State Gas Enterprise (“Afghan Gas”)**

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Ministry of Mines & Petroleum | Afghanistan | Sustainable Development of Natural Resources Project II
Consultancy Services for Improving the Business Environment: Reform of the Afghanistan State Gas Enterprise ("Afghan Gas")



**MINISTRY OF MINES AND PETROLEUM
WORLD BANK
CONSULTANCY SERVICES FOR IMPROVING THE BUSINESS
ENVIRONMENT: REFORM OF THE AFGHANISTAN STATE GAS
ENTERPRISE ("AFGHAN GAS")**

PROPOSAL FOR RESTRUCTURING, DIVESTITURE AND TRANSFER OF ASSETS

PREPARED FOR:

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Abbreviations

bcm	Billion cubic metres
cm OR m ³	cubic metre
m ³ /day	cubic metres per day
Mcm	thousand cubic metres
'000 m ³	thousand cubic metres
mmcm	million cubic metres
tcm	trillion cubic metres
psig	Gauge pressure in pounds per square inch
barg	Gauge pressure in bar
kgf/cm ²	Kilogram-force per square centimetre, Soviet used pressure unit
scm/d	Standard cubic meters per day
H ₂ S	Hydrogen Sulfide
CO ₂	Carbon Dioxide
A/P	Accounts Payables
A/R	Accounts Receivables
Afghan Gas	Afghan Gas Enterprise
APA	Afghanistan Petroleum Authority
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
BRT	Business Receipts Tax
BTU	British Thermal Unit
CAPEX	Capital Expenditure
CCTV	Closed Circuit Television
CGU	Cash Generating Unit
Client	Ministry of Mines and Petroleum
CLLC	Corporations and Limited Liability Company Law
CMD	Cubic metres per day
CP	Cathodic Protection
CSR	Community Service Responsibilities
DfiD	Department of foreign investment and development in UK
DN	Nominal Diameter in mm
EIA	Environmental Impact Assessment
E&E	Exploration and Evaluation
E&P	Exploration and Production
EGR	Enhanced Gas Recovery
EU	European Union

FAR	Fixed Assets Register
FEED	Front end engineering design
GIS	Geographical Information System
GOST	Russian oil and gas industry standards
HP	Horsepower
HR or HRD	Human Resource Department
HSE	Health, Safety and Environment
IOC	International Oil and Gas Company
IFMIS	Integrated Financial Management Information System
IFRS	International Financial Reporting Standard
IMC	Inter-Ministerial Committee
IPIECA	Global Oil and gas industry association for environmental and social issues
IPP	Integrated Power Plant
ITP	Inspection & Test Plan
KPI	Key Performance Indicator
LPG	Liquefied Petroleum Gas
LTO	Large Taxpayer's Office (in Ministry of Finance)
MoF	Ministry of Finance
MoLSMD	Ministry of Labour and Social Affairs
MoMP	Ministry of Mines and Petroleum
NDT	Non Destructive Testing
NFPP	Northern Fertiliser and Power Plant
NOC	National Oil and Gas Company
O&M	Operations & Maintenance
OEM	Original Equipment Manufacturer
OGP	International Association for Oil & Gas Producers
OGIP	Original Gas in Place
OHS	Occupational Health & Safety
OMS	Operating Management System
OPEX	Operating expenditure
P & ID	Process and Instrument Diagram
PFD	Process Flow Diagram
PIP	Project Implementation Plan
PMU	Project Management Unit
PN	Nominal Pressure
PPE	Personal Protective Equipment
PPP	Public Private Partnerships
PRMS	Petroleum Resources Management System



Project	Consultancy Services for Improving the Business Environment: Reform of the Afghanistan State Gas Enterprise ("Afghan Gas")
SCADA	Supervisory Control and Data Acquisition
SOE	State Owned Enterprise
SMYS	Specific Minimum Yield Strength
TAP	Turkmenistan-Afghanistan-Pakistan gas transport pipeline project
TAPI	Turkmenistan-Afghanistan-Pakistan-India gas transport pipeline project
TFBSO	Task Force for Business and Stability Operations
TOR	Terms of Reference
UNICON	UNICON Limited (UK) and their affiliated companies
WB	World Bank
WT	Pipe wall Thickness
Years ¹	Fiscal Year 1388 is the financial year to 31 March 2010 Fiscal Year 1389 is the financial year to 31 March 2011 Fiscal Year 1390 is the financial year to 31 March 2012 Fiscal Year 1391 is the financial year to 31 December 2012 (9 months) Fiscal Year 1392 is the financial year to 31 December 2013

¹ The actual month end dates are usually 21st day in the Hijri calendar, but equate to normal month ends

1 Executive Summary

In considering proposals for the restructure of Afghan Gas based on the assessment undertaken it is imperative that full consideration of all the elements of the business and its potential within a rejuvenated Afghan Gas Sector are considered. In this context, restructure proposals become multi-dimensional where infrastructure projects depend on demand opportunities and financing that often, in-turn depends on supply guarantees. In addition capacity across all elements of business management and technical operations needs significant strengthening that can only be driven by the will to change and the opportunities presented by the market to do so.

UNICON believes that Corporatisation can and should be seen as a key catalyst for the changes needed. However Corporatisation itself is a political decision and a legal process and does not change the business operations. The legal changes and the concepts underpinning a corporatised entity will be important to drive change.

While it is expected that indeed, the corporatisation process will enable some rationalisation of operations and finances, through the selective transfer of assets, liabilities and employment contracts, and thus facilitate an improved organisational and financial structure of the 'new' Afghan Gas Limited company, corporatisation alone does not improve the business, its operational protocols, governance or results.

Thus, it is essential that components of commercialisation, restructure and reform are introduced into the Afghan Gas business as soon as practicable, and it is these initiatives that will have far wider impact on the development of the gas sector overall and the performance of a new Afghan Gas, than the corporatisation legal processes.

While the substance of commercialisation is the introduction of best practice guidelines, modern business systems and processes and the expansive use of technology and the monitoring and management of the business at corporate and individual level based on performance criteria, it is the impact of these elements as they translate into efficiencies, standards and cost-effective activities that provide better business results, that drive change and market development and that achieve returns on the capital investment in the business.

There are many formats or models that support private sector involvement, all of which are popularly and collectively referred to as PPP (public private partnerships) including: Management Contracts, Concessions, Build Operate Transfer (BOT) and similar, Special Purpose Vehicles (SPV), Joint Ventures/Partial Privatisation and Hybrid Schemes.

At present, Afghan Gas is the integrated gas entity and with so much uncertainty and untapped potential in the market it is most likely that Afghan Gas remains an integrated entity while the sector potential is being unravelled, especially through the short to medium term. Eventually with growth and clarity in supply and market opportunities it will be evident that a reformed Afghan Gas will then be better placed to determine its destiny and its best 'fit' in a more competitive and bigger market place. New entrants and new opportunities will permit the sorting out of the future long-term role for Afghan Gas but the immediate future and the corporate

structure to initiate key reforms is the current integrated operation with a limited liability shareholding (a corporatised entity).

Social issues arise in many forms, including environmental issues, community service and regional governance. The most dominant to manage appear to be issues of customer service (quality and price of supply) and employment (job retention and living standards for the extended family network). A consensus will need to be reached, but in principle there is **no** reason that a corporatisation and commercial orientation leading to successful reform, cannot be accomplished and satisfy all social concerns. There are a range of manoeuvres and mechanisms that can be embedded into the reform process, such as laws, regulation, customer contracts and corporate charters that can manage social performance, always with recourse to government monitoring agencies, exercise of ownership rights and recourse through established courts. The fact that the imposition of some social obligations might impede financial performance is not a deterrent to reform or progress, merely a decision made unique to the reform of Afghan Gas, and deemed to be in the best interests of all stakeholders.

One of the main findings of the "Assessment of status of Afghan Gas operations" carried on by UNICON is that the situation of Afghan Gas at the moment is difficult because: Lack of investment; Insecure revenue; Existing gas reserves close to depletion; Lack of access to finance: Without limited liability Afghan Gas cannot effectively use assets as collateral for financial support; Inability to develop the market, among others. Then, a combination of the mentioned issues has led to a state of steady decline at Afghan Gas. The lack of investment or maintenance means that insufficient gas is being delivered to the company's single industrial customer, and poor quality gas being delivered to consumers in Sheberghan. Gas reserves are near depletion and the assets are in a poor condition. The situation has been steadily deteriorating each year and significant change is needed if the business is to be positioned to cope with new initiatives underway within MoMP and the gas sector.

As indicated, the reform of Afghan Gas, regardless of the political decisions about corporatisation, will only proceed effectively if the gas sector develops in a positive, progressive and timely manner. In understanding the relationship between the prospective infrastructure projects that simultaneously impact on the sector and on Afghan Gas the entity, UNICON has attempted to identify relevant assumptions, project needs and priorities, in order to present feasible and sensible options for reform.

According the "External Environment Review/Market" report UNICON identified key projects for the company. The following table presents the name of the project, the estimated natural gas needs in each one per year, if the project is under control of Afghan Gas policies, the actions needed to develop each one, the proposed starting year, the preconditions for the developing and how many years UNICON believes will take the implementation of each one of it.



Projects	Volume (BCM/Year)	Under Control of Afghan Gas?	Actions	Starting Year	Preconditions	Duration
Fertilizer Plant	0.164	Yes	Develop a long term contract and solve debt problems	2021	Results about reserves, financial and several trainings	0.5 years
Industrial and Commercial	0.167	Yes	Once the company have a best understanding about reserves, sell natural gas in advance to private sector in Mazar	2021	Results about reserves, pipeline and processing plant construction, financial and several trainings	2 - 3 years for Pipeline construction
Mazar	0.144	Yes		2022	Consolidate the industrial market in Mazar	New distribution system 2 - 3 years construction
Sheberghan	0.023	Yes	The residential sector can be supplied once the industrial sector generates resources The residential sector can be supplied once the industrial sector generates resources	2023	Consolidate the industrial market in Mazar	As pipeline/distribution system permits
Residential	0.031	Yes		2024	Consolidate the industrial market in Sheberghan	As pipeline/distribution system permits
Mazar	0.007	Yes		2024	Consolidate the industrial market in Sheberghan	As pipeline/distribution system permits
Sheberghan	0.024	Yes				
CNG	0.114	Yes	Discuss with private sector the possibility to open CNG stations in Mazar	2021	Results about reserves, pipeline to Mazar	On- going
Power Generation Sheberghan	0.217	No	Develop capacity building to sign and manage contracts with Power Generation Plants	2021	Develop capacity to instigate project and get donors resources	4 - 5 years before full operation
Power Generation TFBSO	0.035	No	Develop capacity building to sign and manage contracts with Power Generation Plants	2021	Develop capacity to instigate project and get donors resources	2 - 3 years before full operation
Glass Factory	0.037	No	Develop capacity building to sign and manage contracts with this type of industry	2021	Develop capacity to instigate project and get donors resources	2 - 3 years for Pipeline construction
Total	0.765					

Following, what was expressed in previous paragraph the next 2 tables, presents the critical path for Afghan Gas, according the development of each project and; the projected revenues, investment and production required to accomplish this critical path.

