Caspian Development Corporation

FINAL IMPLEMENTATION REPORT

DECEMBER 2010

Presented to:

World Bank

European Commission

European Investment Bank

Submitted by:

IHS CERA

55 Cambridge Parkway
Cambridge, MA 02142

TABLE OF CONTENTS

Acknowledgements

Appendices

Acknowledgements

This study was made possible by the generous contributions of funds from the European Commission, the EIB, and the PPIAF, and was managed by staff from the World Bank.

The European Commission (EC) is the executive body of the European Union. For more information see the website:

http://ec.europa.eu

The European Investment Bank (EIB) is the long-term lending bank of the European Union. For more information see the website:

www.eib.org

The Public-Private Infrastructure Advisory Facility (PPIAF) is a multidonor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private involvement. For more information on the facility see the website:

www.ppiaf.org

The World Bank (WB) is a source of financial and technical assistance to developing countries around the world. For more information see the website:

www.worldbank.org

EXECUTIVE SUMMARY

The Caspian Development Corporation (CDC) is a concept that has been designed in order to enable Turkmenistan to sell large volumes of natural gas for delivery to Europe, helping to diversify European gas supply. It is as yet an idea, but one which could become reality if it gains tangible support from Turkmenistan.

IHS CERA was retained as CDC Consultant in May 2009 by the Project Sponsors—a group consisting of the World Bank, the European Commission, and the European Investment Bank—to create an institutional design and commercial framework for the proposed CDC and to formulate an process for its implementation. This Final Implementation Report, which achieves these two goals, is presented as the culmination of an 18-month process of consultation and analysis.

The CDC has been designed so that it can achieve five core objectives:

- The CDC should support the development of substantial new gas resources in Turkmenistan, and potentially in other supply countries, by acting as a financially strong counterparty for the aggregated purchase of large, long-term gas volumes for multiple European buyers.
- The CDC should support the delivery of this gas to Europe through new transportation infrastructure by acting as a creditworthy shipper to underpin the financing of this infrastructure.
- The CDC should represent an attractive proposition for the European gas industry, such that a critical mass of companies is eager to take part.
- The CDC should also represent an attractive proposition to Turkmenistan, and potentially to other suppliers, such that they would be willing to commit substantial, long-term gas volumes to the CDC.
- The CDC should, in its totality, enhance competition in the European gas market.

It is the view of the CDC Consultant that the design presented in this report would allow the CDC to meet all of these objectives. In particular, the CDC as presented here will benefit Turkmenistan, not simply by allowing it to diversify its gas sales and stimulating the development of new gas fields, but also by providing a high-quality offtaker whose purchase commitments could be used to raise debt finance for upstream development.

CONSULTATION AND CONCEPTUALIZATION PROCESS, AND CHOICE OF CDC BUSINESS MODEL

At the start of the project, the CDC Consultant initiated a process of stakeholder consultation which included meetings with over three dozen companies active in the European gas industry—including large and small gas marketers as well as integrated majors and others—as well as with industry associations and European Union institutions. The consultation process also extended to representatives of governments and state companies from potential CDC supplier or transit states including Turkmenistan, Azerbaijan, Turkey, and Russia.

At the same time, the broader industry context for CDC was studied in detail to test how the project could be aligned with plausible scenarios for the development of Europe's gas supply and demand balance over the next 20 years. It was concluded that sufficient demand for CDC gas should exist, even in the context of increasing uncertainty over the future course of demand. This conclusion was strongly confirmed by consultations with European gas market participants who generally emphasized the need to protect against declining supply.

An analytical process was subsequently developed in which four alternative business models for the CDC were elaborated and then tested against a range of screening criteria derived from the core objectives stated earlier: ability to deliver scale; capability to ensure infrastructure; attractiveness for potential participants; realistic financial feasibility; impact on competition in the European gas market; adaptability; and simplicity of implementation and operation. Feedback from stakeholders was taken into account throughout this process.

Ultimately the CDC Consultant recommended two business models as being workable and feasible. The first was the Bundler model, in which the CDC would be a single, financially strong company owned by European companies in proportion to the scale of their interest in long-term purchase of Turkmen gas.

In the Bundler model, the CDC would enter into a single Gas Purchase Agreement (GPA), initially with Turkmenistan, and a series of Gas Sales Agreements (GSA) with its shareholders; it would also sign long-term ship-or-pay shipping agreements for new pipelines directed at Europe. To ensure the integrity of the GPA and GSAs, obligations would pass through in the case of CDC bankruptcy such that CDC shareholders would be contracted directly to the supplier (although joint and several responsibility is not envisaged).

In the Tiered Clearing House model, the CDC would not be an incorporated entity, but instead a series of contractual arrangements and mechanisms through which companies could coordinate their purchase of Turkmen gas. Financially strong "First Tier" companies would sign separate GPAs which would be coordinated so as to present a single interface with Turkmenistan; they would then make independent long-term shipping commitments to transport gas to Europe. Smaller "Second Tier" companies would agree to buy gas on a delivered basis in Europe.

Following a detailed comparison exercise, the Project Sponsors requested the CDC Consultant to proceed with the Bundler model for the design and structure of the CDC.

CDC AND COMPETITION ISSUES

The fundamental goal of CDC is to enhance diversity of gas supply for Europe and thus increase the choices available to customers. At the same time, the Bundler model design entails cooperation between companies that are normally competitors in the European gas market, and as an "agreement between undertakings" it will be subject to review of its impact on competition by the European Commission's Directorate General for Competition (DG Comp).

The CDC design has been informed by a concern for competition rules, particularly with regard to information sharing and commonality of costs. Information on pricing, scheduling, and other sensitive issues will be held within CDC and kept confidential from its shareholders by a system of information screens. It is further assumed that CDC will be temporary in character, with some requirements for a phasing in of gas release to third parties leading ultimately to a sunset clause for the entity as a whole.

The consultation process has made clear that prospective shareholders in CDC will likely require some sort of comfort that their participation will not expose them to later regulatory sanction. Two possible paths are proposed. The strongest alternative would be the granting of a formal exception to competition rules under Article 10 of Regulation 1/2003. However, a decision to offer such an exemption can only be granted by the Commission on its own initiative; it cannot be requested by the CDC or its participants. The granting of an exemption would be a time-consuming exercise, and one that would not provide legal certainty in the case of any future changes to the CDC's composition. A second robust alternative would be for prospective CDC participants to request a Guidance Letter from DG Comp, which would require a detailed submission about the manner of CDC's operation and the nature of its participants. Such a letter would not provide the same level of assurance as an exemption, but were it to be granted, it would likely provide sufficient comfort for prospective participants.

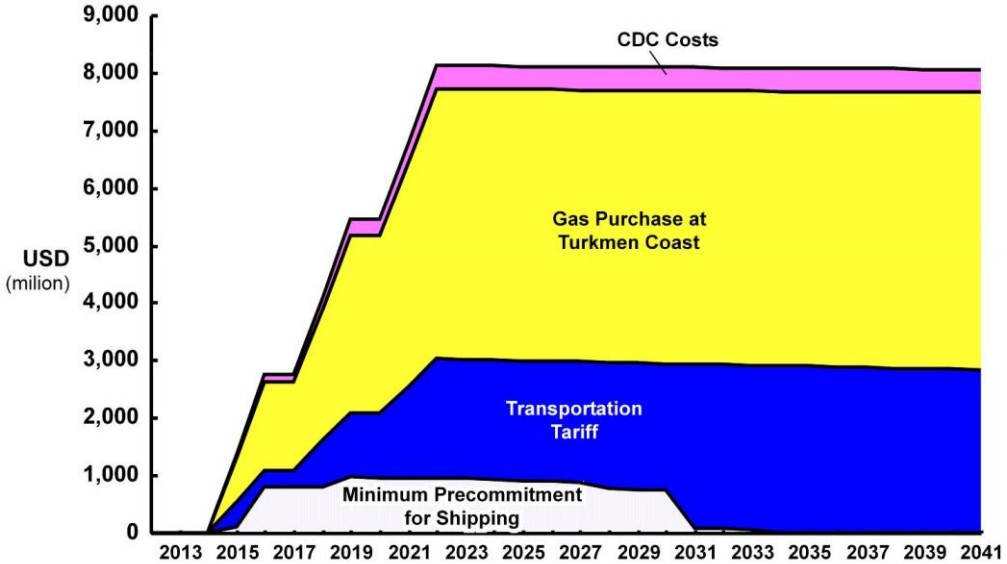
The request for a Guidance Letter has been incorporated as a step into the CDC Implementation Road Map.

FINANCIAL CONSIDERATIONS

The financial commitments associated with the CDC's activities will be considerable. Assuming that it will enter into 20-year agreements for purchase, transport and sale of volumes of gas reaching 30 billion cubic meters per annum (Bcma), it will be entering into roughly $300 billion worth of long-term contractual commitments. Figure ES-1 illustrates a possible evolution of the cost and revenue profile for CDC.

Figure ES-1

Financial Dimensions of CDC Activity



Source: IHS CERA.
01214-15

In principle this level of exposure is not unusual for Europe's large gas marketers under long-term contract structures, and CDC participants can be expected to bear much of it, just as they bear similar levels and types of risk in their relationships with other major suppliers.

However the risks associated with CDC will be unusual—and substantial—due to the overall complexity inherent in the project of bringing new gas from Turkmenistan to Europe. Along with the normal market risks, the project also faces discrete risks associated with the development and delivery of new Turkmen gas supply as well as the risks associated with completion of at least three distinct new segments of pipeline infrastructure. Nonperformance by any single counterparty could leave CDC exposed to obligations related to all other counterparties, particularly during its early years of operation and subsequent major expansions. A final area of unusual risk concerns the potential participation in CDC—as shareholders and offtakers—of companies with weak credit.

The CDC Consultant has endeavored to identify and quantify the various sources of risk and to understand what mechanisms can be employed to mitigate these risks. CDC itself will bear all normal risks associated with take-or-pay contract exposure; but it should have external backing for extraordinary exposures that potential CDC participants would likely be unwilling to assume.

There are three areas where external support could be most appropriate. The first would see CDC protected against default risk related to its gas sales agreements with state-backed CDC participants that are not creditworthy. In this case, World Bank Partial Risk Guarantee (PRG) mechanisms would be an appropriate tool to backstop these companies.

The other areas of extraordinary exposure relate to the risk that CDC will be unable to use its contracted transportation capacity for one of two reasons: because Turkmenistan fails to deliver gas in a timely fashion, or because of performance failure (including late startup) on the part of one of separate pipeline companies with which CDC will have contracted. It is unlikely that the resulting liabilities—ship-or-pay penalties due to all performing pipelines—could be robustly covered by the Turkmen supply contract or the contract with the failed pipeline operator. To manage this exposure, a new, internationally backed instrument is proposed to support CDC, a Stranded Capacity Payment Guarantee (SCPG) facility which would in such a circumstance backstop CDC's ship-or-pay liabilities to the extent they could not be recovered from Turkmenistan (including through a possible PRG arrangement) or through political risk insurance.

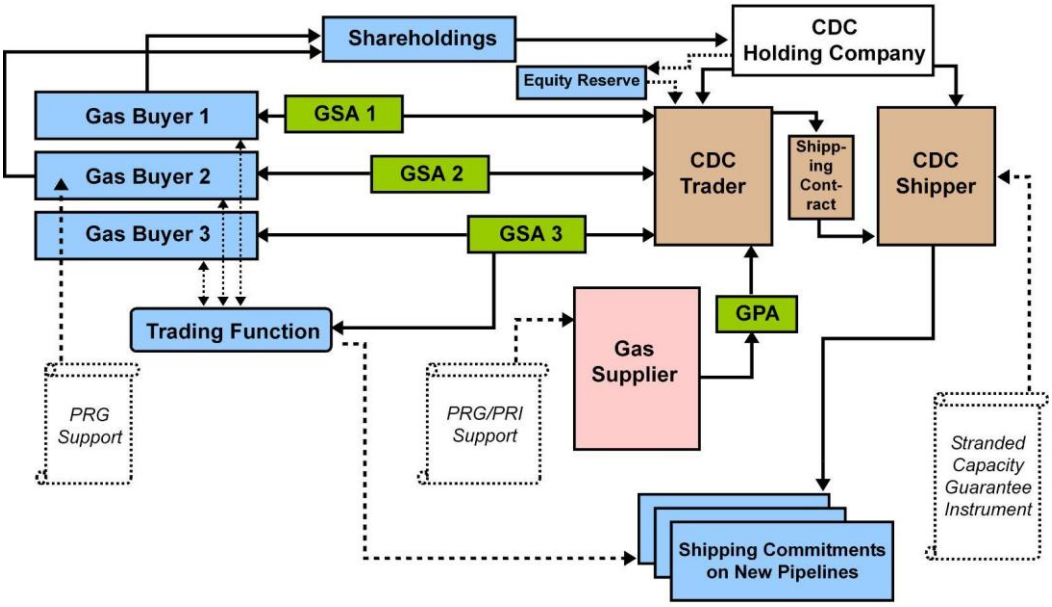
In the baseline scenario developed by the CDC Consultant, the size of this facility could be limited to $1.7 billion (€1.3 billion), which could be leveraged to make nearly $13 billion of shipping commitments possible—commitments which in turn could support about $25–$30 billion in upstream and midstream investment and the supply of roughly $150 billion worth of new gas to Europe in support of supply diversification.

With these extraordinary exposures backstopped by external support, the CDC's remaining exposure would require it to have access to a capital reserve of about €250 million initially, growing to €750 million when volumes reach plateau. This would imply an equity provision or shareholder guarantee equivalent to about $3.50 per thousand cubic meters ($0.10 per MMBtu), for which capital allocation CDC will be entitled to a fair return.

The recommended corporate structure for CDC in this model would be as shown in Figure ES-2. Purchasing, sales, and trading activities would be legally separated from shipping in order to provide more resilience in the case of financial failure, and to make it easier for CDC to interface with separate initiatives aimed at export of Turkmen gas to Europe.

Figure ES-2

Proposed Corporate Model for CDC



Source: IHS CERA.
01214-7

The CDC Consultant has reviewed possible mechanisms through which Turkmenistan could access funding to support investment in new onshore gas development and associated new domestic gas transmission. These include limited recourse project financing structures as well as loans secured through pledges of future export revenues. Such arrangements would of course need to be carefully structured so as to ensure that they did not entail Turkmenistan entering into transactions that would violate its prior obligations to international financial institutions or other lenders. Elaborating these concepts will require deeper engagement with Turkmenistan, but CDC will be in a position to cooperate with any such securitization schemes.

ROAD MAP

The CDC Consultant has elaborated a detailed Road Map—consisting of 29 steps organized into five phases—for the establishment of CDC as a legal and operational entity. Responsibility for these steps is divided among several actors. The CDC Consultant will play the leading role early in the process, but at the same time some tasks related to formal sponsorship and diplomacy rest with the institutions of the European Union. An Initial Founding Group (IFG) representing key prospective anchor members of the CDC will be formed relatively early, and the IFG will take on primary responsibility for commercial negotiations and some other processes, with the CDC Consultant continuing to work in support. Later the full CDC will be formally incorporated and will take direct responsibility.

The five phases of the Road Map are as follows:

- Inception Phase (months 1–3): The European Commission will issue a public Request for Expressions of Interest in CDC while making a public declaration of support for the concept. On the basis of the submissions, the Consultant will begin discussions with selected companies regarding the establishment of a CDC Initial Founding Group (IFG). The EU and supporting financial institutions will agree in principle on a Stranded Capacity Payment Guarantee to backstop CDC's prospective shipping commitments. Meanwhile the EU will facilitate the signature of an Inter-Governmental Agreement among Turkmenistan, Azerbaijan, and Georgia to guarantee future transit rights for Turkmen gas delivered via a Trans-Caspian link.
- Foundation Framework Phase (months 2–6): A short Memorandum of Understanding (MoU) will be drafted to provide the basis for participation in the IFG, and the Consultant will make recommendations on participation to the Project Sponsors, who will make the final decision. The IFG, once formed, will appoint teams to negotiate a series of preliminary agreements:
  - on gas supply, with Turkmenistan;
  - on transfer of shipping rights to CDC, with any independent European buyers of Turkmen gas;
  - on shipping, with shareholders of prospective Southern Corridor pipelines as well as the South Caucasus Pipeline Company;
  - on Partial Risk Guarantees, with the World Bank and any potential CDC participants/offtakers with weak credit.

  Meanwhile the IFG with support from the Consultant will coordinate with a separate concession process that will have been launched for a Trans-Caspian Pipeline; and will work with financial advisors to carry out an actuarial review of the CDC balance sheet structure.
- Foundation Launch Phase (months 4–10): The Consultant with EU sponsorship will coordinate a formal subscription round for CDC participation. Prospective participants will submit detailed information including commitments to specific volume offtake and pricing offers. The Consultant will manage an iterative process to agree on binding pricing and volume ranges with the full range of prospective participants, leading to an composition for the CDC which will be approved by the Project Sponsors. Meanwhile a Guidance Letter from will be sought from DG Competition. Finally the CDC shareholders will make formal commitments (which at this stage will remain subject to certain conditions precedent).
- Incorporation Phase (months 8–12): The agreed CDC shareholders will establish a Management Committee (MC), and negotiate a Shareholders' Agreement and Articles of Association on the basis of drafts prepared by legal advisors. Once established, the MC will hire senior professional staff directly. Professional CDC staff will negotiate gas sales agreements with individual CDC participants; and newly created negotiating teams will finalize gas purchase and shipping agreements. The MC will commission an independent review of aggregate CDC exposures, and establish final requirements for shareholder participation. An

equity subscription process will take place, a Board of Directors established, and top management appointed. Finally an Oversight Committee with participation of institutional stakeholders of the CDC will be created.

- Operational Phase (year 2 and onward): The CDC will establish a long-term planning timetable and review all gas supply and transport preparations through close engagement with Turkmenistan, pipeline operators, and independent shippers as necessary. Initial operations will begin, including trading. The coordination between volume ramp-up and triggering of pipeline expansions will be carefully managed. Further subscription rounds into CDC will be considered, as well as potential extension of the CDC's scope into related activities such as storage.

One critical early task will be coordination with the development of the Trans-Caspian Pipeline (TCP) during the Foundation Framework phase. It is proposed that the TCP be developed as a Build-Own-Operate concession on the basis of an agreement between Turkmenistan and Azerbaijan, with revenues guaranteed by CDC shipping commitments. Defining the commercial framework for TCP and integrating it with the CDC is a major task that will be managed outside (but alongside) the CDC framework.

This Road Map is focused on Turkmenistan as the sole initial supplier to the CDC; however, if and when the Corporation were up and running, it would be a straightforward matter to initiate a new process, incorporating relevant parts of the above Road Map, in order to reach agreements with other gas suppliers about gas sales and transport to Europe supported by the CDC.

SECTION 1

INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The Caspian Development Corporation (CDC) Final Implementation Report is presented by the CDC Consultant as the culmination of a process of analysis and consultation that began in May 2009. It builds on the previously submitted Inception Report (June 2009), Interim Implementation Report (September 2009) and Draft Final Report (February 2010). The purpose of the present report is to present the Project Sponsors[1] with a clear design for the CDC as well as a road map for forming the entity and structuring its key financial and contractual relationships.

This report fulfills Tasks 1 through 9 of the CDC Terms of Reference, and sets the stage for Task 10—the implementation of the CDC—if and when an authorization to proceed is issued by the Project Sponsors.

The core objectives of the joint purchasing arrangements potentially to be put into place through the mechanism of the CDC, as set out by the Project Sponsors, are as follows:

- to support the development of new gas supplies in the Caspian Sea region as well as the Middle East, with a primary focus on Turkmenistan; and
- to support the transportation of this new gas to Europe through new pipeline infrastructure.

It was envisaged by the Project Sponsors that the CDC would achieve these objectives mainly by serving to aggregate demand for these new gas volumes and thus present suppliers such as Turkmenistan with a single, strong counterparty for gas sales into Europe.

It is easy to understand why the European gas industry has not, to this point, been able to present itself as a single buyer for the large volumes of gas being targeted by the CDC initiative: Consortium purchasing is a practice once common in the European gas market, but which has been for some years proscribed by EU competition law.

As an initiative conceived and supported by a group of sponsors which includes the European Commission, the CDC has the potential to provide a framework under which competition issues can be addressed in a satisfactory way while also solving a series of interrelated collective action problems which have complicated the prospects for a Southern Corridor of pipelines linking new sources of gas with the European market.

The concept of the CDC does seem in some ways to go against the grain of the continuing long-term trend of liberalization in European gas markets. Yet the CDC is best viewed as a temporary accommodation which is warranted as a means of advancing the diversification of European gas supply—this diversity being crucial not only for reasons of supply security, but also for maintaining a competitive market over the long term.

[1] The Project Sponsors are the World Bank, the European Commission, and the European Investment Bank.

1.2 THE CDC CONSULTATION PROCESS

Under Task 1 of the CDC Terms of Reference, IHS CERA was asked to consider how European gas buyers might be able to present themselves as a coordinated single buyer of gas from the Caspian region. This task involved initiating a process of consultation with companies and other stakeholders active in the European gas industry to begin making initial judgments regarding the structure and activities of the proposed Caspian Development Corporation (CDC). This consultation process involved meetings with over three dozen companies, industry associations, and European Union institutions, as well as written exchanges and telephone consultations with these entities and others. (A list of organizations consulted is included as Appendix 1.)

The consultation process also included formal consultations with representatives of governments or state-owned companies outside the EU and Energy Community, namely, Turkmenistan, Azerbaijan, Turkey, and Russia.

The companies who have engaged in the CDC consultation process include a balanced and geographically broad spread of gas marketers of different sizes along with upstream producers of oil and gas with interests or ambitions in the relevant regions. Gas aggregators, traders, and national energy companies have also been represented in the consultation process. Existing major suppliers of gas to European markets have been briefed on the CDC concept and the entity's potential role, structure and functions.

In parallel with the individual discussions that we have pursued, we have warmly appreciated the contributions that have been made to the consultative process by other important institutions in the European gas industry. Crucial support and advice throughout the process was provided by the European Regulators' Group for Electricity and Gas (ERGEG).

Also playing an important role were the respective CDC Task Forces of the relevant industry associations—the International Oil and Gas Producers Association (OGP) and the European Union of the Natural Gas Industry (Eurogas). The work of OGP and Eurogas in canvassing, synthesizing and distilling the opinions and ideas of their member companies on the subject of the CDC had already begun, and was in many areas well advanced, when the IHS CERA program of consultation began in June 2009.

Both organizations provided us with thoughtful and insightful position papers, and graciously acted as conduits for written questions from IHS CERA that were distributed to their members. (A copy of the questionnaire is included as Appendix 2.) The individual responses from companies to these questions have contributed greatly to our understanding of perceptions of key issues surrounding the CDC proposal. The participation and contribution of OGP and Eurogas as observers on the CDC Steering Committee has also been beneficial to the consultative process.

Moreover, the role of the OGP and Eurogas CDC Task Forces in providing a formal channel for the views of the energy industry to the European Commission, World Bank, and European Investment Bank has made it possible for the views of individual companies to be offered to us confidentially.

The Energy Community Secretariat also played an invaluable role in supporting dialogue and consultation with the Contracting Parties to the Energy Community Treaty.

1.2.1 Conclusions of the Consultation Process

As one would expect, views and responses elicited from such a diverse group of industry actors varied widely, but some strong common themes did become clear. These themes have guided our consideration as to how best to choose and design the CDC business model.

The initial reaction of most companies to the proposed CDC concept was one of surprise at the fact that the European Commission, in partnership with the other Project Sponsors, was promoting such an initiative. This sense of surprise was based on the experience of many energy companies over the past twenty years in being pushed in the other direction by the European Commission, which has driven the gas industry to adapt its business models and behavior so as to allow for more direct competition among companies in supplying gas to customers.

An initiative that seeks to recommend a collective approach to the purchasing of gas from new sources of supply appears on the surface to work in the opposite direction. Some companies are particularly sensitive to regulatory risks because they themselves are facing the prospect of substantial fines arising from Commission sanction of actions determined to be anticompetitive—actions which the companies perceive to follow on from arrangements made many years ago for the coordinated purchase of gas and shipping capacity.

However, in our judgment, companies have become more comfortable with the CDC concept over the course of the past 18 months, due partly to a gradual understanding of the prospective strength of the commitment to the initiative on the part of EU institutions.

The contents of individual discussions between IHS CERA and the responding companies remain private, as strict confidentiality was agreed in advance of these conversations. But collectively, the series of consultations and discussions has enabled us to draw certain conclusions that have guided our proposals on how to structure the CDC.

From our consultations we have drawn the following perspectives and conclusions:

- An identifiable set of companies—some with major gas marketing portfolios, some with more modest market positions—seem ready and willing to begin talking about specific volume commitments within a CDC umbrella, subject to the acceptability of the terms of this engagement.
- With respect to market prospects in Europe, gas marketers are more concerned about protecting their portfolios from declining supply than they are about downside risks to market demand. They want to support their current market positions while in some cases also developing new options for marketing into new geographical areas. Thus they have a strong appetite for procuring more gas; and there was a general acceptance that around 30 billion cubic meters per annum of imported gas from the region is needed, and could be realized, by 2025.
- Nevertheless a number of companies are concerned about the risk of taking on potentially onerous new take-or-pay contracts in an environment of short term, and possibly long term, demand uncertainty. Mechanisms which could mitigate or defray such risk would be welcomed.
- Most companies express concern that the CDC should avoid major distortions to competition. To this end, it was widely agreed that there should be no thought of a precedent wherein the CDC model could itself become an archetype for other

future gas purchases in Europe. Avoidance of distortions to competition would have to be central to the proper design and implementation of the CDC. Along these lines, a view was expressed by most companies that in principle the CDC should be time limited, with some indication of an exit strategy delineated right from the initial design.

- All felt that the majority of the gas purchased by CDC should be reserved for its primary sponsors. However, there was acceptance of the suggestion that a portion could be made available to third parties who are not CDC participants, possibly by release processes or auctions.
- With regard to pricing mechanisms, there was a bias in favor of traditional pricing on the basis of long-term contracts and pricing formulas using linkages to other fuels or other sources of gas, but generally there was an open-minded willingness to consider alternatives.
- All companies insisted that the CDC should be a private and commercial institution, with arrangements and architecture consistent with good commercial practice. Governments were not seen as having any potential role as equity sponsors if these gave any right of control, although multilateral financial institutions could be considered as candidates for participation should they have the appetite for this.
- Other companies have emphasized the view that the CDC could be helpful at facilitating dialogue between international oil and gas companies and governments of potential supply countries. This "soft" understanding of what the CDC might do in a positive way focuses on improving mutual understanding of needs and priorities. In itself this might encourage further gas exploration and development as well as associated infrastructure plans. This position was captured in the OGP consensus as early as April 2009.
- Some companies, including but not limited to international oil companies (IOCs), felt that some form of IOC participation alongside Turkmengaz on the sell side facing the CDC would be seen as a positive, or even a requirement, if potential CDC members are to have full confidence in supply commitments.
- It was widely recognized that engagement with CDC would have implications for relationships with existing suppliers of gas to Europe. The most common view was that these issues would be "sensitive but manageable."
- Some companies have particular views of specific niches that the CDC might fill with regard to promotion of a Southern Corridor. Several companies have recommended that CDC should focus on the development of infrastructure across the Caspian Sea. A smaller number has proposed that CDC should support the Southern Corridor by concentrating purely on political dialogue, rather than on gas purchasing.

1.2.2 Company Archetypes and CDC Participation Potential

In order to consider the potential for various different types of companies to take part on CDC, taking into account the feedback from the consultation process, this section defines the various categories of company active in the gas industry and identifies their key needs and preferences vis-à-vis a potential CDC.

Major West European Gas Marketer

This category consists of the major incumbents in the well established gas markets of Western Europe. Because of their financial strength and the breadth of their industrial presence, these companies would be useful as CDC participants and/or shareholders; and in fact it is difficult to imagine CDC implementation being successful without the support of at least two or three of the companies in this category.

Attributes

Companies fitting this archetype have strong balance sheets and unique capabilities due to the scope and scale of their business. These are companies that market a total volume of at least 25 billion cubic meters per annum (Bcma) and in several cases significantly more. They tend to have leading positions in their home market, and positions in other European countries as well; they can generally offtake gas at a number of different points within Europe. Some of these companies also have ambitions to expand into underdeveloped and therefore potentially faster growing markets such as those of South Eastern Europe.

By virtue of their large incumbent positions these companies have by definition close long-term relationships with several of the existing suppliers of gas into the European market. They tend to source gas from diverse portfolios of long-term gas contracts, as well as volumes of indigenous production (in some cases); and to a small and growing extent from spot markets as well. Many of these companies are also present in the power generation sector and thus are significant gas consumers in their own right.

This category of company has the greatest capacity to manage gas price risk, as they are capable of selling gas forward for periods ranging six months to as much as three years. These companies also tend to have the greatest exposure to spot price markets, both through indexation formulas which include some link to spot prices, as well as through direct participation as traders. Typically they also manage price risk via the terms of their long-term gas purchase contracts, which include assurances that their suppliers will adjust prices to ensure the marketability of the gas in final consumer markets. Regular provisions for renegotiation of prices in response to market conditions ensure that these assurances have teeth.

Key Strategic Issues

As the leaders in the European gas business, these companies face difficult choices given the present high level of uncertainty about the future development of the European gas market. At the highest level they are uncertain about the future scope of demand growth, and they recognize that their businesses are, more now than ever before, highly sensitive to energy policy decisions at the national and EU levels.

That being said, these companies are not preoccupied by questions about the level of gas demand and are instead focused mainly on the core issues of their business: maintaining their position in their "home" markets; entering new markets; and finding new sources of gas to

replace depletion of indigenous conventional gas production while dealing with the resultant loss of swing capability. Security of supply is on the agenda, but these players believe this to be an issue they are already actively managing through the diversity of their supply sources, access to stored gas, and demand-side options (such as interruptibility of nonsensitive customers).

In some cases these companies are facing or have recently dealt with mandated gas release programs. They face increasing competition in their "home" markets, both from smaller new entrants to the business and from each others' ambitions for geographical market expansion.

View of New Gas Supplies

All companies fitting this archetype have high on their agenda the goal of maintaining or increasing the diversity of their supply portfolio. Thus they are in principle and in practice eager to buy appropriate volumes of long-term gas from a new supply source such as CDC, assuming that this gas would be priced competitively. They are of course extremely familiar and comfortable with long-term take-or-pay contracts and with various variations on pricing formulas.

Diversity of supply for these companies is not simply a matter of the supplier, but also a function of other features. To the extent a new source of supply is priced on a different basis, or subject to different conditions in terms of volume swing, take-or-pay rollover or reopeners, then this source could be seen to provide additional value in terms of portfolio diversification.

These companies would value the ability to take CDC gas at different points on their own discretion, a flexibility that would allow them to optimize their own transmission commitments across Europe.

Implications of Potential CDC Involvement

The companies in this category can bring the largest scale in terms of volume offtake; for this reason alone is it difficult to imagine enough demand being aggregated to make CDC viable without the significant participation of some of them. This ability to sign up for new gas supply is robust for these large players even in a scenario of slow demand growth, given the offtake flexibility of long-term contracts and the expiration of long-term contracts at regular intervals.

These companies have strong balance sheets and top tier credit ratings, which will allow them to provide solid financial guarantees for gas sales and purchase agreements and also to inject or otherwise support the equity needs of the CDC.

In general the large European incumbents are familiar with the practices likely to be important to CDC, such as long-term take-or-pay agreements, onward sales of gas to companies with weaker credit, and the trading of gas at emerging hubs. From recent experience some (but not all) are familiar with gas release programs.

Competition Implications

The participation of large European incumbents in the CDC would not in and of itself be helpful for promoting competition, since it could in many cases tend to strengthen the already strong position of the dominant players in several key national markets. That being said, these incumbents are emerging as pan-European gas marketers as well; and from this perspective their participation in CDC could be seen to promote competition, particularly if the possibility to access CDC gas at different locations is part of the entity's design.

In South Eastern Europe, where the gas industry is liberalizing as a function of Energy Community commitments, the large players could increase competition by selling CDC gas into these markets. These companies are more likely to function as wholesalers than retailers in these markets, allowing for the emergence of a more competitive retail market. Obviously the introduction of CDC gas volumes into South Eastern Europe would reduce the pricing power of existing suppliers (assuming that CDC gas is priced competitively) and thus would promote competition.

Midsize European Marketer

Attributes

This archetype consists of medium-sized companies that are either secondary players in the largest European gas markets, or the leading market incumbents in smaller countries or regions. In certain cases these companies are integrated to a limited extent, either to international upstream positions, or to positions in the power sector; but neither is the rule. The total gas marketed by companies in this group tends to range from 3–4 Bcma up to about 15 Bcma.

Key Strategic Issues

For most the companies in this category, the major strategic issue is survival. Midsize players in larger markets are seeing their margins and market positions squeezed from both sides: from above by major marketers (and/or suppliers) moving further down the value chain, and from below by new retail entrants.

In smaller markets where players in this middle tier are the leading incumbent marketers of gas, this concern about survival is related to consolidation: their strategic focus is maintaining enough strength and scale to fend off hostile takeover bids by large West European players, while at the same time putting oneself in position to be acquirer rather than acquired in future rounds of consolidation within this middle tier.

View of New Gas Supplies

For these companies, direct access to gas supply is of tremendous interest, as it is potentially one of the best ways to support their long-term independence in changing market circumstances. Some companies in this category do not buy any gas directly from suppliers, but would like to start, in order to avoid giving up margin to larger marketers and to provide a broader platform for trading. Others have one or two long-term suppliers but would be interested in broadening their supply portfolio; this is particularly true in Central Europe, where security of supply is a major issue; and in certain other cases where current supply consists of indigenous gas that is in long-term decline.

Another option being considered by some of the companies in this category is to take positions in LNG, and they would compare the risks and potential rewards of participating in CDC with the alternative of greater LNG involvement. In many cases, midsize players can currently buy traded LNG at Europe's edges but have little capability to move this gas directly into their home markets. They would value CDC gas highly if it could be delivered into their markets, either directly or via swaps.

Implications of Potential CDC Involvement and Competition Implications

The financial strength of the companies in this category is mixed. Few if any would require external credit support, but not all have strong enough balance sheets and credit ratings to be truly additive to the overall financial strength of the CDC.

It is unlikely that midsize players would commit to long-term offtake volumes of greater than about 2 Bcma at plateau, meaning that companies in this category would not on their own be able to anchor the CDC without the participation of larger marketers. In the first years of ramp-up their purchase commitments would probably be in the range of a few hundreds of millions of cubic meters per year.

It is clear that several companies from this category will need to participate in the CDC if it is to gain critical mass while also avoiding raising serious competition concerns, simply because of the regulatory questions that would be raised by a CDC dominated by the major European marketers.

That being said, it is clear that the presence in CDC of midsize companies that are the dominant players in their home markets could hold the potential to restrict competition and liberalization in these markets. How this question evolves will depend to a large extent on how the competition authorities define the relevant geographic market for CDC gas.

Southeastern European Marketers

Attributes

This category consists of the incumbent gas marketing players in South Eastern Europe, defined here as the Contracting Party states of the Energy Community plus Bulgaria and Romania. These companies are the de facto monopoly gas wholesalers in their respective national markets, in the context of a strong commitment to market liberalization in keeping with membership in the Energy Community and (for Bulgaria and Romania) the EU.

In the context of liberalization, and given the fact that energy customers in three of these countries do not currently have access to gas at all, the relevant actors in South Eastern Europe for the CDC are not merely the incumbent gas companies but also the governments, specifically the ministries or agencies responsible for energy policy.

Key Strategic Issues

For these companies and countries the overwhelming strategic issue is ensuring sufficient gas supply to meet growing demand, and also improving security of supply, which would be dramatically enhanced by gaining access to a second source of supply to supplement the existing regional supplier, and in the case of Romania and Croatia, to make up for potentially declining domestic production as well.

As is the case in any newly emerging gas market, these countries face a chicken-and-egg situation with regard to supply and demand. On the one hand, these countries need to attract investment to build gas distribution networks and new gas-fired power plants (which for environmental reasons are needed to replace mature coal-fired or other generation capacity). Meeting this challenge will require assurances of secure long-term gas supply. Yet at the same time it is not easy to attract committed long-term gas supply for demand that is prospective rather than existing, particularly given the relatively weak credit ratings that prevail in the region.

View of New Gas Supplies

Clearly new gas supply would be highly valued in South Eastern Europe, where indeed it is a political and economic priority.

Implications of Potential CDC Involvement and Competition Implications

The gas marketers of South Eastern Europe are weak credits, and their offtake commitments to CDC would require external support. It is envisioned by the Project Sponsors, and assumed in all of the CDC business models, that multilateral financial institutions (first and foremost the World Bank) would provide the necessary credit support to backstop their participation in CDC.

The competition benefits of CDC gas becoming available in South Eastern Europe are clear. Given the liberalization commitments that have been undertaken by the Energy Community and EU states in the region, it is envisioned that some of the major and midsize European marketers already discussed would enter these markets on the basis of CDC gas, enabling new competition to the benefit of consumers.

Upstream Gas Producers

Attributes

This category consists of international exploration and production (E&P) companies who are producers of gas that is marketed in Europe, delivered either by pipeline (from indigenous or external sources) or as LNG. This archetype is meant mainly to describe private, publicly traded companies but it covers state-owned gas producers as well.

Key Strategic Issues

These companies tend to be involved in the European gas market by virtue of marketing their own gas production. Thus their gas marketing operations, even for players with significant positions in Europe, are typically seen as an appendage of their upstream business. The main corporate focus is in exploring for, developing and producing gas, and then marketing it so as to achieve an optimum price.

At present and for the foreseeable future the global business of oil and gas E&P is dominated by the imperative of gaining access to new resources. The majors and so-called "supermajors" in particular find themselves with large cash flows and profits but decreasing opportunities to deploy their capital and skills to exploit large fields due to the fact that much of the world's oil and gas reserves are closed to equity participation as a function of state policy in hydrocarbon-rich countries. This imperative is stronger in the oil sector upstream, but it applies as well in gas.

For this reason companies fitting this archetype will be interested in CDC participation chiefly for the possibility that it might give them an advantage in gaining access to upstream equity participation in countries which are potential suppliers of gas to the CDC. Even if there is no explicit link between CDC participation and upstream access in the relevant potential supply countries for CDC (first of all Turkmenistan), it is possible that upstream producers would even so see an benefit in CDC participation, simply because it could help them to better understand the needs of, and provide an additional avenue of engagement with, potential new suppliers to the European market.

View of New Gas Supplies

With limited exceptions, companies in this category do not market third party gas in Europe; thus absent any related upstream positions, their default position will be a lack of interest in buying gas through CDC. However, this situation could evolve if the situation in the upstream changes from the present status quo. Upstream producers will be concerned to ensure that the arrangements for CDC maintain a level playing field with supplies from other production sources, in which they may be participants, in order not to unfairly weight competition.

Aggregators

Certain gas producers have adopted a model which makes the idea of participating in CDC more interesting for them. These are the so-called Aggregators who have built a portfolio of flexible offtake arrangements for their equity gas as well as additional purchased upstream gas or LNG. Indeed much of their portfolios consist of LNG shipping and regasification capacity around the world. Some have taken on downstream positions in order to anchor key LNG loads.