Activity	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Priority											
Secure Supply to NFPP in Mazar and Regional Market											
Secure Sheberghan Power Supply											
Sheberghan Distribution Network											
Decommission Obsolete Assets											
Upstream											
Feedback from AEAI project on reserve estimates (Turkish Petroleum)											
Exploration and production activities											
Reserve certification											
Capacity building											
Technical E&P activities											
Safety											
Environmental											
E&P Contract design											
Economic and financial in E&P activities											
Bussines administration in E&P activities											
Processor Plant & Transport											
Capacity building											
Technical - Processing plant operation											
Technical - Pipeline operation											
Pipeline construction to Mazar											
Additional processing plant construction (+1 MM CMD)											
Fertilizer Plant, Distribution Network, Power Plants & Glass Factory											
Solve debt problems with Fertilizer Plant											
Improve distribution network in Sheberghan											
Capacity building											
Contract design to supply natural gas to city networks											
Economic & financial of gas network distributions											
Technical - Construction & operation gas distribution networks											
Safety											
Environmental											
Develop contracts with Industrial sector in Mazar											
Develop contracts with Fertilizer Plant											
Distribution network construction in Mazar											
Additional distribution network construction in Sheberghan											
Supply											
Industrial & Commercial sectors in Mazar											
Industrial & Commercial sectors in Sheberghan											
Residential sector in Mazar											
Residential sector Sheberghan											
Power generation Sheberghan											
Power generation Mazar											
Glass factory and CNG											



Activity	Unit	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenues at Delivery Point	MM US\$	5.5	5.5	5.5	5.5	5.5	5.5	24.5	33.8	42.6	45.1	47.7
Fertilizer Plant	MM US\$	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Mazar Distribution Network	MM US\$	-	-	-	-	-	-	1.1	3.0	5.1	7.2	9.5
Sheberghan Distribution Network	MM US\$	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.7	1.0	1.4
Power Plant Sheberghan	MM US\$	-	-	-	-	-	-	13.0	19.6	26.1	26.1	26.1
Power Plant Mazar	MM US\$	-	-	-	-	-	-	4.2	4.2	4.2	4.2	4.2
Glass Factory	MM US\$	-	-	-	-	-	-	0.7	1.5	1.5	1.5	1.5
Investment Required	MM US\$	1.0	1.0	1.0	1.0	23.6	54.5	31.7	2.2	3.0	4.1	5.6
Capacity Building Program	MM US\$	1.0	1.0	1.0	1.0	1.0	1.0	-	-	-	-	-
Additional Processing Plant Construction (1)	MM US\$	-	-	-	-	-	30.1	30.1	-	-	-	-
Pipeline to Mazar (2)	MM US\$	-	-	-	-	20.0	20.0	-	-	-	-	-
Distribution Network Mazar	MM US\$	-	-	-	-	2.6	1.4	0.7	1.0	1.6	2.4	3.6
Additional Distribution Network Sheberghan	MM US\$	-	-	-	-	-	2.1	1.0	1.1	1.4	1.7	2.0
Estimated Production	MM CFD	12.6	12.6	12.6	12.6	12.6	12.6	29.5	38.7	46.0	48.3	50.7
Fertilizer Plant	MM CFD	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
Mazar Distribution Network	MM CFD	-	-	-	-	-	-	1.2	3.0	4.9	6.9	8.9
Sheberghan Distribution Network	MM CFD	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.7	1.0	1.4
Power Plant Sheberghan	MM CFD	-	-	-	-	-	-	10.5	15.8	21.1	21.1	21.1
Power Plant Mazar	MM CFD	-	-	-	-	-	-	3.4	3.4	3.4	3.4	3.4
Glass Factory	MM CFD	-	-	-	-	-	-	1.8	3.5	3.5	3.5	3.5

(1) Factor applied US\$ 1.7 MM per MMCF. Plant 100 MM CF capacity

It's evident that all the projects allow different values for Afghan Gas, it means, some of them consume a great amount of volume at a reasonable price (Power Generation in Sheberghan and the Industrial sector in Mazar); others requires good enough amount of natural gas but prices are lower (Fertilizer Plant) and others consume low volumes at low prices (Sheberghan distribution network, glass factory, for example). But even if a project is small, also can generate some value for the company. In that sense, the challenge is to create a reasonable schedule to develop this projects. However, one thing is clear: the necessity to start activities in 2015 to reach goals in 2020.

2 Introduction

2.1 BACKGROUND

UNICON Ltd (UK) was engaged by the Ministry of Mines and Petroleum to undertake the World Bank funded project "Improving the Business Environment: Reform of the Afghanistan State Gas Enterprise ("Afghan Gas)". Specifically this requires a plan for the corporatisation of Afghan Gas. UNICON mobilised in December 2013 and submitted an Inception Report in January 2014 that provided an updated work plan indicating the required tasks and deliverables.

Project progress has been in line with the agreed work plan and the early tasks to review previous sector analysis, consultations in relation to current sector activity, review of institutional arrangements with oversight for the sector and a comprehensive analysis of the status of Afghan Gas operations, have all contributed to initial thinking in relation to the way forward.

This report relates to the fourth formal project deliverable "Proposal for restructuring, divestiture and transfer of assets" and responds to work undertaken broadly via task 5 of the detailed terms of reference for this project and also informed by all prior activities under tasks 2, 3, and 4 as well as the early thinking related to task 6 activity. Essentially this report details UNICON assessment of viable options to proceed with the Corporatisation and Commercialisation of Afghan Gas. This report is structured as follows:

- Introduction;
- Corporatisation and Commercialisation;
- What needs to be restructured?;
- High-level Organisational structures;
- Projects & Priorities to implement reform;
- Conclusions on the restructure of Afghan Gas.

UNICON has consulted with other stakeholders, both within government and MoMP as well as other donors and advisers involved in the Afghanistan Gas Sector.

In considering proposals for the restructure of Afghan Gas based on the assessment undertaken it is imperative that full consideration of all the elements of the business and its potential within a rejuvenated Afghan Gas Sector are considered. In this context, restructure proposals become multi-dimensional where infrastructure projects depend on demand opportunities and financing that often, in-turn depends on supply guarantees. In addition capacity across all elements of business management and technical operations needs significant strengthening that can only be driven by the will to change and the opportunities presented by the market to do so.

Thus while this analysis does consider the high-level corporate and organisational structures that will be needed to drive the business, it also analyses options at a specific level, on a project-by-project basis.

Juggling the dynamics of inputs that are required to reform this business and the various inter-dependencies is a tough challenge. It is clear that specific interventions will be needed if positive and sustainable change is to emerge at Afghan Gas.

UNICON believes that Corporatisation can and should be seen as a key catalyst for the changes needed. However Corporatisation itself is a political decision and a legal process and does not change the business operations. The legal changes and the concepts underpinning a corporatised entity will be important to drive change.

If however, the corporatisation process is delayed and remains stuck in the political arena, then reform towards a commercial entity should proceed with haste. In this scenario, it is likely that at some future time, progress will be stifled without corporatisation as financing and investment options will be constrained without the relative freedoms of decision-making independence, the ability to pledge assets and potential to trade shares².

At the kick-off meeting in December 2013, the Director General of the Afghanistan Petroleum Authority, Ministry of Mines and Petroleum, set out his vision for Afghan Gas and this project as "To prepare Afghan Gas for corporatisation" and "To become the national gas distribution company and also the National Oil and Gas Company (NOC), working in partnership with International Oil Companies (IOCs) and Independents"

It was agreed the process of corporatisation should include efforts to implement commercial strategies and business structures to support independent "arm's length" operations, improved service delivery and fiscal and functional sustainability. This equates to a vision for Afghan Gas to become a "modern, gas business adopting recognised international standards".

This Report aims to set out strategic alternatives for the company and generate a number of options on how to implement commercialisation. These alternatives aim to respond to the existing capacity at Afghan Gas, the prospects for investment and growth in the context of market size and potential and the objectives of MoMP and Afghan Gas.

² A briefing note 'The Case for Corporatisation' was delivered and used by APA to present to the IMC in May. This note explains the benefits of corporatisation and is summarised in the Assessment Report.

3 Corporatisation and Commercialisation

3.1 WHAT IS IT?

Corporatisation is essentially the legal processes that result in the dissolution of the current Afghan Gas entity – a state owned entity, operating by separate charter as a directorate of the Ministry of Mines and Petroleum – and the establishment / registration of a new limited liability company with a shareholding (all shares held by nominated legal persons on behalf of the State).

In Afghanistan the legal processes are complex and are documented and discussed in the Assessment of Afghan Gas Report, as issued by UNICON in August 2014.

Prima Facie, corporatisation only alters the legal status of Afghan Gas. While the process permits and facilitates the legal transfer of assets and liabilities and the contracts of employees, and within the process allows for some assets and liabilities of the existing Afghan Gas to be retained by Government and some contracts of employment to be retained by Government, it remains theoretically possible that all of the existing operations, assets, liabilities and employees could be transferred to the new entity at the same cost and conditions. In other words, the corporatisation process, of itself may not alter the appearance (financial and operational) of Afghan Gas. Corporatisation will not fix problems.

While it is expected that indeed, the corporatisation process will enable some rationalisation of operations and finances, through the selective transfer of assets, liabilities and employment contracts, and thus facilitate an improved organisational and financial structure of the 'new' Afghan Gas Limited company, corporatisation alone does not improve the business, its operational protocols, governance or results.

Thus, it is essential that components of commercialisation, restructure and reform are introduced into the Afghan Gas business as soon as practicable, and it is these initiatives that will have far wider impact on the development of the gas sector overall and the performance of a new Afghan Gas, than the corporatisation legal processes.

While the substance of commercialisation is the introduction of best practice guidelines, modern business systems and processes and the expansive use of technology and the monitoring and management of the business at corporate and individual level based on performance criteria, it is the impact of these elements as they translate into efficiencies, standards and cost-effective activities that provide better business results, that drive change and market development and that achieve returns on the capital investment in the business.

This is the principle of commercialisation: to add-value through measurable returns on the capital deployed.

Regardless of the type of gas sector operating entity that Afghan Gas may become (as discussed in section 5) and regardless of the options and strategies to achieving such an entity, the principles of commercialisation should be evident throughout.

The vision and selected strategy for the company may impact elements of the corporatisation. For example a focus on downstream distribution only will influence the assets to be retained and the financial structure required. A strategy to expand the national gas network or to expand into upstream activities will influence the types of investment needed and these variables are discussed in later sections of this Report that consider different options.

3.2 THE KEY ISSUES

While much discussion related to corporatisation and commercialisation focus' on matters of financial return, profitability and adding value, the Government of Afghanistan, as expressed in discussion with various officials, is rightly concerned about social and political elements as well.

Apart from a program of social mitigation, to manage transitional arrangements for employees, other aspects of social concerns include:

- Protection for Customers (especially residential customers) who have no formal recourse to courts but need to understand service and supply criteria and a sense of 'affordable prices' when a corporatised Afghan Gas is deemed to be non-government;
- While pricing issues are essential for maintaining a social equilibrium among customers, the issue of payments and collections is equally necessary. Evidence suggests that historic collection rates are low and due to political pressure supply often continues. Achieving the commercial balance between effective supply (volume and price) and collection of tariffs is essential;
- Protection is also about continuity of service, maintenance of pipelines and distribution networks when people depend on gas for heating and cooking. Who will 'listen' to customer complaints?;
- The arrangements for the 9003 employees involved in the MoMP Oil and Gas Survey & Exploration Directorate managing exploration. Where does this fit with a reformed upstream Afghan Gas? Even if Afghan Gas does engage in exploration activity in the future, they will surely not engage anywhere near this number of staff and another social mitigation issue arises for MoMP;
- With regard to NFPP that is an essential customer to Afghan Gas at present. NFPP has recovered its business after some years of decline and has strong prospects for growth, supplying 35% of Afghanistan's fertilizer needs. However, import substitution remains viable and thus the inter-dependence of Afghan Gas and NFPP is fragile and probably

³ Estimated number arising in general discussion with MoMP officials

unsustainable in its present form. Both entities need growth, commercial operations and competitive choices in supply and demand;

- Another concern raised is the long-term potential in a vibrant gas sector with an abundance of reserves for a reformed Afghan Gas company to become a substantial monopoly operation, perhaps too big for government to manage.

Various initiatives need to occur to address these matters, at which the strengthening of government institutions is central.

Additional concerns raised relate to the corporatisation process itself:

- If Cabinet reject Corporatisation, then as indicated, it is important to proceed with commercial reforms, but eventually the corporate structure will inhibit development and stifle investment. Ultimately corporatisation needs to be implemented and is best undertaken soon rather than later;
- The liquidation process that is a key feature of Afghanistan law corporatisation is slow and raises concern for the potential to steal assets.

Thus it is important that the distinctions between the corporatisation process and the need for commercial reform are understood and ideally that they proceed hand-in-hand. Regardless of the political authorisations needed for corporatisation and the time span involved, it is imperative that commercial reform of Afghan Gas is allowed to continue unencumbered.

4 What needs to be restructured?

The easy response to 'What needs to be restructured?' is 'Everything about the Business'.

The Assessment Report highlights the existing weaknesses prevalent across the elements of organisational structure, job design, capacity and business processes, financial management, asset maintenance and management, health, safety, security and environment and general operations management.

The Assessment Report did not conclude that it was all bad, only that the magnitude of the task to transform the existing Afghan Gas operations to a "modern, gas business adopting recognised international standards" is a significant undertaking.

Therefore all efforts towards reform, big steps as well as small ones, need to have positive influence and to advance the business in the direction of the overall aim of the reform to become a "**modern, gas business adopting recognised international standards**"

So all elements of the business need to be restructured and in practice this will be most effective in a programmed project-based manner, whereby business processes and skills and capacity building evolve simultaneously and in harmony with new investments and new infrastructure and technical developments.

4.1 ISSUES AND CHALLENGES IN REFORM

Many of the key issues and challenges in corporatisation and reform of Afghan Gas were presented in the paper "The Case for Corporatisation", delivered in April 2014. The main issues, in so far as they impact on options for restructure are considered here.

- Maintaining reform momentum that has already commenced with the initiatives of the TFBSO and USAID work, this project and current activity inviting exploration contracts for new field discovery. Such momentum is often subject to a changing political environment;
- Limited resources are available in terms of money, people skills and proven commercial opportunities;
- There is always work and effort in making change and the likelihood of some discomfort and concern if employees and other stakeholders consider themselves likely to be disadvantaged. An effective internal and external communication strategy is recommended and can mitigate such concerns. This of course adds to the cost of the process;
- The need for an effective regulatory environment, via a regulator, division of MoMP, ombudsman or similar and proper monitoring establishment highlight the need for change at the Ministry as well as Afghan Gas Enterprise. Again there is an initial cost of

change factor. Ultimately, once established an effective regulatory and monitoring environment will benefit Afghan Gas and the gas sector;

- The security concerns generally prohibit effective feasibility and analysis of projects and disrupt existing initiatives. There is an argument to 'wait and see' if security improves and a more stable environment generally assists in making change. Equally, a reformed, better-managed Afghan Gas will be even stronger to leverage from opportunities that will arise once the security situation eases.

In summary, the major problems facing Afghan Gas are:

- **Lack of investment:** No investment has been made into the operations or business systems of Afghan Gas in recent times⁴,
- **Insecure revenue:** The revenue source is insecure due to reliance on one major customer, the Kud Burq Fertiliser Plant (NFPP) itself an enterprise with a history of payment default and which may also be undergoing significant reforms,
- **Existing gas reserves close to depletion:** The existing gas reserves used by Afghan Gas may be close to depletion⁵. Without significant investment in new gas fields, within a few years Afghan gas production will reduce to the point at which it will be unable to supply customers,
- **Lack of access to finance:** Without limited liability Afghan Gas cannot effectively use assets as collateral for financial support,
- **Inability to develop the market:** Due to lack of finance and lack of investment in people and business processes, Afghan Gas has been unable to develop new markets for gas. Instead Afghan Gas has seen a steady decline in sales over many years,
- **Lack of skills:** There is a lack of skills at various levels, particularly of modern utility management skills, also of some key gas engineering areas (such as safety or standards). There are without doubt many very capable and skilled people within Afghan Gas but due to lack of investment and incentive, they have not had the opportunity to develop their skills and deliver an effective or efficient operation,
- **Overstaffing:** There is evidence of overstaffing where employee numbers have not adjusted to the decline in business operations. Generally workers with little to do demoralise those who do work and who are trying to work effectively,

⁴ Except for the contributions from the TFBSO project

⁵ UNICON, Reform of Afghan Gas, February 2014, Task 1: Literature review and consultations

- **Ministry involvement:** The MoMP is involved in many details of the operations of Afghan Gas. Afghan Gas management are not authorised to take decisions that are usually the responsibility of executive management in an efficient commercial business. Ministry involvement may also lead to some decisions being made for non-operational or non-commercial reasons;
- **Steady decline:** A combination of the above-mentioned issues has led to a state of steady decline at Afghan Gas. The lack of investment or maintenance means that insufficient gas is being delivered to the company's single industrial customer, and poor quality gas being delivered to consumers in Sheberghan. Gas reserves are near depletion and the assets are in a poor condition. The situation has been steadily deteriorating each year and significant change is needed if the business is to be positioned to cope with new initiatives underway within MoMP and the gas sector.

In addition there is a strong sentiment in Afghanistan that social motives must be a priority without stifling financial sustainability.

Social issues arise in many forms, including environmental issues, community service and regional governance. The most dominant to manage appear to be issues of customer service (quality and price of supply) and employment (job retention and living standards for the extended family network).

A consensus will need to be reached, but in principle there is **no** reason that a corporatisation and commercial orientation leading to successful reform, cannot be accomplished and satisfy all social concerns. There are a range of manoeuvres and mechanisms that can be embedded into the reform process, such as laws, regulation, customer contracts and corporate charters that can manage social performance, always with recourse to government monitoring agencies, exercise of ownership rights and recourse through established courts. The fact that the imposition of some social obligations might impede financial performance is not a deterrent to reform or progress, merely a decision made unique to the reform of Afghan Gas, and deemed to be in the best interests of all stakeholders.

An effective social mitigation plan⁶ is an essential output of the reform process.

Some consultants consider that Afghan Gas is no longer a viable entity in its current state⁷. There is risk therefore, that new developments in Gas basins and exploration will be under-utilised, that continued supply to the major customer, NFPP, will be threatened and that without significant reform, further donor and sector support will diminish.

⁶ A full social mitigation plan is deliverable No. 12 of this project

⁷ For example, Hill International, Evaluation of investment options for the development of oil and gas infrastructure in Afghanistan, March 2005

A full SWOT analysis is most likely to be a part of the proposed three-year business plan⁸ that will be developed. Suffice to comment that in its current situation there are few commercial strengths in evidence and the opportunities that have been mentioned are still to be proven.

4.2 ADVANTAGES OF REFORM

The key advantages of proceeding with reform were also detailed in the paper 'The Case for Corporatisation' and these advantages are summarised as:

- A restructured balance sheet should provide the platform from which commercial contracts can be negotiated with international suppliers for service support and international partners for infrastructure and development;
- A restructured balance sheet will also provide opportunities to secure independent external financing;
- With independence and credibility re-established, a reformed Afghan Gas can represent the Government on sector development initiatives;
- The introduction of recognisable corporate governance protocols will enhance Afghan Gas reputation in dealing with investors and financiers and open opportunities for PPP transactions;
- Development and capacity building increases overall demand within the community and encourages education and a higher level of skills attainment. New technologies and outsourcing non-core operations provides new opportunities for small business and private participation as well as scope for existing employees to engage in contractor service provision;
- Given the decline in business performance overall change and reform is needed. The 'status quo' option is not sustainable and the sooner reform mechanisms are identified the easier to implement and cheaper relative to the 'wait and see' alternative – costs rise, opportunities erode, political will mitigates;
- Public accountability, especially for a major business in the community in Sheberghan should be higher as a corporate and commercial entity. Provided support mechanisms, including institutions for recourse from consumers, are available a restructured Afghan Gas should be able to be a more proactive and capable community entity. The provision of community services should then be offered as a part of the CSR obligations of the business rather than response to public policy;

⁸ A business plan is deliverable No. 7 for this project

- A reformed and corporatised Afghan Gas will be viewed more favourably by potential competitors in upstream or downstream operations, than would a major market participant being a government agency.