A key component of the value of the Aggregator's portfolio is the ability to divert LNG supplies to the most attractive markets at any point in time. To support this, some have developed pipeline and storage positions to support ongoing regional market positions.

For this reason it is possible that Aggregators might be willing to undertake some long-term offtake commitments of CDC gas, provided that this gas could be delivered to their preferred markets, and if they perceived that this would provide a long-term price advantage relative to other sources, including spot markets in those locations where markets are sufficiently liquid.

Implications of Potential CDC Involvement and Competition Implications

Major international gas producers—Aggregators in particular—are the only players that command diverse, global gas supply portfolios. Were any these companies to participate in CDC, they would individually have the ability to engage in portfolio optimization between their CDC participation and their other supply positions. This would establish the price dynamics of the global gas market as a constant reference point for competition in the European markets they serve, thus assuring customers of the benefits of gas priced according to the widest possible global references. However in this case these aggregators would of course use this flexibility in their own interests; their actions in this area might or might not benefit the broader CDC.

Gas Traders

As more liquidity emerges in the European gas market, there is a growing class of participants who are acting purely as traders, buying and selling gas (sometimes with only paper positions) and seeking to profit from temporal or geographic imperfections in the market. These traders include financial institutions as well as established traders in the oil market or other commodities markets.

The view of IHS CERA is that pure traders are not prospective participants in CDC in the sense of having any willingness to take on long-term offtake commitments. However we envision some possible roles for traders in CDC:

- Traders could be enlisted as suppliers of trading and scheduling services for the CDC, should the CDC decide to outsource these functions;

- Traders could of course participate in any auctions of spot gas that are built into the CDC design.
- Traders could facilitate locational swaps of gas, most likely in partnership with larger or medium-sized gas marketers, depending on the depth of their positions at particular regional hubs in the normal course of their business activities.

1.3 THE INDUSTRIAL BASIS FOR CDC

Beneath the conceptual underpinnings and policy drivers of the CDC concept are the two perennial leading actors in the energy business: supply and demand. It is understood that the next 20 years will see needs for new gas in Europe that must be met, and there exists clear potential for substantial new gas production in the Caspian region and the Middle East. The CDC is intended to help bring this supply and demand together, in part by supporting the construction of the infrastructure that is required in between.

IHS CERA undertook an exercise to examine the supply and demand context for the CDC by elaborating a reference case outlook for European gas demand as well as potential CDC gas supply, taking also into account loading of the relevant infrastructure. This is not a prediction or a forecast but rather a plausible outlook that can be used to test the assumptions behind the CDC concept, and to be used as a reference case for the project financial model to be presented later.

1.3.1 European Gas Demand

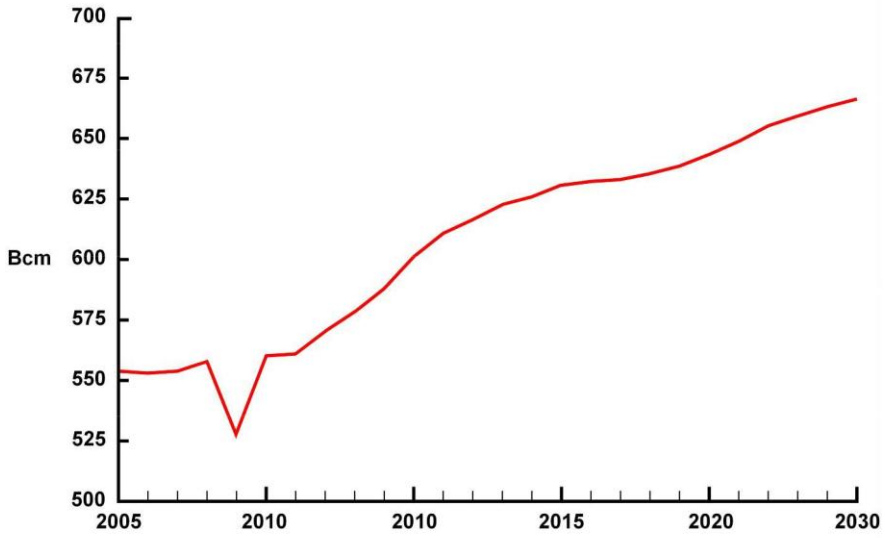
European gas demand saw a sharp decline in 2009 due to the global economic recession, with demand for the year declining by approximately six percent. In 2010 gas demand bounced back to a level close to that of 2008, but this is partly due to unusually cold weather in northern Europe during the first quarter. IHS CERA expects full recovery in gas demand to be sluggish, with total demand not exceeding 2008 levels before 2012.

Perhaps surprisingly, the fact that the European gas market has lost four or five years of demand growth is having relatively little impact on the drive of major market participants to secure new sources of long-term supply, although it is certainly true in most cases that the urgency of securing new supply has been reduced.

IHS CERA has elaborated three new long-term scenarios for European gas demand as part of a global scenarios exercise. The differences among these scenarios are driven by varying assumptions about international relations, economic growth, the implementation of the green agenda globally and in Europe, and other factors. Of these scenarios, the one called *Global Redesign* best fits with the planning approach of the European gas industry, according to strong feedback IHS CERA received during the consultation process. This scenario sees gas demand in Europe continuing to grow over the long term, albeit rather slowly after 2020 (see Figure 1-1). Scenarios with much slower growth (or negative growth) in gas demand were considered plausible but at the same time unsuitable for use as a planning case.

Figure 1-1

European Gas Demand Through 2030
IHS CERA Reference Case



Source: IHS CERA.
Note: Europe is defined as the 27 member states of the European Union plus Norway, Switzerland, Albania, FYROM, Serbia, Montenegro, Kosovo, Croatia, Bosnia & Herzegovina, and Turkey.
01214-18

1.3.2 Incremental Demand Growth: The Opening for CDC Gas

IHS CERA has used its reference case scenario to estimate the market increment available for CDC gas in Europe—specifically in those 20 countries which we considered to be within range of Southern Corridor supply. (We do not rule out that CDC gas could reach more distant markets via swaps, but for the sake of simplicity we did not consider such volumes—which we expect would anyway be modest in the relevant timeframe—in our calculations.) The analysis also took into account projected changes in indigenous gas production. (It is worth emphasizing that the *Global Redesign* scenario outlook for European gas production does not assume any sharp increases in the production of unconventional gas in Europe.)

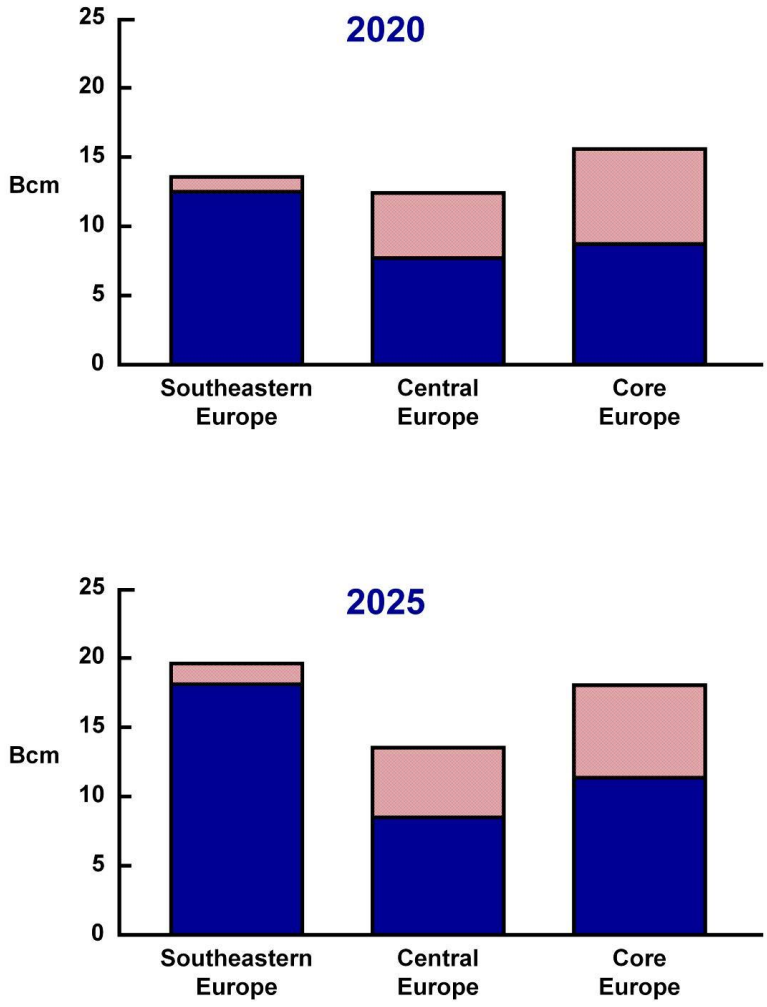
Through analysis on a country-by-country basis, a determination was then made regarding what percentage of incremental demand growth (plus indigenous decline) would likely or plausibly be met by Caspian and/or Middle Eastern gas, including but not limited to CDC gas, on the assumption that a major Southern Corridor pipeline project was to proceed more or less in keeping with the presently announced schedule. This analysis took into account geography, transportation logistics, planned construction of LNG regasification facilities, the plans of other gas suppliers, and various other factors.

From this analysis emerges the figure shown in Figure 1-2, which cover the most critical period of CDC supply build-up by providing outlooks for 2020 and 2025.

Figure 1-2

The European Market for Southern Corridor Gas in 2020 and 2025: IHS CERA Reference Case

(Global Redesign Scenario)



Source: IHS CERA.
Notes: Totals (blue plus red) show the incremental mark gap (taking into account demand growth as well as indigenous production trends) by region between 2010 and the year displayed. The blue segments show volumes assumed to be supplied from the Southern Corridor, Southeastern Europe: Greece, Bulgaria, Romania, FYROM, Serbia, Montenegro, Kosovo, Croatia, Bosnia & Herzegovina, Albania. Central Europe: Czech Republic, Slovakia, Poland, Hungary, Slovenia, Austria. Core Europe: Germany, France, Switzerland, Italy. Turkey is not included in these figures.
01214-17

1.3.3 Supply and Transportation Outlook

There are a range of plausible sources of gas supply for the proposed Southern Corridor, including countries in the Caspian region and the Middle East. The CDC can in theory purchase gas from any of these sources, it is important that the CDC's design does not close off future options in terms of gas supply. However, for the purposes of IHS CERA's work, the focus thus far has been on Turkmenistan as the sole source of gas for the CDC. Azerbaijan stands out as the most important near-term source of supply for a Southern Corridor, but it has expressed an interest in marketing its gas directly into Europe, and intends to cooperate with the CDC initiative as a transit state only.

In order to compare potential CDC supply (as a component of Southern Corridor gas supply) with the demand outlook previously described, IHS CERA has developed a parallel reference scenario for gas supply. Again, this is not a prediction or forecast but rather a plausible, indicative outlook that can be used to test the overall concept.

This supply outlook, which is based on IHS CERA's ongoing analysis of Eurasian gas production and flows, rests on a series of assumptions regarding the timing of new gas production and of commissioning and expansion of new pipelines (see Table 1-1).

Table 1-1
Timing of New Upstream and Transportation Developments, 2012–22
IHS CERA Reference Case

Year	CDC production	Non-CDC Production	Transportation Infrastructure
2012	Turkmen offshore gas development begins	Shah Deniz Phase II gets underway	Final investment decision (FID) taken for TCP, SCoP*
2013	South Yolotan development underway		Construction begins for TCP* (first string), SCoP
2015	Turkmen offshore production (10 Bcma) begins midyear	Northern Iraqi gas production for export of 5 Bcma begins	TCP and SCoP commissioned, neither at full design capacity; expansion phase of SCP1* commissioned; construction of SCP2* begins
2017		Shah Deniz Phase II gas begins to flow	
2018	First gas produced from South Yolotan and delivered westbound	Shah Deniz Phase II gas reaches peak of 16 Bcma	SCP2 commissioned, Turkmen gas flows shifted from SCP1 to SCP2; laying of TCP second string begins
2019	South Yolotan produces 10 Bcm for westbound delivery	New gas production from Azeri offshore begins	SCoP working at operational capacity (32 Bcma)
2020			
2021	South Yolotan produces 15 Bcm for westbound delivery	Slow growth in Azerbaijani gas production continues	
2022	South Yolotan produces 20 Bcm for westbound delivery		TCP (30 Bcma) and SCP2 (33–34 Bcma) working at full design capacity

Source: IHS CERA.
Notes: TCP – Trans-Caspian Pipeline. SCoP = Southern Corridor Pipeline (possibly Nabucco). SCP1 – South Caucasus Pipeline, commissioned 2006. SCP2 – South Caucasus Pipeline 2 (prospective new pipeline along route of SCP through Azerbaijan and Georgia).

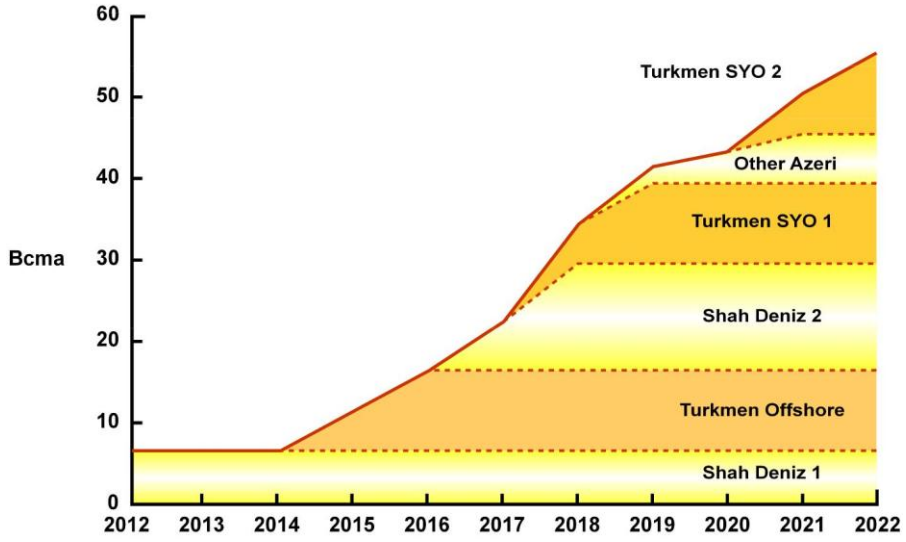
The key assumptions underlying this schedule are as follows:

- A gas purchase and sale agreement (GPSA) is signed in 2011 or early 2012 between Turkmengaz and CDC (or alternatively with an independent European company or consortium (see Section 2.1.4)), which will see gas production from the Petronas-operated offshore Block 1 (assumed to plateau at 10 Bcma) flowing west. This leads to Petronas sanctioning an upstream development plan in 2012, including construction of a pipeline to the Turkmen shore and the completion of a gas processing facility (already partly constructed).
- On the strength of this GPSA—and with the sanctioning of Azerbaijan's Shah Deniz Phase II development project taking place on a similar schedule—CDC will then make a series of shipping commitments that will support final investment decisions (FIDs) for a series of westbound transportation projects:
  - the first string of a Trans-Caspian Pipeline (TCP);
  - expansion of the South Caucasus Pipeline (SCP1);
  - the first phase of the Southern Corridor Pipeline (SCoP), for which we are assuming an additional commitment of 5 Bcma of early (non-CDC) gas from Iraq and commitment of Shah Deniz Phase II gas by 2017.
- By 2012 Azerbaijan's Shah Deniz Phase II development project will be underway; subsequently agreements will need to be reached for the further expansion of the construction of a second) South Caucasus Pipeline or construction of a second pipeline (SCP2) along the same corridor as SCP1. This additional capacity will need to be commissioned at approximately the same time that Shah Deniz Phase II production begins, as the additional Azerbaijani gas will quickly displace early Turkmen gas from SCP1.
- By 2013 an initial 10 Bcma phase of the South Yolotan gas development project—potentially dedicated for sale to CDC—will be underway, along with construction of an east-west pipeline which would give this gas access to the TCP kick-off point at Turkmenbashi. The South Yolotan gas will drive CDC shipping commitments (perhaps confirmed by 2015) which will form the basis for expansion of the TCP system (by laying a second string), as well as SCP2 and to some extent SCoP.
- A second 10 Bcma phase of onshore Turkmen gas development will be committed to CDC at a later stage, allowing onward shipping commitments from CDC in order to drive the expansion of the transportation corridor from Turkmenistan to Europe to a level of 30 Bcma.

The assumed buildup of Turkmen and Azerbaijan gas production for westbound export is shown in Figure 1-3. Figure 1-4 shows how these volumes are distributed through the various pipelines making up the Southern Corridor in 2015, 2020, and 2025.

Figure 1-3

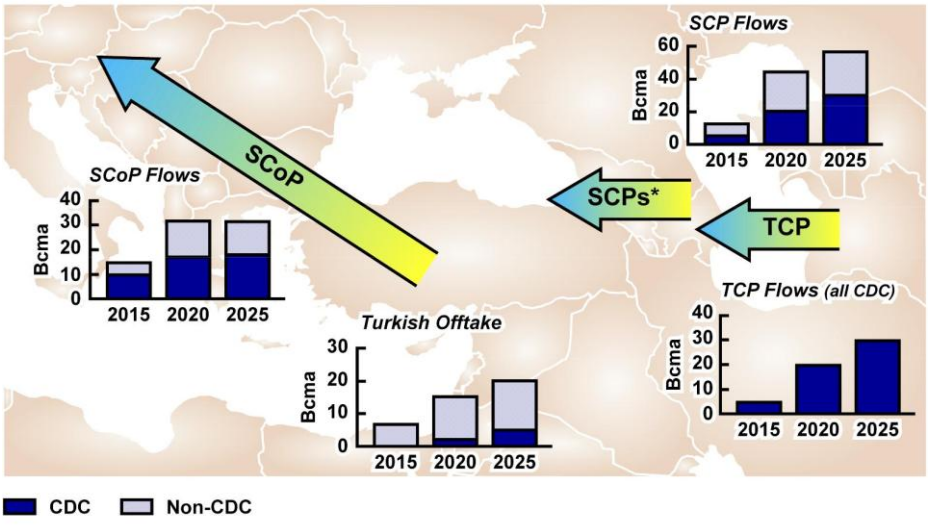
Build-up of Turkmen and Azerbaijan Gas Production
IHS CERA Reference Case
(Westbound Export Volumes Only)



Source: IHS CERA.
Notes: SYO = South Yolotan/Osman.
01214-19

Figure 1-4

Volumes Flows Through Southern Corridor Pipelines, 2015–25, IHS CERA Reference Case



Source: IHS CERA.
*SPC1 + SPC2=SCPs
01214-1

SECTION 2

CDC BUSINESS MODEL AND TRANSACTIONAL ARCHITECTURE

2.1 BACKGROUND AND CHOICE OF BUSINESS MODEL

During the course of its engagement as CDC Consultant, IHS CERA has followed a extensive process intended to produce a business model for CDC which will be optimal for achieving three goals:

- Meeting the requirements and preferences of potential suppliers of gas, first of all Turkmenistan, such that they would be willing to commit a critical mass of long-term gas supply to the CDC.
- Meeting the requirements and preferences of a critical mass of private sector companies of sufficient aggregate scale, first and foremost European marketers of gas, such that they would find it attractive to take part in the CDC, perceiving that the potential benefits of participation would outweigh any possible risks or liabilities.
- Meeting with the approval of the Project Sponsors, which entails achieving the fundamental goals of the CDC initiative, primarily the diversification of European gas supply by linking new sources of supply to the European market through a new Southern Corridor.

IHS CERA has tried to achieve this objective of designing and refining a CDC business model that would meet all three of these objectives by following an iterative process that included at each stage considerable engagement with stakeholders. The process has had three phases.

2.1.1 Phase One: Conceptualization and Scoping

In the Inception Report (submitted 30 June 2009), IHS CERA developed an analytical framework for thinking about the possible structure of CDC structure. This process began with two sets of criteria. First of all, we identified eight parameters representing different aspects of the entity's potential structure or function; these can be seen in Figure 2-1.

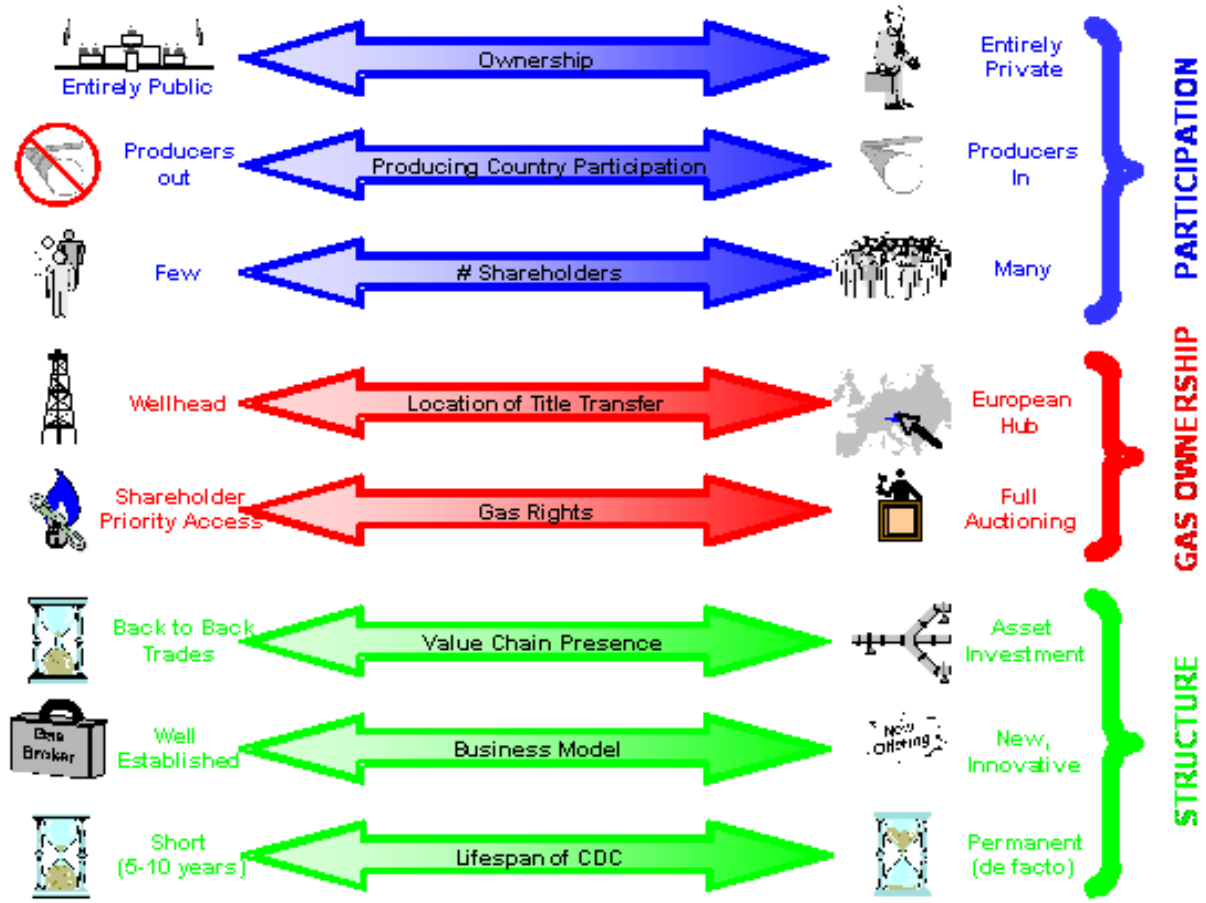
Second, we indentified the commercial starting points that would drive the approaches toward the CDC concept of the three sorts of counterparties with whom a CDC would build contractual relationships:

- Producers, from whom CDC would buy gas;
- Sponsors of transportation infrastructure, i.e. the promoters and eventually owners of the new pipelines which will comprise the Southern Corridor; and
- Marketers, who would be the CDC's core participants/shareholders and also buy its gas.

Taking into account the preferences and requirements of these three groups, IHS CERA has been careful to apply to the CDC well-tested commercial and contractual structures for the purchase, shipping, and sale of gas.

Figure 2-1

Range of Initial Scope Options for CDC



Source: IHS CERA.

The inception report concluded by describing in broad outline four different possible business models for the CDC: Clearing House, Trader, Bundler, and Integrated Importer. These four models were presented to the CDC Steering Committee in July 2009 and formed part of the basis for consultations with industry and other stakeholders during the third quarter of 2009. They are described in Appendix 3, along with some relevant historical benchmarks for aggregated gas purchase in Europe.

2.1.2 Phase Two: Screening

In analysis presented in the Interim Implementation Report (submitted 30 September 2010), IHS CERA further refined the four prototype business models, and then screened them to judge the capability of each model to achieve success in five key areas.

Scale

The CDC must be designed so that it has the capacity to purchase gas in substantial quantities: in the neighborhood of 10 Bcma initially, with a firm plan from the start to grow at least 30 Bcma and ideally beyond that.

Simply put, bringing gas from the initially targeted supply source of eastern Turkmenistan to the European market represents a hugely complex and difficult undertaking in political, financial, and engineering terms. If it cannot be done at the scale envisioned by the Project Sponsors, and the scale we are here independently recommending, then it is not going to be done at all. Only a very large-scale option would support the rapid loading profile that is needed to significantly reduce effective upstream development costs, and match the required early loading profile for large-scale Southern Corridor infrastructure.

This criterion is not meant to rule out or to question the value of small-scale options that would bring the smaller quantities of offshore Turkmen gas west to feed into the westbound export infrastructure that would in this case be built primarily for Azerbaijani gas. This option, assuming it would not require major new Southern Corridor infrastructure to be built east of Turkey's western borders, could be viable. But this would be a very different undertaking without the same strategic significance or potential to benefit suppliers, transit states, European consumers, or the broader goal of European energy security. Such an effort would not require an initiative such as CDC to be achievable; at the same time its lack of scale might not make a strong enough case to support a political decision on the part of the Turkmen authorities to proceed with a westbound export route.

Value for Participants

One clear conclusion of the CDC Consultant analysis, as well as the consultations held with industry, was that participation in CDC regardless of business model is not a decision that any company will take lightly. Taking part in CDC will bring financial liabilities, some portion of which will inevitably remain with the CDC participants, regardless of any guarantees, backing, or insurance that can be provided externally. Being a member of CDC will require major and sustained focus on the part of senior management whose time is scarce, particularly given the pervasive mood of change and uncertainty in the gas sector today. And finally support for CDC does bring with it some risk of disrupting or damaging relationships with existing gas suppliers. In fact, few companies have communicated this concern explicitly; but it is obvious that it exists.

It is true that IHS CERA has found strong interest across most of the European gas industry in the concept of CDC. But we should not mistake this early interest for a desire to participate fully in this initiative—something that will require clearer definition of the CDC business model among other things.

For this reason it is imperative that the CDC be structured in such a way such that its participants can clearly see material benefits in their participation, and have a high expectation that the CDC project will work as planned and allow them to achieve these benefits. Simply gaining access to another source of gas supply, and thus increasing security of supply through diversity, will be enough only for a minority of stakeholders who will not be sufficient to anchor a viable entity in terms of their offtake commitments or balance sheets.

Thus the CDC must deliver value to the supply portfolios of its participants in other ways as well, through some combination of the benefits related to access to new markets, pricing,

flexibility of offtake location, facilitation of swap arrangements, swing capability, support for upstream access, or regulatory exemptions.

Realistic Financial Feasibility

The total amount of investment required to develop new gas fields in eastern Turkmenistan and elsewhere and bring approximately 30 Bcma of gas to Europe through new transportation infrastructure will amount to something in the neighborhood of $20 to $30 billion. If this investment is not justified by the ultimate returns to all relevant parties from the sale of this gas into Europe, it will not be forthcoming—the initiative to create the CDC notwithstanding.

At the same time, the economics of the integrated upstream development and transportation infrastructure projects are highly exposed to a series of major project risks. The primary purpose of CDC is to mitigate the various major risks that can be identified across the value chain, from those internal to CDC (gas market risk, price risk, credit risk of gas offtakers, etc.) to those that are external to CDC but still mitigated directly or indirectly through its offices (chiefly upstream performance risk, political risk, and volume risk for transportation infrastructure).

A detailed contractual structure must be in place before it will be possible to quantify these risks and consider how much liability will need to be borne by multilateral and bilateral financial institutions, governments, and CDC participants in order to make the project robust. But it is clear that the capacity of this group of stakeholders to bear risk is not unlimited. This means that the CDC design should be carried out so as to minimize these risks and their contingent liabilities to the level at which financial support seems feasible. Designing an entity on the assumption that managing risks up front is not a top priority—because in any case these risks will ultimately be laid off on the international financial institutions (IFIs)—would be a prescription for failure in our view.

Acceptable Competition Trade-offs

The CDC will, as a intentional consequence of its fundamental approach—which is based on aggregating gas demand through a consortium of purchasers—run counter to elements of EU gas sector regulation which have intensified in recent years.

From this follows a second point: the CDC's design must take firmly into account the requirement to minimize this contravention of the principles of EU competition doctrine. This will require that the CDC seek to balance these aspects by simultaneously promoting competitive markets in other areas of its design; and that it ultimately resolve any contradictions by having a defined path toward obsolescence, and/or through a gas-release program or other mechanisms that should be built into the CDC's design and acceptable to its participants.

It is certainly possible that the CDC Sponsors will ultimately seek an explicit exemption for CDC within the scope of competition law, but this should not change the basic approach: in this case efforts should be made to strengthen competition efficiencies in order to compensate for aspects of CDC activity which may restrict competition.

Assuring Infrastructure Construction

The most obvious obstacle to bringing gas from eastern Turkmenistan to the European market is the absence of transportation infrastructure. Significant progress has been made with regard to various specific pipeline proposals that focus on the western and central segments of the

proposed Southern Corridor (i.e. segments in Europe, Turkey, and the Black Sea), but as yet there has been relatively little focus on building the infrastructure in the Caspian region itself that would be needed for material volumes of Turkmen gas to ever be delivered into a Southern Corridor.

In the course of its consultations with industry, IHS CERA has repeatedly been told that a major goal of the CDC should be not only to help underpin the existing Southern Corridor pipeline projects, but also to support the development of pipeline infrastructure further east, including a large-scale Trans-Caspian Pipeline along with related pipelines to the east and west of the Caspian Sea. Therefore an important criterion for any CDC design will be the extent to which it stimulates the development of this infrastructure.

Recommendation to Focus on Two Models

On this basis, IHS CERA recommended to the CDC Steering Committee in October 2010 that two models be further considered: the Bundler model; and a variation on the Clearing House model called the Tiered Clearing House. The Steering Committee and accepted this suggestion and requested that further analysis be devoted to a comparison of these two models.

2.1.3 Phase Three: Choice of CDC Model

Pursuant to the request of the Steering Committee and the CDC Project Sponsors, IHS CERA in its Draft Final Report (submitted 28 February 2010) included a more detailed elaboration and comparative analysis of the Tiered Clearing House and Bundler models.

The Bundler model, which was ultimately selected, is described in Section 2.2 below. The Tiered Clearing House model is described here.

The Tiered Clearing House Model

In the Tiered Clearing House model, the CDC would not be an incorporated entity. Instead it would be a series of contractual arrangements and mechanisms through which independent CDC participants would agree to coordinate their purchases of Turkmen gas (see Figure 2-2).

The First Tier of the CDC in the Tiered Clearing House would consist of individual companies with strong credit ratings, backed in many cases with a solid track record of bringing gas into Europe through long-term contracts, who would form a joint team to negotiate common terms of a Gas Purchase Agreement (GPA) with Turkmenistan on all aspects except those related to price.[2] These companies would then coordinate a single offer to buy volumes of Turkmen gas. However each of the First Tier companies would then break off to hold separate negotiations with Turkmenistan with regard to pricing terms.

These companies taking part in the CDC First Tier would also make long-term commitments to transport Turkmen gas through new pipelines, sufficient in aggregate to assure the delivery of the gas.

In the Tiered Clearing House model, the CDC will also have a Second Tier of participants consisting of smaller companies and end-users of gas which do not have the ability or desire on their own to sign long-term contracts to buy Turkmen gas. They would instead agree to

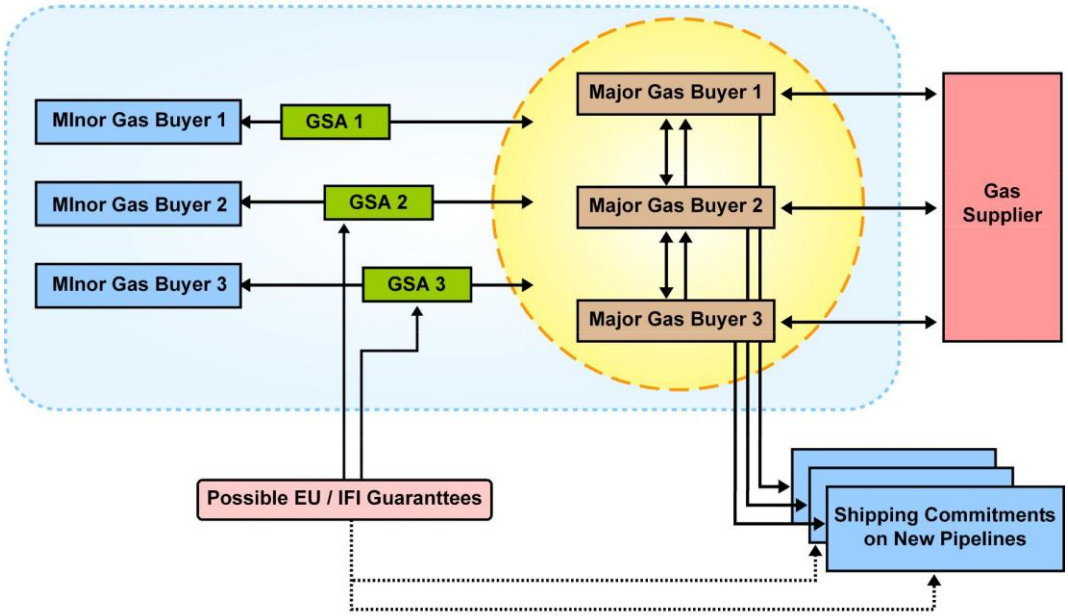
[2] There are typically about 24 Articles in contracts for the long-term purchase of gas in Europe. 21 or 22 of these Articles can be common to all buyers. Up to three Articles, dealing with price and possibly other commercial terms, would be individually negotiated under the Tiered Clearing House model.

purchase gas from the First Tier participants at delivery points within Europe. Their commitments, when aggregated, would allow the First Tier participants to buy Turkmen gas in much larger volumes than they would without the Tiered Clearing House structure.

Once the First Tier companies have made firm purchase commitments, the Second Tier companies would enter negotiations to finalize their purchases from the First Tier participants.

Figure 2-2

The CDC as a "Tiered Clearing House "



Source: IHS CERA.
01214-20

Legal Status

In the Tiered Clearing House model, the CDC would be first of all the name given to a series of coordinating agreements between European buyers of Turkmen gas, and to a Coordinating Committee or Secretariat which would manage and oversee this coordination, and independently manage some day-to-day operations.

Financial and Commercial Status

Although the CDC in this model may or may not have a legal status and permanent staff, it will not be a full-fledged joint venture company with a balance sheet and equity capital, nor be expected to secure a profit. Legally, the individual First Tier companies will only be responsible for their own contracts, and will not be required to cover the obligations of other First Tier companies towards Turkmenistan as the seller.

Shareholders/Participants

As in the Bundler model, the participation in the CDC in this case will depend purely on the decisions taken by individual European companies. Objective criteria will be established, related to creditworthiness and ability to commit to large volumes of gas, to determine whether companies will participate on First Tier or Second Tier.

It is expected that the First Tier would include at least three, and perhaps up to five or six companies, and that the Second Tier would include between ten and thirty players.

Gas Purchase, Shipping, and Sales

It is expected that CDC First Tier participants would purchase gas at Turkmenistan's Caspian Sea coastline. The pricing for gas purchase would be negotiated separately with each First Tier participant.

In the Tiered Clearing House, the CDC itself would not make shipping commitments to underpin the financing of pipeline or other gas transportation infrastructure. However as a requirement of participation on the First Tier of the CDC, companies would make shipping commitments to specific pipelines which in aggregate be sufficient to ensure that the pipelines are financeable. It may ultimately prove more effective to make such commitments through a joint special purpose entity.

The basic legal agreements establishing the CDC in the Tiered Clearing House model will include certain rules and principles governing the sale of gas onward from First Tier to Second Tier participants.

Recommendation of the Bundler Model

Overall the view of IHS CERA was that both of the two remaining CDC business models had the potential to meet all of the key criteria, and that a direct comparison between the two models showed that each model had certain advantages and certain drawbacks relative to the other. The Project Sponsors ultimately instructed IHS CERA to proceed with the Bundler model (see Section 2.2) for the design and structure of the CDC.

2.1.4 Approach Toward Independent Private Sector Initiatives

Along with the selection of the Bundler model, constructive further guidance came from the Project Sponsors in the first quarter of 2010 with regard to the stance of the CDC toward independent private-sector initiatives (IPIs) that have been working toward a similar goal—

the conclusion of independent long-term gas purchase agreements with Turkmenistan as well as the achievement of transportation infrastructure to deliver Turkmen gas into the European market.

The key difference between the CDC and the IPIs that have been contemplated is one of scale. The strategic objective being pursued by Europe through the CDC is a large-scale import corridor connecting Turkmenistan to Europe—defined as at least 30 Bcma by 2025–30. From the perspective of Turkmenistan, this would create a Western export corridor that would be similar in scale to its present export corridors north to Russia and east to China. Therefore the potential success of an IPI does not negate the need for an initiative like CDC that is focused on delivering a large-scale corridor.

During the early stages of the CDC project, there had been no need to define with precision the relationship between CDC and such IPIs. The approach taken was to keep channels of communication open while acknowledging that these projects were working ultimately toward a similar goal; and beyond that, simply to wait and see.

Now, with some IPIs apparently having made considerable progress toward the negotiation of bilateral gas sales and purchasing agreements (GSPAs) with Turkmenistan outside the context of CDC, the Project Sponsors have suggested a pragmatic approach that would focus on building in to the Bundler model the flexibility to cooperate in a constructive way with any successful European IPIs, and to incorporate any IPI gas volumes into the 30 Bcma target of CDC. IHS CERA has consulted widely with the companies leading these IPIs and explored how the attributes of the CDC model can be integrated with their commercial concepts. The design of the Bundler model as described in this section is meant to achieve a 30 Bcma corridor to Europe either on a stand-alone basis, or in synergistic cooperation with independent private sector initiatives (IPIs).

2.1.5 Benefits of the Bundler CDC for Small Gas Marketers

The aggregation processes applied for CDC will have a number of benefits based on the general rule that the peak demand days of different offtakers will not be completely coincidental. This will allow CDC to offer a broader offtake flexibility to its participants than it contracts to with its supplier (allowing better load factors and generating cost savings). This will be specifically valuable to small offtakers within CDC who are particularly exposed to high firm capacity costs—especially where there are no easy sources of alternative balancing gas supply (areas such as the South East Europe).