Any significant reform and investment in Afghan Gas must be underpinned by the commercial reality of a sufficient and sustainable revenue base. It may be that short-term some guarantees are required to support this and/or to justify reform of Afghan Gas.

4.3 ESSENTIAL FEATURES OF A MODERN GAS BUSINESS

The guiding principle of corporatisation and commercial reform is the intent to capture the advantages of a privately run company – including efficiency, productivity and financial sustainability – while retaining government accountability⁹.

This means that a reformed Afghan Gas should embrace the following features and characteristics:

- Sound corporate governance
 - A policy statement makes transparent the government's intention to conform to its specified role and to delegate responsibilities to the level appropriate to the governance framework. Application of an effective Code of Corporate is desirable.
 - Relationships between the owners and the SOE can be established by a **contractual document(s)** such as a license, a performance agreement or a shareholders agreement. Such documents can help establish the channels of accountability and the degree of autonomy.
 - A Board is appointed to ensure the long-term value and sustainability of the company. To be most effective, the Board members have to be qualified and represent independent decision-making. Different Board structures are possible with differing degrees of independence.
 - Create a system of personnel incentives to support corporate objectives, aligned to sector policy, that are embedded in a trusted structure of performance-based pay
- Modern financial management and accounting practices

⁹ Good Practices in Public Water Utility Corporatization, USAID, Nov 2006

- The business identifies customer revenue generated through core services as a key source of financing (rather than, for instance, government transfers) and treats consumers and customer accounts accordingly.
- A transparent and equitable mechanism for tariff/price setting is established, appropriate to the overall business, investment and financing plans
- Financial controls are established and managed through the Board and external (independent) audit processes
- Provision of publicly available financial information compliant with international standards
- Evaluation of the business commensurate with the way a privately-owned entity would be evaluated
- New projects and investments subject to transparent process, probity and commercial assessment
- Non-commercial activity properly identified, managed and financed
- Use of technology to embrace best practice business processes
 - Effective business planning, properly deployed from corporate level cascading through each division, department and leading to relevant individual job goals
 - Introduction of modern technologies in operations
 - Evolution of best practice and international standards and guidelines in operations, financial management, HR processes with health, safety and environment as key corporate objectives
- Customer orientation
 - Develop formal customer contracts or statements of service obligations
 - Develop techniques and mechanisms to encourage and facilitate bill paying and customer outreach
 - Customer satisfaction is measured and evaluated. Satisfaction is seen as important to maintaining a positive revenue stream even when there is limited competition.
- Effective and transparent use of data to assess and monitor performance

- A published framework for setting and measuring achievement against government objectives establishes public credibility, confidence and accountability
- Introduction of reporting regimes that require disclosure in the public domain
- Measurement of financial and non-financial indicators and comparison with other companies and industry benchmarks.

These characteristics of a “modern, gas business adopting recognised international standards” will take some time to accomplish and much of the later sections of this Report outline the options and suggested priorities for developing these characteristics in a practical and sustainable manner.

5 High-level Corporate Structures

5.1 INTRODUCTION

This section aims to identify the main corporate and organisational structures that are most suited to assist the business in undertaking reform and in emerging as a key player in the development of the Afghan Gas Sector.

It should be understood that many of the fundamentals of the restructure necessary including but not limited to developing business processes, developing financial management capability and systems, improving technical know-how and operating standards and managing performance, will appear in all relevant proposals for reform.

Indeed the nature of the challenges and the relationships that underpin the required changes and developments are such that save for extreme measures, it is unlikely that any one revised corporate structure or model will emerge, most likely that a series of ‘lower-level’ project based initiatives supported by capacity building and business process developments, will lead to a ‘new look’ Afghan Gas over a period of time.

5.2 EXTREME MEASURES

It is of course possible to attempt to privatise Afghan Gas as it is currently placed. Such an undertaking may attract a risk-taking investor who is prepared to commit and then negotiate for market development concessions. However, it is unlikely that real value will be exchanged on sale; it is unlikely that social mitigation measures will be optimal and even then it only seems feasible if attractive exploration and licensing arrangements, including export options, are available to the investor.

It is also feasible to secure sufficient funds to undertake sweeping changes all at once, under the direction of an appointed Board. But what is the likelihood of securing risk free funding for

this express purpose? And how much is needed and by when to make such transformational change within a short time?

Extreme measures may seem attractive but the many political and social ramifications means that they are unlikely to proceed and if so, to succeed. Therefore, the options and recommendations presented in this Report focus on more structured incremental changes over time that aim to match demand opportunities with infrastructure and supply developments and with human capacity growth.

Nevertheless, **time is of the essence** and the dynamism of the global gas industry, the potential emerging in Afghanistan and the needs of Afghan Gas¹⁰, all point towards the fact that reform should move as fast as capacity (the combination of demand, supply, financing and human capability) will permit.

5.3 MECHANISMS FOR REFORM

There are a range of alternatives that fall within the gambit of 'corporate restructuring' and mostly these aims to expedite the input of business know-how, technology, people skills, assets and investment into the business.

The Government as owner of Afghan Gas, through its management protocols, has neglected to invest and to promote the introduction of new modern technologies, to develop markets and business systems and these combined have led to a significant decline in fortunes as detailed in section 4.1.

Government does not need to own Afghan Gas, but has determined that it should remain owner but to encourage greater autonomy and independence through the Corporatisation process. This paves the way to reform and modern commercial strategies and this requires the combination of:

- Money and investment in assets,
- Capacity in new skills and development of technological know-how in operations and business processes,
- Government support through political commitment to reform and through effective regulation and policy by strengthening legal instruments and supporting institutions, and
- Time and continued commitment to the above during the period of transition.

¹⁰ The uncertainty of current gas reserves and the uncertainties around potential new field and well production puts great immediate stresses on supply and therefore business continuity

To introduce money and gain capacity it is necessary to look at private sector participation to some extent. Some funds can be contributed by Government and by donors, but this has failed to spark reform in the past. However, current momentum and commitment is strong and both Government and its donor partners will remain an important stakeholder in the reform initiative.

The role of private sector will also be very important and may well increase over time. The private sector will be needed to contribute the initial capacity and some funds so that business critical technologies and processes can be introduced.

There are many formats or models that support private sector involvement, all of which are popularly and collectively referred to as PPP (public private partnerships) including:

- Management Contracts
- Concessions
- Build Operate Transfer (BOT) and similar
- Special Purpose Vehicles (SPV)
- Joint Ventures / Partial Privatisation
- Hybrid Schemes

It is widely considered that a successful PPP is likely to demonstrate most or all of the following features within the operating environment¹¹:

- Political commitment (continuity of policy)
- Enabling legislation (concession laws, tax anomalies)
- Expertise (capacity building in both sectors)
- Project prioritisation (focus to improve success rates)
- Deal flow and standardisation (regularity of deals based on standard contracts)

¹¹ ADB PPP Structures, January 2007

A key mechanism in any PPP arrangement is to incentivise on-going performance and improvement throughout the contract period. Benchmarking and other strategies can be useful tools to assist in reaching agreement for suitable payment mechanisms.

Each PPP option implies varying levels of responsibility and risk to be assumed by the private operator, together with differences in structures and contract forms. Increasingly, contracts are becoming hybrids, adopting features of several recognised models in one contract to reflect the best local requirements.

5.4 MANAGEMENT CONTRACTS

A Management Contract¹² is an arrangement under which operational control of an enterprise is vested by contract in a separate entity, which performs the necessary managerial functions in return for a fee.

Management contracts involve not just selling a method of doing things (as with franchising or leasing) but involve actually doing them. A management contract can involve a wide range of functions, such as technical operation of a production facility, management of personnel, accounting, marketing services and training.

Generally a management contract is distinguished from a service contract by the scope of services required. Service contracts, by far the most common form of private participation, are based on supply and service agreements for particular services such as metering, billing, maintenance etc. These are often competitive and intense supply arrangements. Management contracts usually involve more services and oversight with management of the whole entity and are thus more complex in nature, fixed and performance related in reward and usually a one-off arrangement.

Usually the process involves the owner to tender for a competent entity and to negotiate an agreement between the owners of the business (or a project) and the selected entity (a management company) that is hired for coordinating and overseeing the contract. The contract will spell out the conditions and duration of the agreement and the method of computing the management fees.

One variation of the Management Contract¹³ is an Affermage or lease contract that does not involve any sale of assets, but enables the entire financial risk of operations and maintenance to be borne by the leasing contractor.

Where there is limited certainty around the market potential, for example, where the focus of reform is on business production methodologies, build and transfer of infrastructure or

¹² Definition - Wikipedia

¹³ ADB Public Private Partnership Handbook, Klaus Felsing et al

implementation of new standards in environmental management, HSE or generally a short-term project oriented contract, then a contractor mitigates risk through a fixed fee structure (or combination of fixed and performance-related fee).

This ensures that the burden of risk rests with the project owner and the contractor is akin to a supplier of services, although as stated various performance-based incentives can be negotiated into the contract.

5.5 CONCESSIONS

A 'Concession contract' (sometimes called a concession agreement) is a contractual right to carry on a certain kind of business or activity in an area, such as to explore or develop its natural resources. Importantly, the operator is now responsible for all capital investment.

Concessions¹⁴ usually relate to situations where there is incentive in the agreement for the contractor to find, develop and thus sell resources or to market in a proven consumer environment. In these circumstances, contractors take risks proportionate to their assessment of the reward potential. The reward opportunity (i.e. the right to sell resources if found) must be very clear in the agreement.

While some exploration opportunities may fall within the bounds of concession contracts, most of the influx of skills and technologies required for Afghan Gas are most likely to fall into the management contract style format. It is true that Government, in affiliation with development partners may be able to mitigate the long-run costs of this, but a key challenge now is managing and driving the reform initiative and usually that requires Government assuming risk, rather than just responding to donor opportunity.

Assets revert to the owner at the end of the concession period, including assets purchased by the operator. In a concession the operator typically obtains its revenues directly from the consumer and so it has a direct relationship with the consumer. A concession covers an entire infrastructure system (so may include the operator taking over existing assets as well as building and operating new assets).

A concession gives a private operator responsibility not only for operation and maintenance of the assets but also for financing and managing all required investment. The operator takes risk for the condition of the assets and for investment. A concession may be granted in relation to existing assets, an existing utility, or for extensive rehabilitation and extension of an existing asset (although often new build projects are called concessions).

A concession is typically for a period of 25 to 30 years (i.e., long enough at least to fully amortise major initial investments).

¹⁴ Explanation adapted from various sources, including various papers and articles on the internet

Unlike most management contracts, concessions are focused on outputs - i.e., the delivery of a service in accordance with performance standards. There is less focus on inputs - i.e., the service provider is left to determine how to achieve agreed performance standards, although there may be some requirements regarding frequency of asset renewal and consultation with the awarding authority or regulator on such key elements as maintenance and renewal of assets, increase in capacity and asset replacement towards the end of the concession term.

5.6 BUILD OPERATE TRANSFER AND SIMILAR ARRANGEMENTS

Build, Operate and Transfer (BOT) and similar arrangements are a kind of specialised concession in which a private firm or consortium finances and develops a new infrastructure project or a major component according to performance standards set by the government.

Concessions often relate to the developments of and operation of existing systems, as with Afghan Gas facilities, whereas BOT arrangements are more commonly associated with new 'greenfield' investments.

There are many variations on the basic BOT structure including build-transfer-operate (BTO) where the transfer to the public owner takes place at the conclusion of construction rather than the end of the contract and build-own-operate (BOO) where the developer constructs and operates the facility without transferring ownership to the public sector. Under a design-build-operate (DBO) contract, ownership is never in private hands. Instead, a single contract is let out for design, construction, and operation of the infrastructure project.

The questions of ownership and the timing of the transfer are generally determined by local law and financing conditions, and the number of possible permutations is large.

With the design-build-finance-operate (DBFO) approach, the responsibilities for designing, building, financing, and operating are bundled together and transferred to private sector partners. DBFO arrangements vary greatly in terms of the degree of financial responsibility that is transferred to the private partner.

BOT style contracts are most typically used to develop discrete assets rather than a whole network and the project company usually obtains revenues through the fees charged to the utility enterprise (Afghan Gas) or the government rather than tariffs charged to the consumer.

BOT is the classic tool for project finance. As it relates to new build, there is no revenue stream from the outset. Lenders are therefore anxious to ensure that project assets are ring-fenced within the operating project company and that all risks associated with the project are assumed and rest with the appropriate owner or Government entity, through guarantees or similar. The operator is therefore usually a special purpose vehicle. Sometimes the operator, owner entity

and major financier can all be Government owned entities¹⁵ and the issues of private expertise in due process and business risk become blurred among many contending issues.

The revenues are often obtained from a single "off-take purchaser" such as a utility or government, who purchases project output from the project company (this is different from a pure concession where output is sold directly to consumers and end users). In the power sector, this will take the form of a Power Purchase Agreement.

5.7 SPECIAL PURPOSE VEHICLE (SPV)

In the Literature Review Report, UNICON noted that a possible reason for the lack of uptake of projects following various studies is because a separate SPV was not available to take the projects forward. Government change, inertia and lack of capacity prevented follow through on viable beneficial projects.

It is possible that Afghan Gas can fulfil the role of an SPV to ensure that the IPP and/or similar important projects reach fruition. Other than Afghan Gas, a separate entity could be created and financed, and will then need to contract with Afghan Gas to engage people and assets, as required. This would be the only manner in which capacity could be extended to Afghan Gas as is necessary for future developments.

So a possible function for Afghan Gas is to recruit expertise and then take responsibility to project-manage key infrastructure developments, building capacity and as a platform for reform of Afghan Gas in the process.

As a special purpose vehicle a project Management Company may have shareholders that include companies with construction and/or operation experience, and with input supply and off-take purchase capabilities. It is also essential to include shareholders with experience in the management of the appropriate type of projects, such as working with diverse and multicultural partners, given the particular risks specific to these aspects of a BOT project. The off-take purchaser/ utility will be anxious to ensure that the key shareholders remain in the project company for a period of time as the project is likely to have been awarded to it on the basis of their expertise and financial stability.

The Project Company will co-ordinate the construction and operation of the project in accordance with the requirements of the concession agreement. The off-taker will want to know the identity of any construction sub-contractor and the operator.

The project company (and the lenders) in a power project will be anxious to ensure it has a secure affordable source of fuel. It will often enter into a bulk supply agreement for fuel, and the

¹⁵ Some former Communist states display this pattern

supplier may be the same entity as the power purchaser under the Power Purchase Agreement, namely the state power company.

The revenues generated from the operation phase are intended to cover operating costs, maintenance, repayment of debt principal (which represents a significant portion of development and construction costs), financing costs (including interest and fees), and a return for the shareholders of the special purpose company.

Lenders provide non-recourse or limited recourse financing and will, therefore, bear any residual risk along with the project company and its shareholders.

5.8 JOINT VENTURE / PARTIAL PRIVATISATION

Joint ventures are alternatives to full privatisation in which the infrastructure is co-owned and operated by the public sector and private operators.

Under a joint venture, the public and private sector partners can either form a new company or assume joint ownership of an existing company through a sale of shares to one or several private investors. The company may also be listed on the stock exchange.

A key requirement of this structure is good corporate governance, in particular the ability of the company to maintain independence from the government. This is important because the government is both part owner and regulator, and officials may be tempted to meddle in the company's business to achieve political goals. From its position as shareholder, however, the government has an interest in the profitability and sustainability of the company and can work to smooth political hurdles.

The private partner assumes the operational role and a board of directors generally reflects the shareholding composition or expert representation.

In Afghanistan Government has indicated that Afghan Gas should remain a 100% owned Government entity. In these circumstances there is no room for partial privatisation.

However, by selling a proportion of the ownership shares a private partner with expertise can leverage existing operations and opportunities and introduce standards and best practice changes quicker than could otherwise evolve. Depending on the proportion of ownership, which party has the majority voting rights and of course on the accepted market potential, a partial privatisation can often be a mechanism to share the risk (and rewards) in the resource sector.

5.9 HYBRID SCHEMES

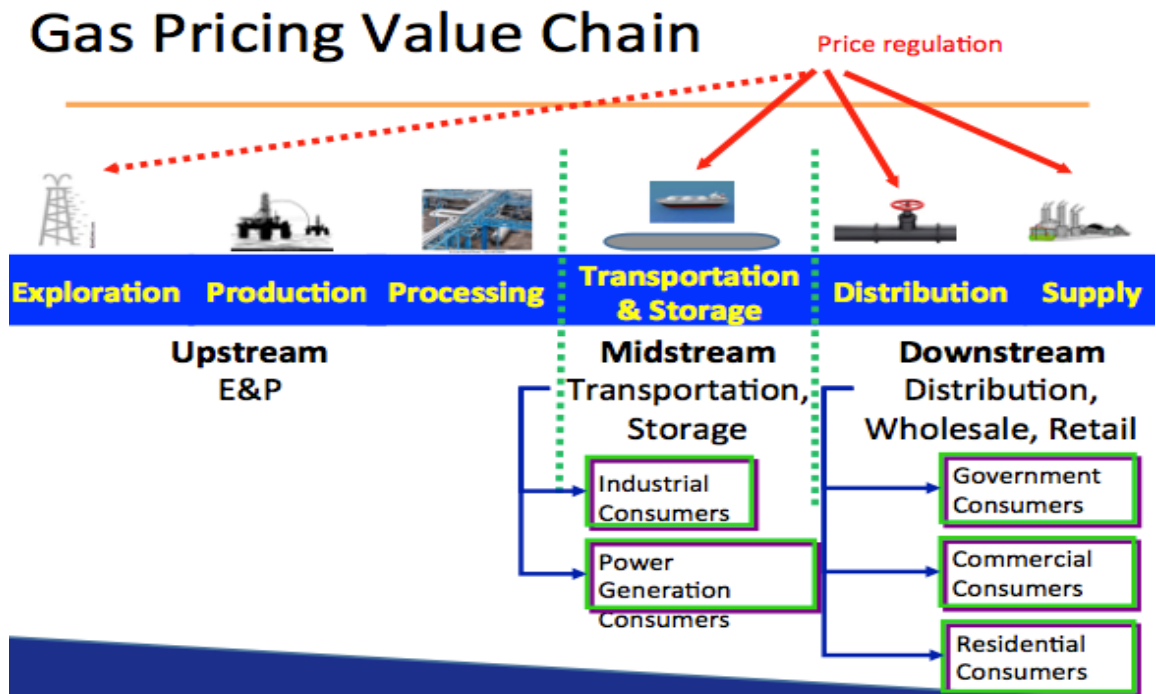
Contract arrangements that incorporate different characteristics of a range of contract types can also be developed. Called "hybrid arrangements", these bring together the attributes most suitable to a particular project's requirements and the operating conditions. Hybrid arrangements provide a tailored solution in terms of scope, risk sharing, and/or scope that is most directly suitable to the project at hand.

An example is a “management contract plus” arrangement, in which the performance-related element of the management contract is substantial enough to transfer real risk. For instance, the payment of bonuses to the management contractor might be linked to achievement to increases in the operating cash flow of the utility by a predetermined amount. To achieve the bonus (if sufficiently large), the contractor may put additional inputs at risk to achieve the cash flow outputs.

An “affermage–lease plus” arrangement has the ability to share responsibility for investments. Under a standard affermage/lease, the contracting authority retains full responsibility for undertaking and financing new investment even though the operator may be in a better position to manage new construction and some other investment obligations. In some cases, the operator is given a limited investment responsibility, such as extension of network service coverage in certain areas. Alternatively, the operator and contracting authority may reach an agreement to co-finance investments.