Small marketers will also benefit within CDC from the following features:

- no necessity to individually contract for shipping capacity
- scheduling and balancing operations handled centrally within CDC
- CDC retains its own trading function for balancing sales and purchases of third party gas, and offers time and geographic swap capabilities with other participants.

Many of these features would not be available to small gas purchasers or the overhead cost of maintaining them would be excessive.

Small marketers with weak credit standing may also be in a position to benefit from credit support arrangements where IFIs deem this appropriate.

2.2 THE CDC BUNDLER MODEL

In the Bundler model (see Figure 2-3), the CDC is a financially strong corporation able to take on substantial financial commitments. It would merge an aggregated purchasing function with an aggregated shipping function.

2.2.1 Basic Description of the Bundler Model

The CDC will first of all purchase gas on the basis of a single Gas Purchase Agreement (GPA) to be negotiated with the supplier, presumably Turkmengaz. It would then sell this gas onward through a series of Gas Sales Agreements (GSAs) with European gas marketing companies who would also comprise the CDC's shareholders. As an aggregated purchaser of gas, the CDC will take on the composite credit risk of all offtakers of CDC gas, covering the exposure between its GPA and its GSAs.

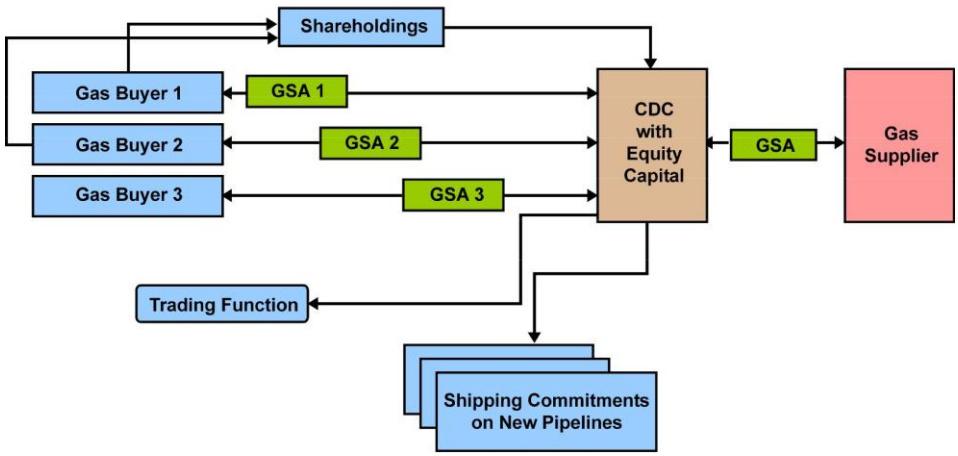
The CDC in the Bundler model will hold title to the gas between the point of purchase and the various points of onsale, and it would have responsibility for transporting this gas on the basis of shipping agreements with the owners of the intervening gas transportation infrastructure. These agreements would give the CDC guaranteed long-term capacity in these pipelines while also committing it to ship minimum volumes of gas through these pipelines. This new infrastructure, which would include a Trans-Caspian Pipeline as well as new capacity through Azerbaijan and Georgia and onward into Europe, would be financed in part on the strength these CDC commitments.

These ship-or-pay obligations will represent a substantial exposure for CDC—although as we will see in Section 3, this exceptional exposure will probably need to be backstopped by the European Union and/or International Financial Institutions (IFIs) if the CDC is to avoid imposing unacceptable levels of exposure on its participants.

Figure 2-3

The CDC Bundler Model

(basic scheme)



Source: IHS CERA.
01214-2

Legal Status and Management

In the Bundler model, the CDC would exist as a newly incorporated company that would be jointly owned by a number of existing companies, most or all of whom would be active in the business of selling gas in the European market. It would be governed by agreed Articles of Association and a Shareholders Agreement.

There can be advantages if the operations for gas purchasing and sales (including trading) and those for shipping, can be separated at a corporate level, such that financial failure of CDC in one area will not prejudice the commercial commitments in the other. This can be done through a holding company structure with affiliates for trading and for shipping.

The CDC would have its own independent management staff. The secondment of employees from shareholder companies into CDC would not be impossible, but it would likely be complicated and constrained by rules on information exchange and price sharing in relation to EU competition law. The management would be appointed and overseen by a Board of Directors which would consist of representatives of the CDC shareholding companies but whose precise composition cannot be determined until the CDC has actually taken shape and the number and type of its shareholders are clear. An oversight body including institutional stakeholders such as the EC and/or regulatory authorities could be instituted to provide support for the evolution of CDC through broadening supply, growth and changes in markets, and ultimate dissolution or time extension of the arrangements.

It should be highlighted that the CDC in the Bundler model would be required to comply directly with all regulatory requirements, including requirements for companies involved in trading to meet certain adequacy thresholds for reserve capital. It may also be required to meet future regulations with regard to security of supply. This compliance requirement may place more onerous obligations on shareholder contributions to the CDC balance sheet.

Financial and Commercial Status

The CDC would have its own balance sheet, and it will take on very substantial financial obligations: take-or-pay obligations to the gas supplier as well as ship-or-pay obligations to pipeline owners. These exposures are discussed in more detail in Section 3.

Trading activities and swaps among the participating CDC companies, and potentially with external parties as well, will be used to offset short-term and long-term imbalances. This will require CDC to manage a trading function and to account for aggregate imbalances of volume and pricing, which will represent an area of exposure. It is possible over time that the CDC might have the ambition to trade secondary shipping capacity in order to give it more flexibility to avoid situations of over commitment; however this would require the evolution of mechanisms and secondary markets for the trading of pipeline capacity rights along the Southern Corridor. It is important to recognize that the trading activities will be used to optimize the performance of CDC as a whole versus that available to individual participants, improving overall load factor, and optimizing the value of contractual flexibility terms. There is no intention for CDC to indulge in any speculative trading.

Although in theory the creditworthiness of strong participants could balance the poor credits of weaker participants, our consultation exercises indicated an unwillingness by such strong players to “carry” weaker ones. Thus in order to minimize performance exposure, the CDC would only take on long-term sales arrangements with offtakers with weak credit ratings (including CDC shareholders) in cases where these offtake commitments are supported by

creditworthy sovereign support or by IFI guarantee arrangements. The World Bank has indicated that its Partial Risk Guarantee (PRG) mechanism would be particularly appropriate to support the credit requirements of certain Energy Community gas utilities where regional gasification is a strategic goal.

The CDC in this model would in general not be designed or managed with the maximization of profit as a major goal of its activity. The margin it would earn on its business would be, as a broad principle, enough to cover its operating and management costs and provide for a reasonable but limited return on capital.

Shareholders/Participants

It is impossible to say *a priori* how many shareholders the CDC would have in the Bundler model, as this will depend on the individual decisions of various European companies as to whether or not to participate. However through the consultation progress it has been possible to get a sense of the potential composition of the CDC.

- The core shareholders would be major European gas marketing companies of Europe;
- Some medium-sized or small gas marketing companies would likely participate, including many gas companies in South Eastern Europe;
- Some producers of gas with a portfolio of gas supply into Europe—these companies can also be referred to as aggregators—might participate, particularly companies with upstream ambitions in Turkmenistan.
- Some large final consumers of gas, such as electric power producers or large industrial users of gas, might take up an interest.

In total, the CDC could include between ten and thirty companies, which would all be bundled together as shareholders in a single entity.

Gas Purchase, Shipping, and Sales

It is expected that the CDC would buy gas near Turkmenistan's Caspian Sea coastline, perhaps in Turkmenbashi, at the entry flange to the Trans-Caspian Pipeline. The pricing for gas purchase would be negotiated by CDC with Turkmenistan, and determined with some reference to the sale prices of gas in the relevant European markets. The issue of pricing is discussed in more detail later in this section.

Alongside its commitments to long-term purchase of Turkmen gas, the CDC would acquire long-term shipping rights in gas transportation infrastructure between the Turkmen coastline and the various European markets into which the CDC gas would be sold to its shareholders. These shipping commitments will be a key component in underpinning the financing of one or more sections of the new transit pipeline infrastructure, as discussed later.

Shareholder rights to purchase gas from CDC would be given on a pro-rata basis commensurate with each company's level of equity interest in the corporation.

There will be mechanisms and obligations to sell some volumes of gas to nonparticipants in CDC as well. Defining the scope and timing of such obligations is difficult or impossible before the CDC composition is known. Obligations to release or auction gas would likely be more rigorous in a scenario where CDC went forward with 8 participants as compared with a scenario in which it had 30 participants.

Pipeline Ownership

It is no longer envisioned that CDC could have any ownership stake in transportation infrastructure, although this idea was considered during the model development process.

2.2.2 Benefits and Strengths of the Bundler Model

The CDC under the Bundler model clearly meets the requirement of scope and scale in terms of its potential ability to aggregate gas demand, on the strength of three key characteristics of the model:

- The Bundler will allow for a wide range of geographic offtake of CDC gas;
- It will remove the need for smaller offtakers to make their own shipping arrangements;
- It should assure competitive pricing across a wide range of European gas markets.

There are a number of areas in which participation in a Bundler CDC will appeal to European gas marketers by offering to them tangible value. The commitments and commensurate rights of access to Southern Corridor pipelines will offer significant scope for offtakers to engage in geographic optimization. This will in turn reduce the risk of committing specific volumes for specific markets; in particular it will provide a low-risk platform for established gas marketers and new entrants alike to tap into the potential high growth markets of South East Europe, especially where IFI support can be made available for GSAs with weaker credit offtakers.

The Bundler model is of course better suited than any alternative considered for assuring the construction of necessary new infrastructure, as it makes the CDC a single entity making a connected series of shipping commitments across the full chain of pipeline infrastructure needed to move Turkmen gas to Europe. This model should be highly appropriate for aggregating shipping commitments while also providing a single vehicle to take up the external financial guarantees that will be required to backstop these commitments.

Benefits of the CDC Bundler for Turkmenistan, Azerbaijan, and Georgia

The CDC as structured in the Bundler model will offer clear benefits for the key envisioned counterparty, Turkmenistan. The essence of the CDC initiative is that it will enable Turkmenistan to sell large volumes of natural gas to customers in Europe—a challenge which would be much more difficult to meet without the existence of a Bundler CDC and the support mechanisms that will necessarily accompany it (see Section 3).

Establishing Europe as a long-term and large-scale market for Turkmen gas will benefit Turkmenistan in the following ways:

- It will diversify Turkmen gas supply by providing access to a major new market;
- It will help drive increases in Turkmen gas production and export to levels significantly greater than could be expected given current export routes and markets;
- It will connect Turkmenistan with a market where the buyers of its gas—CDC and its shareholders— could be fairly judged superior to existing offtakers of Turkmen gas in terms of creditworthiness and reliability.

Beyond the broader advantages gained by exporting gas to Europe, the CDC approach specifically will offer Turkmenistan additional benefits:

- The existence of CDC as a buyer of Turkmen gas will simplify negotiations for gas sales into the European market —negotiations which absent CDC would have a high level of complexity and require coordination between a large number of players.
- The existence of CDC as a strong contractual counterparty will provide a robust basis for Turkmenistan to raise debt finance for upstream gas development from global capital markets.
- The CDC will provide an appropriate mechanism for attracting and channeling guarantee support from supporting financial institutions in order to take on the risks associated with multiple shipping commitments to multiple pipelines.

As a transit country as well as a gas supplier to Southern Corridor pipelines (although not to CDC itself), Azerbaijan stands to gain considerable benefit from CDC as well. Most obviously, a flow of CDC gas from Turkmenistan through Azerbaijan will provide Azerbaijan with some transit revenue. More significant is the fact that CDC gas could help Southern Corridor infrastructure to be sanctioned earlier than it might be otherwise, and then allow the new pipelines to charge lower tariffs on Azerbaijani gas due to greater scale.

For Georgia as a pure transit country, the benefit of CDC bringing Turkmen gas across Georgian territory will be simply to bolster the treasury with additional transit revenues.

2.2.3 Aligning the CDC Bundler with Independent Private Sector Initiatives

As noted earlier, the Project Sponsors requested that the CDC Bundler design be capable of accommodating cooperation with any independent private-sector initiatives (IPIs) that manage in the relatively near term to sign a GPA with Turkmenistan without reference to the CDC process.

The prototype IPI currently under consideration would involve a long-term GPA signed with Turkmenistan for approximately 10 Bcma of gas which would be available from one or more offshore fields, or a combination of offshore fields and onshore gas located near the Caspian coast in western Turkmenistan. Gas of this sort could be available as early as 2014.

The basis for mutually beneficial cooperation between the CDC and an IPI of this sort would focus on the shipping component of the CDC Bundler. In this concept, even if the IPI took no part in joint arrangements for gas purchase and sales, it would be encouraged to sign an shipping contract to deliver its gas westward with the CDC rather than directly with various pipeline owners. This would allow the CDC to benefit from earlier volumes and ultimate benefits of scale and flexibility, while allowing the IPI party to gain the benefit of structural financial guarantees that may be made available to the CDC. Thus:

- Having signed a GPA with Turkmengaz, the IPI party would negotiate a contract wherein CDC would provide it with gas transportation services. The IPI party would be responsible for delivering processed gas to the entry flange of the Trans-Caspian pipeline near Turkmenbashi.
- The CDC's shipping strategy would from the start thus take into account not only its own purchased gas but also the IPI gas; thus it would maintain its envisioned role as bundled shipper of Turkmen gas from Turkmenistan to

Europe on the basis of long term shipping commitments and capacity guarantees with a series of Southern Corridor pipelines, starting with the TCP.

- The CDC as a shipper will seek to gain access to external guarantees such as the Stranded Capacity Payment Guarantee mechanism described in Section 3.4.5 below. If such guarantees are realized, it will allow the CDC to make a strong shipping commitment which will underpin the financing of new pipeline infrastructure—but crucially, without requiring significant balance sheet exposure on the part of either CDC participants or the IPI parties.
- If it so wished the IPI counterparty would maintain title to its gas throughout, but custody would pass through the CDC shipper, which would ensure that CDC shipping contracts were in alignment with its own gas volumes as well as the IPI volumes.
- The CDC would deliver custody of the gas to the IPI party at the location at which CDC's shipping obligations have been fulfilled. The IPI would in principle be able to transfer to the CDC any shipping rights and obligations it has already taken up independently.

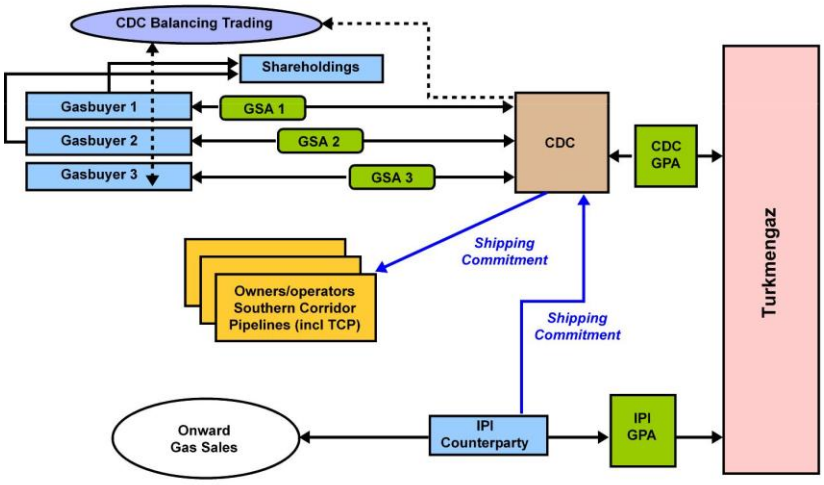
Figure 2-4 below shows in schematic form how this shipping interaction is envisioned to work.

(It can be noted that it would also be acceptable for the IPI to transfer not just custody but also ownership of its gas to the CDC at the TCP flange—and then take it back on a delivered basis in Europe. Furthermore, any IPI would also have the option to roll their GPA into CDC, thus becoming, in essence, a full member of CDC.)

It is implicit in the structure under which the CDC is shipper of IPI gas as well as its own that transportation of Turkmen gas across the Caspian Sea would be achieved in the way that meets the CDC's scale requirements, e.g. via a large-scale TCP system consisting of a 30-inch diameter pipeline from the Turkmen shore (Turkmenbashi) to the Azerbaijani shore (Sangachal), with capacity to expand by laying further strings. A suboptimal approach in which different parties were to attempt diverging and conflicting strategies for the Caspian Sea crossing is ruled out.

Figure 2-4

The CDC Bundler Model Including Interface with Independent Initiatives



Source: IHS CERA.
01214-3

This overall approach ensures a unified effort to ensure the construction of pipeline infrastructure from Turkmenistan into Europe, establishing a common basis for tariffs reflecting the optimal loading profile possible. Even more significantly, this approach will provide a single interface to seek strategic political support as well as financing support, both of which will be necessary if a large-scale Southern Corridor is to be achieved.

This collaborative solution would also have the benefit of being responsive to Turkmenistan's desire that the CDC not have a monopoly right to purchase CDC gas for Europe. Nonexclusivity is a fundamental principle of the CDC in any case, but the existence of a separately negotiated GPA with independent European buyers would put this principle into practice.

It should be noted that the competition effects of all aspects of CDC cooperation with IPIs would have to be taken into account during the process of structuring cooperative arrangements.

One final advantage of the CDC being designed with flexibility vis-à-vis IPIs is that it offers a fallback option in a scenario where the aggregated purchasing function of the CDC does not move forward along the expected and required schedule. In this case, independent European players would have nothing preventing them from filling the gap by striking their own gas purchase agreements with Turkmenistan, including long-term volumes over and above the 10 Bcma of early Turkmen gas being considered today. In this scenario the CDC would end up playing a critical role in driving a Southern Corridor in any case through its shipping Bundler function.

2.3 GAS SALES AND PURCHASE AGREEMENTS

As is already clear, developing Turkmen gas and transporting it from Turkmenistan to Europe will require large amounts of capital to be invested on a long-term basis in a series of projects with complex risk profiles. The central objective of the CDC is to help make these projects financeable. The contracts under which the CDC will buy gas (from Turkmenistan) and sell this gas onward (to European buyers, largely CDC's own shareholders) should first and foremost do nothing to introduce additional risks or uncertainties, for instance by relying on a novel or experimental contractual and transactional architecture. The CDC's best chances for success will involve making use of the basic frameworks that have been tried and tested in the European gas business for more than two decades.

This means first and foremost a reliance on traditional long-term Gas Sales and Purchasing Agreements (GSPAs). There will be some additional role for short-term gas trading deals, and over time potentially for release mechanisms or auctions, but the foundation of the CDC must be contracts that have a clear long-term character, strong guarantees and commitments from both sides, and clearly defined areas and mechanisms for flexibility and adaptability.

Although CDC will be the single counterparty for the Gas Purchasing Agreement with Turkmenistan, the principle will be that the obligations of the CDC participants ultimately "pass through" to the Turkmen counterparty. This is discussed further in Section 3.

An outline of the general terms of such an agreement and specifically the standard Articles of traditional European GPSAs, is provided below (see the box "List of Articles in a Typical European Gas Sales and Purchase Agreement (GPSA)".

List of Articles in a Typical European Gas Sales and Purchase Agreement (GSPA)

1. Definitions
2. Object of contract—sale and purchase agreement
3. Duration of contract and date of first delivery
4. Conditions precedent
5. Warranties and indemnities
6. Quantities to be delivered
7. Delivery points
8. Measurement
9. Nominations and Programming of Deliveries
10. Minimum annual purchase quantities ('take-or-pay')
11. Make-up and Carry Forward gas
12. Price, price indexation formula, and price revision
13. Invoicing and payment
14. Liability
15. Force majeure
16. Test gas
17. Additional and best efforts gas
18. Termination of Agreement
19. Assignment
20. Confidentiality
21. Interpretation, modifications and supplements, other
22. Communication, administration and cooperation
23. Applicable law
24. Dispute resolution

2.3.1 Key Aspects of CDC Gas Purchase Agreement

The CDC's most important contract will be its Gas Purchase Agreement (GPA)[3] with Turkmengaz, or any other entity nominated as the appropriate selling party by the Government of Turkmenistan.

For reasons already noted, this GPA will resemble in most ways the long-term agreements that are standard in the European gas industry, which are typically referred to as "take-or-pay" contracts because of the purchaser's obligation to pay for certain minimum volumes even if it cannot take delivery of these volumes. The GPA will need to address the following elements in ways that meet the needs of both the CDC and its shareholders, and of Turkmenistan:

- **Contract duration.** In order to suit both sides, the contract duration in the case of the CDC can be no shorter than 20 or 25 years at a minimum, with extension clauses built in.
- **Ramp-up profile.** The rate at which CDC contracted purchase volumes will build up over time must be in alignment with the CDC's volume commitments for onward gas sales; with progressive increases in shipping commitments on the various segments of the pipeline route to Europe; and with the upstream development schedule of the relevant Turkmen gas fields.
- **Annual flexibility.** This refers to the variation permitted over a full year in the volume purchased either above or below the average Annual Contract Quantity (ACQ). Typically for long-distance pipeline gas the Maximum Contract Quantity (MaxCQ) will be 10 percent above the ACQ, and the Minimum Contract Quantity (MinCQ) 10 percent below the ACQ.
- **Short-term flexibility.** Alongside the annual flexibility terms will be separate language defining the terms of allowable variation from contractually mandated offtake quantities on a monthly, daily and/or hourly basis.
- **Minimum bill level and offtake quantity.** These contractual elements define the specific details of the purchaser's take-or-pay obligation.
- **Make-up provisions.** This refers to the timing and terms under which the purchaser can take delivery of previously underlifted gas volumes for which he has already paid under take-or-pay terms, should such circumstances arise. As discussed in Section 3, substantial make-up allowances will tend to mitigate the risk of new production delays and misalignment of completion of the various sections of delivery infrastructure.
- **Pricing.** Pricing of the GPA is discussed in detail in Section 2.3.3 below.
- **Price reopener**. As discussed extensively in Section 3, price reopener clauses in the GPA will play an important role in mitigating the CDC's market exposure. These clauses typically allow the occasional opportunity (for instance, once every three years) for the pricing mechanism to be adjusted through bilateral negotiation to reflect changes in market conditions. Recently price reopener clauses—directly or indirectly—have triggered the realignment of a number of

[3] All gas contracts are formally Gas Sales and Purchasing Agreements (GSPAs); in this report, for the sake of clarity we refer to potential CDC contracts from the CDC point of view: Gas Purchasing Agreements (GPAs) when CDC buys gas from producers, and Gas Sales Agreements (GSAs) when CDC is selling this gas onward to participants or others.

long-term contracts for both pipeline and LNG gas supplies with significant changes in European and other gas markets.

Gas marketing companies acting as contractual offtakers of gas supply will normally require substantial evidence of the ability of the producer to supply gas at the delivery point for the term of the contract. For cases in which the gas comes from one or more dedicated fields, a certification of reserves will typically be a prerequisite for any offtake obligations. Indeed, an offtaker will generally also require guarantees, or at least a high level of confidence, with regard to the upstream development program for committed gas fields. The only cases in which upstream technical performance guarantees are typically not needed are those in which it is clear that the producer has the capability to support its deliverability commitments from a range of other existing fields.

In the case of CDC, the potential exists for a World Bank Partial Risk Guarantee (PRG) mechanism to be applied—at least in part—to backstop this supply obligation risk. This issue is discussed in more detail in Section 3.2.3.

2.3.2 Key Aspects of CDC Gas Sales Agreements

As already described, setting aside for a moment any gas release programs or hub auctions that end up being built into the CDC design once its composition becomes clearer, the basic structure of the CDC will see it selling gas onward to its shareholders in proportion to their shareholdings.

For reasons of simplicity and fairness, it is expected that the terms of CDC's Gas Sales Agreements (GSAs) with its various shareholders—apart from the key issues of volumes and pricing—will be will be broadly similar. And in order to limit the CDC's exposure to market risks, there will be a strong preference that its GSAs are structured so as to provide as close as possible to back-to-back coverage of its GPA with Turkmenistan. This implies a preference for GSAs to be of long duration and relatively restricted in terms of the flexibility they provide to the buyer.

As described in Section 2.2.1, the CDC is expected to include as its shareholders not only some of Europe's largest gas marketers, but also a large number of smaller players. For CDC onsales to the major marketers, the GSAs shaped by the need for back-to-back coverage will not pose a problem. However, most of the smaller CDC shareholders will likely be accustomed to buying gas on very different terms. The duration of their GSAs with the major marketers ranges from between one to five years, with gas coming from a blend of different sources (with the seller having complete flexibility on sources of supply), and being delivered on the basis of a range of national and cross-border shipping commitments to move the gas beyond the marketer's original import point. Smaller buyers also tend to receive greater flexibility in terms of volume variations.

Matching up the differences between long-term, less flexible GPAs and short-term, more flexible GSAs is the sort of market risk typically assumed by a major European gas marketer. Although we do not anticipate that CDC should take on the same level of risk, it is clear that it will not be possible to match up its GPA and its GSAs completely. But the goal will be to match up the terms as much as possible, particularly in aggregate, meaning that some smaller CDC participants may have to accept longer terms and less flexibility than they typically would.

2.3.3 CDC Gas Pricing

CDC gas pricing—both for its GPA with Turkmengaz and its GSAs to its shareholders and other parties in Europe—is one of the most complex issues for CDC in the Bundler model in terms of meeting the varying requirements and preferences of stakeholders.

Pricing Background: Turkmenistan

Until the start of 2009, all Turkmen gas sales were concluded at a fixed price that was determined through annual bilateral negotiations. This was the pricing model used by Gazprom in the 1990s for sales and purchases of gas to and from all of Russia's neighbors in the post-Soviet space, and it was accepted by Turkmenistan for its sales to Russia and Ukraine, which were at that time intermediated by middlemen trading companies. When Turkmenistan began to sell small volumes of gas to Iran in the late 1990s, it replicated this model, with Iran buying gas at the Turkmen border for a price similar to that paid for exports to the north.

As gas prices in Europe began to surge in 2004–05, and with gas demand growing strongly, Gazprom developed an implicit dependence on imports of Turkmen gas, a shift that gave Turkmenistan new leverage on pricing. The results of negotiations during this period, which were also influenced by the growth in the export prices Gazprom was achieving in Europe, saw steady annual increases in the price Gazprom was paying for Turkmen gas.

In 2008 Gazprom's discussions with Turkmenistan underwent a major change, with the two sides for the first time discussing in earnest a shift to a new commercial relationship based on simplified netback pricing. Rather than negotiating a fixed price every year or half year, it was accepted in principle that Turkmenistan would receive from Russia a gas price derived from Gazprom's average European export price, minus actual and notional transportation costs from Turkmenistan to Europe, and perhaps including other adjustments. An agreement (the precise details of which are not public) was reached, and from 1 January 2009 Turkmenistan began to receive a netback-based price for its sales to Gazprom. These pricing terms remain in place today, although volumes have been significantly reduced.

It is difficult to imagine the CDC buying gas from Turkmenistan or any other potential supplier on the basis of a fixed price. However, in principle CDC pricing should reflect much of the same pricing dynamic in Europe that is now explicitly influencing Turkmenistan's price realizations for gas sold to Gazprom. Meanwhile a long-term sales agreement with CDC should offer Turkmenistan far greater stability and certainty of volume offtake.

Pricing Background: Europe

The traditional pricing mechanism for gas sold into the European market under long-term take-or-pay contracts is based on the principle of interfuel competition specific to individual customer countries. The rationale for this model was to price gas in a way that would allow it to penetrate into end-user markets and gain market share against other fuels. For example, in the residential market, this typically means that gas must compete with gasoil, or in some countries electricity; in the industrial market it means competition with heavy fuel oil and gasoil; in power generation, fuel oil and coal are the typical competing fuels. For this reason most formulas for gas import prices are derived from the local market prices of gasoil and fuel oil, and to some extent the other elements mentioned above, usually with a time lag of some sort. Although border price formulas often reflect a discount of around 10 to 20 percent versus the thermal parity value, the cost of onward transportation and distribution, and of

modulation and storage to meet end-user flexibility requirements, means that the formula prices thus allow gas to be priced at (or just below) its relative market value at the so-called "burner tip."

This approach yields prices that are determined by local market conditions and with do not take into account a market's geographical location relative to the supply source. Thus offtakers with home markets farther away from the supplier would pay a lower price at the EU border than buyers located nearer to the source.

In a market without national level barriers to market entry, this model would face obvious problems if gas marketers from more distant countries began to use their cheaper supply as a competitive advantage in more proximate markets. This sort of practice was for years prevented by destination clauses in GPSAs which prevented gas intended for one national market from being sold into another market.

Today destination clauses are no longer acceptable in the EU for competition and regulatory reasons. More recently various long-term gas contract price formulas have been adjusted to incorporate an element of gas market pricing, i.e., to take into account spot gas prices at emerging trading hubs in Europe. There is some chance that the incorporation of spot market pricing into long-term contract formulas will expand further in the future. Depending on the location of the hub used for the spot price reference, this shift means that prices now to a limited extent are starting to incorporate differential transport costs, as prices can in theory be arbitraged between different hubs based on transmission costs.

Pricing Options for CDC

IHS CERA considered a number of potential pricing methodologies for CDC. In line with the preferences of Turkmenistan, the geographic basis for a CDC sale and purchase agreement with Turkmengaz would be either FOB at Turkmen border, or possibly, ex-works from an offshore platform. From that point forward the price determination could be made on the basis of two different methodologies:

- Market value pricing, following the current standard practice in Europe, which would see the Turkmen GSPA price determined by the weighted average market price in European markets, minus weighted average transportation costs from the point of sale to the various markets; or
- Supply-cost pricing, which would see the purchase price set by supply cost considerations to give an acceptable return on investments upstream, or in another variation by some link to the crude oil price—plus transportation costs from the point of purchase to the point of final sale.

CDC Pricing Option A: Market Value Basket Model

It is assumed in the Bundler model that a supplier of gas to the CDC such as Turkmenistan will be selling at a single location and with a single price, regardless of the varying final destinations of the gas. Furthermore, there may need to be some transparent and clear pricing basis on which CDC will sell its gas onward to its shareholders, and to other buyers.

To apply the basic principles of this pricing model to the CDC leads to an approach referred to here as the "Market Value Basket Model." Under this model, the seller will receive a composite netback price which would be determined through a process with several stages.

- First, price formulas will be established for each of the markets into which CDC gas will be sold, on the basis of interfuel competition or any other formula pricing mechanism.
- Transportation costs from the point of initial title transfer (from seller to CDC) to each of these markets will then be subtracted to produce a netback price at this point.
- From these market-specific netback prices a composite price will be generated as an average of the basket of netback prices already weighted according to the envisaged mix of destinations and commitments; a CDC margin sufficient to cover the entity's operating costs and a reasonable return on equity would also be factored in.
- CDC will then on-sell the gas to its shareholders in specified volumes for formula-derived prices in each final market for CDC gas.

It is important to emphasize that CDC offtakers (i.e., shareholders) would have the right to change delivery points, subject to the availability of exit capacity, on the basis of agreed transportation tariffs. The rules allowing this would be devised in such a way so as to ensure that the CDC's price-setting mechanism would not result in a segmentation of the Internal Market.

This description presented above obviously simplifies this model, but it does highlight its basic characteristics, which carry with it some advantages and some disadvantages.

- **Advantages**: The clear advantage to the Market Value Basket Model is that it will allow CDC gas to be competitive in each of the markets where it is sold, almost by definition, as it will be priced using the same methodology as the gas presently being imported. It would also make the CDC more supportive of transportation infrastructure, since it would help CDC gas push through to the more distant markets accessed by proposed Southern Corridor pipelines rather than providing an incentive for it to be consumed further east and south. This pricing model would also have the advantage of familiarity.
- **Disadvantages**: The main disadvantage of the Market Value Basket Model is that it could be perceived to be unattractive to important stakeholders, including the gas producers who would be selling gas to CDC. The flip side of ensuring competitiveness in more distant markets is the discount that the seller would be offering for gas sold into these markets, which would not be explicit but would in any case be reflected in the CDC purchase price. Transit states for CDC gas located further upstream along the Southern Corridor might also raise objections, as the possibility of obtaining cheaper gas due to their geographic location would be undermined.

CDC Pricing Option B: Supply Cost Pricing Model

The other basis for calculating a price is based on a supply cost model in which the supplier will consider its costs for production and transportation to the point where CDC takes ownership of the gas; with pricing for CDC sales to its participants derived from this purchase price plus further transportation costs.

As the costs for producing gas are highly dependent on many variables, for example how much oil is produced in conjunction with gas, how much condensate is produced and

therefore the condensate credits associated with this gas production, and in fact the more economically challenging question of the gas in the ground is worth the price that it can fetch in a market.

Supply-based pricing has many historical precedents in which gas sales from specific fields were contracted at fixed prices for their producing lifetimes. This model was used in several of the original UK North Sea fields, and it has been used more recently for several gas development projects in the Middle East which have been dedicated to domestic consumption.

In the case of exported gas, however, fixed price arrangements have not typically been used. One alternative prices gas on the basis of indexation to crude oil, generally on the basis of thermal parity with one or more marker crudes. This pricing model is frequently used for LNG exports, which however tend to combine a crude oil link with other mechanisms such as caps, floors, S-curves, or straight-line parity. Furthermore many traditionally fixed pricing arrangements have evolved to incorporate an oil-linked escalator (or some form of profitsharing for industrial uses).

Pricesetting and CDC Formation

It became clear from consultations with the European gas industry that companies are most comfortable with long-term gas purchases being priced on a market value basis, even if is some interest in having an alternative pricing basis to broaden the overall portfolio spread and provide a natural hedge. Generally a supply cost pricing model was not seen to be workable in the CDC context.

It was concluded thus that the pricing challenge for CDC is to develop a market value-based pricing mechanism that makes CDC gas competitive across a range of geographic markets without the ability to rely on destination clauses, and without clarity on the extent to which spot pricing elements in long-term pricing formulas will expand in the years ahead.

The method proposed for CDC pricing begins with a mechanism that is part of the CDC formation process, and concludes with the gas producer receiving a composite netback price.

- As interested companies make their offers for participation in the CDC, as described in Section 5, they will bid not only for volumes (and equity) but also for pricing. Each company will specify the delivery points where they intend to lift their CDC gas offtake; and also the price they would be willing to pay for CDC gas.
- These prices could be expressed in terms of any relevant, established and published benchmark prices for energy chosen by the bidder—prices for other fuels, for gas traded at regional hubs, or for an infinite variety of combinations.
- The CDC implementation consultant overseeing the formation process would then undertake an iterative process in which it would reject or renegotiate the lowest price/netback bids to the extent necessary to aggregate sufficient volumes. The comparison between different price bids will not be straightforward, as there is no obviously accurate way to compare prices based on an oil linkage to prices based on a gas linkage (apart from energy content, which will not generally reflect market values).
- Assuming the that enough volume bids have been aggregated, the CDC IFG will then establish a basis for the aggregated (effectively the weighted average) sale

price of its GSAs, and use that packaged price as a basis for negotiating a GPA including full agreement on a pricing mechanism with Turkmenistan (Step 22 in the CDC formation process, as described in Section 5 of this paper). The price offer to Turkmenistan will subtract from this aggregated GSA price the total transportation costs as well as a margin covering CDC operating costs along with a reasonable return on equity.

- Although this will be the general basis for the pricing of the GPA with Turkmenistan, this can be implemented in one of two ways.
  - The indicative price offer reflected in the Head of Terms (HoT) with Turkmenistan could be converted into a firm price formula for the GPA. This means that Turkmenistan would sell its gas on a long-term basis to CDC at a formula price, with that formula reflecting a proxy for the aggregation of the formulas governing each of the CDC's many GSAs with its shareholders.
  - Alternatively, Turkmenistan could simply accept that its sale price under the GPA would simply be derived from an audited assessment of CDC's weighted average onsale price, minus transport and margin. This pricing system would necessarily have some sort of a time lag, with prices being assessed perhaps quarterly.
- The CDC's GSAs and the GPA will have typical price reopener clauses allowing price renegotiations to be triggered in the case of a structural change in market pricing. The most likely sequence of events would be a change in the European market situation triggering a series of GSA renegotiations (instigated either by CDC offtakers or by CDC itself, depending on the nature of the market shift) which would then serve to throw the GPA pricing out of line with reality in variant (a) above. In this case GPA pricing would be more likely to be reopened. If Turkmenistan accepted the simpler solution described above in (b), its prices would adjust automatically to reflect market prices and there would be less cause for either side to renegotiate (although the right to do so would still exist). It should be recognized that any realignment will reflect only the relative shift of prices from the base linkage agreed (which will to some extent reflect the extent to which the negotiations take place in a buyer's or seller's market), and not necessarily the absolute level. However there will be opportunities to agree different pricing bases for major new tranches of volume commitment from the CDC, and ultimately these may be assumed to even out to some extent.

2.4 GAS SHIPPING AGREEMENTS

The CDC will, at an early stage in its existence, contract to ship gas with the owners/operators of pipelines from Turkmenbashi to destinations in Europe. This bundled shipping function, which as described earlier may also cover gas from independent GPSA initiatives, is central to the CDC's mission.

The CDC's Shipping Agreements will be based most fundamentally on a ship-or-pay commitment of guaranteed throughput volumes in exchange for capacity rights. It is CDC's extension of minimum ship-or-pay volume commitments that represents most of the entity's financial exposure—and takes it to a level where external financial guarantees are necessary.

The financial aspects of CDC's shipping commitments are discussed in detail in Section 3 of this report

Separate agreements would ultimately be signed with between three and five different pipeline operators, but to reduce complexity the CDC could propose that all use a standard model contract as the basis for these shipping agreements. The box "List of Articles for Proposed CDC Southern Corridor Shipping Agreement" below provides the outline of the core Articles that would be included in a CDC Southern Corridor Shipper Agreement. (A more elaborated model of this contract is included in Appendix 5 to this report.) Of course the precise commercial terms for each shipping deal would need to be negotiated separately.

In addition to such a Shipping Agreement, pipelines operators will have Operating Procedures Books with which the CDC as Shipper will need to comply. The Shipping Agreement drafted here makes reference to such a Procedures Book, but the detailed content of such a manual will be the responsibility of the pipeline operators, as determined by their engineering, operation and IT parameters.

List of Articles for Proposed CDC Southern Corridor Shipping Agreement

1. Definitions
2. Warranties and risk
3. The Caspian Development Corporation as Shipper
4. Services
5. Quality and pressure
6. Measurement and allocation
7. Balancing
8. Operation
9. Liability
10. Force Majeure
11. Fees and taxes
12. Invoicing and payment
13. Term, suspension of services and termination of agreement
14. Assignment
15. Confidentiality
16. Interpretation, modifications and supplements, other
17. Communication, administration and cooperation
18. Applicable law and dispute resolution
19. Expert determination and procedure

SECTION 3

CDC FINANCIAL CONSIDERATIONS AND RISK ANALYSIS

In this section we quantify the financial dimensions of the commercial arrangements that form the basis for the CDC; we elaborate the financial risks and exposures to be faced by the CDC, its shareholders, and its supplier or suppliers; and we outline options for mitigating these exposures. This analysis then provides the background for designing the preferred financial structure for CDC, and for recommending key instruments that must be made available for the CDC to operate as a robust private sector vehicle. The end result is a set of proposed solutions which, taken together, would allow the CDC to carry out its mandated role—but which will be quite challenging to implement.