5.10 WHAT TYPE OF BUSINESS WILL AFGHAN GAS BECOME?

The general gas supply chain is illustrated in the following schematic:

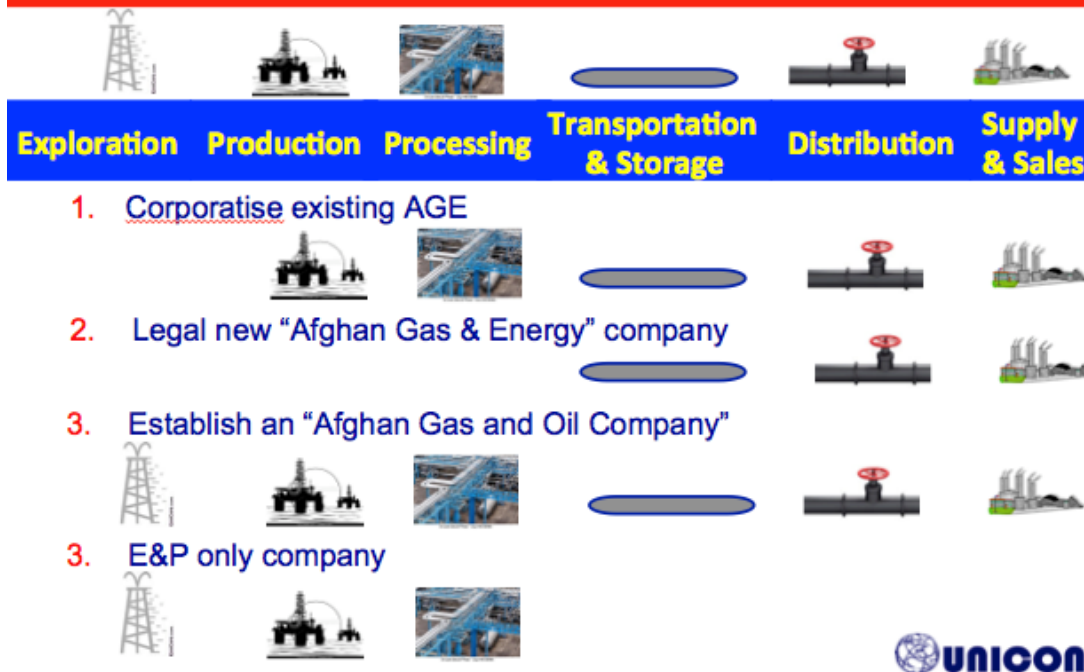


This clearly illustrates the common three (Upstream, Midstream and Downstream) segments of the gas industry and where most operators specialise either within one or two, or all three of the key segments. Exploration, production and processing usually go together as an E&P business.

In considering the Afghan Gas experience and the future potential these can broadly be seen in the following similar schematic. It should be understood that currently Afghan Gas operates

across all three segments, but unlike most upstream, E&P operators, the MoMP organises exploration activity mostly through tender to private operators.

Views on Afghan Gas Corporatisation



While the stated objective from the APA is to corporatise the existing Afghan Gas and thus continue its operations as a non-specialist operator, and while UNICON concur that in the short to medium term this is the most sensible strategy, eventually there will be market incentive to specialise. It seems Afghan Gas will best operate in the midstream (and possibly) downstream segments.

Until the supply and market demand mature, the restructure options for Afghan Gas are less about operating specialisms and business expertise and more about organisational, business process and governance reforms.

In the options illustrated Afghan Gas as an integrated E&P and downstream operation gives rise to the need for Afghan Gas to initiate a number of developments. In addition issues and consequences for the government are also many:

- The need to 'buy in' the skills for Exploration (and for Production)
- Would the E&P licenses be only for the Amu Darya basin? The Afghan-Tajik and Hormund and other basins might still provide opportunities to license other exploration corporations?

- There is need to consider the implications for the continuation of development partner (and private participation) assistance and infrastructure potential worth an estimated \$500m¹⁶, including the issue of who will own these assets once Afghan Gas is a competitive corporation,
- What are the wider implications for the future role of Government and APA especially if Afghan Gas is subsequently privatised?
- Who will own the gas fields/reserves? The need for a properly regulated regime to ensure that gas extracted creates the 'license fee' or 'royalty' payment to government,

As a downstream operation only Afghan Gas needs to be properly licenced to distribute to specific areas. At least in the formative years this should include the two major northern provinces of Jawzjan and Balkh. As a downstream entity, the issue of asset ownership and transfer of pipelines, wellhead and other processing assets must also be managed in a manner that is equitable to the new Afghan Gas distribution corporation.

The fourth option in the illustration is Afghan Gas as an E&P operation only. The question arises as to the realistic prospect of such an outcome, when existing exploration capacity is very limited and currently licenses are being granted to Turkish Petroleum and other private operators. Afghan Gas cannot compete effectively at present and needs the time of transition and reform to become a reasonable market participant at any level, and thus to be commercially effective and competitive.

Another option is to consider Afghan Gas as a licensed E&P and downstream gas managing agent, so its role is about supervising the production and distribution in the north and private operators actually produce and distribute the Gas under standard agreements managed by Afghan Gas (and the agreements/contracts approved by Ministry) with specific performance targets in terms of extraction, production and distribution. In this scenario Afghan Gas can earn fees based on the quotas of extraction, production and distribution within its region of the license.

Much depends on capacity for investment and development. New markets need new infrastructure and new investment needs market growth.

As indicated, commonly gas businesses either fall within the description as an E&P operation, a transportation business or in the downstream market as a regional gas supplier through the local network.

¹⁶ Estimated value of major projects including Sheberghan IPP, as prepared by AEAI (USAID contractors) in June 2012

Does a decision need to be made for Afghan Gas? Probably not at this time, since there is so much potential but uncertainty relating to the reserves and the market development. Clearly, if the TAPI project materialises; if support is raised for the rebuilding of gas networks around Mazar-e-Sharif; if Gas in its various forms (e.g. LNG) is shipped to Kabul, then as these possibilities emerge as reality and are mostly Government driven, so Afghan Gas as a growing, modern commercial business may determine that it is better focused within one or other of the common gas market 'space'.

Indeed, if all of these possibilities eventuate and new basins beyond just the northern corridor become productive then it is probable that specialisation will be necessary for a modern Afghan Gas in the face of new (and intense) competition.

While this Report does comment on long-term outlook, it aims to focus on the short-to-medium term prospects that are the key factors to underpin the reform of Afghan Gas to a "modern, gas business adopting recognised international standards".

5.11 DEMAND AND SUPPLY

In many restructuring initiatives, the effort aims to strengthen the production and supply operations and to grow market opportunities as well as develop business processes and overall performance.

With Afghan Gas there is uncertainty surrounding the current gas supply through volume and value of gas reserves, and there is uncertainty about future market opportunities. Supply may be substantial with new fields being explored and possibly existing wells rehabilitated. However, at present the fear is that gas reserves are close to depletion despite the huge contingent and prospective resources to be classified.

Market opportunities may increase exponentially if the proposed IPP at Sheberghan is constructed; if the IPP at Mazar-e-Sharif is developed and NFPP demand increases spawning other industrial users in the Mazar region.

But on both the supply and demand side, the uncertainty remains intact despite much effort over several years aimed at developing the industry. In these circumstances it is difficult to plan precisely with the most likely outcomes to depend on specific donor activity and a lack of clarity about whether building demand should precede supply initiatives or visa versa. Indeed the most likely scenario is that both will evolve independently.

So it seems somewhat academic to worry about the preferred type of business for Afghan Gas, is it upstream, midstream or downstream.

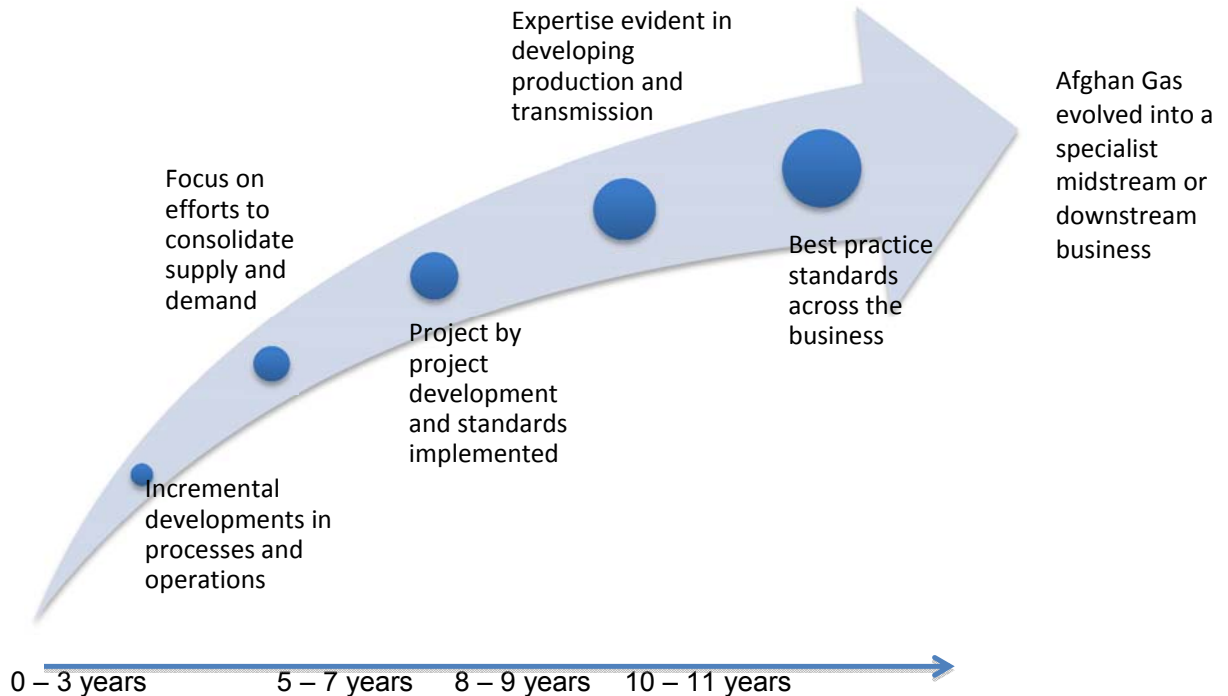
At present it is the integrated gas entity and with so much uncertainty and untapped potential in the market it is most likely that Afghan Gas remains an integrated entity while the sector potential is being unravelled, especially through the short to medium term.