3.1 CDC KEY FINANCIAL PARAMETERS

A detailed cost and economic model has been built by IHS CERA for all the key infrastructure that will be needed to deliver Turkmen gas to Europe. This is outlined below in Section 3.6.

The analysis of CDC's financial position is based on certain core assumptions, notably, that CDC would sell gas to its participants and other offtakers at price levels reflecting current European long-term contract terms, and that CDC would charge a small fee to cover its costs as well as a fair return on capital employed. Assuming further that CDC would commit to an initial minimum gas purchase of 10 Bcma, with this commitment increasing in stages to 30 Bcma and above, and with its GPAs and GSAs valid for a minimum term of 20 years, then CDC would take on contractual exposures related to the supply and transportation of approximately 550 Bcm if gas. At 2010 gas prices, this leads to substantial financial commitments:

- take-or-pay gas purchase contracts with a minimum initial term exposure of $15 billion, growing to $85 billion;
- transport capacity payments of $55 billion, of which $13 billion would need to be pre-committed to new pipeline projects to assure their financeability; and
- gas sales contracts with a total value of $30 billion, growing to $150 billion over time, including third party sales and trades.

These exposures are illustrated in Figure 3-1 below, using one indicative projection for the development of CDC's gas sales and purchase volume (see Section 3.6). In this case, CDC annual payments for gas purchase plus transportation tariffs would grow to a peak of approximately $8 billion.

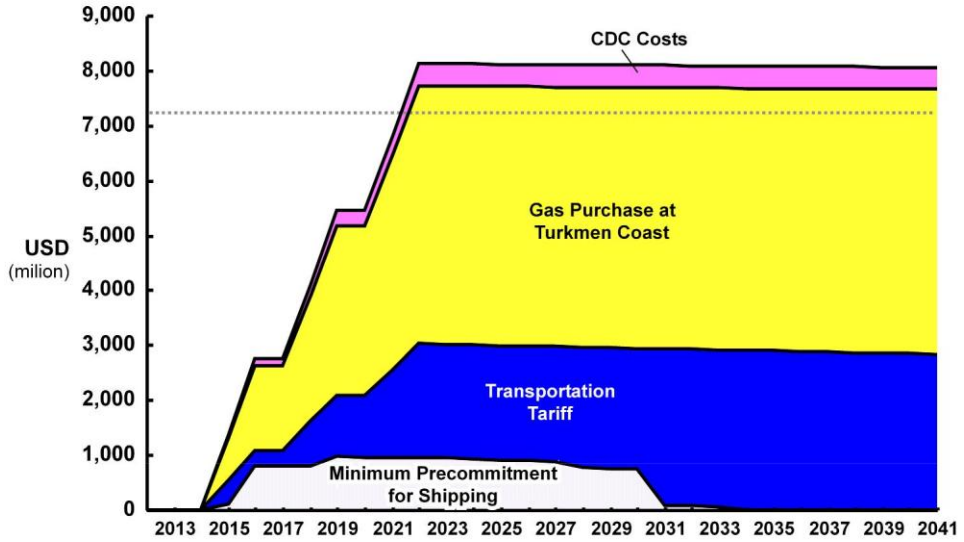
Thus CDC would enter into roughly $100 billion worth of long-term contractual commitments, with theoretical obligations to pay this amount if no gas is in fact sold at the contractual delivery points. On the surface, this would appear to be a liability far too great to be reasonably mitigated by external guarantee support.

In fact, however, the CDC's actual liability will be far lower than this, as described below. However, there will remain some net residual exposures for CDC, which ultimately will need

to be sufficiently capitalized so that it can bear such exposure and present itself as a bankable counterparty in its various contractual arrangements.

Figure 3-1

Financial Dimensions of CDC Activity



Source: IHS CERA.
Note: Minimum Guaranteed Shipping Commitment excludes compression gas and other variable operating costs.
01214-15

3.2 CDC FINANCIAL OBLIGATIONS AND LIABILITIES

Companies participating in CDC will be taking on financial obligations and liabilities in relation to two different parts of the value chain:

- gas marketing, which will carry with it liabilities and risks related to gas supply (exposing CDC to producer nonperformance) and the end market (specifically, market risk, price risk, and buyer performance risk); and
- gas transportation, which will bring liabilities related to shipping commitments, i.e., the risk that CDC will have to pay for contracted shipping capacity that it is unable to use.

A critical and overriding issue for the CDC initiative is the extent to which the private sector companies expected to participate in CDC will be obliged as a condition of participation to assume these liabilities without material support from external sources.

One concern that will loom large for potential CDC shareholders is the risk of take-or-pay exposure in a circumstance in which contracted gas is available at the Turkmen coast—but transport capacity is physically unavailable by virtue of infrastructure not having been built, or else being obstructed by political factors. CDC can commit to mitigate such risk in a number of ways but cannot be expected to take on full liability in this area. This is further discussed below.

3.2.1 End-market Risks

In general the risks for CDC related to the end market are those that participants would expect to manage in their normal operations, and they are expected to be similar or identical to the risks associated with other long-term supply contracts typical of the European gas industry. This assumes, of course, that the CDC gas purchase agreement (GPA) with Turkmenistan is structured as a long term take-or-pay contract with a pricing mechanism not radically different from those traditionally used in Europe. Under these assumptions the end-market exposures should largely be covered by GPA and GSA contractual terms and internal CDC processes, and thereafter as a normal business risk for CDC and its shareholders.

Internal CDC processes are expected to include a nomination management process for gas purchase, shipping, and sales within allowable contractual flexibilities, all structured such as to avoid any penalties for underlifting, overlifting, or overshipping, while at the same time maximizing shipping load. Short-term geographical and time swaps along with more formal trading operations will help balance liftings and loading at the various delivery points: for instance, CDC can make modest purchases or sales of spot gas in order to preclude any take-or-pay penalties, and to make use of any spare shipping capacity. The CDC's trading function would be expected over time to develop formal processes for swapping and title transfer among its participants, and for participation in normal hub trading within Europe.

3.2.2 Managing Sales Performance Risks

Gas Sales: Credit Risk Management

Credit risk is an integral part of long-term gas contracts for both buyers and sellers. There are various ways to mitigate credit risk, but the scale and duration of typical contracts is such that significant exposures often remain. The aim of credit terms in gas sales agreements (GSAs) reached with offtakers is not to completely eliminate any financial exposure, but to find the appropriate balance between cost on the one hand, and mitigation of risk on the other.

There are four key stages in the development of credit protection mechanisms: the definition of default triggers; the calculation of exposure; the application of credit minimization techniques; and the application of credit protection measures.

Default Triggers

Default protections, along with other elements of credit terms in a GPSA, can be triggered either by contract-specific actions or by wider concerns about the health of the contracting entity. Contract-specific triggers tend to cover instances of payment default, typically in the form of a failure to pay for delivered gas or failure to pay for underlifted quantities.[4] Corporate triggers relate to the bankruptcy or credit-rating downgrading of the contracting party or their parent company.

Calculation of Exposure

Credit exposure is made up of three distinct components:

- Payment risk: This relates to the seller's exposure for gas it has delivered but for which it has not yet been paid; this can include invoiced and noninvoiced gas.

[4] Buyers are contractually required to purchase a minimum volume of gas each year. Unlifted gas can often be taken in future years, subject to defined conditions being met.

- Take-or-pay risk: This relates to the seller's exposure for any failure on the part of the buyer to pay for contracted quantities of gas not offtaken.
- Mark-to-market risk: This relates to exposure—for either the buyer or seller—related to the difference between the contractually determined price of gas and its prevailing value in the market at the time of onward sale by the buyer. Due to the duration and scale of large contracts this element of credit risk can be the most significant, and it can potentially run to many tens of millions of dollars.

Credit Minimization

A powerful step to minimize credit risks is the contractual netting of exposures. In the event of corporate bankruptcy of one counterparty in a GPSA, without netting of exposures, the nondefaulting party would be required to pay in full any monies it owes the defaulting party, and to claim in full any monies owed. But the application of netting procedures allows these two exposures to first of all be offset against each other, with only the residual being paid or claimed.[5] Such provisions are particularly important when two counterparties are entering into multiple contracts, as may be the case with regard to the CDC in relation to its active trading of balancing volumes with its offtakers alongside the primary gas sales contract.

Credit Protection

As a simplification, it is common to place gas buyers into one of three credit categories: high risk, medium risk, and low risk. These judgments are generally based on the published ratings from the main credit-rating agencies, Moody's and Standard & Poor's. The size of the unsecured line of credit available to an offtaker is defined by the credit standing of the purchasers, or more commonly, of their parent company.

For offtakers with low credit risk, the CDC will generally accept unsecured credit lines. In the case of medium-risk parties, the typical practice would be to set a cap on exposure and require a letter of credit (LC) for any exposure in excess of that cap. These LCs allow the seller to claim against the issuing bank in case of a default by the purchaser. It is expected that CDC would require medium-risk offtakers to provide LCs for all exposures under their long-term offtake contracts above a small volume, although smaller balancing trades may be performed within the cap amount.

For high-risk counterparties, credit protection will generally be required in the form of an LC from a bank with a sufficiently robust credit rating.

In some jurisdictions, published credit ratings are rare, and CDC may need to develop its own view of buyers' creditworthiness based on their published accounts.

Effective Exposure Caps

Due to the potential scale of mark-to-market exposures, the seller is not generally able to claim against the buyer for exposures relating to the full duration of the contract. Difficulties in calculating true market value also influence the definition of exposure. If a contract is cancelled outright, the seller is responsible for reselling the gas, and the price of the replacement gas contract is considered to be the prevailing market price. In this case the defaulting party is liable to pay the difference; or potentially to receive an offset against other obligations, should the prevailing market price be higher than the contract price. The term of

[5] Netting of this sort is not possible in all jurisdictions.

this obligation however, will generally be limited to a period much shorter than the full remaining life of the contract, for instance 12 to 18 months. The level of any parent company guarantee or letter of credit is generally based on an estimate of the potential size of such a payment.

Assuming that CDC will be protected by strong credit or LC guarantees for the first 18 months of default exposure, it therefore follows that CDC may be exposed to take-or-pay pricing terms and obligations beyond 18 months after any defaults on the sales side.

3.2.3 The Role of Multilateral Financial Institutions in Providing Credit Enhancement for Gas Offtakers and Suppliers

Partial Risk Guarantees

The World Bank could consider providing support, through its Partial Risk Guarantee (PRG) instrument, to certain participants in the CDC. This could be particularly appropriate in cases where the access to gas supply offered by CDC could be considered important to overall economic development—a criterion which is likely to apply to gas and electric power companies in states that are Contracting Parties of the Energy Community. On the upstream side, the PRG mechanism could also be used to help mitigate the risk to CDC of possible nondelivery of contracted gas by a state-owned gas producer.

PRGs are designed as a way to strengthen credit guarantees made to commercial entities by a sovereign with less-than-robust credit. By enhancing substantially the value of sovereign backing for any contractual payment or performance guarantees that could be made to the CDC to support to backstop a government's or a governmental agencies contractual payment or performance undertakings to a private sector entity for compensation in the event of a breach of the GSA. In the context of the CDC, PRGs could backstop the gas supply agreement on behalf of buyers with weak credit so long as these are governmental entities.

Although several PRG structures could be considered, the most appropriate form of PRG support could be in the form of a letter of credit structure which would provide for the relevant governmental entity to issue an LC through a commercial bank in favor of CDC which could be drawn in the event of a governmental breach to make the payment due to CDC under the GSA. Following a drawing under the LC, the relevant governmental entity would be obligated to repay the commercial bank for the amounts drawn with accrued interest within a certain specified period of time. If the governmental entity failed to reimburse the commercial bank in a timely manner then the commercial bank would have recourse to the PRG .

In this way, the PRG could help to provide comfort both to CDC of a preallocated liquidity pool in the event of both a disruption in payments or in a disruption in gas supply which could help to make the operation bankable through risk mitigation and through the mobilization of cofinancings. The Bank is currently in the process of successfully implementing a similar operation in Nigeria where it is backstopping the payments of the Nigerian power utility to the international oil companies under the Gas Supply Agreements.

The two prerequisites for the consideration of a PRG by the Bank is that the relevant government should be willing to provide the bank with its counter guarantee and the operation would be subject to its due diligence.

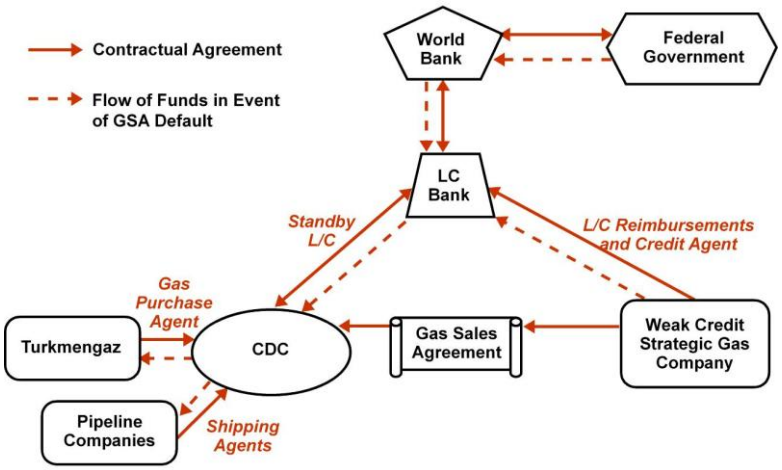
The example of PRGs applied by the International Development Agency of the World Bank in Nigeria is considered apposite for the CDC. In these cases four guarantee arrangements for

around $400 million in total have been arranged to backstop the payments by the State Electricity Company for gas supply provision. Each guarantee amount represents 12 months of GSA performance, and can be drawn by the bank offering the L/C if the Electricity Company has failed to rectify any payment default after 12 months. The terms of the arrangements are equal to those of the GSAs plus 14 months.

For Eastern Europe offtakers the arrangement is estimated to require set up fees of around 0.25 percent of the guarantee amount and annual servicing costs of 0.5 percent (see Figure 3-2).

Figure 3-2

Credit Support Mechanisms for Gas Sales Contract: The World Bank Partial Guarantee Mechanism



Source: World Bank, IHS CERA.
01214-4

3.2.4 Delivery Risk to CDC

When considering the liabilities related to the agreements that CDC will take on to sell Turkmen gas onward to its participants and other parties, more significant than sales performance risk are actually risks related to the possibility that Turkmen gas supplies may begin later than agreed; may be disrupted; may not be delivered due to changes in government policy; or may be unable to be delivered to the end market due to technical problems in development or production, and/or unavailability of transportation infrastructure.

Should Turkmen gas not be available in the agreed timeframe and at agreed volumes, CDC could bear significant losses (subject to any force majeure protection). In this case CDC participants would in the worst case fail to fulfill their own supply commitments—resulting in contractual penalties—or else be forced to purchase gas from other sources on short notice, perhaps at unfavorable prices. These exposures can be capped under the terms of any individual on-sale contracts (GSAs); and to the extent damages are caused by performance failure on the part of the gas supplier, there could in principle be remedies available from said supplier.

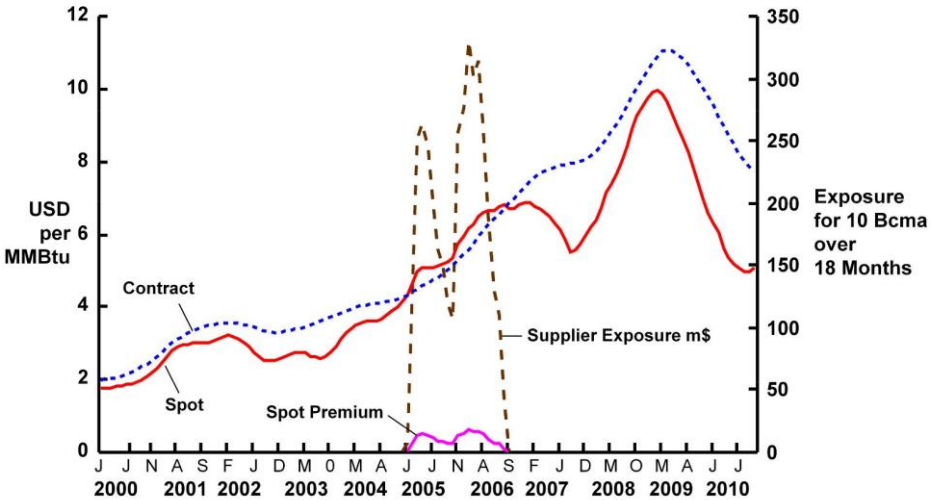
As noted above, typically such liability is typically incurred for periods capped at one to two years, after which contracting entities are expected to have made adequate alternative commercial arrangements; in fact the GSA contracts should be written specifically to reflect this if needed.

The maximum liability will reflect any higher cost of buying alternative gas supplies on the open market. IHS CERA has analyzed the historical disparity between typical long term contractual gas prices and spot gas prices in major European markets, and assesses that a maximum protracted disparity for a period of 18 months has never exceeded 10 percent (see Figure 3-3).

Figure 3-3

European Gas Market Prices

(18-month rolling averages)



Source: IHS CERA.
01214-9

If the assumed market penalty is in this range, then CDC could be exposed by up to $1.2 billion on this basis. However this level will only apply when CDC has reached a full 30 Bcma of Turkmen gas supply. In the early phases where commitments are around 10 Bcma, but where uncertainty around supply may be more of a concern, the exposure could be expected to be a maximum of $400 million. Typically the industry would normally expect to accommodate risks of this magnitude based on its broader portfolio of gas purchasing and associated delivery flexibility, but recourse to the supplier to cover this exposure would be welcome. How this could be done is discussed below.

Delivery Risk Mitigation

One area of mitigation to potential delivery risk could be the provision to CDC shareholders of political risk insurance via the World Bank MIGA facility (see below), which specializes in the insurance of political risk for equity investors, and does not require a governmental counter-guarantee. The mechanism of support here is likely to be indirect; for example, it would insure a package of political risks which could include supplier default under a GSA.

An additional mechanism for mitigation of delivery risk would assure that the funding of new Turkmen production developments are adequately funded via a prepayment or a nonlimited recourse funding mechanism such that this is not a barrier constraining successful production development.

Finally, provided the counterparty in Turkmenistan is a state entity, then World Bank partial risk guarantees (PRGs) could also help to mitigate the gas delivery risk for CDC in the event of nonperformance because of a disruption in gas supplies, as noted in section 3.2.3.

In reality a mix of political risk guarantees and PRGs can be used to guarantee (in part at least) the performance of the Turkmen supplier, and a series of requirements as noted in section 3.2.5 below, will serve to mitigate the risks associated with technical completion. However additional risks to delivery associated with disruption to shipping beyond the Turkmen gas delivery point cannot be contractually allocated to the Turkmen supplier. These are addressed further below.

3.2.5 Prepayment Support Mechanisms Available to Turkmenistan

Turkmenistan may incur between $10–$15 billion or more in capital development and new infrastructure costs to support 30 Bcma of gas supply to CDC, based on either diversion of existing gas production or new Caspian offshore production along with or new gas from development of fields such as South Yolotan/Osman, together with the building of a new pipeline to the Caspian Sea export point.

The Role of Project Finance

Project finance, as normally understood, is the bundle of mechanisms by which lenders (banks, capital markets, multilateral and bilateral agencies) lend to an entity that owns and operates a stand-alone project that will earn clearly identifiable revenues. Project financing in all its varieties has been widely used for energy projects in many jurisdictions. It is likely to have a role in all or some of the several projects associated with the CDC.

A project loan may rely wholly on the credit of the project and its projected revenues (a "nonrecourse loan") or, more commonly, on the project revenues as supplemented by limited guarantees and undertakings by other parties (a "limited recourse loan").

There are several reasons why project financing is used for major international projects. In some cases the cost of financing can be reduced by using the project financing process to identify, segregate, and mitigate risks. But in many cases, especially where participants have strong balance sheets that would allow them to borrow more cheaply against their own corporate credit, there are other reasons to go the project finance route. A structured project financing can facilitate the participation of financially weaker parties in joint ventures together with strong ones; project finance structures are very good at allocating risk in a clear way and are often useful where there is indirect state or multilateral participation.

Project financiers have an elaborate technology of loan structures that are now well developed and somewhat standardized. Closely related are the credit supports that are typically deployed to support project financings and make them possible. Examples of credit supports would include:

- Throughput agreements for pipelines of various sorts, such as ship-or-pay agreements or throughput and deficiency agreements
- Offtake agreements for gas purchase, as described in the previous section
- Keep whole agreements
- Parent company performance guarantees
- Sovereign credit guarantees
- Lump sum turnkey Engineering, Procurement, and Construction (EPC) contracts
- Equity overrun subscription agreements

Even where project financing is not to be used, the discipline provided by the sort of credit structure associated with project finance is likely to be needed. A company advancing money to a project entity as an equity injection is likely to use similar structures to control and manage its risk in the project, even if the precise terms that it would require would be different.

It is not our purpose here to speculate as to precisely how the independently-owned projects in the CDC gas chain will be financed—only to point out that whichever way those decisions go, the contractual nature of the relationships among the different parts is likely to be similar.

Supplier Credit Requirements

Under the structures we have discussed in this report, our assumption is that a single regional gas supplier of weak credit standing will execute a long-term GPA with the CDC. We are assuming that the gas supplier will stand alone as a counterparty to this agreement rather than sharing this role with international oil companies (IOCs). Even if they have some role as service providers, we assume that without a true equity position (for instance, though a production-sharing contract) IOCs or service companies would not lend more than very limited credit to support completion undertakings of onshore gas development.

The CDC as purchaser of gas under a GPA will take on long-term obligations not only to the producer, but also to its own buyers of gas and to pipeline owners as well. Such obligations will be used to support the financing of downstream projects either directly or indirectly; most obviously, the CDC will be undertaking long-term shipping commitments to pipeline projects, agreements with which pipeline developers will in turn use to support a project

financing. The CDC may also wish to borrow money on a corporate basis to finance its trading operations.

Given the chain of entities which will rely on gas supply commitments, any supplier of gas to the CDC will need to demonstrate its reliability as a long-term gas supplier to "bankable" standards. This means that it will be generally expected to meet the following criteria:

- Reserves in designated gas fields that have been demonstrated and audited to international standards;
- Employment of development contractors of international reputation and ability;
- Presentation of an upstream development plan that can be reviewed and certified as robust by a third-party oil and gas engineering firm;
- Transparency and disclosure of all relevant activities;
- Demonstration of some ability, preferably supported by a commitment to supplement or fulfill delivery obligations from alternative fields with spare capacity should this become necessary;
- Full sovereign guarantees by the state of the financial and performance obligations of state-owned companies with obligations to the project;
- Multilateral support of sovereign financial guarantees on suitable terms, including specific political risk insurance coverage.

As an alternative to explicit multilateral guarantees in support of the host government, a multilateral lender to or guarantor of CDC exposures might accept the sovereign risk implied in its exposures to the commitments of a gas supplier such as Turkmenistan. In this case an IFI would be mitigating the risk of supplier nonperformance whether or not it was also supporting any project financing for upstream development. This alternative would bring the guarantees a step closer to CDC offtakers, who otherwise would be relaying on an indirect commitment only; and it would provide some coverage for the value of CDC, whose shareholders would otherwise be exposed to the risk of nondelivery of gas above and beyond whatever exposures could be covered through political risk insurance (for instance, by the World Bank's MIGA affiliate, or in the commercial insurance market), or, as noted above, via World Bank PRGs.

End-user Buyer Credit "Bankability"

One can expect that the gas supplier may wish to use the strength of its GPA with CDC to support a project financing of new field development. Even if this is not the case, it should look for a creditworthy sales arrangement in its own interest as an investor in a high-cost project. The supplier would probably prefer a direct arrangement under which CDC provided or directly guaranteed funding for the upstream investment, but this is not likely to be acceptable to CDC participants.

Any lender to the gas supplier will make an analysis of the credit behind the GPA in a manner similar to the analysis that CDC will make as a purchaser. The supplier and its lenders will look first at the commercial logic and integrity of the entire sales stream; it will then look at alternative markets and shipping arrangements that might substitute in the event of a failure of CDC to meet its purchase commitments. But ultimately the lender will also seek financial backing for the obligations of CDC under the GPA, being as undertakings of payment from creditworthy parties standing below or behind CDC in the sales chain. To this extent there

will be a requirement for "pass through" of GSA obligations from the CDC participants to the Turkmen counterparty in any failure of CDC. This is discussed more extensively in the subsequent section on the CDC corporate structure.

Role of IFI Support

Project finance support as outlined above could be available for selective elements of Turkmen production development, as well as key transportation infrastructure. If this proved possible it would require substantial support from international financial institutions (IFIs) and also Export Credit Agencies (ECAs), and most probably additional political risk coverage through MIGA or a similar multilateral facility. Any such arrangements would need to be structured so as to ensure that they did not entail Turkmenistan entering into transactions that would violate its prior obligations to IFIs or any other lender.

MIGA specializes in the insurance of political risk for equity investors, and does not require a governmental counter-guarantee. So the mechanism of support here is likely to be indirect; MIGA would insure against a package of political risks, one of which would be a supplier default under a GSA. Of course, prudent participation by MIGA requires high confidence on its own part that all involved governments and agencies are fully committed to the project.

The World Bank and its affiliates may also be able to act as either a project lender and/or a equity investor in a manner that is intended to reflect the roles of commercial participants, but to do so in a manner that accepts political risks that might be indigestible by commercial investors and lenders. As for MIGA, it will only undertake such risks on the basis of confidence in full government support. By participating it can not only carry some of those political risks directly, but also provide "protective coloring" to private sector participations; because obligors will want above all to avoid a default against the World Bank, and because there will be cross-default provisions among all lenders and investors, all of them get to benefit from the implied political risk cover of the World Bank Group.

For Turkmenistan it may be considered that the new East-West pipeline infrastructure (with a capital cost estimated at $2 to $3 billion) may present the best candidate for project finance support, although expansions of upstream developments, once initial production has been successfully brought on stream and exported, should be further candidates in due course.

3.3 OFFTAKE AND PAYMENT SECURITY ARRANGEMENTS FOR GAS PRODUCERS

3.3.1 Areas of Exposure

The contractual commitments associated with the development of major onshore Turkmen gas will be unusual in that they will depend on new sections of infrastructure—which will be controlled by neither seller (Turkmenistan) nor buyer (CDC)—to bring gas from its initial point of sale (Turkmenistan's Caspian coast) to its ultimate offtake and resale points in Europe. This is not the case in virtually all other upstream project financings in which at least one of the following conditions obtains:

- the gas is judged to be freely fungible with other sources of gas controlled by the producer;
- the gas is connected by existing and accessible transportation infrastructure;
- the gas delivery will be facilitated by a regulated mandatory investment in new capacity on the part of an open-access transporter;

- the offtaker has committed to build any new transportation infrastructure that is required; or
- the required infrastructure is in fact an integral part of the upstream project being financed.

CDC will be in a central position to make a series of interlinked commitments (referred to as "reservations") of transportation capacity on all the necessary legs of new infrastructure needed to move Turkmen gas to Europe. Any take-or-pay contracts it signs for gas supply will need to be aligned with commitments by the appropriate parties to build the initial transportation links, as well as commitments in principle to move ahead with sufficient expansion programs when required. In turn CDC will make sufficient commitments to ship gas on the pipelines being built. The methodology and quantification of this is detailed below. No formal contract for increase in gas volumes will be signed by CDC until a set of clear commitments to build the required transportation capacities throughout the whole length of the delivery route has been made and minimum capacity rights agreed. However it will probably be necessary to enter into a series of contractual heads of terms with both producer and pipeline sponsors and to have mutual conditions precedent in all associated contracts.

3.3.2 Specific Risks

The gas producer will therefore face two areas of performance risk associated with the CDC long term contracts:

- Failure by CDC to lift or pay for gas that could be made available at the Turkmen delivery point and which could be moved though available transportation capacity through to CDCs end-markets.
- Unavailability of the transportation capacity to move the CDC-contracted gas through to CDC's end markets, caused by delay in construction, poor performance of (parts of) the infrastructure, or by political obstruction to a part of the infrastructure—either preventing its construction or its operation.

Failure by CDC

The first risk will be mitigated by the take-or-pay elements within the contract itself, and by the credit standing of CDC and its back-to-back offtake arrangements. CDC will establish a minimum A credit rating, as will every long term sales contract it itself enters into – either directly, or via a letter-of-credit facility. In legal terms these contract obligations will "pass through" from CDC offtakers/shareholders to the Turkmen counterparty in the case of any failure on the part of CDC.

Long-term take-or-pay arrangements for the sale and purchase of gas have been applied throughout the European gas industry for more than 40 years, and they have proven extremely robust. They are well respected by commercial banks and have underpinned a wide range of upstream and midstream investments through project finance arrangements (including recent pipeline projects such as Nord Stream, and multiple LNG projects including associated upstream and regasification development). The basic principles of such an arrangement and the key contractual terms are detailed in Section 2.

Unavailability of Transportation Through to Markets

The second area of risk will not be taken on by CDC who is not in a position to accept such risks, nor can it feasibly be supported to so do. However CDC will commit to measures which

will mitigate the impact for the gas producer. Firstly CDC will commit to accommodate delays in commissioning critical stretches of infrastructure by agreeing a roll-over of volume offtake commitments for a reasonable period (probably up to three years). Additionally CDC will agree to cooperate with any feasible swap arrangements whereby gas is supplied to for instance Russia or China for a period of time and other international supplies are diverted to Europe to compensate, or via a simple time shifting of commitments.

The political risk associated with pipeline construction and operation will be mitigated with appropriate Inter-Governmental Agreements specifying rights and obligations for such transport schemes. These will be facilitated by the European Commission as necessary and include the Nabucco IGA as well as any agreements between Turkmenistan and Azerbaijan for Trans-Caspian transportation of gas. When established these should enable Turkmenistan to take up political risk insurance for its upstream projects, through the vehicles of for instance MIGA or ECAs which will cover the consequential losses resulting from any political disruption of gas supplies though to Europe.

Ultimately though the producer will have to commit to develop new gas supplies and internal transportation either ahead of certainty on delivery to Europe and accept that alternative outlets may have to be developed to fully mitigate the risks, or wait until the new projects are clearly established and only require (relatively easy) expansion. Only the producer can realistically be in such a position, and CDC cannot be expected to take on the full extents of these areas of risks.

To minimize the exposure, Turkmengaz may wish to await the commencement of building the trans-Caspian pipeline (TCP) and expansion of the South Caucasus pipeline (SCP) along with initiation of the Southern Corridor (SCoP) infrastructure, before committing major capital into major new dedicated upstream investments. Alternatively market outlet flexibility may be assured via interconnectivity of export routes (North, East and South, as well the new Western route). In reality the export volumes can be progressively developed in phases once critical export transportation routes have been established. Thus an initial phase of production (from existing onshore fields or new offshore production) would be trigger only the construction of the infrastructure necessary to move that volume of gas; expansion phases of the TCP and SCP would move ahead when needed to transport new production from South Yolotan/Osman or other new onshore fields, as well as Turkmenistan's East-West pipeline link.

3.3.3 Securitization of Export Revenues

Should Turkmenistan desire for funds to be available to support new gas development, one could consider applying prepayment arrangements already tested in other circumstances. The most appropriate mechanism would mirror securitization processes proven elsewhere for oil or gas exports, whereby revenues from existing gas export contracts are pledged, via offshore escrow accounts, to secure short-term commercial advance payments—typically with a duration of one to five years. Experience from other countries indicates that good repayment performance allows multiple and extended roll-over of such arrangements.

It is important to note that such arrangements would of course need to be carefully structured so as to ensure that they did not entail Turkmenistan entering into transactions that would violate its prior obligations to IFIs or any other lenders.

Although such arrangements established now would need to institutionalize offshore vehicles for Russian or Chinese gas sales and require their cooperation, in due course the export

payments for the first tranche of (offshore) Turkmen gas exports could be used to support the development expenses for onshore gas to be exported in the second or third phase. CDC will commit to support any such offshore, escrow-based securitization schemes.

3.4 SHIPPING EXPOSURES

3.4.1 General Shipping Schemes

Normally companies would expect to take on term shipping commitments alongside gas purchase arrangements when they buy the gas on other than a delivered basis. The two arrangements are often made back to back, although where pipeline access is unlikely to be restricted, shipping commitments are generally made for shorter periods than the term of the gas purchase deal. Typically shipping capacity needs to be committed/reserved at peak flow rates on a firm basis, but again, companies may often undercommit and rely on short term "top-ups" or interruptible capacity where this is expected to be available.

Gas buyers almost never commit speculatively to gas capacity without a clear expectation of sourcing gas to transport through it. Equity owners of new pipelines often have entitlement to part or *pro rata* capacity rights but these are often sold on to other shippers.

On the other hand gas producers have been known to both take and retain equity and capacity positions in new pipeline infrastructure which is designed to move their upstream gas to market. In this way they can sell their gas on a "bundled" delivered basis at the end of the pipe. Recent examples include Gazprom committing to all shipping capacity in the Nord Stream pipeline project.

3.4.2 Role of Advance Commitments in Project-financed Pipelines

Major pipelines (roughly speaking, those costing more than $500 million) invariably seek lender finance, and typically receive this for 60 to 80 percent of the capital cost. However, for these loans to be nonrecourse or limited recourse, they must be secured against clear revenue commitments—which is to say, long-term ship-or-pay reservations for pipeline capacity. These commitments will need to be creditworthy, and minimally exposed to default or other negative impacts.

Some pipelines have moved ahead instead with strong recourse of such loans to the shareholders in cases where such security is not adequately contracted, or where other risks (often related to construction or political uncertainty) are insufficiently mitigated. Nevertheless a transition to a minimum recourse refinancing would be expected in due course as security improves. In general, even where the pipelines have sovereign backing, formal long-term shipping commitments are used as the instrument to secure debt (for instance, Gazprom in EuRoPol, Petrobras in the Bolivia-Brazil Pipeline). Where new pipelines can be "rolled into" existing national regulatory tariffs, this also offsets the return risk.

It is considered that much of the Southern Corridor new infrastructure needed will not fall into either of the latter two categories and hence that capacity commitments must be secured ahead of project sanction sufficient to adequately cover debt repayments.

From our consultation with the industry it is clear that offtakers will be averse to paying higher transportation tariffs for early commitments purely to meet debt servicing as this will preclude a "level playing field" versus later offtakers. To allay this concern it is assumed that the pipelines will seek to set "levelized" tariffs through at least the debt repayment period of their operation.

3.4.3 Implications for CDC Shipping Arrangements

A large number of uncertainties are associated with assuring the delivery of gas from new field developments in Turkmenistan along with its transport through new infrastructure across the Caspian Sea and thence through Azerbaijan, Georgia and onward to European destinations. It is clear from the consultation process that potential CDC participants consider that it would be exceptional to normal business practices, and indeed unrealistic, to expect CDC or its participants to take on the full exposure of material advance capacity payments on all sections of required infrastructure, as this would amount to the CDC assuming risks related to events outside its control.

In effect, CDC and its shareholders should only be expected to manage the shipping exposures related to peak versus actual flows, as opposed to taking on a risk of paying for "stranded" pipeline capacity by reason of failure of gas supply and/or failure to complete or otherwise make available contiguous pipeline linkages.

To limit any such risk, it would be normal practice to apply critical conditions precedent regarding the availability of gas and/or the other interconnecting infrastructure segments to any advance capacity shipping commitments that CDC would make. This would however render such capacity commitments ineffective in terms of their ability to support financeability of the pipelines until each and every such condition was met.

Role of Guarantees

Hence mechanisms have been analyzed as to how guarantees could be provided to either CDC (or to the various pipeline sponsors) whereby any advance capacity commitments could be covered if gas cannot be available for such transport by virtue of failure or delay in completing production developments or in building or operating key infrastructure segments, while assuring that such advance payments will be available to underpin the financing of the pipeline build.

The mechanisms have been structured such that CDC will be in a position to make the minimum advance capacity payments needed for debt servicing over and above other anticipated commitments. Thus the minimum payments toward debt service that will be required to finance the required transportation infrastructure at each stage of expansion will be met by a combination of third-party advance bookings (for instance, from the Shah Deniz consortium) and advance bookings from CDC (alongside any ongoing payments for current transport). No guaranteed equity returns to pipeline sponsors have been considered, except in the case of investment in a trans-Caspian Pipeline, where such guarantees may be needed to support its construction under a concession tender process (see Section 5).

The key mechanism proposed to cover this exposure on CDC's behalf is referred to here as a Stranded Capacity Payment Guarantee facility.

3.4.5 Stranded Capacity Payment Guarantee Proposal

In order to calculate the basis and level of such a Stranded Capacity Payment Guarantee requirement, IHS CERA have undertaken modeling of the phase by phase build up of likely CDC supply, and the associated GPA and shipping commitments which will need to be made on the separate sections of pipeline linkages through to Europe. This is outlined in detail in Section 3.6, where estimates have been made of the build-up of infrastructure capital investments, of realistic levelized tariffs, and of the associated debt servicing requirements

and—in particular—that part of the minimum debt service which will need to be committed in advance by CDC in order to support the external financing.

A scenario has been developed where Turkmen gas shipping payments are necessary to supplement those associated with core gas supply from Azerbaijan in order to meet the minimum debt service on a dedicated Southern Corridor pipeline through Turkey and Southeastern Europe. For this the following stages can be identified, as illustrated in Figure 3-4 (for full descriptions see Section 3.6):

- **Phase 1**: This phase consists of 10 Bcma of early Turkmen gas, with from new development of an offshore gas field or diversion of current onshore production. This would require construction of a minimum-scale Trans-Caspian Pipeline (TCP Phase 1), expansion of the existing South Caucasus Pipeline (SCP), and construction (or transit commitment through existing infrastructure) of the base capacity of a dedicated Southern Corridor route through Turkey and South East Europe (SCoP). This supply is assumed to be made available ahead of or alongside Shah Deniz Phase Two gas from Azerbaijan, and would support early expansion of the SCP system.
- **Phase 2:** This phase entails an additional 10 Bcma of new Turkmen gas, which is assumed to be supplied into a TCP from new onshore gas development via an integrated new East-West pipeline across Turkmenistan. This second tranche will come after the Shah Deniz Phase II volumes commence, meaning that they will need to help underpin a new parallel pipeline along the route of the SCP (SCP2), as well as expansion of the TCP. No advance commitments are required for the SCoP as the Shah Deniz Phase II commitments are assumed to have fully covered debt service.
- **Phase 3:** A further 10 Bcma phase of new onshore gas, perhaps from the South Yolotan/Osman field, is brought onstream and supports the expansion of TCP to capacity of 30 Bcma.

Only with successful commercial operation of Phase 1 will the contractual arrangements for Phase 2 formally come into place, including new advance capacity payments for TCP expansion and for SCP2, and similarly only after Phase 2 has been successfully applied will Phase 3 and beyond be committed.

Hence guarantees for advance commitments made for Phase 1 can be released when it has been successfully realized, at which stage the arrangements would be seen as normal ongoing commercial payments associated with proven deliverable gas and with available and the amounts can be made available for Phase 2 coverage, and so on.

As explained in Section 3.6, IHS CERA have estimated that for the above scenario CDC would need to make minimum Phase 1 advance shipping commitments of about $130 million annually for TCP over 15 years, alongside a further $470 million annually for SCoP for a minimum of 2 years, and around $260 million upfront contribution towards the advancement of the SCP expansion, equivalent to a total minimum exposure of $2.6 billion in total. Assuming a successful transition to Phase 2, new advance shipping commitments of aggregate $2.1 billion will be required, and Phase 3 requires only $0.4 billion. Thus in this case, the maximum nominal guarantee exposure would be $2.6 billion, equivalent on a discounted basis to around $1.7 billion (€1.3 billion)—this being the amount in today's

money that lenders would probably accept for rolled-up settlement of the advance shipping commitments otherwise paid out over 12–15 years.

In other words an external guarantee facility of around €1.3 billion could be sufficient to allow the CDC to enter into necessary long term ship-or-pay transportation reservation contracts on critical stages of the new infrastructure needed to bring Turkmen gas to Europe. This estimate assumes that commitments from other shippers share the burden of underpinning the Turkey-to-Europe component of the Southern Corridor, and ignore any similar advance payment guarantees which might be required for such commitments.

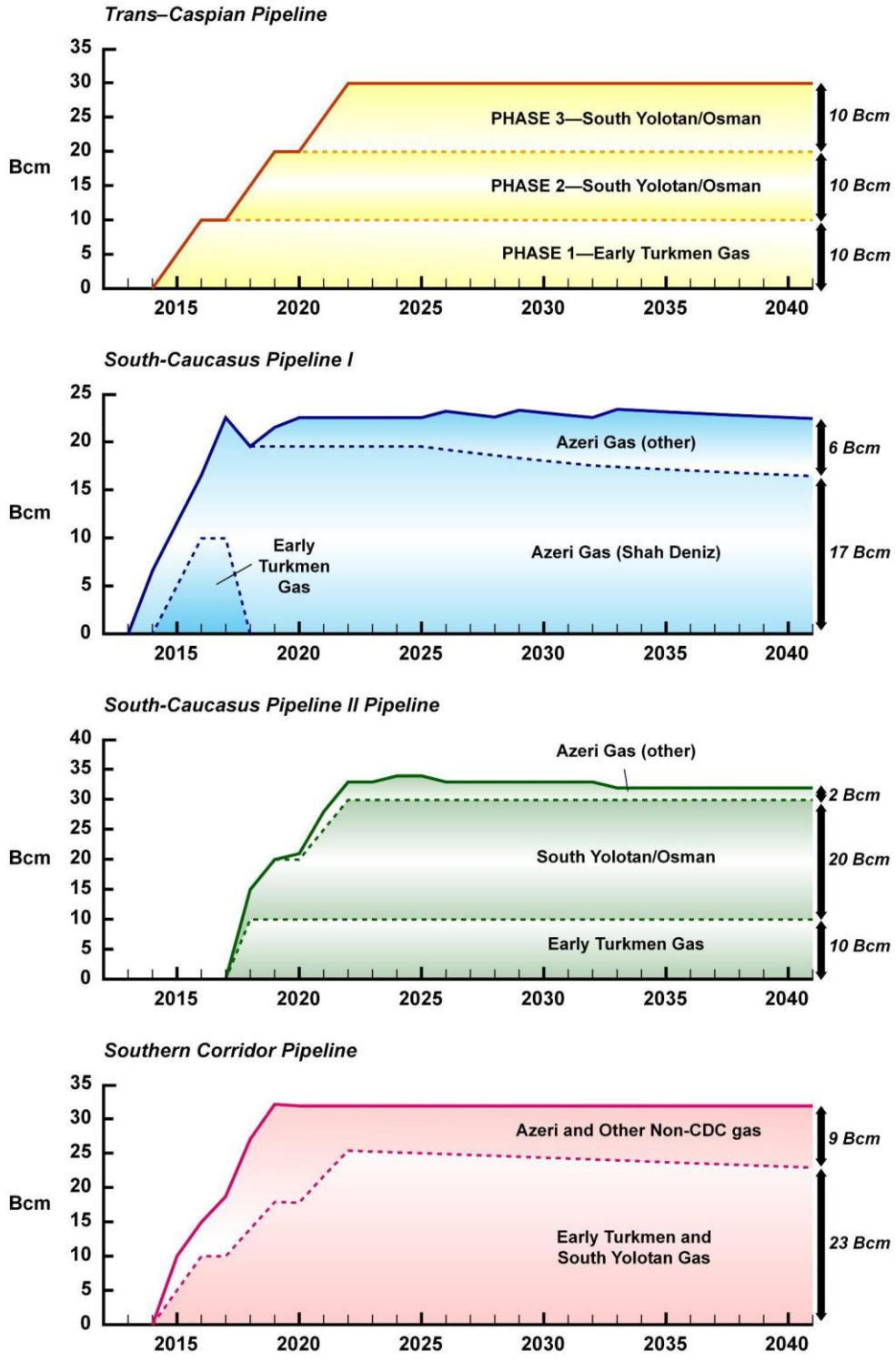
It is judged that this level of guarantee is truly exceptional to the normal business exposure of the likely participants in CDC. As such for CDC to move ahead it should preferably be supplied to CDC externally.

External support for a Stranded Capacity Payment Guarantee would itself be exceptional, in that this risk is not one of default but of nonoccurrence of a future, discretionary event or series of events which cannot be quantified or mitigated. It does not seem possible based on consultations that international and European financial institutions could cover this risk in the normal course of their business, thus implying that some sort of special facility would need to be created for this purpose.[6]

[6] Although the risk involved in a Stranded Capacity Payment Guarantee facility could not be borne by the EIB, such a facility could be "channeled" through the EIB under a specific mandate, with the risk being guaranteed by the EU, sovereigns, or other parties.

Figure 3-4

Estimated Throughput Volumes by Pipeline
(IHS CERA Reference Case)



Source: IHS CERA.
01214-16

Guarantee Structure

It is thus proposed that to facilitate the CDC and, in particular to allow it to underpin the financing and construction of the necessary infrastructure to deliver Turkmen gas through to Europe, a Stranded Capacity Payment Guarantee instrument be instituted and structured such that it will meet payments of agreed minimum ship-or-pay commitments made by CDC to new Southern Corridor pipeline sponsors in the circumstances that CDC is unable to ship Turkmen gas for reasons of its unavailability at the Turkmen delivery point or due to delays in build or unavailability of any other integral part of the extended delivery infrastructure. The payments will only be made if recompense is not available through other contractual performance remedies. The present valuation of the guarantees assumes that at any point the forward debt service obligations can be rolled up and paid up.

In fact, this guarantee could be structured such that any draw-down from the facility would be repaid if and when volumes shipped on the relevant pipeline were to recover to great than agreed minimum levels. This is a well-established principle, one used for instance in the case of institutional support for the debt financing of large infrastructure projects where there are elements of revenue growth uncertainty (e.g. toll roads). To do so for the CDC case would require three-way agreements for each element of the guarantee between the relevant IFIs, the CDC, and the various pipeline sponsors.

The ultimate scale of this guarantee facility will only be determined following negotiations between CDC and the pipeline sponsors—the indication of €1.3 billion is probably at the lower end, but if realized, would indicate that such a facility could leverage nearly $13 billion of shipping precommitments, in turn securing the financing of around $16 billion in new transportation infrastructure, and potentially the investment of $10–$15 billion in new upstream and linked facilities in Turkmenistan, and ultimately the supply of around $150 billion newly diversified gas supplies into Europe over 20 years.

3.5 Overall Evaluation of CDC Potential Liabilities

CDC participants will expect to assume liabilities primarily related to the European gas market. Although some participants may be themselves end users of gas—these companies would also face risks, but of a different nature—it is envisioned that most of them will be companies whose main business is the marketing of gas in Europe. These companies will seek approximately to match their long-term commitments to buy Turkmen gas through the CDC with smaller, shorter-term agreements to onsell this gas to various industrial end users, or to local or regional retail gas marketers serving the residential and commercial sectors, or directly to the latter.

3.5.1 Quantification of Pricing Risk

Part of the risk inherent in this arrangement relates to pricing. Under some pricing arrangements, CDC participants could find themselves in a position where they are onselling CDC gas at a loss—which is to say, at a price lower than the sum of the purchase price paid at the Turkmen border plus total transportation costs from the Turkmen border to the end market.

Price risk of this sort is a defining feature of the gas wholesaling business and managing it is a core competence of the industry. The price risk exposure of CDC participants will be substantially similar to the price risk they assume every time they enter a long-term contract for gas purchase. CDC participants will seek to manage and minimize this price risk in a

variety of well-trodden ways, and it is hard to imagine any suggestion that external players might provide them with any shelters or guarantees in this area.

In the Bundler model, price risk for CDC participants could be considerably mitigated through pricing arrangements that would be defined as part of the CDC's design parameters. In the market-value basket pricing model envisioned for the CDC (see Section 2.3.3 above), Turkmen gas would be purchased at a netback price determined by a weighted average of market-based sale prices for CDC gas in various European markets, less transportation costs and margin. In this model, most pricing risk—meaning not only downside risks but also upside benefits—would be borne by Turkmenistan, as is standard for other gas suppliers in long-term contracts.

Other pricing mechanisms which have been conceived in the context of the Bundler model—including but not limited to the Supply Cost Pricing Model described in Section 2.3.3—would do much less to mitigate CDC price risk, and they were ultimately considered to be unworkable.

Limiting Pricing Misalignment

In all cases it is assumed that the long term gas purchasing agreement(s) concluded with Turkmenistan will include typical "market price review" clauses such that pricing could be reopened every three years if it can be shown that the contractual prices have deviated significantly from local market pricing in the areas in which the gas is ultimately sold. This should have the overall effect of assuring that major deviations between gas purchase and gas sales prices can exist for an absolute maximum of three years at a time.

3.5.2 Effect of Sales Mix

Depending on the pricing arrangements finally agreed with the Turkmen suppliers, the CDC may be exposed to market price exposure based on a different mix of sales (and associated pricing) compared to the mix assumptions made in setting the pricing formula. If a straight pass-through of actual sales netbacks can be agreed this exposure can of course be eliminated. IHS CERA has analyzed the likely maximum exposure based on typical offtake flexibilities to be included in the various sales contracts.

Assuming that the GSAs entered into by CDC have a typical annual volume flexibility of plus or minus 15 percent, based on the historic maximum contract price spreads between different European markets of around 10 percent, and differences in shipping costs from Turkmenistan between nearest and furthest Central European markets likely to be a maximum of $0.50 per MMBtu, the maximum adverse sales mix effects on netbacks can be seen to be around two percent of revenues, or a maximum of around $150 million on an annual basis.

3.5.3 Overall Sales Exposure and Implications for CDC Equity

Based on historical range of market prices between different European markets, and historical ranges of protracted periods of differentials between spot and contract gas pricing in Europe (see section 3.2.4), a series of possible exposures has been estimated.

Were CDC required to negotiate a "proxy" pricing agreement with its gas supplier, rather than an actual pass through of realized netbacks (as would be preferred), then accommodating the maximum volumetric flexibilities likely to be agreed within the range of sales contracts is estimated to give rise the following maximum exposures for CDC:

- Sales mix effects: Maximum exposure equivalent to less than $450 million based on the above estimates over a protracted three-year period.
- Maximum supply default: Maximum exposure in early phases of around $400 million (see Section 3.2.4) based on the assumption of 18 months performance indemnity settlement from credit arrangements, and a requirement to source alternative gas from spot markets.
- Maximum sales default: Maximum exposure of about $150 million in the first phase, rising to $450 million at full volumes of 20 Bcm. This assumes assumption of 18 months performance indemnity settlement from credit arrangements, and a requirement to dispose of gas into spot markets. There is a history of extended periods of low spot gas prices relative to contract levels, varying from 5 to 40 percent on an 18-month average basis. However only sales to weak credit counterparties (assumed to be less than 15 percent of overall sales) should be exposed in this way.
- All of the above are accounted for on a maximum three-year period because of the price reopener clause which would be expected within the GPA, noted above. It will be important to extend this clause to cover long-term sales mix effects.
- The exposures are in general noncumulative although both sales mix and sales default exposures may occur simultaneously.
- Other mitigants would be volume optimization within the flexibility offered by the broader purchase portfolios of the CDC participants. The trading capability within CDC would also act to mitigate the sales mix effects in particular.

Implied Equity Requirement for CDC

From this analysis and based on the assumptions of our financial model (detailed in Section 3.6) one can calculate a maximum exposure for CDC, excluding any ship-or-pay commitments for stranded pipeline capacity, of around $300 million initially, growing to $850 million at full volumes.

It is assumed that the working capital burden of the CDC can be neutral based on negotiated credit periods with supplier, pipelines and gas buyers. As gas suppliers would generally absorb gas inventory costs through to customer delivery, it seems reasonable that CDC should not hold net working capital.

To ensure that the maximum exposures are adequately covered implies a minimum equity or equivalent shareholder guarantee commitment to the CDC of between $400 million and $1 billion as the volumes grow from 10 to 30 Bcma.

Industry Comparators

It is useful and interesting to compare these figures to the equity requirement employed in analogous companies in the European gas industry. The most direct comparator is probably GasTerra, which buys, transports and sells about 82 Bcm of gas annually—or nearly three times the volume anticipated for CDC. GasTerra has sales revenues of between €18 and €24 billion, which is two to 2.5 times that envisaged for CDC.

For such an operation, GasTerra has a balance sheet structure with €180 million authorized equity capital and a net equity of around €130 million. However, GasTerra does not have significant supplier default risk, and it has no effective sales mix exposure as it "passes through" realized prices to producers while keeping a fixed maximum margin to cover operating costs. GasTerra also has the advantage of having three very strong shareholders in the form of the government of the Netherlands, ExxonMobil, and Shell, who collectively represent strong credit backing in their own right. For the latter two, their GasTerra interests are back-integrated into much of the supply portfolio.

3.5.4 Summary Exposure Implications on CDC Equity Requirement

Nevertheless a target equity subscription for CDC of a maximum €750 million (about $1 billion) seems defensible, assuming it does not take on exceptional shipping risks. This would equate to roughly $33 million per Bcma of long-term gas commitment as an upfront equity subscription, or a parent guarantee of about $0.90 per annual MMBtu committed. On a typical cost of equity capital this would equate to around $0.10 per MMBtu lifted.

Ultimately an actuarial valuation of the equity requirement for CDC may be necessary based on the conditions of the core gas purchase, shipping and sales contracts and of the various guarantees offered institutionally.

3.5.5 Implications for CDC Corporate Structure

The above analysis indicates that the CDC can be established as a robust corporate entity with a capital reserve potentially equivalent to around €25 million per Bcm committed under a long term GPA with Turkmenistan, i.e. an initial equity subscription or backing of around €250 million, or about 14 percent of annual revenues. This should cover the maximum exposure from supplier or sales default and suboptimum sales mix.

It would seem reasonable that CDC should realize a fair return on such capital employed. At around 15 percent, this would imply around 2 percent of annual revenues. Operational costs for administration, billing, scheduling, and trading are assessed at around two to three percent of revenues.

These exposures are similar in nature to those taken on by major gas purchasers in existing long term gas contracts, particularly as regards sales default, and in this regard, CDC could be seen as taking over costs and exposures which the participants may have to bear anyway.

The capital reserve will not, however either provide for indemnification of the Turkmen supplier against CDC performance default, nor will it cover the exposure to the "stranding" of long-term advance shipping commitments made on yet-to-be built pipeline segments.

If the latter is to be accommodated by CDC it would require the equivalent of the Stranded Capacity Payment Guarantee—approximately a further €1.3 billion as detailed in 3.4.5 above—to be added to the reserve, representing a sixfold increase on the initial reserve as calculated above. This is a further demonstration of the unacceptable burden to CDC and its participants that would be imposed if this guarantee cannot be provided by external sources.

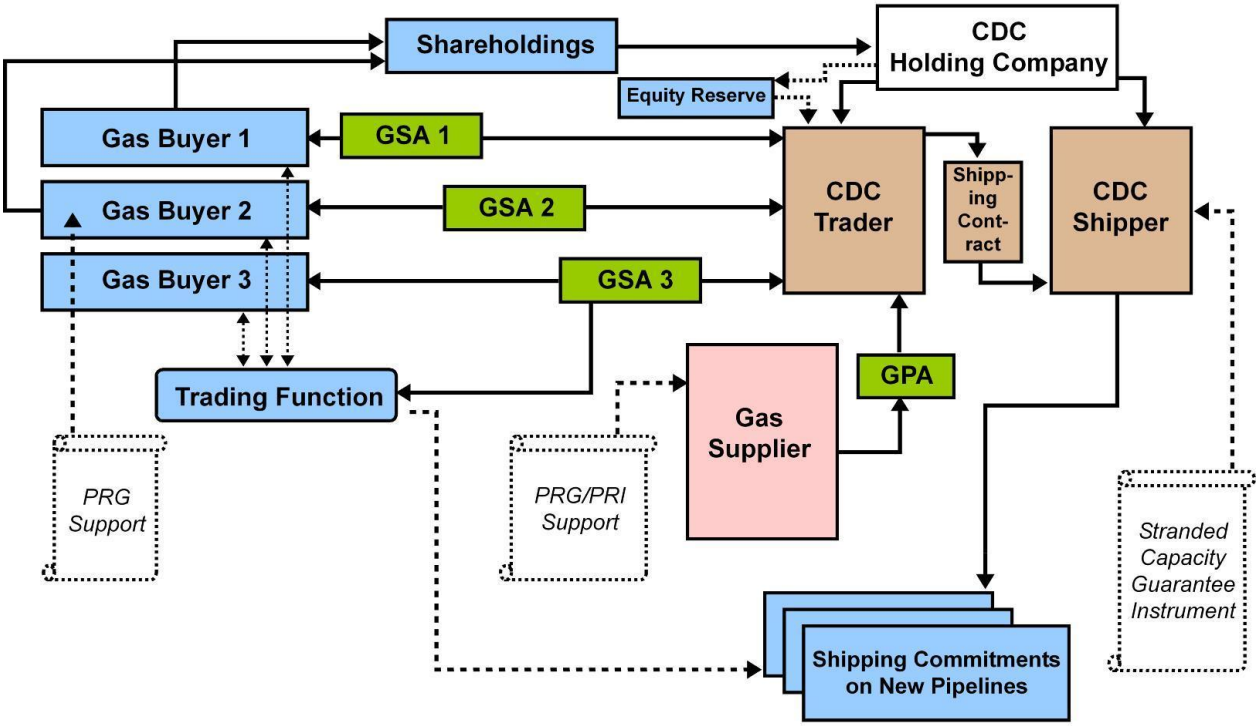
The requirement for Turkmenistan to have a long-term creditworthy offtaker to guarantee performance is however diluted by the relatively low capitalization of CDC as constructed in this way. It is therefore important to stress that the GPA obligations of CDC will pass through to its participants via their GSA arrangements (or otherwise) on any failure of CDC. This will preclude the possibility that the shareholders would ever seek to let CDC fail merely to exit their purchase obligations.

As noted in Section 2, CDC should preferably be structured as a holding company with separated activities in gas purchase and sales (trading) on the one hand, and in shipping on the other hand. The capital reserve outlined above will mainly be required for the trading business, whereas the Stranded Capacity Payment Guarantees will be made available to the shipping business. If the early phase activities of CDC are only related to providing shipping for Independent Private Initiatives (see section 2.2.3), then no effective reserve will be required until CDC trades gas in its own right.

The key implications for corporate structure can be seen in Figure 3-5 below.

Figure 3-5

Proposed Corporate Model for CDC



Source: IHS CERA.
01214-07

3.5.6 Overview of Risks and Mitigation

Figure 3-6 summarizes the areas of risk faced by CDC, and notes the mitigation approaches outlined above.

Figure 3-6

CDC: Risk Areas

Risk to CDC	Producer Performance			Deliverability				Buyer Performance
RISK / MITIGATION								
Technical/ Costruction	- Access to experience - Dedicated audited reserves	- Project management	- Long-term take-or-pay contract - [Back-up supply options] - Pass-through obligations of CDC participants - Partial risk performance guarantees - Political risk insurance -[Trading/loan optimization]	- Feasibility - Project management	- Expansion scope, cost, timing	- Selected project - Expansion scope	- Stranded capacity payments guarantee mechanism - Conditions precedent for step-up of shipping contracts - [Secondary capacity trading]	
Financial/ Commercial	- Long-term take-or-pay contract - Pricing floor - Prefunding arrangements	- Pre-funding arrangements - Upstream project integration		- BOO concession structure - Long-term CDC advance shipping commitments - Financing - Operational expertise	- CDC access - Shah Deniz II integration - Long-term advance shipping commitments	- Long-term advance shipping commitments (e.g. in Nabucco open season)		- Credit exposure–PRGs - Default indemnity limits - Price reopeners - Third-party sales/ trading
Political	- Diversion/ shut-in risk-PRI	- PRI		- IGAs - PRI	- IGAs	- IGAs - Common tariff mechanism		

Source: IHS CERA.
01214-8

3.6 IHS CERA FINANCIAL MODELING OF CDC

3.6.1 CDC Financial Analysis Structure and Assumptions

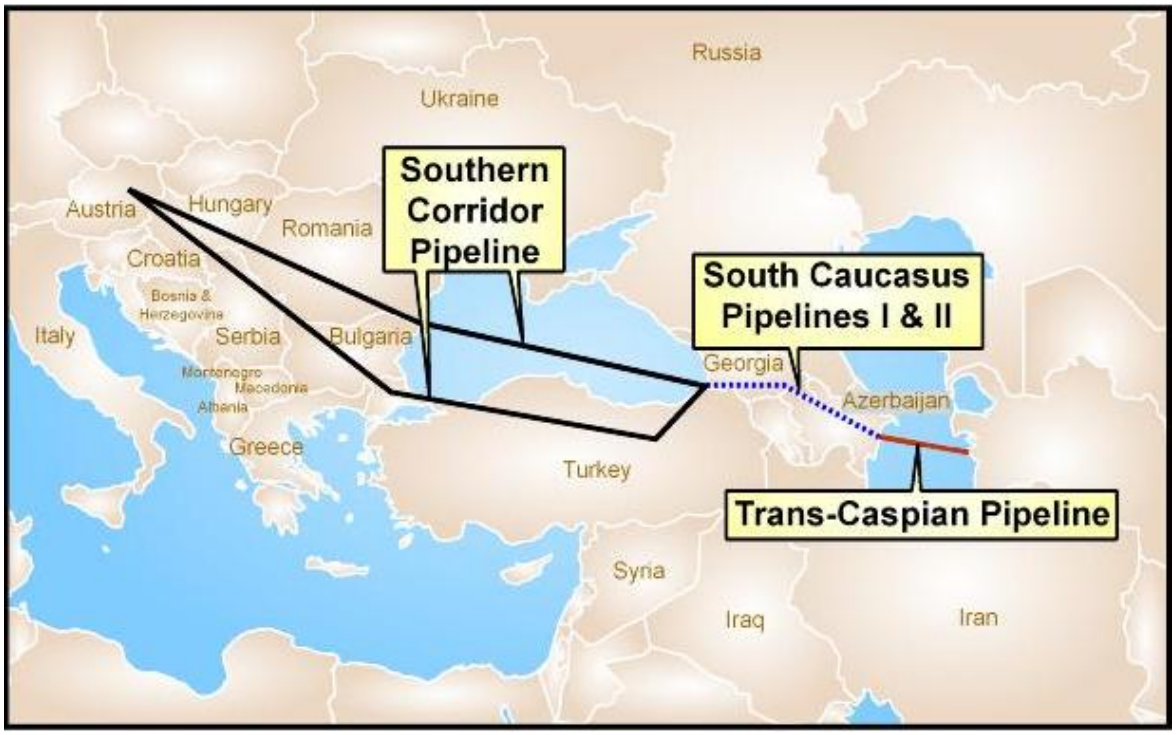
IHS CERA has developed a financial model covering new pipeline investments in the critical geographies to bring the gas to Europe and the commercial positions and commitments needed from CDC—related to purchases, shipping and sales—alongside other expected third-party gas suppliers and shippers (for instance, Azerbaijan together with its upstream partners).

Four components of new transport segment investment have been considered for the model (see Figure 3-7):

- a Trans-Caspian Gas Pipeline (TCP);
- expansion of the existing South Caucasus Pipeline (SCP1);
- a new South Caucasus Pipeline through Azerbaijan and Georgia (SCP2); and
- Southern Corridor Pipeline (SCoP), referring to onward infrastructure and through Turkey (or across the Black Sea) into Europe, which will not be based on CDC gas alone.

Figure 3-7

Pipelines Covered in the CDC Financial Model



Source: IHS CERA.

We have developed the base case scenario to quantify the likely scale of CDC usage of these various pipelines (see Figure 3-4):

The above figure demonstrates that CDC volume commitments are critical for the development of TCP, SCP2 and SCoP. CDC volumes are also instrumental in bringing an early expansion of SCP1.

3.6.2 Tariff Assumptions

It is assumed that the pipelines will seek to have "levelized" tariffs—i.e. tariffs that remain the same for all firm commitments whenever made, up to the full capacity of the pipe, rather than demanding a premium for early use where this would otherwise be insufficient to assure debt service. The IHS CERA model calculates tariffs that would be required to generate a 12 percent posttax project IRR (unleveraged) over a 30-year life for each project. This reflects the traditional return expectations of commercial investors in similar projects, but where the projects are primarily state enterprise-backed, lower capital returns could be considered. The calculation of the tariffs takes into account:

Capital Expenses

Our basis for scoping and capital estimation of the pipelines is the study carried out for the EU INOGATE program in 2007–08. We have adapted these cost estimates in the following ways:

- The scale has been adapted to allow for 30 Bcma of Turkmen gas flows via CDC, with costs adapted appropriately to reflect variations on distance, pipeline capacity, and other factors;
- Capex estimates were inflated using the industry standard IHS CERA Capital Cost Indices;
- Compressed Natural Gas delivery options on the Caspian Sea and Black Sea were not considered due to a lack of robust cost data, and the view, supported by the CDC study sponsors, that such an option cannot offer a material solution to transport of 30 Bcma Turkmen gas.

Estimates have also been made of realistic phasing of the projects to minimize initial capital funding, and hence minimize the debt cover required from anchor contracts. IHS CERA have therefore made estimates of the scope and cost of the minimum initial build required to deliver first phase gas flows through each sector of the new infrastructure. Note that typically all major pipelines are built on a phased basis, delaying elements such as twinned sections and compression until required for further stages of gas flow growth. Early phase operation may also be able to utilize existing spare transport capacity and hence delay some critical legs of new build.

The summary of the capital expenses for each pipeline can be seen in Table 3-1:

Table 3-1
Estimated Pipeline Capital Costs

	Capital Costs
TCP	$2.27 billion
SCP1 (extension only)	$960 million
SCP2	$2.80 billion
SCoP	$10.92 billion

Operating Expenses

Operating expenses are estimated at 0.2 percent of total capital costs, per annum, excluding the cost of gas for compression.

Pipeline Insurance Costs

This cost refers to liability insurance, property insurance and business interruption insurance for a functioning pipeline. It does not include construction insurance. The cost will vary for each pipeline depending on location and individual specifications but for the purposes of the financial analysis we estimated the insurance premiums to be 0.5 percent of total capital costs per annum.

Compression Gas

Gas use in pipeline compressor system is estimated at 1.5 percent of throughput per 1000 km. The cost of this gas is calculated using a Turkmen border price of $153 per million cubic meters plus the assumed shipping tariff from the Turkmen coast to the relevant pipeline.

In-kind Royalty Payment to Georgia

It is assumed that there will be an in-kind royalty payment to the Georgian state as part of the SCP2 cost structure. A working estimate of 3 percent of the pipeline throughput has been used for the large volumes considered. In the analysis the cost of this gas is assumed to be equal to the Turkmen border price plus the shipping tariff from the Turkmen coast to SCP2.

Tax

In practice, depreciation methodology and corporate income tax requirements are likely to be complex and varying for each pipeline considered here. Fiscal regimes differ significantly in the geographies that the pipelines go through and it is likely that each project will be considered separately for tax purposes. For the model we assumed declining balance depreciation methodology at 15 percent per year. Corporate income tax is assumed at 30 percent for SCoP, SCP1, and SCP2 and no explicit tax is assumed in the cost structure of TCP.

Implied Shipping Tariffs

Shipping tariffs calculated based on the above assumptions (shown below in Table 3-2) are used to calculate the level of firm advance capacity commitments required to underpin financing.

Table 3-2
Pipeline Tariffs

	Full Basis (including variable costs and royalties)	Capacity-only Basis (excluding variable costs and royalties)
TCP	$0.36/MMBtu	$0.35/MMBtu
SCP1 (extension only)	$0.50/MMBtu	$0.40/MMBtu
SCP2 (SCP II)	$0.62/MMBtu	$0.40/MMBtu
SCoP	$2.13/MMBtu	$1.75/MMBtu

Debt Arrangements

The model assumes all infrastructure projects are financed with a 70/30 ratio of debt to equity, with varying tranches of ECA, IFI and commercial debt at typical tenors and basis rates and repayment schedules. Appropriate political and other risk insurance costs have been applied. However all the debt tranches, and their availability, are theoretical only and by no means easily realizable. The key debt assumptions are summarized in Table 3-3 below.

Table 3-3
Key Debt Assumptions

	Commercial Bank Financing, as % of Capex	Repayment Period (years)	ECA, IFC, EBRD debt, as % of Capex	Repayment Period (years)	Total Cost of Debt	Debt Arrangement Fees	Political Risk Insurance, as % of Commercial Bank debt
TCP	20%	12	50%	15	6.2%	1%	5%*
SCP1	60%	12	10%	15	6.2%	1%	0.5%
SCP2	60%	12	10%	15	6.2%	1%	2%
SCoP	35%	12	35%	15	6.2%	1%	2%

Source: IHS CERA.
Note: For TCP the Political Risk Insurance is assumed as a proportion of all ECA-secured debt, which constitutes 60 percent of capex.

It is assumed that TCP financing will take place on a phase-by-phase basis, with each phase having a stand-alone debt arrangement.

We estimate that the debt interest will be accrued during the construction phase for all projects, and that repayments of interest and principal will commence after the major initial construction has taken place and the first volumes of gas are flowing.

3.6.3 CDC Cash Flows

Using the tariffs calculated above, the model estimates the pretax economics of CDC. It is assumed that CDC will be able to sell gas to Europe at the current delivered contract value of around $275 per million cubic meters (in real terms) and to Turkey at $231 per million cubic meters. We believe that this represents a realistic price for planning purposes and takes into account a recent weakening of the gas price in Europe, although, as described in Chapter 1 we do see the demand strengthening in the long term.

It is estimated that there will be a gas offtake in Turkey to meet local demand. This offtake is projected to start in 2018 at 1 billion cubic meters per annum and grow to 7 billion cubic meters per annum by 2040.

The model assumes that Turkmen gas would be purchased at a netback price determined by a weighted average of the sale prices for CDC gas in various European markets, less transportation costs and costs for CDC operations and capital employed. The gas purchase price at Turkmen coast is therefore estimated at $153 per million cubic meter. The netback calculation includes the deduction for CDC costs, which are assumed at around 5 percent of gross revenue.

Table 3-4 shows the economics of CDC grouped by five-year periods.

Table 3-4
CDC Economic Assumptions in Base Case Scenario

USD billion (unless specified)	2012–16	2017–21	2022-–26	2027–31	2032–36	Total 2012–36
Operating Revenue						
Volumes sold at end points, Bcm						
Southern Corridor Pipeline, Bcm	15	82	126	123	120	465
Offtake for Turkish Demand, Bcm	0	8	24	27	30	90
Total, Bcm	15	90	150	150	150	555
Sales at end points						
Southern Corridor Pipeline A	4.1	22.4	34.7	33.8	32.9	128
Offtake for Turkish Demand	0.0	2.1	5.9	6.7	7.5	22
Total Operating Revenue	**4.1**	**24.5**	**40.6**	**40.5**	**40.4**	**150**
Gas Purchasing and Shipping costs						
Gas purchasing	2.3	13.9	23.5	23.7	23.9	87
Shipping tariff						
Trans-Caspian Pipeline	0.2	1.2	2.0	2.0	2.0	7
South-Caucasus Pipeline I	0.3	0.2	0.0	0.0	0.0	0
South-Caucasus Pipeline II	0.0	1.8	3.4	3.4	3.4	12
Southern Corridor Pipeline A	1.2	6.3	9.7	9.4	9.2	36
Total	1.6	9.4	15.0	14.8	14.5	55
CDC Operating & capital costs	0.2	1.2	2.0	2.0	2.0	8
Total Costs	**4.1**	**24.5**	**40.6**	**40.5**	**40.4**	**150.1**

Notes
- The gas price at end point is assumed $275 per thousand cubic meters (Mcm)
- The gas price for Turkish consumption is assumed $231 per Mcm
- It is assumed that CDC will retain around 5% of the gross revenue to cover operating costs

3.6.4 Minimum Guarantees Required from CDC

Based on the above analysis and the different scenarios applied, we have assessed the minimum volume and associated capacity cost precommitments which will be required to underpin the minimum phase build of the new infrastructure components. Table 3-5 shows these ranges and the share that CDC might be expected to commit.

Table 3-5
CDC Requirements for Advance Commitments

Pipeline Name	Levelized Tariff $/Mmbtu Total	Levelized Tariff $/Mmbtu Capacity only	Total minimum volume commitment to secure financing (average)[1], Bcma	CDC Minimum uncovered[3] volume commitment (average)[1], Bcma	Minimum duration of commitment, years	Total volume commitment, Bcm	CDC pre-commitment, nominal USD billion
Trans-Caspian Pipeline					15 years for each		
Phase 1	0.36	0.35	8.3	8.3	phase	125	1.6
Phase 2			3.4	3.4		50	0.7
Phase 3			2.0	2.0		30	0.4
South-Caucasus Pipeline I	0.50	0.40	n/a	4.9	3	15	0.3
South-Caucasus Pipeline II	0.62	0.40	17.9	8.2	9	90	1.4
Southern Corridor Pipeline	2.13	1.75	10.8	5.1	2	10	0.7

(1) The volume commitment represents an annual average over the total period. Note that early years volume may be higher than average
(2) The fixed tariff includes compression fuel
(3) Uncovered refers to yet to be secured flows

The required commitments vary for each pipeline and the analysis of each is discussed below:

Trans-Caspian Pipeline

As mentioned above, the debt service requirements for TCP were modeled separately for the three phases. For each phase we estimated the volume required to cover the debt service. As 100 percent of volume throughput is attributable to CDC flows, the guarantee will need to be able to cover 100 percent of debt service.

Phase 1 entails a first 30-inch pipeline string, without compression, which is estimated to represent 60 percent of TCP total capex. The average minimum volume requirement is 8.3 Bcma for 15 years.

Phase 2 entails a second string plus the addition of some compression, and represents 25 percent of TCP total capex. The average minimum volume requirement is 3.4 Bcma for 15 years.

Phase 3 entails further addition of compression and represents 15 percent of TCP total capex. The average minimum volume requirement is 2 Bcma for 15 years.

The advance commitment required for Phase 1 of TCP is by far the largest that CDC is required to make compared to the other pipeline commitments, at $1.6 billion of total payments over 15 years. Once Phase 1 is completed and gas is flowing, the risk to CDC reduces substantially.

South Caucasus Pipeline I

In this analysis we considered only the expansion of the existing SCP1 pipeline. In order to bring forward the construction of capacity expansion ahead of schedule, CDC would be required to cover the cost of capital for the capex investment necessary to bring this investment forward by two and a half years (estimated at 12 percent). This commitment is an equivalent of 4.9 Bcma for three years and in dollar terms represents $265 million.

South Caucasus Pipeline II

It is assumed that after 30 months the 10 Bcma of CDC gas flowing through SCP1 will be transferred to SCP2, with Shah Deniz Phase II gas taking up all available SCP1 capacity at this point. The transit revenue from this existing, secure CDC flow will cover much of the debt service requirement; the CDC uncovered commitment (i.e. commitments for gas volumes yet to be secured) is calculated as the difference between the full debt service payments and the expected shipping revenue from this early Turkmen gas already flowing.

This average annual commitment is estimated at 8.2 Bcma over 12 years. The aggregate monetary value of this commitment is $1.4 billion.

Southern Corridor Pipeline

The calculation of CDC exposure for the SCoP pipeline makes two key assumptions. Firstly Turkmen gas alone is insufficient to kick-start the project. The assumption is that the minimum debt service obligation is roughly shared 50/50 with Iraqi gas in the early years of operation. The second assumption is that a commitment from Shah Deniz II gas is already made ahead of project sanction, and that the commitments for ship-or-pay for early Turkmen volumes are only required to bridge the period until such gas flows in sufficient quantities. This time period is assumed to be prior to 2018.

Therefore, the minimum CDC precommitment is calculated to cover the shortfall during these two years, or putting through an equivalent of 4 billion cubic meters per year. The dollar value of this commitment is $0.7 billion over the first two years.

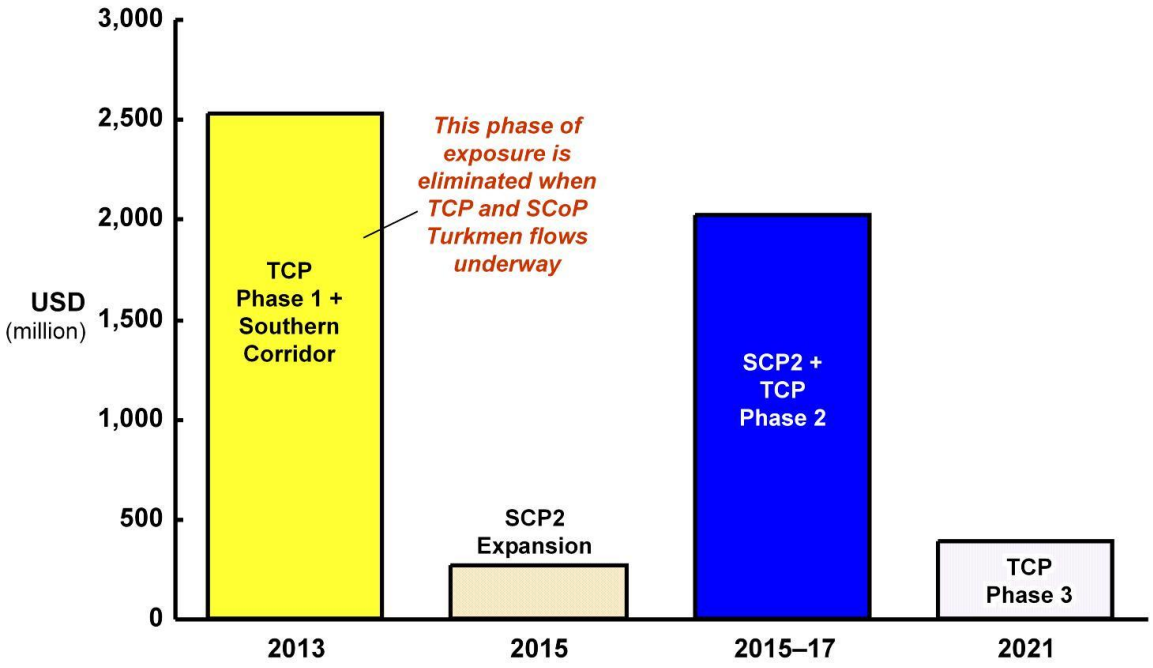
It should be noted that more aggressive roles for Turkmen gas in underpinning the SCoP will exact much more exposure for CDC. If the debt service were to be shared between CDC and Iraqi gas over the whole repayment period then the aggregate payments could amount to over $4 billion for CDC.