Eventually with growth and clarity in supply and market opportunities it will be evident that a reformed Afghan Gas will then be better placed to determine its destiny and its best 'fit' in a

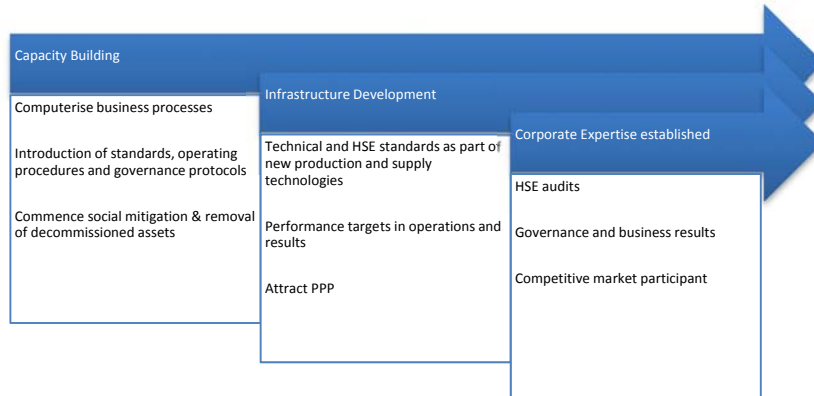
more competitive and bigger market place. New entrants and new opportunities will permit the sorting out of the future long-term role for Afghan Gas but the immediate future and the corporate structure to initiate key reforms is the current integrated operation with a limited liability shareholding (a corporatised entity).

Reform of Afghan Gas therefore needs to continue (it has already started) in an incremental manner, project-by-project¹⁷. As a corporate entity its expertise and focus will emerge after substantial transformation of the business processes and technology inputs and growth of supply and market opportunities.

The process is illustrated as follows:



¹⁷ These projects and priorities are itemised and detailed in section 6



As indicated there are thus multiple options for different types of management contracts and/or concessions. Many of the relevant features are common to several options and these relate to the core issues of the fundamental restructuring needs, e.g. business processes, proper project and costing methodologies, standards, technology etc.

All strategies and actions taken must be seen as steps forward in an effort to shape the company and to progress development of the Gas sector.

Only after some progress in internal restructure commensurate with general sector development, more supply (from existing fields and rehabilitated wells and continued prospects for new exploration reserves) and more demand (from gas to power projects, new industrial users in Mazar etc.) and the prospect of further private participation in the sector and some market competition is it relevant for Afghan Gas to identify its best proposed strategic future, i.e. as a midstream operator or a downstream specialist company.

Details of the potential infrastructure projects follow in section 6. These projects focus on those short-term prospects that can influence the development of Afghan Gas as an entity and hopefully have the greatest overall impact in the growth of the sector and reform of the business.

However, it must be recognised that APA and MoMP currently engage effort in long-term prospects as well. In part this is new field exploration and the prospect of surplus gas for export. In part it is the TAPI project and the potential for significant activity and revenue in managing the pipeline through Afghanistan. In part it is the potential for rebuilding the Mazar-e-Sharif distribution network and building retail and residential gas market (as well as the shorter-term industrial market).

Each of these prospects has merit and should not be overlooked. However, they are not discussed at great length in this Report, as each of the stated opportunities is most likely to be a positive impact on Afghan Gas after significant reform, rather than as a key influence on the reform. This is a consequence of time, money and complexity to implement.

Eventually, and it will take some years, the overall market potential will be seen in a new light. Greater comfort on reserve estimates and contingent resources, and the capacity to manage

long pipelines and export activity, will all shape the sector significantly and the overall institutional reforms needed to support it, including the manner in which policy and regulation is managed.

It is imperative that this institutional capacity develops in line with the sector opportunities and that environmental management, health and safety and high standards of governance are carefully managed proportionate to the growth and international nature of the business.

The balance of discussion supports the idea of a project-by-project reform of Afghan Gas and therefore consideration of a concession or BOT style arrangement in each case (each project).

It is further suggested that the capacity across the breadth of business processes, skills to absorb new technologies and funds to invest in such processes and standards will be commensurate with the projects implemented and that this is the most effective means of reform and building capacity. Section 6 attempts to demonstrate how this might be accomplished.

6 Projects and priorities to implement reform

6.1 INTRODUCTION

As indicated the reform of Afghan Gas, regardless of the political decisions about corporatisation, will only proceed effectively if the gas sector develops in a positive, progressive and timely manner.

In understanding the relationship between the prospective infrastructure projects that simultaneously impact on the sector and on Afghan Gas the entity, UNICON has attempted to identify relevant assumptions, project needs and priorities, in order to present feasible and sensible options for reform.

The aim, clearly, is that critical capacity building and skills development, introduction of best practice methodologies and relevant standards in all facets of the business, can only be effective if in line with the project initiatives that will support them. For example commissioning of the Amine Plant will provide the catalyst for introduction of appropriate operations protocols, safety standards, Petroleum Resources Management System (PRMS) approach to costing and operating expenses as well as Gas Supply Chain balancing management.

In identifying a series of relevant projects and reform proposals, UNICON has made certain assumptions and these relate to feasibility, time and costs as well as supply capacity, demand requirements and the assumption that relevant decisions will be made appropriately.

With regard to staff and capacity, the fundamental issue is the matching of key skills and the effective utilisation of management and labour resources. Broadly, this is achieved through the combination of recruitment, training and social mitigation including redundancy, retirement and re-training of surplus employees. Specific strategies are detailed as required and will be proposed in detail in the Social Mitigation Plan (deliverable No. 13 of this project).

UNICON is developing simple illustrative tools that attempt to identify each project or action step and indicate relevant resources, impact, cost and benefit of the prospective project with issues of constraints and reform initiatives shown as appropriate.

Options and recommendations arising from these project-based tools are summarised in this Report and able to be amended, throughout the transition period as new information arises and as assumptions, costs and relevant data became clearer.

Nonetheless these tools provide critical input to the next Afghan Gas business plan supporting the need for regular review and update. As the reform initiatives take hold and the gas sector grows, so a full SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis will become more useful in guiding further planning updates.

Priorities have to be about increasing output, sales and cash flow (CGU) and defining and Prioritising Projects on the PRMS basis. PRMS core principle is to provide "a consistent approach to estimating petroleum quantities, evaluating development projects and presenting results within a comprehensive classification framework".

PRMS is a project-based system where a project "Represents the link between petroleum accumulation and the decision-making process including budget allocations". Project evaluation and then aggregation of results will bring the Afghan gas industry a clearer picture of its development process.

6.2 PROJECT DEVELOPMENT OPTIONS

As mentioned before the Corporatisation of Afghan Gas is a political decision because it is closely related with the energy policy of Afghanistan. In that sense, the approach to develop options for Afghan Gas proposed in this Report is related with what UNICON believes is a reasonable approach to develop key projects for Afghan Gas. A key idea is to pass from a one-customer company to a several customers in the future. In that sense, this section will take capture the main findings of the "Assessment of status of Afghan Gas operations" and "External Environment Review/Market" reports to propose a reasonable commercialisation program for Afghan Gas.

Short Term Projects

Secure Supply to NFPP in Mazar and Regional Market

- There is an urgent need to build the Yatimtaq production profile so as to assess the necessity of resources aggregation with other fields, especially EGR projects/Jurassic Horizons new development for Khoja Gogerdag and Jarkoduk so that a sustainable gas supply to Mazar-e-Sharif, region would be secured for coming two decades.
- This Yatimtaq Field Development Plan involves operational contracts for urgent cash generation with Afghani Staff involvement. The well testing long term objectives: 1) Complete description of the reservoir structure in terms of existence of heterogeneities,

discontinuities and connectivity; 2) Production profile over field development life – it is necessary for IPP expansion projects.

- The Khoja Gogerdaq EGR Field Development Plan: 1) Reservoir Modelling and Production Profile; 2) Deliquification Technologies Implemented; 3) Funds Committed; 4) Outsourcing Contracts and Afghani Staff Involvement.
- The Khoja Gogerdag Undeveloped Jurassic Horizons: 1) 3D Seismic Surveys; 2) Resources Classification and Categorization; 3) Well Planning and Design; 4) Initial Field Development Plan; 5) Funds Commitment.
- Jarkoduk Undeveloped Jurassic Horizons: 1) 3D Seismic Surveys, Well No21 production plan; 2) Resources Classification and Categorization; 3) Well Planning and Design; 4) Initial Field Development Plan; 5) Funds Commitment.

Secure Sheberghan Power Supply

An important project priority is to secure the utilities supply in Sheberghan region. Specifically Afghan Gas can purchase gas conversion plants on the 2nd hand market from USA at a cheap enough price to use to secure the Sheberghan power and water supply, and make Afghan Gas independent in power supply for its operations.

Sheberghan Distribution Network

The Sheberghan distribution network is in need of significant rehabilitation and is currently unsafe. The potential to upgrade the network and re-build the local industrial and residential market remains promising. The Khoja Gogerdag EGR field development plan and Shakarak development program would be a sufficient gas supply sources to Sheberghan area in the short-term outlook.

Decommission Obsolete Assets

There is little value and use in many of the existing assets with little prospect of rehabilitation. It is important for safety, efficiency and development of corporate culture, that these obsolete assets are properly decommissioned over time.

Scrap metal potential is significant and a structured approach to decommissioning and reselling scrap metal could effectively utilise over capacity in employees, accomplish a safer and more effective work environment and when a full cash analysis is completed, probably prove to be cash-positive to Afghan Gas.

Prospective Projects Development

According the "External Environment Review/Market" report UNICON identified key projects for Afghan Gas. The following tables present the name of the project, the estimated natural gas needs in each one per year, if the project is under control of Afghan Gas policies, the actions



needed to develop each one, the proposed starting year, the preconditions for the developing and estimated time involved.

It's clear that all the projects allow different values for Afghan Gas, it means, some of them consume a great amount of volume at a reasonable price (Power Generation in Sheberghan and the Industrial sector in Mazar); others requires good enough amount of natural gas but prices are less (Fertilizer Plant) and others consume low volumes at low prices (Sheberghan distribution network, glass factory, for example). But even if on project is small, also can generate some value for the company. In that sense, the challenge is to create a reasonable schedule to develop this projects.