3.6.5 Phases of Shipping Exposure for CDC

The exposures noted above are not cumulative. This is to say that that the further stages of investment in infrastructure to expand CDC flows will only be taken if the early phases are underway and flows are secure. Hence any guarantees for such exposures can be eliminated and rolled forward to the next stage of necessary shipping precommitment. Alternatively if a guarantee is called, no further phases will be progressed until the basis for the call is remedied. This is illustrated in Figure 3-8 below where the relevant infrastructure completions and volume flows are in line with the schedule described in Section 1.

Figure 3-8

CDC Potential Precommitment Ship-or-Pay Exposure as Expected Stage by Stage

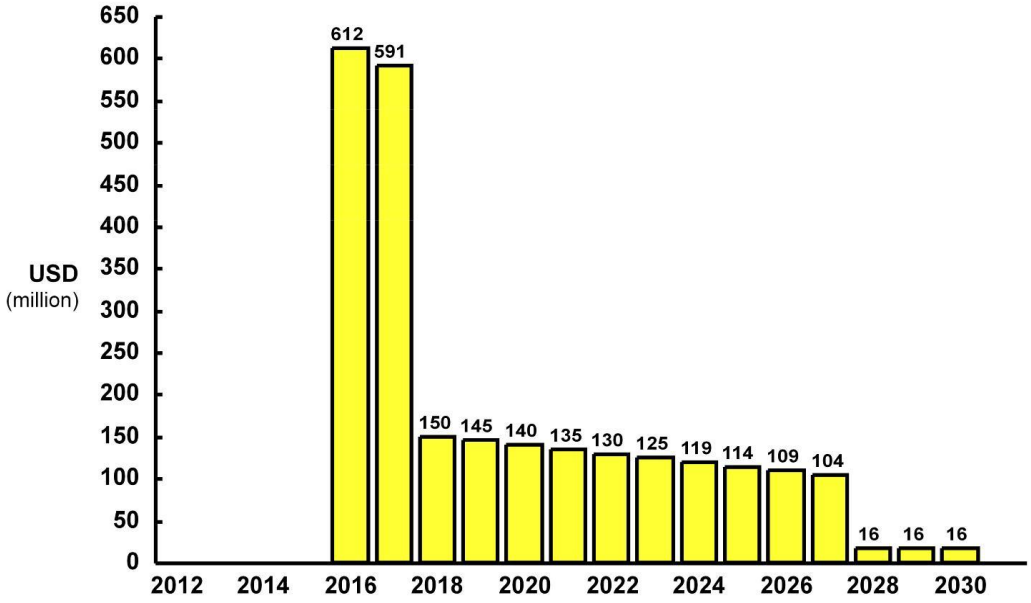


Source: IHS CERA.
Note: Construction begins for TCP (Phase 1) and for SCoP in 2013.
01214-10

At this stage, CDC will be required to issue the minimum ship-or-pay volume guarantees for TCP Phase 1 and SCoP. The assumption is that the guarantees for TCP cover the full debt service period, whereas for SCoP they only cover the period until Azeri Shah Deniz II gas can be expected to supplement other non CDC gas commitments as noted above. In the event that the expected 10 billion cubic meters of early Turkmen volume fails to flow, CDC's payout is capped at $2.3 billion. It will be required to pay on the guarantees as described above and its annual exposure is estimated to be in Figure 3-9.

Figure 3-9

Commitment Payout for TCP Phase 1 + SCoP



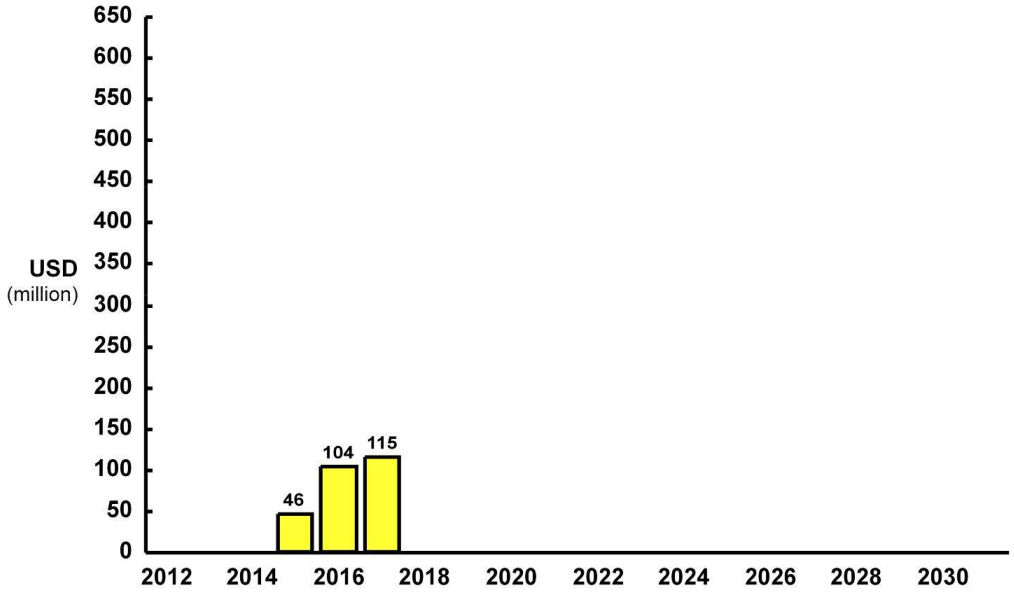
Source: IHS CERA.
Note: Year 2015—Expansion Phase of SCP 1 in 2015.
01214-11

At this stage, it is assumed that TCP and SCoP are successfully commissioned and the initial 10 Bcm of Turkmen gas is flowing. The earlier guarantee thus becomes obsolete and is rolled over to cover the expansion of SCP1 which will be required as Azeri production increases. CDC volumes are instrumental in bringing early expansion of the pipeline and if the early Turkmen volumes cannot be put through (because of an accident for example), then CDC's guarantee of $265 million is exercised and the cashflows are shown in Figure 3-10.

Figure 3-10

Commitment Payout for SCP1

(bringing construction forward)



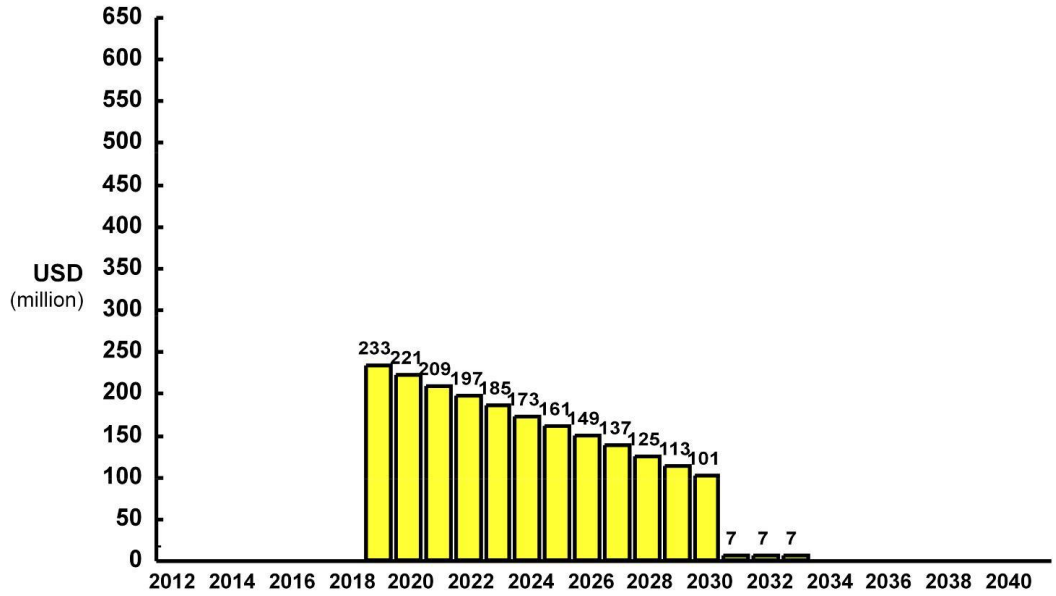
Source: IHS CERA.
01214-12

Year 2015–17—Construction of SCP2 and TCP Phase 2

At this stage, the early Turkmen volumes are assumed to be successfully flowing through commissioned TCP Phase 1, SCP1 expansion and SCoP, so the two previous guarantees become obsolete and are rolled over to cover the construction of SCP2 and TCP Phase 2—which will be needed to accommodate increased Turkmen purchases from a successful development of new onshore Turkmen gas production. The total aggregate CDC exposure for this stage is $2.1 billion over the forthcoming 15-year period. This guarantee will be called if no volume flows from the new onshore production or one of the two infrastructure projects fails to be realized. If both the guarantees are called, CDC cashflows will be as shown in Figure 3-11.

Figure 3-11

Commitment Payout for SCP2 and TCP Phase 2



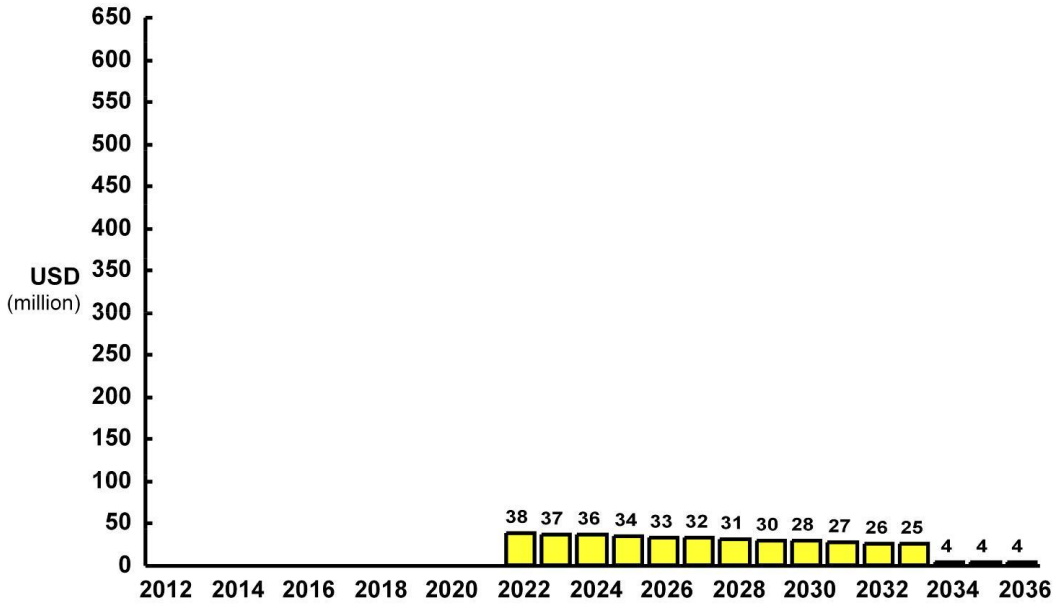
Source: IHS CERA.
01214-13

Year 2021—TCP Phase 3

At this point, early Turkmen volumes and gas from South Yolotan are flowing and the relevant infrastructure has been commissioned, so the CDC guarantee is rolled over to underwrite the TCP Phase 2 to allow extra 10 billion cubic meters to flow from further phases of onshore Turkmen gas development. If this volume does not flow through, CDC cashflows to meet the guarantee is shown in Figure 3-12.

Figure 3-12

Commitment Payout for TCP Phase 3



Source: IHS CERA.
01214-14

Net Maximum Guarantee Exposure

The analysis above demonstrates that the maximum total exposure for CDC is capped at $2.6 billion—paid out over 12–15 year timeframes. In fact if the guarantees are called in many instances a rolled payment may be made to the debt providers, reducing the real exposure to around $1.7 billion.

SECTION 4

CDC AND COMPETITION LAW

4.1 INTRODUCTION

If the CDC initiative is successful, it will supply into the European market gas from new sources which otherwise would not flow to Europe. Thus the basic goal of CDC is to enhance diversity of gas supply to Europe, and thus increase the scope of choice available to customers.

However, the CDC is at the same time by intention being designed as an entity that will involve companies that usually compete with each other to supply customers in this case coming together to achieve the goals set out for the CDC.

In the European Union, any such "joint undertaking" of companies must be done in conformity with some very clear rules that have been established and are policed by the European Commission, specifically the Directorate General for Competition (DG COMP). DG COMP is represented on the Steering Committee for the CDC project, and it has been consulted by IHS CERA in its role as CDC Consultant. Advice has also been provided by Freshfields Bruckhaus Deringer LLP.

On the strength of this advice and input, the CDC business model, and in particular the process described in the Road Map (see Section 5) are designed in such a way as to maximize conformity with competition law and practice.

Nevertheless, the CDC concept remains unusual in the context of present trends in EU competition law. It would appear *prima facie* to be an "agreement between undertakings" and is therefore likely to at least raise concerns with regard to:

- the commonality of costs
- price-forming mechanisms, and
- information exchange.

A detailed analysis of the competition effects of CDC can be carried out by DG COMP only when the nature and number of companies who would be likely to participate in the CDC have been defined, and when it is clear into which European markets CDC gas will be sold.

However, ahead of such a review, it is possible to identify the impact of the proposed business model on competition, specifically with regard to:

- compatibility with Article 101(1) Treaty of the Functioning of the European Union (TFEU);
- the possibility of an exemption under Article 101(3) TFEU; and
- the potential for and possible implications of a Letter of Guidance to be issued by DG Comp.

4.2 ARTICLE 101 TFEU

4.2.1 Article 101(1)

Because the CDC will be likely to be defined as an "agreement between undertakings" it will thus be liable for review of its competition effects under Article 101(1) of the TFEU.

It is also clear that the CDC under the Bundler model (and in fact, under any of the models that were considered) would be considered likely to have an effect on trade, meaning that the CDC agreements would need to be considered for potential anticompetitive effects. The applicability of Article 101(1) would then depend finally on a determination as to whether or not the effect of CDC (regardless of intent) would be the prevention, restriction or distortion of competition.

This question would in principle remain open to argument, and a case could be made that this would depend to some extent on the share of CDC gas in the total gas portfolio of each participant, as well as each participant's share in the national or regional markets into which it would be supplying CDC gas. Below certain thresholds it could be argued that the effect of the agreement would not be anticompetitive.

It would be possible in theory for the initial formation process of CDC to include criteria, or impose conditions on potential participants, that would help ensure that the CDC did not run afoul of Article 101(1), by ensuring that either the portfolio share or the market share to be taken by CDC fell below these thresholds.

However any such preconditions would be sensible only if it were clear on an *a priori* basis that these preconditions would not have a material effect on the ability of CDC as a gas purchaser and shipper to aggregate the contract volumes of gas required to meet the CDC's fundamental objective of scale, and to ensure the capacity to make shipping commitments at a level sufficient to support the financing of Southern Corridor pipeline infrastructure.

Our assessment is that it would not be appropriate or ultimately workable to specify any such preconditions in detail in advance of the formation of CDC:

- The participation of a large number of small companies, each expecting to contract for relatively small volumes of gas, will imply that only fairly loose preconditions would be required.
- Early, overprescriptive specification might risk discouraging such participation.
- The participation of a smaller number of large companies, each expecting to contract for substantial volumes (relative to their markets) might require stricter preconditions

It is proposed in the CDC Road Map (Section 5) that the CDC Secretariat, in consultation with the European Commission, will review what sort of preconditions, if any, may be required at the appropriate point in the CDC formation process.

In the Bundler model, commonality of costs and information exchange—two possible red flags from the point of view of EU competition law—are potential areas of concern in the design of CDC. The design of CDC in this model would be handled carefully so as to restrict access to individual participants' gas supply costs and other information such as scheduling between the CDC shareholders. CDC staff who are "Chinese-walled" from the CDC shareholders are therefore proposed in the Road Map to have a role that includes negotiation

of prices with participants, and the overall pricing with Turkmenistan, such that supply prices are not communicated in detail to the participants. To be sure, "Chinese walls" are generally considered as prima facie insufficient to remedy competition problems, so additional mechanisms and protocols will be needed to ensure there is no breach of competition rules on information-sharing.

It is generally accepted that the CDC should incorporate competition-enhancing elements such as requirements for a phase-in of proportional gas release to third parties—which would need to be assessed very carefully as regards their likely effect on competition—as well as a sunset clause for the CDC as a whole. The precise details must await the later stages of the CDC's formation. Yet, no matter how well designed the CDC might be, a risk will remain that CDC will at some point move into violation of Article 101(1), and will need at that point to be exempted according to the criteria of Article 101(3). If the CDC's foundational agreements satisfy the conditions of Article 101(1), it will still be difficult to conduct a self assessment under Article 101(3) without any guidance or clarification from the Commission.

4.2.2 Article 101(3)

Article 101(3) contains the language establishing the conditions under which an agreement between undertakings that prevents, distorts or restricts competition may nevertheless be allowed. The key tests for determining whether an exception can be granted are as follows:

- any anticompetitive elements and practices should have the effect of producing efficiency gains;
- a fair share of any such efficiency gains should accrue to consumers;
- the anticompetitive elements of the agreement should be indispensable to the provision of these efficiency gains; and
- the anticompetitive elements do not allow the possibility of eliminating competition.

The CDC under the Bundler model would appear to be able to meet this test of indispensability, with special focus on its role in underpinning the financing of required transportation infrastructure.

If it were to emerge that a large number of companies were also competing to import gas from the Caspian and Middle East outside the CDC rubric, this may weaken the case for proving indispensability.

4.3 Clarification of Exemption Conditions, Possibility of a Guidance Letter, and State Aid

Guidance or clarification from the Commission with respect to these issues that will arise from the creation of the CDC could be provided in two distinct ways.

One possibility is contained in Article 10 of Regulation 1/2003, which states the following:

> Where the Community public interest relating to the application of Articles [101] and [102] of the Treaty so requires, the Commission, acting on its own initiative, may by decision find that Article [101] of the Treaty is not applicable to an agreement, a decision by an association of undertakings or a concerted practice, either because the conditions of Article [101](1) of the Treaty are not fulfilled, or because the conditions of Article [101](3) of the Treaty are satisfied.

A decision to offer such an exemption under Article 10 can only be taken by the Commission acting on its own initiative, and will depend on the Commission's judgment regarding the public interest. It cannot be requested by participants in the CDC.

However DG Comp have stressed that it needs to be recognized that any decision to offer an Article 10 exemption would be strictly limited to the facts presented at the time of exemption provision, and may not provide legal certainty following any substantive changes to CDC and its composition.

A second possibility is that the undertaking can submit a request for an informal Guidance Letter. The Commission has adopted the following criteria for issuance of a Guidance Letter:

- The substantive assessment of an agreement or practice with regard to Articles [101] and/or [102] of the Treaty, poses a question of application of the law for which there is no clarification in the existing EC legal framework including the case law of the Community Courts, nor publicly available general guidance or precedent in decisionmaking practice or previous guidance letters.
- A prima facie evaluation of the specificities and background of the case suggests that the clarification of the novel question through a guidance letter is useful, taking into account the following elements:
  - the economic importance from the point of view of the consumer of the goods or services concerned by the agreement or practice, and/or
  - the extent to which the agreement or practice corresponds or is liable to correspond to more widely spread economic usage in the marketplace and/or
  - the extent of the investments linked to the transaction in relation to the size of the companies concerned and the extent to which the transaction relates to a structural operation such as the creation of a nonfull function joint venture.
- It is possible to issue a guidance letter on the basis of the information provided, i.e. no further fact finding is required.

It is clear that a Guidance Letter is very different from an exemption under Article 10. A Guidance Letter can be requested from the Commission, and can be pursued even if some of the CDC agreements seem to be subject to Article 101(1). Upon requesting a Guidance Letter, the undertaking would be required to provide the Commission with sufficient data for a judgment to be made.

For a Guidance Letter to be issued, the European Commission would need to first undertake a detailed assessment of

- the character and type of CDC participants, and
- the nature and operation of the CDC business model.

Based on this assessment, the Commission would have to be convinced that positive guidance is justified according to the criteria noted above: on the basis of the novelty of the CDC concept; and of the usefulness of the CDC in terms of benefits provided for consumers, diversification of energy supply, and mobilization of large-scale investment.

One disadvantage of requesting a Guidance Letter is that it would not necessarily require the Commission to provide a clear answer as to whether the agreement being considered benefits from the exemption of Article 101(3). Of course the Commission could also refuse to provide such a letter.

An Article 10 exemption on the other hand would provide such a clear answer and would specifically exclude the agreement from the scope of Article 101. Clearly this would provide the most comfort to CDC participants. However, to reiterate, an Article 10 exemption cannot be requested: it can only be provided on the Commission's own initiative. DG Comp have noted that the timeframe for an Article 10 exemption could be substantially longer than for a Letter of Guidance.

State Aid

It will be important to ensure that any guarantee arrangements which constitute government support, as noted in Section 3, are established so as to be compliant with EU rules on state aid.

SECTION 5

ROAD MAP FOR THE FORMATION AND OPERATION OF CDC

5.1 INTRODUCTION

This section sets forth a detailed roadmap for how to establish the CDC as a legal and functional entity, and how to build up its operations through its first decade of existence, including organizational aspects.

This Road Map is focused on Turkmenistan as the sole initial supplier to the CDC; however, if and when the Corporation were up and running, it would be a straightforward matter to initiate a new process, incorporating the relevant parts of this Road Map, in order to reach agreements with other gas suppliers on gas sales and transport to Europe supported by the CDC.

The implementation Road Map consists of 29 steps which are divided into five phases:

- the Inception Phase,
- the Foundation Framework Phase,
- the Foundation Launch Phase,
- the Incorporation Phase, and
- the Operational Phase.

Although the 29 tasks are here presented sequentially, there in fact will be a great deal of overlap between them, and indeed within each Phase—and between different Phases—there will be various processes underway at the same time. Table 5-1 (shown below after Step 29) shows an indicative schedule for CDC implementation in the form of a Gantt chart.

The CDC Consultant will play a major role in providing support during the first three Phases of implementation, working in some areas together with legal and financial advisors. The key goal of the Foundation Framework phase will be to create an Initial Founding Group which will from that point forward progressively take responsibility for key processes and prepare for the final transition to the CDC as a fully operational corporate entity.

The phrase "CDC sponsors" is used in this road map to refer to the group of organizations which will have a formal sponsoring role for the formation and operation of the CDC. The composition of this group has yet to be determined, and may differ from the CDC Sponsor Group as currently constituted—this latter phrase referring to the three sponsors of the CDC consultancy study, namely, the World Bank, the European Commission, and the European Investment Bank.

5.2 INCEPTION PHASE

This phase of CDC implementation will set the institutional and political basis for CDC at the most basic level, and confirm the interest of the private sector in participating.

Step 1

An Inter-Governmental Agreement (IGA) having the legal force of international treaty will be reached between Turkmenistan, Azerbaijan, and Georgia to support the transit of gas from Turkmenistan through a Trans-Caspian Pipeline and then onward through the existing South Caucasus Pipeline as well as an envisioned new South Caucasus Pipeline II to be built along the same corridor, to the Georgian-Turkish border.

The European Commission will use all diplomatic efforts to facilitate agreement while doing its best to ensure that the IGA takes into account the design of CDC as well as the proposed structure of the TCP.

Step 2

The European Union together with other parties will agree in principle a financial commitment to a Stranded Capacity Payment Guarantee that would underpin the key shipping guarantees and associated exposures to be taken on by CDC in order to support financing and construction of new gas transportation infrastructure.

The purpose of the Stranded Capacity Payment Guarantee would be to mitigate the liabilities that the CDC would face with regard to advance shipping commitments in a scenario where gas volumes were not, for whatever reason, available to CDC, making it impossible for CDC to meet its contractual shipping obligations to the relevant pipelines.

Depending on the potential role of CDC in underpinning project financing of the Nabucco or another Southern Corridor pipeline, as well as other factors, the required scale of the Stranded Capacity Payment Guarantee could be as low as €1.3 billion, according to IHS CERA's calculations based on the CDC financial model elaborated in Section 3.6 of this report. The ultimate scale of the required financial guarantee will depend on the results of detailed shipping negotiations to be undertaken by CDC with sponsors of the various pipeline projects.

Step 3

The European Commission will issue a public and formal Request for Expressions of Interest for participation in CDC. (An indicative draft of this Request is provided in Appendix 4.) This solicitation will include a request for interested companies to provide preliminary information about their desired gas offtake volumes and timings.

Based on the response to the Request for Expressions of Interest, and in particular by indications of short-term interest for at least 10 Bcma of early Turkmen gas and long-term interest in an additional 10 to 20 Bcma, the CDC sponsors will decide whether or not to proceed to the next Phase.

In a scenario where an independent private initiative (see Section 2.2.3 for details) has completed a GPA with Turkmenistan for early Turkmen gas volumes, the Request for Expressions of Interest will focus on longer-term offtake volumes only. In this case the main focus of implementation efforts would be structuring the role of the CDC as a shipper of bundled gas volumes.

Step 4

A formal declaration will be issued by the European Union accepting the concept of the CDC as an entity to be established with EU support that will engage in aggregated gas purchasing from Turkmenistan along with bundled shipping of gas along the Southern Corridor toward

Europe. This declaration will include a description of the expected strategic benefits to Europe of the establishment of the CDC, and also make clear reference to competition rules.

The CDC Consultant will prepare a cost estimate and the EC will establish a budget for corporate expenses incurred in founding CDC, with the expectation that these costs will be passed on to CDC after a successful foundation.

Step 5

Acting on the authority of the European Commission, the CDC Consultant, having reviewed the responses to the Request for Expressions of Interest, will begin discussions with a small number of companies with the goal of forming an Initial Founding Group (IFG) of representatives of potential anchor CDC participants. These will be creditworthy companies with a significant position in the European gas market and who have expressed interest in committing to a minimum threshold volume (to be determined) of CDC gas.

5.3 FOUNDATION FRAMEWORK PHASE

In this phase, following the creation of an Initial Founding Group, the IFG with the support of the CDC Consultant will push forward on the critical path toward implementation by beginning to reach preliminary agreements with key counterparties and stakeholders.

Step 6

A shell CDC corporation will be established by a law firm which will temporarily keep the entity under its custody. Meanwhile the legal advisor will work with the CDC consultant to draft a preliminary framework for a CDC Shareholder's Agreement and Articles of Association.

Step 7

The CDC Consultant, working with the advice and assistance of legal counsel, will draft a short Memorandum of Understanding which will form the basis for participation in the IFG. This MoU will specify the roles, rights, and obligations of the parties to be represented in the IFG. Although it will be assumed that participation in the IFG and its activities will lead to later participation in the CDC, the MoU will make clear that a company's participation in the IFG will not amount to a firm right to participate in the CDC when it is formed, or to a firm commitment to take part in the CDC.

Step 8

On the basis of discussions with prospective IFG members, the CDC Consultant will present recommendations regarding the composition of the IFG to the CDC sponsors, who will then be asked to endorse its membership. The European Commission will issue formal offers to the selected companies to propose representatives for the IFG on the basis of the IFG Memorandum of Understanding.

Step 9

The IFG will appoint a negotiation team who will begin to negotiate agreement on a Heads of Terms with the government of Turkmenistan and/or Turkmengaz which will outline the conditions under which Turkmenistan will supply long-term contractual gas volumes to CDC in defined phases up to 20 or 30 Bcma (depending on whether or not an IPI has emerged).

This agreement will ideally include reference to the following issues:

- Delivery of gas to take place at the entry flange to a prospective future Trans-Caspian Pipeline (TCP);
- Delivery of onshore gas volumes to take place within a set time (provisionally four years, or less for gas from early offshore or currently producing fields) after formal notice of demand from CDC;
- Agreement in principle on quarterly (preferably) pass-through to Turkmenistan of CDC aggregated price realizations minus transportation costs and a fair but limited margin; or on a price formula reflecting a similar calculation but without an automatic pass-through of prices to the GPA;
- An agreement on a price reopener clause if a formula price is selected, and clear understandings of the circumstances under which price renegotiations will be triggered;
- A commitment to provide the appropriate supply and payment performance guarantees including a bankable upstream development plan (from the Turkmen side) and bankable take-or-pay terms as commonly used in the gas industry (from the CDC side).

Step 10

In case any independent European parties (IPIs) have signed GPSAs with Turkmenistan, at this stage the CDC IFG would seek to reach agreement with them on either (a) the IPI contracting with CDC to ship its gas to Europe, subject to conditions precedent, or (b) the assignment of all IPI agreement and contracts, including its GPA, to CDC, with the IPI sponsors becoming CDC members in this case.

Step 11

At this stage agreement should have been reached, outside the context of the CDC implementation process, by the governments of Azerbaijan and Turkmenistan, with the facilitation of the European Union, on the creation of a special binational agency to offer a Build-Own-Operate concession (or the equivalent) for a Trans-Caspian Pipeline. A detailed description of this concept is included below in Section 5.8. CDC would offer anchor shipping contracts as part of the process to attract the interest of prospective owners of this concession by reducing commercial risk.

Extensive liaison between the CDC Consultant, the IFG, and the developers of the concession offering process will be required to ensure that an attractive, competitive, and low-risk shipping proposal can be developed on behalf of CDC. The CDC's shipping commitments must be sufficient to assure the timely construction of the TCP and to adequately trigger expansions for further phases of Turkmen gas supply.

Step 12

The CDC IFG would negotiate a MoU or Heads of Terms with the companies promoting Southern Corridor pipeline routes to Europe—such as Nabucco Gas Pipeline International GmbH—or their shareholders wherein the CDC would propose to take up rights for long-term shipping capacity through a direct open season, or by transfer of owners' rights, for a minimum of 10 Bcma up to a maximum of approximately 20 Bcma subject to long-term

payment commitments to be agreed. Should Nabucco be selected, it would be preferable that this step be aligned with the scheduled open season process for that pipeline.

Step 13

The CDC IFG would negotiate a MoU or Heads of Terms with the South Caucasus Pipeline Company along with the Governments of Azerbaijan and Georgia wherein CDC would propose to take up rights for shipping capacity for 10 Bcma in an expanded SCP for a period of time before Shah Deniz Phase II gas begins to flow, in exchange for shipping commitments or a guaranteed payment commitment sufficient to justify early expansion of this pipeline. The MoU would also provide CDC with assurances that Azerbaijan and Georgia would provide ongoing transit capacity after Shah Deniz Phase II gas is flowing, if possible through further expansion of the SCP; or otherwise through a new pipeline (SCP2) along the same right-of-way, with ownership to be determined but assumed to include the government of Azerbaijan directly or indirectly. In exchange for this assurance, CDC would agree to minimum take-or-pay volume commitments.

Step 14

With support from the European Union, certain countries including contracting parties of the Energy Community that are seeking to import CDC gas will negotiate (possibly through some collective mechanism to be determined) with the World Bank and other IFIs to achieve a robust basis for guarantee arrangements to support their participation in the CDC, assuming that they will require credit support at this time. For state-backed enterprises, this will likely include Partial Risk Guarantee facilities to backstop their credit exposures in cases where new gas supply can be demonstrated to make a major contribution to economic security and growth.

Step 15

The IFG, working with external financial advisors and supported by the CDC Consultant, will undertake an actuarial review of the balance-sheet structure required for the envisaged operations and contractual undertakings of the CDC (as outlined in the various Heads of Agreement). This review will focus on the requirement for equity subscriptions as well as external guarantees in order to cover the exposures that the CDC will be reasonably expected to bear as both a trader and a shipper, and to present an adequate credit capability. These arrangements must be of "bankable" quality to support any project financing for both the midstream and upstream. On this basis the CDC Consultant's preliminary estimate of equity subscription levels—$33 million per Bcma offtake rights, as described in Section 3 of this report—will be confirmed or amended.

5.4 FOUNDATION LAUNCH PHASE

Step 16

The CDC Consultant, acting on the authority of the European Commission and with support of legal advisors, will coordinate the launch a formal offering and subscription round for participation in CDC. This process is outlined in more detail in Section 5.7. After prequalification and a first round of nonbinding offerings, this process will require prospective participants in CDC to submit detailed and binding offerings consisting of:

- Quantified equity and parent company guarantee obligations;
- Volume offtake commitments;

- Pricing offers for gas offtake under future GSAs for which CDC will be the counterparty.

At this point the CDC Consultant will develop and iterate a definitive schedule of volume rampup commitments and shipping capacity requirements. It will then work with legal and financial advisors to confirm the creditworthiness and performance guarantees being offered by prospective participants with weaker credit, and then agree on binding pricing and volume ranges with prospective participants.

Step 17

If required in the absence of an Article 10 exemption, the CDC Consultant and its legal advisor will launch a process with DG Competition as necessary to secure a Guidance Letter, based on tangible information about the expected participation in and operation of the CDC (see Section 4 of this report). This process will involve agreement on the volumes, details, and timing of a CDC gas release program, as well as the details of a sunset mechanism.

Step 18

The prospective CDC shareholders will formally commit to take up their equity and commensurate obligations within the CDC, on the basis of conditions precedent, namely:

- The outcome of the Guidance Letter process with DG Competition;
- The finalization of shipping agreements with the relevant Southern Corridor pipeline or pipelines, SCP (and possibly SCP2), and TCP; and
- The finalization of a Gas Purchase Agreement with Turkmengaz.

5.4 INCORPORATION PHASE

Step 19

The agreed CDC shareholders (whose final participation will at this stage remain subject to conditions precedent), will establish a Management Committee which will take the place of the IFG. At the same time the agreed shareholders will negotiate and agree a CDC Shareholders' Agreement as well as Articles of Association on the basis of the preliminary draft developed by the CDC Consultant and legal advisors (Step 6).

Step 20

The newly established CDC Management Committee will engage in recruitment of a CDC professional staff, consisting at this stage of a small number of direct hires only and excluding personnel on secondment from CDC participating companies. This requirement will be one of various measures to ensure that certain CDC activities remain independent of the shareholders in order to restrict information transfer.

Step 21

The CDC Management Committee will establish negotiating teams consisting of professional staff along with representatives of the Management Committee and other CDC participating companies to finalize, on the basis of the Heads of Terms and MoUs already negotiated, Shipping Agreements with the relevant pipeline promoters; Stranded Capacity Payment Guarantees with the relevant financial institutions; and a final GPA with Turkmenistan. Meanwhile the professional staff without participation of shareholder representatives will negotiate provisional GSAs with the CDC participants, on the basis of the binding

commitments regarding volume, timing and pricing that were made during the formal offering and subscription round. These negotiations will be managed in such a way as to prevent the sharing of information among CDC participants.

Step 22

The CDC negotiating teams established in Step 21 will conduct the three sets of negotiations—with pipelines, IFIs, and Turkmenistan—on an iterative basis and reach finalized contracts, subject only to mutual conditions precedent and the final acceptance decision of the CDC participants.

At the same time, the CDC Management Committee will initiate an independent external review of the aggregate exposure for CDC that will ultimately result from its various contractual arrangements and guarantees, and establish a final capital reserve and shareholder guarantee requirement for CDC and two operating affiliates (for trading and shipping).

Step 23

The participation and subscription process for CDC equity will be finalized at this stage. A Board of Directors will be elected; corporate policies finalized and agreed; and the process of hiring a CEO, CFO and other top managers will begin, with personnel previously hired as professional staff by the Management Committee to remain in consideration. The new management team will decide on outsourcing or internal provision of services such as scheduling, billing, trading, and other financial activities. To the extent outsourcing is chosen, CDC will select outsourcers and agree on the appropriate service agreements.

Step 24

The CDC sponsors will work with the newly established Board of Directors to establish an Oversight Committee (or equivalent) for the CDC which will have an advisory role with some limited oversight responsibilities which will be determined at this time. This Oversight Committee will include company directors as well as representatives of some of the CDC sponsors and other institutional supporters. Monitoring procedures will be agreed, and agreements will be finalized on the CDC gas release program preliminarily agreed with DG Competition in Step 17.

5.5 OPERATIONAL PHASE

Step 25

The CDC will establish a long-term planning timetable, including the following landmarks:

- Commencement of shipping movements;
- Commencement of gas purchases and gas sales;
- Confirmation and firming up of projected volume ramp-ups;
- Planning timing of critical contract renegotiations and renewals;
- Commencement of trading activities, including balancing sales and purchases and secondary capacity sales
- Planning the timing of the agreed gas release program.

Step 26

The CDC will initiate a detailed review of gas supply and transport preparations through close engagement and establishment of liaison relationships with Turkmengaz and all relevant pipeline operators, and with IPI parties as necessary.

Step 27

CDC will begin initial operations.

Plans for the ramp-up of gas purchase volumes will thereafter be triggered; these will include the following:

- Coordination with Turkmengaz on the timing of Turkmenistan upstream development plans and east-west pipeline construction;
- Agreement with Turkmengaz on the indicative timing of a GPA extension;
- Commitments to new shipping capacity as needed on all relevant pipelines;
- Triggering of the TCP expansion phases;
- Triggering of SCP2 construction as necessary;
- Initiation of further gas release programs.

Step 28

At this point the CDC will undertake various expansion processes, potentially including a second round for participation in CDC. These may include the amendment of targeted gas sale volumes among participants; the reassignment of gas offtake commitment options made during the initial formation of CDC; the potential issuance of a new open season subscription round; and confirmation of new participation along with a commensurate increase in CDC equity.

Step 29

At a certain point the CDC management will investigate, in cooperation with the CDC Oversight Committee, the question of potential expansion of CDC activity into new areas, such as the purchase of gas from new sources; the acquisition of gas storage positions and/or assets; or the expansion of the CDC's scope and capability for broader international trading and swap operations.

Table 5-1: CDC Road Map

Step #	Step Description	Key Action Party	Months from Inception														
			1	2	3	4	5	6	7	8	9	10	11	12	years 2–5	years 5–10	years 10+
	Inception Phase																
1	Negotiations on Gas Transit IGA	EC/Gov															
2	Agreement in Principle on SCPG	EC/Cons															
3	Issuance of Request for Expressions of Interest	EC/Cons															
4	Formal Declaration of Intent to Establish CDC	EC															
5	Discussions with Potential Founding Participants	Cons															
	Foundation Framework Phase																
6	Incorporation of CDC Shell	Cons															
7	Drafting of Initial Founding Group (IFG) MoU	Cons															
8	IFG Participants Selected & Formal Offers Made	Cons															
9	Negotiations on GPA Heads of Terms with Turkmenistan	IFG															
10	Negotiation of Shipping Commitments from IPIs	IFG															
11	Agreement on Entity to Offer BOO Concession for TCP	EC/Gov															
12	Negotiations on Shipping Heads of Terms with Nabucco or Alternative	IFG															
13	Negotiations on Shipping Heads of Terms with SCP	IFG															
14	Agreement on Partial Risk Guarantees for Weak Credit Offtakers	Cons/WB															
15	Actuarial Review of CDC Balance-Sheet Structure	IFG/Cons															

Table 5-1: CDC Road Map (continued)

Step #	Step Description	Key Action Party	Months from Inception														
			1	2	3	4	5	6	7	8	9	10	11	12	years 2–5	years 5–10	years 10+
	Foundation Launch Phase																
16	Launch of Formal CDC Offering Round, and Iterations	Cons															
17	Discussions on Guidance Letter with DG Competition	Cons/EC															
18	CDC Commitments Formalized (Subject to Conditions Precedent)	Participants															
	Incorporation Phase																
19	Establishment of CDC Management Committee (CDC MC)	Participants															
20	Recruitment of key staff	CDC MC															
21	Finalize Agreements on GPA, GSAs, Shipping, and SCPG	CDC Staff															
22	Finalize Equity Structure for CDC	CDC MC															
23	Completion of CDC Subscription Process & CDC Creation	CDC MC															
24	Formation of Oversight Committee (OC)	CDC/EC															
	Operational Phase																
25	Creation of Long-term Planning Timetable	CDC															
26	Review of Gas Supply and Transportation Preparations	CDC															
27	Start-up of Operations	CDC															
28	Initiation of Expansion Processes	CDC (OC)															
29	Consideration of CDC Extension versus Wind-down	OC															

5.6 WIND-DOWN OR EXTENSION OF CDC

It is assumed that the CDC will be designed with a built-in sunset mechanism. At a certain point in advance of the agreed sunset date, a decision should be taken—with the CDC Oversight Committee playing an important role—as to whether there is a strategic case for extending the CDC, in time and/or in function. If a positive decision were taken, then a process will begin to see if this would be possible from a competition perspective, and to review the legal basis of the CDC's existence for possible revision, including any Letter of Guidance.

A decision to proceed with the wind-down of the CDC as planned would require development of a specific mechanisms to release all residual gas and shipping contracts; to prepare for divestiture of any owned assets; and liquidation of the CDC entity and return of net equity to shareholders.

5.7 OFFER PROCESS FOR PARTICIPATION IN CDC: MECHANISM AND SEQUENCING

The process for implementation of the CDC should begin with publication of a Request for Expression of Interest by the Commission in the Official Journal of the EU, and by the World Bank through its e-notification system, as mentioned above in Step 3.

It should be clear from the outset that this Request would be independent of an Open Season process, and would occur ahead of holding a Nonbinding Participation and Subscription Round for CDC. The purpose would be to constitute "a database of interested parties" in a transparent way.

Potentially interested parties will have this CDC Final Implementation Report made available to them as they consider expressing interests.

The Request for Expression of Interest will state that it is published without prejudice to the eventual decision of the Commission on whether or not to create a CDC. If the result of the Request was a finding that there was indeed sufficient interest to proceed with the formation of the CDC, and such a decision were taken, then a formal announcement of an Open Season Subscription Round would follow, which would invite nonbinding bids for participation.

A draft of a proposed Request for Expression of Interest is attached as Appendix 4 to this report.

Selection and Engagement of Participants

The proposed process for selecting participants and establishing the CDC follows the a "top-down" structure. The key stages for selection involve:

- Establishing the key requirements that the participants must deliver, individually and in aggregate, to enable the model to work effectively, and with sufficient scale;
- Determining the key prequalification requirements for participation;
- Tendering for quantified measures of participation (with some flexibility built in) through an offering process to prequalified potential participants;

- Consolidating offers and assessing the extent to which the overall targets of the CDC—in terms of price and volume bids—have been met, and conducting additional iterations if necessary;
- Provisionally selecting the founding participants;
- Presenting to the CDC Project Sponsors a proposed composition of CDC for their final approval.

For the CDC Bundler model, the key requirements involve ensuring overall volume commitments of the required scale. Dependent on the progress made by the IPIs in realizing early volume commitments with Turkmenistan, this will be to achieve minimum early offtake together with such initiatives of 10 Bcma in total, with an expectation of growing to 30 Bcma or more, based on the progressive commitments of CDC participants.

It will also be important to ensure that the CDC, via its own balance sheet as well as its participants' back-to-back onsale agreements and other financial support and guarantees, can undertake the contractual commitments required with regard to the GPA with Turkmenistan as well as all shipping commitments to pipeline sponsors.

It will also be important to ensure that the pricing offtake expectations of the various CDC participants can be managed through the single pricing arrangement for the gas supply contract with Turkmenistan without incurring undue exposure for CDC.

The key criteria for potential CDC participants in the Bundler model are thus based on appropriate combinations of gas volume offtake commitments and financial commitments to CDC. Creditworthiness for offtake contracts (for some smaller participants perhaps achieved on the strength of institutional financial support) will also be required. Fulfilling minimum obligations in these respects will constitute prequalification.

The offering process will be a combined subscription round to an established special purpose vehicle entity with matching obligations for gas purchase commitments at one or more delivery points along specified routes within Europe and the transit countries. Flexibility on price and offtake will also need to be considered.

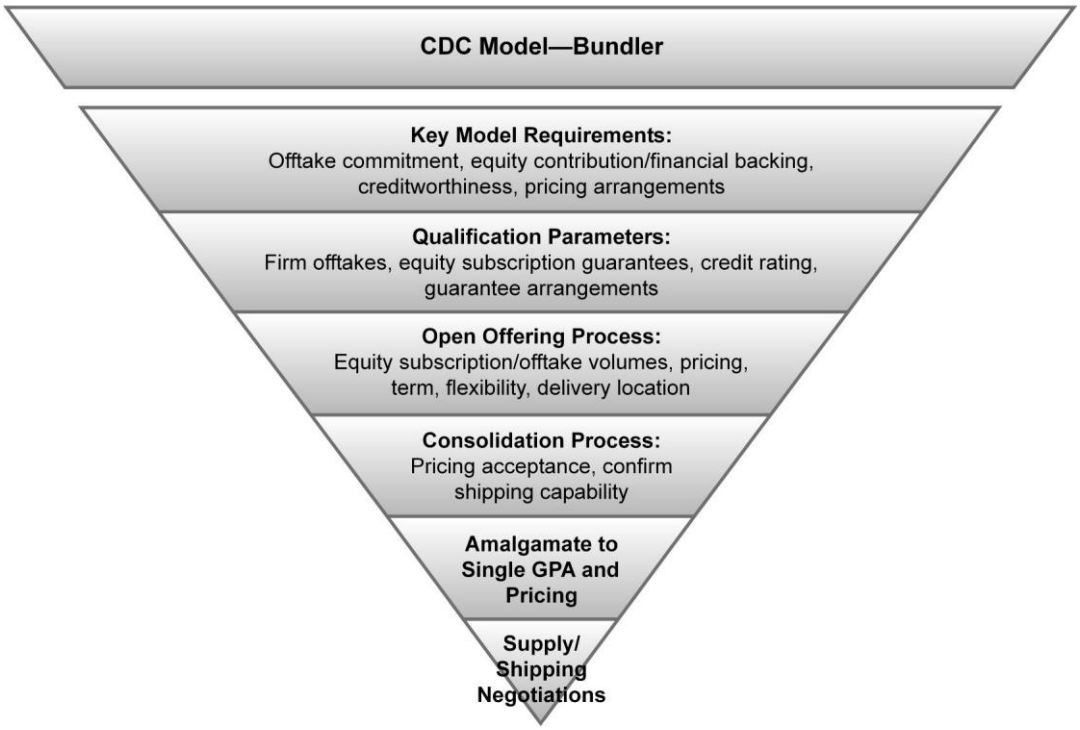
The CDC consolidation process will also assess the sufficiency of combined purchase volumes and phasing to assure the viability of realistic advance commitments to gas transportation routes and associated infrastructure.

Provisional CDC participants will then be selected, and brought together through defined governance and management processes as outlined in the Road Map.

This process is outlined in Figure 5-1.

Figure 5-1

Requirements, Qualification, and Process for the CDC Bundler

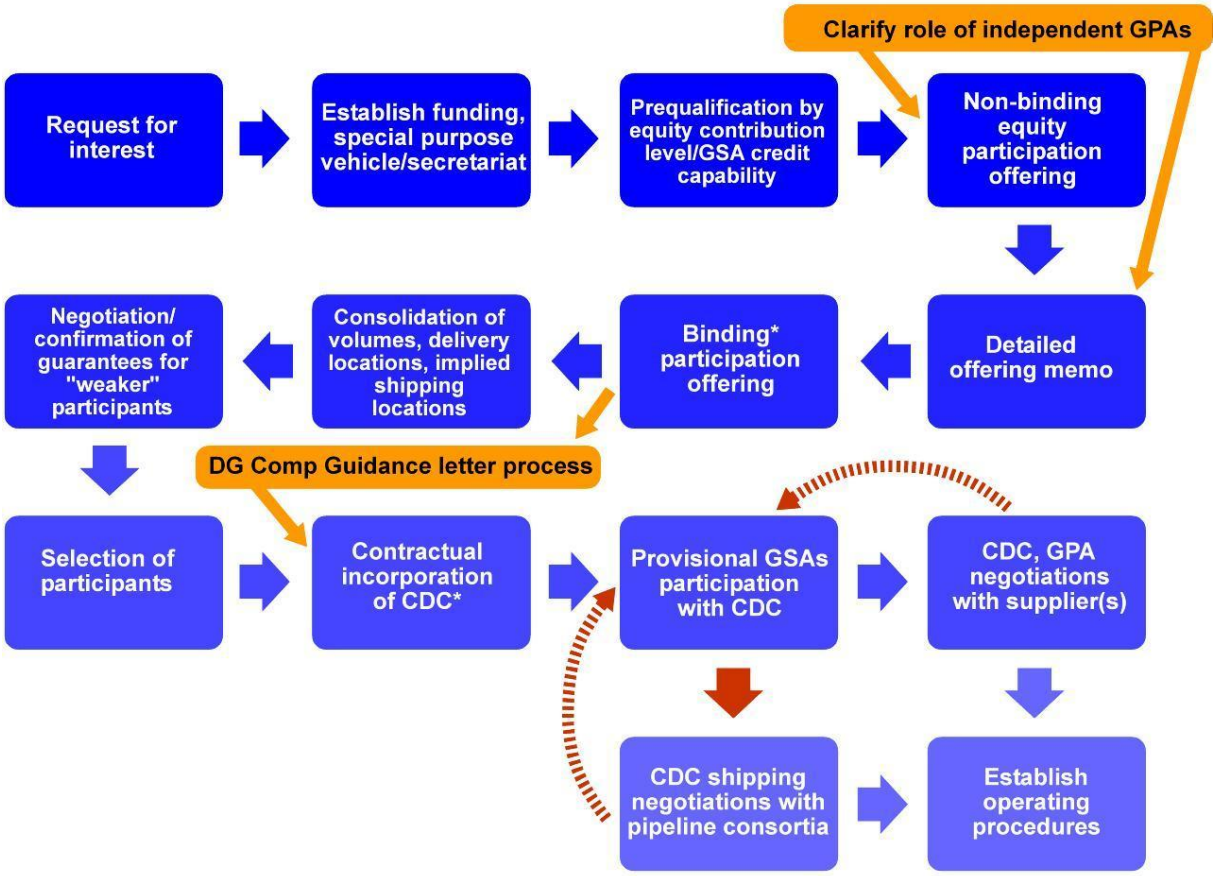


Source: IHS CERA.
01214-5

A stage-by-stage schematic of the offering and implementation process is shown in Figure 5-2 below. The diagram notes the various nonbinding and binding stages of the offering process—with binding commitments subject to appropriate conditions precedent—and thereafter the critical stages for joint negotiation of gas supply and gas shipping contracts.

This figures notes, in principle, where the formal process of analysis by DG Comp towards a Letter of Guidance would fit (see Section 4 and Step 17 above) following the provisional selection of participants, and completing ahead of final incorporation of the CDC, but the request for such a letter would benefit from earlier provision of market data from potential candidates.

Figure 5-2
Implementation Process for the CDC Bundler



Source: IHS CERA.
*Subject to conditions precedent on Letter of Guidance and outcome of negotiations.
01214-6

5.8 OUTLINE OF A TENDER PROCESS TO OFFER A CONCESSION TO BUILD AND OPERATE A TRANS-CASPIAN PIPELINE

5.8.1 Introduction and Objective

The Government of Turkmenistan and Government of Azerbaijan, possibly in conjunction with the European Union, are understood to wish to tender to qualified companies a concession for a Trans-Caspian natural gas pipeline. Alternatively, subject to governmental authorities, the proposed CDC as a major purchaser of Turkmen gas may elect to tender for trans-Caspian transport services via an independently built pipeline.

The pipeline will be operated as an unbundled provider of gas transportation services, and in principle no direct linkages with upstream gas production or downstream gas purchasing activities are envisaged.

It is proposed that the concession (or service rights) be offered as a Build-Own-Operate-Transfer (BOOT) type whereby the concessionaire holds entitlement to shipping tariffs paid for transport of gas through the TCP for a specified period in exchange for managing and arranging funding of the construction. The concessionaire will consequently operate the transportation processes, scheduling and maintenance. At the end of the concession period the rights will revert to the concession grantor (or CDC) and may be transferred to new parties or a new concession negotiated.

Process

A process for such a concession offering should be developed and Tender Documents prepared in full conjunction with the implementation of the Caspian Development Corporation. This will assure consistency between the recommendations for commercial gas supply arrangements made in the CDC Final Implementation Report and those underpinning this key export infrastructure concession, and for common implementation processes and necessary linkages.

It is proposed to appoint a technical subcontractor to provide a full technical and environmental assessment and definition package for the concession tender. A process is to be outlined for competitive selection of this technical subcontractor.

Context of the Tender Process

It is assumed as a prerequisite to a TCP concession offer that an Inter-Governmental Agreement on Trans-Caspian Gas Transportation will be signed by the Governments of Turkmenistan and Azerbaijan with the participation of the European Union. This should establish a joint coordinating body to offer the concession (hereinafter the Grantor). The Grantor will request the consultancy services and will be the ultimate owner of the process.

Defining the Optimal Needs for the TCP

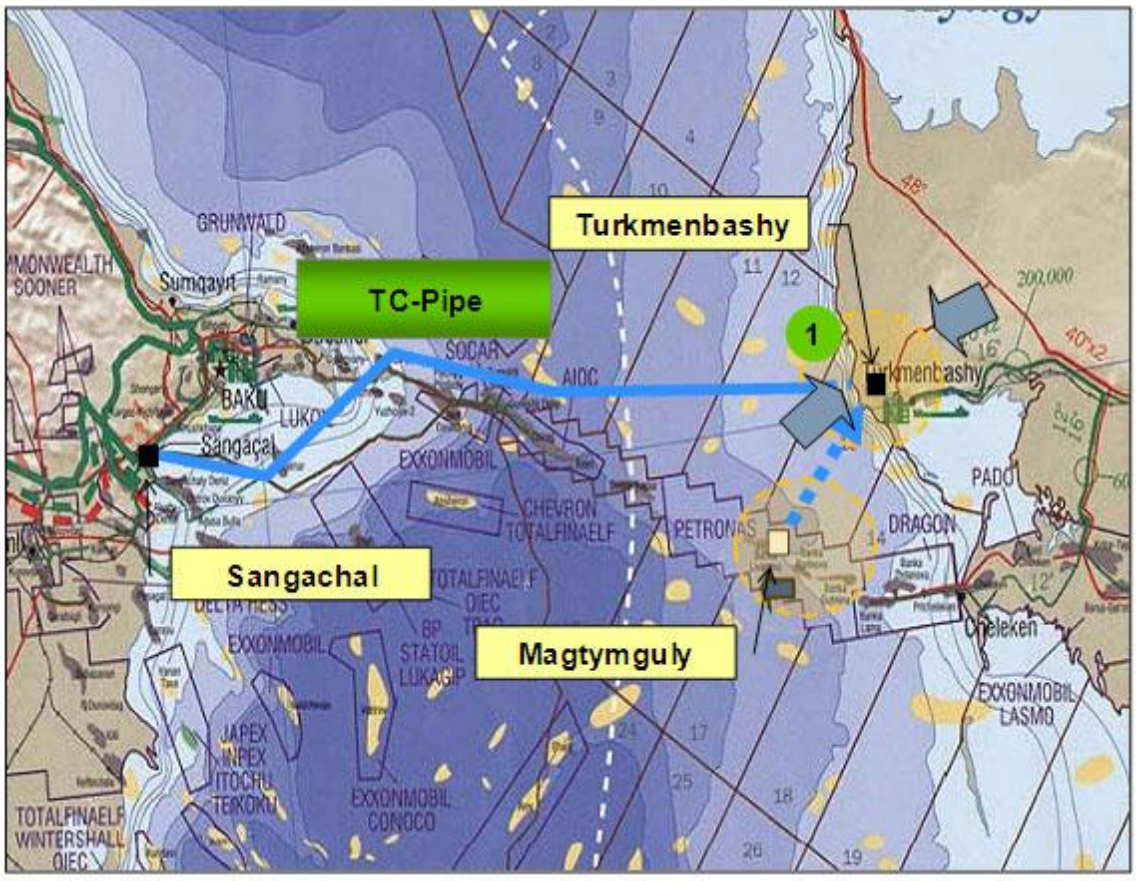
Based on the analysis developed for the CDC, the TCP will need to transport a minimum volume of 10 Bcma of Turkmen gas and be ultimately capable of transporting a minimum of 30 Bcma of gas. Target on-stream date should be 2015 or perhaps 2016 for the minimum capacity, whereas rampup volumes may be expected to be committed over the subsequent five to ten years. The pipeline will be expected to connect to the Turkmengaz system near Turkmenbashi and to the South Caucasus Pipeline system at Sangachal in Azerbaijan. It is likely that the optimal build for the TCP will be in multiple strings with compression

progressively added to allow phased capacity of 10, 15, 25 and 30 Bcma. Capacity beyond 10 to 15 Bcma is expected to require connection with a new East-West pipeline scheduled to be built in Turkmenistan, connecting onshore fields in Eastern Turkmenistan, including large new fields such as South Yolotan/Osman, with the Caspian Sea coast. The earliest large-scale gas to be available for Western delivery from such fields is expected around 2018–20 or later.

An indicative map for the TCP is shown in Figure 5-3.

Figure 5-3

Possible Route to Trans-Caspian Gas Pipeline



Source: OMV.

The tariff charged for shipment of the Turkmen gas through to Europe will need to be highly competitive, and it is expected that the tariff will thus require to be "levelized" (kept constant for both lower early volumes and for full loading) to encourage long-term offtake and market buildup.

In general, pipeline concessions may be offered on the basis of a guaranteed regulated rate of return on the asset base and accepted operational costs, or may be offered to the most competitive bid for a shipping tariff.

- The former ("guaranteed regulated rate of return") approach will require prescriptive assessments of the appropriate asset base at different stages of the volume build-up, and a benchmarking of allowable operational costs. It will be difficult to agree levelized tariffs throughout multiple build stages with unclear timings.
- The second ("competitive bid for a shipping tariff") approach will more naturally encourage a phased optimal build as above, as the concessionaire will have an incentive to minimize redundancy (sometimes referred to as "gold plating"). It will however, require a clear set of signals for progressive expansion—with adequate lead time—to be given by the Grantor. This can be done in tandem with the Open Seasons that are planned for offering volume within the CDC.

It is recommended that this second approach should be employed for the TCP concession, although the first could be employed if the sponsors so prefer.

The major commercial risks associated with the TCP are assessed to be the political and operational risks. The political risks could include:

- prevention of rights for operation by parties to the Caspian Sea rights
- expropriation risks from either the Turkmen or Azeri governments
- cut-off of gas supplies, or inability to access the ongoing sections of pipeline infrastructure through to Europe

The latter risks could also be operational rather than political in nature, caused *inter alia* by failure to complete the building of the required infrastructure legs (SCP expansion, Nabucco or similar Southern Corridor pipelines, etc.), or by failure to successfully develop required new onshore gas fields in Turkmenistan.

Such risks could potentially "strand" the TCP assets, or delay the ability to load them.

The other major risk is market risk. The CDC concept is designed to eliminate this risk to the concession, as it will be expected to offer a bankable long-term shipping commitment for progressively increasing volumes of Turkmen gas as required in all sections of the new delivery infrastructure. However this in turn may require Stranded Capacity Payment Guarantees to be available to the CDC participants from the EU, channeled via supportive multilateral funds. In essence the TCP will need to have a minimum long-term throughput commitment guaranteed by the shipper(s) and by its/their sponsoring organizations. In tandem with the CDC design, it will be important to assess the appropriate minimum shipping commitment which will be required to be offered to the TCP concessionaire.

Likely potential concessionaires are expected to include:

- Parties with a strategic interest in realizing the Caspian crossing—gas offtakers, investors in other legs of the infrastructure through to Europe, and potential participants in Turkmen gas production or processing, including IOCs.
- Parties with a core interest in either pipeline construction and/or operation, such as international EPCs and gas transmission system operators.

Typically such concessions are taken on by consortia of a number of the above types of players. As noted above, the TCP operation will be managed independently of any strategic interests upstream or downstream.

5.8.2 Defining the Concession Process

The basis for the concession is proposed to be in line with industry-typical Build-Own-Operate-Transfer (BOOT) international pipeline concessions which have been successfully tendered to private companies in other areas of the world.

There are relatively few examples of international (or intraregional) gas pipeline concessions which have been openly offered. These include the Bolivia-Brazil pipeline, the Cruz del Sur (Argentina-Uruguay) pipeline and the Southeast Australia pipeline. In addition a limited number of international crude oil, oil product, and water pipelines have also been offered as concessions.

Typically such concessions are offered with a guaranteed minimum shipping commitment and a specified minimum capacity requirement. Following technical and commercial due diligence—based on the tender documentation and supportive material—suitably qualified bidders are requested to tender or commit to a tariff which they are willing to charge for gas shipment in order to provide an acceptable return on their investment. The lowest (tariff) bidder who meets the concession requirements is awarded the rights. Alternatively a bid may be requested in terms of capital/operating cost and/or acceptable rate of return on the project. A suitable bid bond and further progressive obligations are required to hold the concessionaire to its commitment.

The winning concessionaire will normally progress shareholder, Engineering Procurement and Construction (EPC), operations and maintenance arrangements, shipping contracts and, critically, lending agreements, alongside signing the final concession agreements with the Grantor. Following construction and commissioning, operations will be commenced. As noted above, for the TCP, it is envisaged that a series of expansion commitments will be entered into following notice from the Grantor.

5.8.3 The Tender Process

The process is envisaged as a fully public tender with minimal post-award renegotiation of terms.

There will be a typical prequalification mechanism whereby bidders will prove their technical and commercial competence to undertake the management of the construction and operation, and will demonstrate appropriate financial standing to support the undertakings.

A suite of guidance documentation will be provided to prospective bidders, outlining (i) the technical requirements, (ii) environmental and other required standards and (iii) the legal framework. The legal documentation will describe the contractual obligations of both Grantor and Concessionaire, and indicate the likely availability of international finance and political risk insurance instruments expected to be offered by multilateral organizations. The

institutional framework for oversight of the concession and standards of service will also be outlined.

The documents will also detail the process for tendering and the basis for bid evaluation and award.

5.8.4 Technical Definition and Conceptual Design

A major exercise should be undertaken for conceptual design of the TCP reflecting the need to provide a sufficiently detailed technical definition package for potential Concessionaires to consider in preparation for their bids.

This study should produce a complete technical and environmental definition package to be included in the Concession tender. The resultant package will define the technical scope, critical design parameters, required industrial standards, and provide a design manual suitable for preparation of an effective Front End Engineering and Design Package which can be used for detailed engineering and costing for construction and operation by potential Concessionaires. Included in this will be the environmental standards and requirements, established via a baseline environmental and social impact assessment (ESIA).

During the course of the technical study the commercial and regulatory framework for the Concession should be developed, ensuring extensive liaison with the technical subcontractor to ensure that the technical definition adequately meets the envisioned commercial and political needs.

5.8.5 The Prequalification Process

The tender process must dictate suitable technical and commercial references and financial standing requirements for prospective bidders or consortia, together with an appropriate bid bond requirement. These conditions should be iterated as necessary with the Grantor, other sponsors and with interested multilateral financing bodies.

5.8.5 Guidance Documentation

A suite of documentation should be developed and provided to bidders. These will include:

- The relevant sections of the CDC report to provide a perspective on the commercial context.
- The full technical conceptual design study and supportive technical documentation.
- Full details of the Environmental and Social Impact Assessments will be made available, as will lists of all relevant environmental and other regulations.
- The legal framework for the pipeline, including all relevant IGAs and HGAs, together with relevant incorporation, tax and employment laws, will be detailed or directed. Any specific exemptions secured for the pipeline company (e.g. guarantees of dividend repatriation) will be highlighted.
- Details of the likely availability of multilateral financing support will be made available, together with any specific conditions.
- Specifically full commercial and contractual details of the anchor shipping arrangements that will be offered by the CDC (and/or other parties) to secure an adequate minimum return for the operator

5.8.6 Tender Documents

A suite of specific documentation for the tender for both the Commercial and Technical offering requirements should be provided to prospective qualified bidders.

Commercial Terms

The criteria by which the winning bid for construction and operation of the Trans-Caspian Pipeline shall be selected will be specified.

The details of minimum shipping commitments and the contractual form under which these will be agreed will be provided. The basis for the employment of the tariff (such as the capacity/commodity elements, any escalation or indexation provisions) will be specified. Processes for regulatory review—if any—will be outlined.

Minimum Capacity and Expansions

This section will develop the process whereby the minimum capacity is set in line with CDC and other commercial initiatives, together with a preliminary minimum shipping contract. It will outline how request for capacity expansion up to 30 Bcm at least will be triggered in terms of lead times, formal notifications, and required further shipping commitments. This process will be made consistent with the processes for CDC volume build-up, and with new supply and infrastructure project developments within Turkmenistan,

Required Technical and Commercial Standards of Service

These will set out the requirements for ongoing operations, availability and scheduling, including environmental standards and liaison with Governments and Shippers. Requirements for commercial arrangements will be specified, including defined open season processes for soliciting new capacity commitments, forms of contract and information requirements.

Penalties for failure to perform will be specified.

Formal Offering Process

The offering process will be specified, with respect to data form, timing, bid bonds, terms of assessment of bids, and required followup process (signature of concession, signature of initial shipping contract, notification of EPC and other contracts, and further performance bonds if necessary).

Technical Documentation

The Technical Documentation required from bidding companies will be specified. This is likely to include adherence to minimum build standards, materials choice, and critical flow calculations, pressure and flow guarantees, tie-in details, along with a detailed project plan and timeline.

5.8.7 Timing

Completion of the preparation of the above technical study and Concession tender documents should be targeted within 12 months in order that the project can be operational by 2015–16.

APPENDIX 1

LIST OF CONSULTATIONS BY CDC CONSULTANT

Companies

BASF

Bayerngas

BG

Borusan

BOTAS

BP

Chevron

ConocoPhilips

DEPA

Edison

E.ON Ruhrgas

Eni

ExxonMobil

GAMA

GasTerra

Gazprom

GDF Suez

Koc

MOL

PGNiG

OMV

RWE

Sabanci

Shell

SOCAR

SPP

Statoil

Tekfen

Total

Turkmengaz

Wintershall

Other Organizations[7]

ECT (Energy Community Treaty) Secretariat

EFET (European Federation of Energy Traders)

Eurogas

European Council Working Group

European Regulators' Group for Electricity and Gas (ERGEG)

IFIEC (International Federation of Industrial Energy Consumers)

OGP (Association of Oil and Gas Producers)

[7] Project Sponsors are not included.

APPENDIX 2

Questionnaire for Member Companies of [the International Association of Oil & Gas Producers] [Eurogas]

Submitted by IHS CERA Consultant for the Caspian Development Corporation

17 June 2009

The following questionnaire is intended to gather feedback from member companies of OGP with regard to a proposed entity which for the time being is being referred to as the Caspian Development Corporation (CDC).

This questionnaire has been passed along to OGP for forwarding to their member companies by IHS CERA in its capacity as CDC Consultant under a contract with the World Bank, with the additional sponsorship of the European Commission and the European Investment Bank.

The purpose of the CDC is to support gas development in the Caspian region and/or the Middle East in order that these regions might contribute to the diversity of future European gas supply. It is envisioned as an entity that will be a non-exclusive joint buyer of gas to meet European market requirements from these new sources; or as a coordinating body for such purchases. The CDC will not be directly involved in upstream gas development.

Apart from these points, the scope and character of the CDC should be considered as undefined for the purposes of your responses to this questionnaire.

IHS CERA has read with great interest the April 2009 OGP Memorandum entitled "Commission/World Bank/EIB initiative to set up a Caspian Development Corporation." Please do not feel that you are obliged to provide answers or comments to this questionnaire with regard to any points that you feel are already adequately covered in this memorandum.

Please note that only IHS CERA will see your answers to these questions. Specific responses from specific companies will not be seen by any project sponsors.

CDC Questionnaire

1. Do you see the need for an entity like the CDC to aggregate European gas demand to a scale necessary to attract new suppliers and in particular to underpin the development of new supplies in order to enhance Europe's security of supply?

2. Should CDC be designed in a way such that it enhances market liberalization, by widening the scope for new entrants or deepening market liquidity?
    a. Specifically, should the CDC make volumes of gas available for sale through an auction mechanism (highlight one choice below)?
        - Yes, all volumes
        - Yes, some volumes
        - No

3. Would your company be comfortable with the CDC being granted certain incentives and derogations by regulatory bodies in order to support its mission?

4. If CDC becomes a corporate entity, for which actors would it be appropriate to have an ownership stake?
    a. European gas marketers (Yes/No)
    b. European government institutions (Yes/No)
    c. Private oil & gas companies (Yes/No)
    d. Caspian region gas producers (Yes/No)
    e. Other national gas producers (Yes/No)
    f. Gas traders (Yes/No)
    g. Private investors (Yes/No)
    h. Banks (Yes/No)

5. Should CDC gas be preferentially available for participants, or should it be openly accessible for all?

6. In which activities along the gas chain should the CDC be involved?

7. What sort of business model would be most appropriate for CDC (highlight one choice below)?
    a. Merchant with traditional long-term take-or-pay contracts
    b. Trader
    c. Integrated transmission & marketing company
    d. Clearinghouse rather than a company

e. Other (please elaborate on other models if you wish)

8. Should the CDC be necessarily a transitional time-limited vehicle with built-in provisions for unwinding contracts to individual companies by a fixed date?

9. Do you consider that Europe on the whole needs a new, independent and material source of gas supply for the period 2020–40? If so, what should be the approximate scale of this new, independent supply of gas?
    a. Zero to 10 Bcm by 2025
    b. 10 to 30 Bcm by 2025
    c. 30 to 50 Bcm by 2025
    d. Over 50 Bcm by 2025

10. Do you consider that gas from Turkmenistan can be brought to Europe on a competitive commercial basis?
    a. Compared with other European supply sources?
    b. Compared with competing markets for Turkmen gas?

11. Assuming that Central Asian gas is brought to Europe, how important in terms of the security of this supply will it be to establish independent delivery infrastructure?

12. How important do you consider it that established producers (i.e. IOCs) participate in the development and supply of new gas in Turkmenistan?

13. To what extent would you be willing to reduce reliance on your current gas suppliers in order to make long-term commitments to new Caspian or Middle Eastern gas?

14. What benefits do you think would be appropriate for companies participating in CDC? (choose one or more)
    a. Access to new Caspian or Middle Eastern gas is sufficient in itself
    b. Derogations to be put in place for long-term contracts and/or third party access
    c. Profit expectations from scheduling and other service activities
    d. Profit expectations from trading activities
    e. Ability to integrate and optimize across one's own portfolio from scheduling and other service activities

15. How should the risks associated with balancing any long-term contractual commitments to be taken on by CDC be managed?
    a. Absorbed by participants
    b. Passed on through some form of regulated tariff or end-user cost
    c. Via a "working capital pool mechanism" covered by state lending
    d. Other (please suggest)

16. How should shorter-term scheduling/balancing risks best be accommodated by CDC?
    a. Trading
    b. Portfolio optimization
    c. Storage
    d. Other (please suggest)

17. How can supply default risk best be mitigated for CDC?
    a. Trading
    b. Bank guarantees
    c. Producer swaps

18. Do you see the creation of CDC as being positive, negative, or irrelevant to your efforts to access upstream projects in any of these countries?

19. Do you think that the introduction of a CDC as a single European buyer of gas from the Caspian and Middle Eastern regions will serve to hasten or expand the opening of the targeted supply countries to foreign partnerships in E&P; or might it slow down the process of opening to foreign upstream participation in these countries?

20. Do you have any concerns that your company could be disadvantaged in terms of upstream access in other markets (i.e. outside of the Caspian region and the relevant parts of the Middle East) were it to participate in the CDC?

Finally please feel free to add any your view of any advantages or disadvantages of the CDC concept that you see from the point of view of your company's interests.

APPENDIX 3

INITIAL CDC BUSINESS MODELS AND HISTORICAL BENCHMARKS

A. Archetype CDC Business Model Descriptions

IHS CERA designed a range of conceptual business models for the CDC in the early phase of the project, initially in the Inception Report (30 June 2009) with further elaboration in the Interim Implementation Report (30 September 2009). The models build on examples of workable commercial models that have been successfully applied in the gas industry around the world to achieve, among other things, new production development, efficient loading of transportation infrastructure, market expansion, and portfolio optimization. All the models respect constraints decided upon in the early stages of the analysis, such as the requirement for open market access.

Four archetype models were selected for further definition, testing, and consideration. They represent progressively more complex roles for CDC both commercially and operationally.

Clearing House

Here the CDC would acts as a vehicle to aggregate multiple demand contracts and allocates them against one or more supply contract and possibly also against one or more shipping contract. The CDC would not take title to gas in this model; nor is it a requirement that the CDC be incorporated.

Operationally the CDC will in this model schedule demand nominations against available supply.

Two types of balancing need to be undertaken for this arrangement to work.

- The first covers the term imbalances that are likely to arise between (on the one hand) a mixture of purchase arrangements with different starting points, differing lengths of term, differing levels of flexibility; and (on the other hand) one or more gas supply contractual agreements, potentially including some in their rampup phases. The CDC could manage this by either requiring participants to use other sources of supply to accommodate any imbalances; or by establishing some form of trading capability which could onsell or purchase shorter-term supply tranches. This latter could involve either just the participants or could be open to a wider market (possibly in two stages). Without opening such trade to a wider market, however, there could be antitrust implications.
- The second area of balancing would involve short-term demand fluctuations (including seasonally influenced demand changes) that occur within annualized contractual offtake but which exceed contractual daily or monthly supply flexibility parameters. Here the CDC will have the additional option of utilizing storage capacity and making spot sales and purchases, or of requiring that participants do similar.

In this arrangement there would be a need to coordinate a guarantee process against the various Gas Purchasing Agreements (GPAs) and Gas Sales Agreements (GSAs) involved, both to protect participants against supply default and to protect gas suppliers against offtake or payment default. As the CDC will not take title to the gas this will likely prove to be a very

complex process where purchasing commitments from entities with low creditworthiness will result in particularly acute exposure. Any arrangement which draws upon government-backed funds to cover such working capital risk would need to be focused specifically on such purchases.

Similarly it is likely that the ability to securitize payments to provide for a prefunding mechanism to support production development would have to be selective under this arrangement, since it could be based only around the GPAs of the most creditworthy offtakers.

Traditionally, Clearing Houses such as those which sprang up in the USA after the deregulation (known as unbundling) of transport and gas supply in the late 1980s have tackled the credit issue for balancing trades by establishing a dedicated trading exchange for which trades are guaranteed by the exchange.

In terms of the supply default risk, a single bank guarantee could be applied and any liquidated damages distributed to participants and other market offtakers under a mechanism administered by the CDC.

As a Clearing House the CDC could also act as a shipper, providing this service to all the offtakers individually; or it could coordinate a number of separate shipping deals, balancing capacity via the trading and/or allocation methods noted above. Either mechanism would offer the scope to trade both firm and interruptible capacity, and hence gas. Again, traditional Clearing Houses built their original businesses around taking on firm transport contracts and adding value through offering a range of services such as scheduling, title transfer, wheeling (between different pipeline systems), interruptible supply, swaps and parking/storage.

The CDC could be established with a capability to administer these services with a dedicated staff or could assign them out via service agreements—possibly with key participants who could provide integration with existing activity and benefits of cost, experience and scale.

A Tiered Clearing House?

The complexity of guarantee arrangements in the Clearing House, and the potential unfinanceability of the vehicle, led the original Clearing House model to fall short of the criteria of realistic financeability under the CDC model screening process.

It is also the case that many of the participants, were they required to arrange their own shipping contracts, would be required to have credit/guarantee support—potentially imperiling the model's capacity to guarantee infrastructure. Certainly those committing small volumes could find the shipping contractual requirements unduly onerous, and would prefer to take delivery directly into their own markets.

Furthermore the problems associated with aligning the individual contracts gave concern to many companies consulted that the model would require a common pricing basis for all the offtake contracts from a particular supplier. However those potential participants who expressed interest in this model stated a preference to arrange by negotiation their own individual pricing, capable of supporting their particular market needs.

Because of the above issues an alternative version of the Clearing House model was developed. In this variation, participants corelate in tiers, according to creditworthiness and differential ability and/or willingness to take on large-scale offtake arrangements. The participants on the top tier would then to sell on to smaller and/or less creditworthy coparticipants, either directly or on a shipping bundled basis.

There is again scope for balancing between the first tier participants to present a quasi-single GPA, but the expectation would be that there are only around three to five participants—all of them major European gas marketers or aggregators—who would take on these primary GPAs.

Although other contractual conditions would be generally aligned, pricing terms will be set by the individual first tier players. It is expected that the net impact would be to offer an effective basket of different European netbacks to the supplier. A key role of the CDC will be to manage the expectations of the supplier in responding to such range of differing prices at its border title transfer point.

Nevertheless the arrangement provides for a (small) number of highly creditworthy GPAs with the gas supplier which should prove to be "bankable" agreements in terms of supporting any project finance arrangement for the required upstream developments, including associated local pipelines and a trans-Caspian pipeline. In fact the multiplicity of contracts directly with large concerns will be viewed more favorably than a single GPA with a purpose built limited corporation.

As regards participation in the second tier in this Tiered Clearing House Model, the various primary players would commit to onsell various proportions of their commitments to meet the overall requirements of such secondary participants. In practice these would be expected to be a mix chiefly of midsize and South Eastern European gas marketers. Many of such sales will likely be made on a delivered basis, making use of shipping commitments made by the first tier participants. Where there are credit issues related to such onsale contracts, it is an expectation that guarantee support will be forthcoming from IFIs supportive of the project. The number of such participants could be 10 or more, based on IHS CERA's initial industry discussions and screenings.

Although potentially such onsales could be made independently of the CDC concept, it is considered worthwhile that the arrangements are kept within the structure as this will allow for extended optimization and balancing between the secondary commitments and actual offtakes and among the total membership of the CDC. Such internal balancing mechanisms provide the first level response to any demand-side performance problems, only thereafter seeking balancing via external trades, and ultimately via calls on the guarantee arrangements of the onsale GSAs or of the primary GPAs. Most important, these arrangements are expected to reduce the scope and cost of any guarantees needed.