Table 1: Key Projects for Afghan Gas

Projects	Volume (BCM/Year)	Under Control of Afghan Gas?	Actions	Starting Year	Preconditions	Duration
Fertilizer Plant	0.164	Yes	Develop a long term contract and solve debt problems	2021	Results about reserves, financial and several trainings	0.5 years
Industrial and Commercial	0.167	Yes	Once the company have a best understanding about reserves, sell natural gas in advance to private sector in Mazar	2021	Results about reserves, pipeline and processing plant construction, financial and several trainings	2 - 3 years for Pipeline construction
Mazar	0.144	Yes		2022	Consolidate the industrial market in Mazar	New distribution system 2 - 3 years construction
Sheberghan	0.023	Yes	Once the sector in Mazar is supply start activities in Sheberghan			
Residential	0.031	Yes	The residential sector can be supplied once the industrial sector generates resources	2023	Consolidate the industrial market in Mazar	As pipeline/distribution system permits
Mazar	0.007	Yes		2024	Consolidate the industrial market in Sheberghan	As pipeline/distribution system permits
Sheberghan	0.024	Yes	The residential sector can be supplied once the industrial sector generates resources			
CNG	0.114	Yes	Discuss with private sector the possibility to open CNG stations in Mazar	2021	Results about reserves, pipeline to Mazar	On- going
Power Generation Sheberghan	0.217	No	Develop capacity building to sign and manage contracts with Power Generation Plants	2021	Develop capacity to instigate project and get donors resources	4 - 5 years before full operation
Power Generation TFBSO	0.035	No	Develop capacity building to sign and manage contracts with Power Generation Plants	2021	Develop capacity to instigate project and get donors resources	2 - 3 years before full operation
Glass Factory	0.037	No	Develop capacity building to sign and manage contracts with this type of industry	2021	Develop capacity to instigate project and get donors resources	2 - 3 years for Pipeline construction
Total	0.765					



Following what was expressed in previous paragraph the next 2 tables presents the critical path for Afghan Gas, according the development of each project (including short term projects) and; the projected revenues, investment and production required to accomplish this critical path.

Development

Table 2: Critical Path for Commercialisation of Afghan Gas

Activity	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Priority											
Secure Supply to NFPP in Mazar and Regional Market											
Secure Sheberghan Power Supply											
Sheberghan Distribution Network											
Decommission Obsolete Assets											
Upstream											
Feedback from AEAL project on reserve estimates (Turkish Petroleum)											
Exploration and production activities											
Reserve certification											
Capacity building											
Technical E&P activities											
Safety											
Environmental											
E&P Contract design											
Economic and financial in E&P activities											
Bussines administration in E&P activities											
Processor Plant & Transport											
Capacity building											
Technical - Processing plant operation											
Technical - Pipeline operation											
Pipeline construction to Mazar											
Additional processing plant construction (+1 MM CMD)											
Fertilizer Plant, Distribution Network, Power Plants & Glass Factory											
Solve debt problems with Fertilizer Plant											
Improve distribution network in Sheberghan											
Capacity building											
Contract design to supply natural gas to city networks											
Economic & financial of gas network distributions											
Technical - Construction & operation gas distribution networks											
Safety											
Environmental											
Develop contracts with Industrial sector in Mazar											
Develop contracts with Fertilizer Plant											
Distribution network construction in Mazar											
Additional distribution network construction in Sheberghan											
Supply											
Industrial & Commercial sectors in Mazar											
Industrial & Commercial sectors in Sheberghan											
Residential sector in Mazar											
Residential sector Sheberghan											
Power generation Sheberghan											
Power generation Mazar											
Glass factory and CNG											



Table 3: Revenues and Investment Projected for Commercialisation of Afghan Gas

Activity	Unit	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenues at Delivery Point	MM US\$	5.5	5.5	5.5	5.5	5.5	5.5	24.5	33.8	42.6	45.1	47.7
Fertilizer Plant	MM US\$	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Mazar Distribution Network	MM US\$	-	-	-	-	-	-	1.1	3.0	5.1	7.2	9.5
Sheberghan Distribution Network	MM US\$	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.7	1.0	1.4
Power Plant Sheberghan	MM US\$	-	-	-	-	-	-	13.0	19.6	26.1	26.1	26.1
Power Plant Mazar	MM US\$	-	-	-	-	-	-	4.2	4.2	4.2	4.2	4.2
Glass Factory	MM US\$	-	-	-	-	-	-	0.7	1.5	1.5	1.5	1.5
Investment Required	MM US\$	1.0	1.0	1.0	1.0	23.6	54.5	31.7	2.2	3.0	4.1	5.6
Capacity Building Program	MM US\$	1.0	1.0	1.0	1.0	1.0	1.0	-	-	-	-	-
Additional Processing Plant Construction (1)	MM US\$	-	-	-	-	-	30.1	30.1	-	-	-	-
Pipeline to Mazar (2)	MM US\$	-	-	-	-	20.0	20.0	-	-	-	-	-
Distribution Network Mazar	MM US\$	-	-	-	-	2.6	1.4	0.7	1.0	1.6	2.4	3.6
Additional Distribution Network Sheberghan	MM US\$	-	-	-	-	-	2.1	1.0	1.1	1.4	1.7	2.0
Estimated Production	MM CFD	12.6	12.6	12.6	12.6	12.6	12.6	29.5	38.7	46.0	48.3	50.7
Fertilizer Plant	MM CFD	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
Mazar Distribution Network	MM CFD	-	-	-	-	-	-	1.2	3.0	4.9	6.9	8.9
Sheberghan Distribution Network	MM CFD	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.7	1.0	1.4
Power Plant Sheberghan	MM CFD	-	-	-	-	-	-	10.5	15.8	21.1	21.1	21.1
Power Plant Mazar	MM CFD	-	-	-	-	-	-	3.4	3.4	3.4	3.4	3.4
Glass Factory	MM CFD	-	-	-	-	-	-	1.8	3.5	3.5	3.5	3.5

(1) Factor applied US\$ 1.7 MM per MMCF. Plant 100 MM CF capacity

Exploration and Production

This activities will get a much confident approximation of the natural gas reserves in the region. In the first stage this can be reached with the AEAI project in Shebergha which will give a very good reasonable idea of: 1) amount of reserves; 2) the quality of natural gas and; 3) the location of the reserves. Nevertheless this is the first step, because additional work (more exploration and production) is needed in fields in order to secure future supply for the possible markets of natural gas. An excellent goal of this activities is the reserve certification that, according Plan can be reached in 2020, if activities start in 2015.

According this schedule a strong capacity building is needed to follow up these activities: 1) technical aspects of E&P activities can be in parallel with exploration and production activities; 2) issues about safety and environmental need to be address in 2016, because, among others, the decommission of assets; 3) E&P contracts, economic analysis and business administration, according UNICON, must be carry on in 2 times, at the beginning of E&P activities and when more natural gas production is planned, the reason for 2 times is because at 2020 new personal or economic situation can be in place.

Processor Plant and Transport System

A new (or rehabilitated) pipeline between Sheberghan and Mazar is needed once the exploration and production activities demonstrate to be successful, also at the moment there's an Amine Plant that can process almost 1 MM CMD, but, if plans to open market are accomplish the capacity of gas processing has to duplicate. That's why between 2019-2023 this 2 assets must be constructed.

To have good skills to construct and operate these 2 assets a capacity building program has to start between 2015-2016. Specially the plant operation training needs to be completed with practical experience of Afghan Gas workers in establish plants, of course, in other places.

Fertilizer Plant, Distribution Network, Power Plants and Glass Factory

Regarding the debt problems between Afghan Gas and Fertilizer Plant it's necessary to solve it between this 2 companies, because these sales to Fertilizer Plant will be the cash flow for the next years. If possible, if exploration and production goes well maybe in 2 or 3 years could be sign a long term supply contract.

An important part of this program is diversify and increase the number of clients for Afghan Gas. According "External Environment Review/Market" report the industrial sector in Mazar could be an increasing source of revenues, but several steps are needed to reach those consumers: 1) a pipeline construction from Sheberghan to Mazar; 2) the construction of the Processor Plant in Sheberghan; 3) the network distribution system in the city and; 4) a possible business agreement between Afghan Gas and the main industries in Mazar. After this market starts generating cash flow, the industrial sector in Sheberghan, the residential sector in Mazar and increase the residential sector in Sheberghan can be reach in a sequential process.

Without doubt the Power Generation Plants are the most important value in the future of Afghan Gas, but unfortunately are out of their hands. Nevertheless, UNICON believes that reaching the milestones explained before, the likelihood of the construction of this plants will be higher. The improve of current fields; the exploration of new ones, a capacity building program; the reserve certification are needed to supply reasonably to this plants.

According this schedule a strong capacity building is needed to follow up these activities: 1) technical aspects in the construction, maintenance and operation of the distribution network; 2) issues about safety and environmental need to be address; 3) &P contracts, economic analysis and business administration, according UNICON, must be carry on.

7 Conclusion on Restructure of Afghan Gas

Main conclusions of the present report are:

- One of the main findings of the "Assessment of status of Afghan Gas operations" carried on by UNICON is that the situation of Afghan Gas at the moment is difficult because: Lack of investment; Insecure revenue; Existing gas reserves close to depletion; Lack of access to finance: Without limited liability Afghan Gas cannot effectively use assets as collateral for financial support; Inability to develop the market, among others. Then, a combination of the mentioned issues has led to a state of steady decline at Afghan Gas. The lack of investment or maintenance means that insufficient gas is being delivered to the company's single industrial customer, and poor quality gas being delivered to consumers in Sheberghan. Gas reserves are near depletion and the assets are in a poor condition. The situation has been steadily deteriorating each year and significant change is needed if the business is to be positioned to cope with new initiatives underway within MoMP and the gas sector.
- The reform of Afghan Gas, regardless of the political decisions about corporatisation, will only proceed effectively if the gas sector develops in a positive, progressive and timely manner. In understanding the relationship between the prospective infrastructure projects that simultaneously impact on the sector and on Afghan Gas the entity, UNICON has attempted to identify relevant assumptions, project needs and priorities, in order to present feasible and sensible options for reform.
- According the "External Environment Review/Market" report UNICON identified key projects for Afghan Gas. It's clear that all the projects allow different values for Afghan Gas, it means, some of them consume a great amount of volume at a reasonable price (Power Generation in Sheberghan and the Industrial sector in Mazar); others requires good enough amount of natural gas but prices are less (Fertilizer Plant) and others consume low volumes at low prices (Sheberghan distribution network, glass factory, for example). But even if on project is small, also can generate some value for the company. In that sense, the challenge is to create a reasonable schedule to develop this projects. But one thing is clear: the necessity to start activities in 2015 to reach goals in 2020.