Primary participants take value in this model from access to material, scaleable new sources of gas to support their current market position (and potentially replace depleting sources of indigenous gas supply), and from the ability to take on flexible destination shipping arrangements through existing and new Southern corridor pipeline infrastructure. In turn this presents access to new growth markets, and the ability to develop supportive arrangements with second tier participants – potentially helping plan and nurture new market growth. The ability to draw on dedicated IFI guarantee support in these secondary arrangements offsets much of the onsale risk that is beyond their direct control. Many will see geographical diversity of supply as offering portfolio optimization benefits. The ability to negotiate independent pricing arrangements also helps to hedge portfolio risk.

At the secondary participation level, access to smaller tranches of gas is secured, with options to take on own shipping arrangements or to purchase on a delivered basis. The CDC balancing and trading arrangements offset to some extent the demand fluctuation risks normally associated with long term take or pay contracts for players without extensive trading

capability, and where credit issues would normally preclude participation in such arrangements, support should be available from the institutional umbrella.

The model however does to some extent embed the existing hierarchy of the European gas industry, and underpin the existing roles of major marketers as wholesalers to minor players. Nevertheless it does provide new sources of gas for growing South Eastern European markets, diversify supply to existing West European markets, and establish a process of trading for balancing which could stimulate more liquid markets in areas such as Southeast Europe. In fact if the model accepts to emulate some of the characteristics of North American gas clearing house, then a formal exchange may be established for gas trading to support credit issues between counterparties, and this should stimulate market liquidity. In this sense there are compensating competition efficiencies.

Lastly the model places the responsibility for shipping gas onto the primary GPA holders and in turn to those secondary offtakers who choose to buy on a FOB Caspian basis. Coordination would be required to ensure that such shipping commitments can be used to provide anchor capacity for new infrastructure. There is a risk that different participants may wish to support different evacuation options, or have access to existing infrastructure or swap routes. Again CDC will probably need to coordinate activity in this area to assure that appropriate new infrastructure is committed in a timely fashion.

Trader

In this model the CDC would both purchases and sells gas via long-term GPAs and GSAs at one or more title transfer points, and holds title to the aggregated volumes in between. As such it would take on the composite credit risk of all offtakers and take on the exposure between supply contracts and purchase arrangements.

Activities undertaken are largely similar to those envisaged above for the Clearing House, albeit any allocation mechanisms will need to be backed up with formal sales and purchase agreements between CDC and the participants.

The benefits of this arrangement will be that guarantee and securitization processes will be much more explicit, based around the specific creditworthiness of the CDC vehicle itself. This is likely to require some parent company guarantees and/or balance-sheet funding from the participants—guarantees above and beyond that which would be necessary to support their individual purchase agreements and ancillary allocations. Guarantees from any participant with problematic credit ratings could be supported through facilities from sponsoring public entities.

The Trader model would provide a much sounder basis for the CDC to offer short-term trades into a broader market, as it would be a single counterparty for such transactions.

However the CDC would in this model be required to meet all regulatory requirements directly, including those for adequacy of reserve capital as a trading institution, and any security of supply considerations that might be imposed. In the Clearing House model it is assumed that the participants would meet such compliance requirements both operationally and/or as members of any exchange.

Bundler

A Bundler model is one in which the Trader model as described above would be extended so that the CDC could also take on shipping positions, which would allow it to offer bundled

firm and interruptible gas supply offtake to participants and other market offtakers at one or more delivery points.

To the extent that the Bundler model were to incorporates a mixture of different shipping positions, then a number of title transfer points could be offered for both purchase and sale of gas. This would maximize the capability to CDC to meet a wide geographical range of European gas demand. However the exposure of holding such shipping positions will impose additional exposure, and it is likely that the CDC in a Bundler model would need to trade secondary shipping capacity to minimize situations of overcommitment. In order so to do, mechanisms and markets for secondary transport capacity trade would need to evolve. If other shippers were to have positions alongside CDC, then some form of mandatory capacity release might be required in order to stimulate the activity. Over and above this, CDC would need to provide additional financial guarantees for the shipping commitments into which it would be entering.

Ultimately the Bundler model would allow the CDC to become an independent gas wholesaler operating on a pan-European basis, taking on a range of gas infrastructure positions (in import pipelines, and perhaps in multiple seasonal and short-term storage facilities) and commercial services. However by so doing it could of course start to compete directly with some of its shareholders.

Integrated Importer

In this model variation, the CDC would begin in the Trader model, but thereafter it would provide a platform for its individual participants to integrate Caspian gas purchases with their own other long- and short-term supply contracts, storage positions, and shipping positions. To do so the CDC would need to expedite the ability for participants to swap their other supply positions with those of the CDC in a geographical sense (at all reasonable transfer points) and also temporally (via time swaps).

This model would enable the maximum portfolio optimization between the CDC and the positions of its shareholders. As such it would offer the greatest flexibility to guarantee contractual offtake obligations and to avoid penalties for underlifting. In theory this arrangement offers the best case for support in a low-demand environment, whereby participants would be able if necessary to divert other imported volumes to non-European markets to make room for Caspian supplies. This will be easiest for companies who have available LNG imports in their supply portfolios.

Although many of the balancing mechanisms could also be taken up in the Clearing House moel, the Integrated Importer arrangement has the benefit of cleaner funding and guarantee arrangements. However it may be viewed as unduly benefiting the interests of selective participants who could potentially use it to disproportionately advantage their established positions. Any such process will need to be defined clearly to avoid such abuse.

Pricing in such a scheme would also likely be complex, since at the margin the regret costs of portfolio optimization might need to be considered.

In theory, of course, many of the benefits of such portfolio optimizations could be realized within the other models from arms length trading arrangements among CDC participants (and between individual CDC shareholders and the CDC itself).

B. Historical Benchmarks for CDC Design and Implementation

There are several historical examples of a combined approach to the purchasing of gas for European and for other markets, which are well-known in the gas industry. Two of these have been considered as offering possible models or examples for CDC to purchase gas:

- The "Buyers' Consortium" for Norwegian gas
- The Dutch national aggregator (Gasunie/GasTerra)

In addition, there may be some valuable lessons from the unwinding of the original UK single-buyer model—the British Gas Corporation—in considering an appropriate "sunset" mechanism for the CDC.

IHS CERA have examined single-buyer and cooperative purchasing models applied in other regions of the world such as South Korea, Japan, and Taiwan as well as the liberalization records of North America, Australia, and Argentina, in order to understand whether they might be useful precedents for the CDC. However, in general we have found that these examples are not particularly applicable.

Purchasing Norwegian Gas

When Norway's first gas was developed and pipes were constructed in the 1970s, private and state-owned gas companies from different European countries combined to negotiate with suppliers, and to commit to volumes of gas to be purchased. The European gas industry showed at this time that elements of cooperation and commercial independence can be worked together.

The development of Norwegian gas for pipeline delivery at that time added a new supply source to the Belgian, Dutch, French and German energy markets, in competition with domestic, Dutch and Soviet pipeline gas, and Algerian LNG.

The First Generation Consortium: Ekofisk

The purchase of gas from the Ekofisk fields in Norway (first deliveries 1977) was undertaken by a group of seven gas companies from five different European countries,[8] who acted together to aggregate their demand. The companies formed a Consortium, taking title to the gas collectively at the landing point of the Norpipe which linked the Ekofisk field to Emden in Germany.

As well as this single delivery point, the Consortium arrangements included an aggregate obligation to take or pay for the gas (underwriting the volume risk collectively), and aggregate obligations for other terms that are normal in such contract, such as monthly flexibility, and the terms for roll-forward and make-up gas in the event of underlifting. There were regular Consortium meetings, and a system of internal invoicing was set up among the Consortium members.

[8] GDF from France, SNAM from Italy, Distrigaz from Belgium, Gasunie from the Netherlands, and BEB, Thyssengas and Ruhrgas from Germany. None of these companies now (2009 exist in the same corporate form as they did at the time, but their successor companies continue to market Norwegian gas and to fulfil the purchase obligations under these contracts.

The Second and Third Generation Consortium: Statfjord and Troll/Sleipner

The purchase of gas from the Statfjord field (contract 1981, deliveries 1985) and Troll and Sleipner fields (contract 1986, first deliveries 1993) in Norway was undertaken by the same group of companies, again offering the sellers an aggregated volume of demand, and to negotiate the main terms of the sales and purchase agreement for the gas. Contracts governing the sale of the Troll and Sleipner fields were collectively known as the Troll Gas Sales Agreements (TGSAs). When, eventually, the Statfjord contracts were renegotiated, buyers and sellers agreed to bring the volumes bought and sold on to the same terms as the TGSAs. The whole construct became known as the Troll Commercial Model.

Under the TGSAs the negotiations were conducted for the main terms of the contract—except price and price indexation—collectively. But each individual buyer negotiated for itself the price indexation terms under which it would buy the gas—taking into account its own judgment about what would be needed to ensure that the gas it purchased would remain competitive in its market.

Collectively there was an aggregation of volumes that provided the critical mass of commitment for investment. The key differences between the 'mature' arrangements of the TGSAs and the earlier arrangements were that some buyers took title to gas at their own borders, and there was no collective support in the case of default on volumes.

The Dutch National Aggregator

The development of gas fields in the Netherlands was assured by a single buyer—the public-private partnership Gasunie—which purchased gas from all the companies that produced gas in the offshore and onshore sectors. Gasunie then resold the gas it had purchased into the domestic Netherlands and export markets.

Gasunie was a 50/50 joint venture between the Dutch state on the one hand, and a partnership of two international oil companies, Shell and Exxon, on the other. Decisions were taken by consensus as neither party had a majority share. Gasunie's primary purchases were of gas from the very large Groningen field whose concession was operated by the Shell/Exxon partnership itself; but by taking gas from this field only in a swing/balancing mode it also assured smaller gas producers of the rapid (and essentially flat profile) offtake of gas from their fields, all at the same average price attained as a netback from all of its mix of sales in different markets. The government arranged the taxation of gas—notably with a special tax regime on the primary asset of the Shell/Exxon producing partnership—so that the two companies were incentivized to support Gasunie's policy of buying gas from other producers as well as from their own fields. This ingenious construct assured the development of smaller and smaller fields, maximizing the discovered reserves for the Netherlands, while preserving the most valuable asset of the large field as a security and flexibility reserve for the future.

The key commercial element was that Gasunie made only a nominal profit—fixed at an annual level of 80 million Dutch guilders (just under €40 million). Its terms of business required it to pass back to the producers of the gas the money that it earned from its sales, minus money retained to cover its costs of processing and transporting the gas. These retained earnings allowed Gasunie to invest in the transmission network, and to provide the flexibility of supply through the network that customers needed. As its sales prices to its customers reflected the level of oil prices in the world market, this meant that any value that was generated by high oil prices was passed back to the producers. Equally, when oil prices were low, it was the producer who bore the risk of receiving a low economic return.

The Norwegian and Dutch cases provide interesting insights into the type of business arrangements that have been found necessary in the past in order to assure the development of major new gas resources for new markets in Europe.

But there are fundamental differences in today's European markets, which make replication of these arrangements in comparable form no longer as suitable. The commitments of the companies in the early Norwegian Buyers' Consortium were entered into by companies who knew that their downstream markets were geographically restricted from competition. They had monopoly franchises in the regions in which they distributed gas—either as a result of a state mandate (in the case of the French, Belgian and Italian companies), or as a result of private demarcation agreements (in the case of the German companies), which were legal at the time.

Today, the successors of these companies compete for customers in each others' markets. This is fundamental to the reforms that have taken place in Europe's gas industry, sponsored by the European Commission over many years. They are no longer in a position to commit collectively, with the same degree of confidence, to volumes of gas which they could end up selling 'against each other' in overlapping markets.

The Dutch arrangements reflected a very particular architecture in which suited the precise circumstances of the Netherlands: one very large gas field, and a large number of smaller ones; proximity to markets; and a strong consensus between the government and the major private companies on the best strategic use of the major field.

European and Dutch law has evolved in the meantime so that Gasunie as a transmission operator is no longer allowed to buy and sell gas. Its successor merchant company—although it retains some obligations towards the small field producers—has to sell its gas in a competitive market. There is no assurance of regional or local monopoly franchise area.

The UK Gas Story

IHS CERA has also reviewed the historical role of British Gas as the original single purchaser for all UK indigenous and other UK imported gas, and how this role evolved to support UK market liberalization. It is clear that the original arrangements did support a rapid development of private gas on the UK Continental Shelf (UKCS) alongside that of the national champion—British Gas itself—but that a series of progressive changes to the monopsony buyer role opened up the market, albeit vastly stimulated by the onset of new gas-fired power generation projects.

The start-up of North Sea gas in the late 1960s and early 1970s prompted the need for a coordinated transition to natural gas distribution, and in 1972 the British Gas Corporation took on the role of not only monopoly seller of gas to end-users but as monopsony buyer of all UKCS production. This latter requirement was removed in 1982 but the law had no practical impact until the first negotiated third party access deals were done in 1990. Just prior to this the UK Monopolies Commission reported on alleged discrimination by the company in pricing and service provision, and concluded that availability of gas was being restrictive to new competition. As a result British Gas was restricted to the acquisition of no more than 90 percent of new UKCS gas supplies. In 1991 further pressure was brought to bear and British Gas agreed a target reduction of share of sales to large customers of 40 percent, expedited by a gas release program. Between 1990 and 1992, 28 new competitors to British Gas entered the market.

The UK story may provide some parallels for an effective unwinding of CDC‘s joint purchasing arrangements.

APPENDIX 4

DRAFT NOTİCE FOR THE OFFİCİAL JOURNAL OF THE EUROPEAN UNİON

(Notices)

COMMISSION

Call for expression of interest from undertakings for participation in the proposed entity currently and commonly known as the Caspian Development Corporation (CDC).

Announcement

This call for expression of interest aims solely at constituting a database of parties interested to consider partipation, in the course of this year, in a proposed entity that will open joint negotiations on behalf of its participants to make aggregate purchasing arrangements for natural gas from potential suppliers in the Caspian Sea and Middle East regions. It is without prejudice to the eventual decision of the Commission on whether or not to create such an entity, pursuant to Council Decision.[9]

What is the Caspian Development Corporation?

The Caspian Development Corporation (CDC) will be an arrangement by which undertakings in the European Union, Energy Community Treaty countries, and transit countries can combine their offer to purchase volumes of natural gas from gas suppliers in the Caspian Sea region and Middle Eastern countries. A collective offer of volume commitments will permit economies of scale to be achieved. A combined offer will support the development of a critical mass of shipping commitments for capacity rights on one or more proposed Southern Corridor gas transmission pipelines, as needed to secure the delivery of such gas through to such undertakings. In principle the Commission will define a concession arrangement under which such activities will be conducted for a minimum prescribed period of approximately 20 years.

The proposed arrangement represents a novel approach. It is expected however to bring significant economic benefits to European consumers in terms of new energy supply, enhancing competition and diversity. The arrangement will not be exclusive, but will enable a wider group of gas-purchasing EU and non-EU companies than would normally be able to participate in projects of this scale to mobilize the investment required.

The Initial Participation Process

It is envisaged that the initial participation process will be managed by an Secretariat to be appointed by the Commission and other Project Sponsors, whose members shall have appropriate expertise in the gas industry. The terms of reference of this Secretariat] will be as follows:

1. Secure guarantee arrangements with the European Commission and its institutions to cover exceptional risk exposures associated with the CDC's likely commitments to shipping arrangements to underwite new gas pipeline infrastructure.

[9] Insert reference of Council Decision

2. Enter negotiations to agree a Memorandum of Understanding (MoU) or Heads of Terms (HoT) for gas purchase, in the first instance with Turkmenistan.
3. Enter negotiations with private companies having gas purchase agreements with suppliers in the region for the shipping arrangements for such gas to be transferred to the CDC.
4. Enter negotiations with the companies responsible for promoting Southern Corridor pipelines, or their shareholders, in order that CDC can subscribe to and take up shipping rights.
5. Offer minimum shipping commitments for transportation of gas through a Trans-Caspian Pipeline to an agency of the governments of Azerbaijan and Turkmenistan, established for the purpose of offering a Build, Own, Operate concession for such a pipeline.
6. Support Energy Community Treaty countries in seeking partial risk guarantee arrangements with the World Bank or other IFIs for their participation in the CDC.
7. Commence a formal offering and subscription round for participation in CDC.

The independent group will expect to terminate or transfer its activities with the creation of the CDC as an incorporated entity in [DATE].

The IHS CERA Report

Preparatory work for the creation of a CDC has been undertaken by the consulting firm IHS CERA in the course of an assignment sponsored by the World Bank, the European Commission, and the European Investment Bank in 2009 and 2010.[10]

The basic business model that is proposed for the CDC is outlined in the consultants' Final Implementation Report. This Final Implementation Report was prepared for the European Commission in July 2010 and presented in December 2010 to a Steering Committee that was specially constituted to oversee the consultants' work.

The consultants' Report, *inter alia*,

- Specifies the initial expected mutual obligations and rights of participating parties;
- Analyses the likely business dimensions, potential risks and mitigants of the CDC and its stakeholders;
- Specifies the legal, technical, and financial information that will be required from partcipating parties; and
- Specifies the procedure by which the CDC entity will be established;

Copies of the IHS CERA Final Report are available from and can be obtained from:

[European Commission address]

[World Bank address]

[EIB address]

[10]IHS CERA Study *Caspian Development Corporation: Joint Gas Purchasing and Infrastructure Development*

[IHS CERA address]

Planning

In order to have a view of the number of potential participants, interested parties should express by [DATE] their interest in the CDC in writing to the European Commission by registered post to [ADDRESS].

Interested parties are not required to provide any further information at this stage. However, companies are requested to indicate, at a very general level, the scale and timing of their general interest. Such indications could be with respect to the potential annual volume of gas they may be interested to obtain via the CDC, for example "up to 1 billion cubic metres (bcm) per year"; "1 to 3 bcm per year"; "3 to 5 bcm per year"; "more than 5 bcm per year" for these indicative timeframes: 2015–20, 2021–25, 2026–30.

Those companies who answer this call for expressions of interest will receive documentation relevant to the CDC proposal.

In the event that the Commission shall judge that there is sufficient interest to proceed with the creation of the CDC, a formal announcement of an Open Season inviting nonbinding bids for participation in the CDC's purchase and shipping obligations and rights will be published in the Official Journal and by means of the World Bank's e-notification system in due course.

APPENDIX 5

INDICATIVE DRAFT
SOUTHERN CORRIDOR SHIPPER AGREEMENT

Article 1 Definitions

This Article will contain the definition of each terms italicized in the following Articles.

Article 2 Warranties and Risk

2.1 Warranties

2.1.1 *[The Pipeline Company]* warrants to *Shipper* that it shall use its reasonable endeavors to have in place at the Start Date and to maintain throughout the *Contract Period* in full force and effect all such agreements, licenses, permissions, consents and authorizations as are necessary so as to enable it to observe and perform its obligations under the *Agreement.*

2.1.2 *Shipper* warrants to *[The Pipeline Company]* that it (or in the case of *Transmission Capacity* transfer as provided for in Article 4.3, its transferee) shall have good and unencumbered title to all Gas which it (or in the case of *Transmission Capacity* transfer as provided for in Article 4.3,its transferee) delivers or makes available, or which it (or, in the case of *Transmission Capacity* transfer as provided for in Article 4.3, its transferee) causes to be delivered or made available at the *Entry Point,* and that it shall not grant third parties any rights, including ownership, nor create any lien, encumbrance or similar right with regard to any Entry Gas, if such right will or could hamper and/or obstruct the exercise of rights and performance of obligations. In the event of any conflict between the *Agreement* and the rights of third parties with regard to *Shipper's Entry Gas, [The Pipeline Company]* shall not be liable for any damage and/or claims resulting there from and *Shipper* shall indemnify and hold *[The Pipeline Company]* harmless from any damage and claims in respect thereof.

2.2 Risk

The risk to the *Entry Gas* made available by *Shipper* to *[The Pipeline Company]* in accordance with the *Agreement* shall pass from *Shipper* to *Pipeline Company* at the *Entry Point.* The risk attached to the *Exit Gas* made available by *[The Pipeline Company]* to *Shipper* in accordance with the *Agreement* shall pass from *[The Pipeline Company]* to *Shipper* at the *Exit Point.*

Article 3 THE Caspian Development Corporation as Shipper

3.1 The *Caspian Development Corporation* will be entitled to perform its function as *Shipper* when it:

(a) has accepted these *Conditions* in writing, and

(b) has received one or more *Shipper Codes* after having passed a communication test as described in the *Operating Procedures Book,* and

(c) shall prove to the satisfaction of *[Pipeline Company]* to be sufficiently creditworthy or shall provide satisfying surety, to cover the exposure resulting from the *Agreement(s)* with *[Pipeline Company],* all according to the principles stated in the *Credit Control Protocol,* and

(d) shall pay a monthly service fee as consideration for access and use of *[Pipeline Company]* services equal to one hundred (100) *Euros (€),* and

The *CDC* will otherwise in every respect perform as a *Reasonable and Prudent Shipper* with due regard to the integrity of the *[Pipeline] Facilities* and, in the event that other Shippers shall also use the services of the *[Pipeline Company]*, the interests of other *Shippers.*

3.2 *[Pipeline Company]* may waive in writing the applicability of one or more of the elements, in part or in whole, of Article 3.1 (a), Article 3.1 (b) and Article 3.1 (c) for a specified period of time. *[Pipeline Company]* may accept a third party authorized by *Shipper* that has passed the communication test as described in the *Operating Procedures Book* to perform on behalf of *Shipper* all operational communications.

3.3 *[Pipeline Company]* is entitled to terminate the *Agreement* by giving notice of termination by registered letter to *Shipper,* without any liability towards *Shipper,* stating that *Shipper* with effect from any specific *Gas Day,* appointed in said letter, no longer qualifies as a *Shipper,* if one or more of the following situations occurs:

(a) *Shipper* is declared bankrupt or is declared in a similar legal status affecting the rights of creditors generally, from the moment foresaid bankruptcy or similar status is legally effective, or

(b) *Shipper* no longer meets one or more of the conditions stated in Article 3.1, or

(c) *Shipper* fails to fulfill any other material obligation under these *Conditions.*

3.4 *Shipper* is entitled to terminate *Shipper's* status as a *Shipper* by giving notice of termination six (6) *Months* in advance by registered letter to *[Pipeline Company].* For avoidance of doubt in case the *Agreement* has an *End Date* later than six (6) *Months* from the date of giving said notice, the termination of *Shipper's* status will take effect after that specific *End Date.*

3.5 From the moment at which the loss by *Shipper* of the status of *Shipper* takes effect, *[Pipeline Company]* is under no obligation whatsoever to perform any services to *Shipper.*

All amounts that would have been payable during the *Contract Period* under the *Agreement* in place at the Gas *Day* as referred to in Article 3.3 will be immediately recoverable from *Shipper* and bear interest as provided for in Article 12.2 from the day immediately following the date of the notice of *[Pipeline Company]* by which the *Agreement* with *Shipper* is terminated, until but excluding the actual date of payment.

Article 4 Services

4.1 *Firm Transmission Capacity*

4.1.1 With respect to *Firm Transmission Capacity* the following will apply. During each *Hour [Pipeline Company]* shall (i) take *Quantities of Entry Gas* provided that they are *Properly Nominated* and made available by *Shipper* at the *Entry Point* and (ii) make available to *Shipper* at the *Exit Point* the same *Quantities of Exit Gas* provided that they are *Properly Nominated* and taken by *Shipper* at the *Exit Point. Shipper* is responsible for taking the *Exit Gas* at the *Exit Point.*

4.1.2 In order to prevent or remedy artificial scarcity in the *Pipeline-Facilities, Shipper* may lose all rights concerning or related to part or all of *Shipper's Firm Transmission Capacity,* to be determined by *[Pipeline Company],* for a period of at the most one (1) year and *[Pipeline Company]* can retrieve *Shipper's Firm Transmission Capacity* or part thereof in the situation that *Shipper* does not use *Shipper's Firm Transmission Capacity,* which situation is referred to as "*Non Usus",* if and in so far as the following conditions are fulfilled:

(a) in case of a *Contract Period* of three hundred and sixty five (365) *Days* or less the *Non Usus* has lasted at least three (3) consecutive *Months,* or in case of a *Contract Period* of more than three hundred and sixty five (365) Days the *Non Usus* has lasted at least twelve (12) consecutive *Months,* and
(b) the *Non Usus* concerns during all *Hours* all or virtually all of *Shipper's Firm Transmission Capacity,* and *[Pipeline Company]* has not been able to grant at least one (1) request of any other party (other *Shipper*) for any quantity of *Firm Transmission Capacity* for at least a part of the period of *Non Usus* as mentioned under (a), and
(c) *Shipper* has not made available, via the bulletin board of *[Pipeline Company],* the unused *Firm Transmission Capacity* to the market.

except where such *Non Usus* is a result of

i. *Force Majeure,* or
ii. Gas *Transport Services'* inability to supply *Entry Gas,* or
iii. *The Receiving Grid* 's inability to off take *Exit Gas.*

[Pipeline Company] shall notify *Shipper* in writing one (1) month in advance of its intention to retrieve *Firm Transmission Capacity. Shipper* shall be considered to have used its transmission capacity if *Shipper* has transferred such capacity through the transfer arrangements as provided for in Article 4.3.

If *[Pipeline Company]* wishes to retrieve *Firm Transmission Capacity* on the grounds of *Non Usus,* it shall inform *Shipper* of the occurrence of *Non Usus* by registered letter, stating why *[Pipeline Company]* considers that the conditions of the *Non Usus* have been fulfilled. In

this letter *[Pipeline Company]* shall notify the date from which *[Pipeline Company]* wishes to retrieve *Firm Transmission Capacity,* the quantity of *Firm Transmission Capacity* (which shall be a fixed figure for the whole period during which all or part of the *Firm Transmission Capacity* will be retrieved) to be retrieved and the period during which the *Firm Transmission Capacity* will be retrieved. *Shipper* has the right to contest these statements of *[Pipeline Company]* in a duly motivated registered letter which shall be sent to *[Pipeline Company]* within five (5) *Business Days* after receipt of the aforementioned letter of *[Pipeline Company].* Any available proof supporting *Shipper's* contestation must be submitted to *[Pipeline Company]* within the same time frame. If *Shipper* does not motivate its contestation, does not submit the necessary proof or does not contest the statements of *[Pipeline Company]* in time or by registered letter or at all, *Shipper* loses all rights concerning or related to the *Firm Transmission Capacity* to be retrieved by *[Pipeline Company]* as from the date notified by *[Pipeline Company].*

If *[Pipeline Company],* notwithstanding the contestation of *Shipper* made in accordance with above, wishes to retrieve the *Firm Transmission Capacity* concerned, *[Pipeline Company]* may submit its case to an *Expert* in accordance with Article 19. The decision of the *Expert,* if and to what extent *Shipper* will lose its rights concerning or related to any *Firm Transmission Capacity,* will be established on the basis of the *Agreement.*

Pipeline Company's retrieval and release of *Firm Transmission Capacity* due to *Non Usus* shall not affect any amount payable by *Shipper* relating to services under the *Agreement* and shall not affect the rights and obligations of any *Party* under the *Agreement* in any other respect. Specifically, *[Pipeline Company]* exercising any *Non Usus* right will not be considered to have failed to fulfill a material obligation for the purpose of Article 13.2 (c).

From the moment *Shipper* loses any right with respect to *Firm Transmission Capacity* pursuant to Won *Non Usus, [Pipeline Company]* has the right to sell the retrieved *Firm Transmission Capacity* directly to any other *Shipper. [Pipeline Company]* will first offer the retrieved *Firm Transmission Capacity* on a first come, first served basis to the *Shipper* or *Shippers* that have been denied *Firm Transmission Capacity* not more than two (2) *Months* prior to the date of the start of the procedure by *[Pipeline Company]* to retrieve *Firm Transmission Capacity* pursuant to *Non Usus.* In case of retrieval of transmission capacity pursuant to *Non Usus,* as from the moment of retrieval by *[Pipeline Company], Shipper* shall not be liable for the retrieved part of the *Firm Transmission Capacity* or the use of that transmission capacity.

4.2 *Interruptible Transmission Capacity*

4.2.1 With respect to *Interruptible Transmission Capacity* the following will apply. During each *Hour [Pipeline Company]* shall (i) take *Quantities of Entry Gas* provided that they are *Properly Nominated* and made available by *Shipper* at the *Entry Point* and (ii) make available to *Shipper* at the *Exit Point* the same *Quantities of Exit Gas* provided that they are *Properly Nominated* and taken by *Shipper* at the *Exit Point* to the extent the *Transmission Capacity* will not be interrupted according to an *Interruption Notice. Shipper* is responsible for taking the *Exit Gas* at the *Exit Point.*

4.2.2 In case of an interruption *of Interruptible Transmission Capacity, Shipper* will be notified by

means of an *Interruption Notice.* When sending an *Interruption Notice, [Pipeline Company]* will apply the priority principles as described in the *Operating Procedures Book.*

4.3 *Transfer of Transmission Capacity and registration of transferred capacity*

4.3.1 *Shipper* may request *[Pipeline Company]* to register transfers concerning part or all of its *Transmission Capacity* to another *Shipper. [Pipeline Company]* will charge a handling fee for such a registration. This handling fee will be equal to {AMOUNT} *Euro (€).*

4.3.2 After transferral of part or all of the *Transmission Capacity,* other than transfers back to the original owner of the *Transmission Capacity,* any further transfers as referred to in Article 4.3.1 concerning that part of the *Transmission Capacity* will not be registered by *[Pipeline Company].*

4.3.3 The capacity transfer period taken into account by *[Pipeline Company]* will be one (1) or more entire Gas *Day(s),* whereby the capacity transfer period shall not start before the moment of confirmation of the registration pursuant to Article 4.3.4.

4.3.4 The registration of capacity transfers will take place as provided for in the *Operating Procedures Book.* After registration of a capacity transfer the fee for *Transmission Capacity,* as stipulated in the *Agreement,* will continue to be invoiced to the transferor.

In case *Shipper* has transferred part or all of its *Transmission Capacity* to another *Shipper,* all liabilities, with reference to Article 9, related to that *Transmission Capacity* and/or the use of that *Transmission Capacity* by *Shipper* and/or other party, will remain with *Shipper.*

4.3.5 In the event of a transfer, after termination of the transfer period the Gas *Balance* of the transferee will be settled with the transferor according to the procedure stipulated in Article 7.2.5 below.

Article 5 Quality and Pressure

5.1 *Entry point*

5.1.1 The *Entry Gas* shall comply with the quality specifications as provided for in the *Operating Procedures Book.*

5.1.2 The *Entry Gas* shall comply with the pressure specifications as provided for in the *Operating Procedures Book.*

5.1.3 It is understood between *Parties* that Gas taken under agreements with other *Shippers* or transmission contracts between *[Pipeline Company]* and other parties and the *Entry Gas* may be measured and delivered at the *Entry Point* in common.

5.1.4 If the quality and pressure of the *Entry Gas* at the *Entry Point* complies with the quality specifications and the pressure specifications as provided for in the *Operating Procedures Book,* the Entry Gas shall be accepted by *[Pipeline Company]* for delivery.

If the pressure of the *Entry Gas* at the *Entry Point* does not comply with the pressure specifications as provided for in the *Operating Procedures Book, [Pipeline Company]*

has the right to decide that all or part of the *Entry Gas* shall not be accepted for delivery.

If the quality of the *Entry Gas* at the *Entry Point* fails to conform to the quality specifications as provided for in the *Operating Procedures Book, [Pipeline Company]* shall by giving notice to *Shipper* not later than one (1) *Hour* after:

(a) *Shipper's* notice (or the notice of a third party on behalf of *Shipper)* to *[Pipeline Company]* of any such failure in quality, or

(b) *[Pipeline Company]'s* notice to *Shipper* of any such failure in quality, whichever occurs the first, either

(i) refuse to accept delivery of all or any part of the Entry Gas until the deficiency of the quality of the Entry Gas has been remedied, or

(ii) accept delivery of all or any part of the Entry Gas notwithstanding the deficiency in quality of the Entry Gas until *[Pipeline Company]* informs *Shipper* otherwise.

[Pipeline Company] shall give notice, observing a one (1) *Hour* notice period, to *Shipper* of *[Pipeline Company]'s* decision to cease accepting Entry Gas which fails to conform to the quality specifications as provided for in the *Operating Procedures Book.*

Each Party shall, as soon as possible after it has detected any such failure in quality and/or pressure, notify the other Party of the same. Each Party will with all possible diligence and speed investigate the cause(s) of the deficiency and shall as soon as possible thereafter notify the other Party of the nature of the failure and take those actions within *Party's* control to expeditiously remedy the cause and resulting situation.

5.1.5 Provided *Shipper* has complied with its obligations under Article 5.1.4 and except with respect to such quality deficient Entry Gas which may have been delivered to *[Pipeline Company]* prior to the notice under Article 5.1.4 of such failure in quality, *[Pipeline Company]* shall have no
rights or remedies with respect to quality deficient Entry *Gas* except to refuse or accept it in accordance with Article 5.1.4. *Shipper's* liability shall be limited as set out in Article 9.

5.1.6 If *[Pipeline Company]* refuses to accept the Entry Gas whole or in part in accordance with Article 5.1.4 then such Entry Gas not taken shall be deemed to have not been made available by *Shipper* in accordance with Article 4.1.1 or Article 4.2.1. The *Quantity of Entry Gas Properly Nominated* by *Shipper* will then be deemed to be equal to the *Quantity of Entry Gas* that is accepted by *[Pipeline Company].*

5.2 *Exit point*

5.2.1 *[Pipeline Company]* shall make available *Exit Gas* complying with the quality specifications as provided for in the *Operating Procedures Book,* provided the *Entry Gas* delivered at the *Entry Point* complies with the quality specifications as provided for in the *Operating Procedures Book.*

5.2.2 The *Exit Gas* shall comply with the pressure specifications as provided for in the *Operating Procedures Book.*

5.2.3 It is understood between *Parties* that Gas delivered under agreements with other *Shippers or* transmission contracts between *[Pipeline Company]* and other parties and the *Exit Gas* may be measured and delivered at the *Exit Point* in common.

5.2.4 If the quality and pressure of the *Exit Gas* complies with the quality specifications and the pressure specifications as provided for in the *Operating Procedures Book,* the *Exit Gas* shall be accepted for delivery by *Shipper.*

If the pressure of the *Exit Gas* does not comply with the pressure specifications as provided for in the *Operating Procedures Book, Shipper* has the right to decide that all or part of the *Exit Gas* shall not be accepted for delivery.

If the quality of the *Exit Gas* fails to conform to the quality specifications as provided for in the *Operating Procedures Book, Shipper* shall by giving notice to *[Pipeline Company]* not later than one (1) Hour after

(a) *[Pipeline Company]'s* notice (or the notice of a third party on behalf of *[Pipeline Company])* informing *Shipper* of any such failure in quality, or

(b) *Shipper's* notice informing *[Pipeline Company]* of any such failure in quality, whichever occurs the first, either

(i) refuse to accept delivery of all or any part of the *Exit Gas* until the deficiency of the quality of the *Exit Gas* has been remedied, or

(ii) accept delivery of all or any part of the *Exit Gas* notwithstanding the deficiency in quality of the *Exit Gas* until *Shipper* informs *[Pipeline Company]* otherwise,

provided further that *Shipper* shall not be permitted to refuse acceptance of the *Exit Gas* if the *Receiving Downstream Grid* concerned and *Shipper's* counterparty at the *Exit Point* unconditionally accept the *Exit Gas* for delivery.

Shipper shall give notice, observing a one (1) *Hour* notice period, to *[Pipeline Company]* of *Shipper's* decision to cease accepting *Exit Gas* which fails to conform to the quality specifications as provided for in the *Operating Procedures Book.*

Each *Party* shall as soon as possible after it has detected such failure in quality and/or pressure of the *Exit Gas* notify the other *Party* of same. Each *Party* will with all possible

diligence and speed investigate the cause(s) of the deficiency and shall as soon as possible thereafter notify the other *Party* of the nature of the failure and take those actions within *Party's* control to expeditiously remedy the cause and resulting situation.

In case the *Exit Gas* does not comply with the quality specifications as provided for in the *Operating Procedures Book, [Pipeline Company]* shall to the extent required as *Reasonable and Prudent* operator perform such control and/or carry out such remedial work as may be practicable and reasonable under the circumstances to bring the *Exit Gas* within said specifications.

5.2.5 Provided *[Pipeline Company]* has complied with its obligations under Article 5.2.4 and except with respect to such quality deficient *Exit Gas* which may have been delivered to *Shipper* prior to the notice under Article 5.2.4 of such failure in quality, *Shipper* shall have no rights or remedies in connection with quality deficient *Exit Gas* except to refuse or to accept it in accordance with Article 5.2.4. *[Pipeline Company]'s* liability shall be limited as set out in Article 9.

5.2.6 If *Shipper* refuses to accept the *Exit Gas* in whole or in part in accordance with Article 5.2.4 then such *Exit Gas* not taken shall be deemed not to have been made available by *[Pipeline Company]* in accordance with Article 4.1.1 or Article 4.2.1. If *Shipper* refuses acceptance of the *Exit Gas* in whole or in part in accordance with Article 5.2.4 and if the quality deficiency of the *Exit Gas* was not a direct consequence of quality deficiency of the *Entry Gas* provided by *Shipper* or if the quality deficient *Entry Gas* was accepted by *[Pipeline Company], [Pipeline Company]* and *Shipper* shall settle such *Quantities of Gas* via the *Gas Balance* in accordance with Article 7.2.

Article 6 Measurement and Allocation

6.1 *Measuring Station and Operating Procedures Book*

6.1.1 *[Pipeline Company]* shall take accurate measurements of *Entry Gas* and *Exit Gas* respectively consistent with industry standards and in accordance with the relevant regulations and as provided for in the *Operating Procedures Book* and taking into account that the total uncertainty of the amount of energy on an *Hourly* basis shall not exceed one (1.00) percent.

6.1.2 Any disputes regarding measurement will be settled by an *Expert* as provided for in Article 19.

6.2 Allocation

6.2.1 In the event that other Shippers than CDC contract for capacity with *[Pipeline Company]*, *[Pipeline Company]* shall conclude an *Operating Balancing Agreement (OBA)* with the *Delivering Upstream Grid* in respect of the *Entry Point* such that the allocated *Quantities of Gas* shall be deemed to be equal to the *Quantities of Gas* according to the confirmations, unless this is not feasible under the *OBA* assuming *[Pipeline Company]* and the *Delivering Upstream Grid* concerned are maintaining the standard of *Reasonable and Prudent* operator, in which case the allocation shall then be made on a pro rata basis.

For the *Exit Point,* the *Quantities of Gas* will be allocated proportionally on the basis of the *Quantities of Gas* according to the confirmations. Any differences between the measured volume and the sum of the confirmations of the *CDC* as *Shippers* and other *Shippers* will be allocated to *Shipper* in proportion to the *Confirmations* of *Shipper* and the confirmations of other *Shippers.*

6.2.2 *[Pipeline Company]* will provide or cause to be provided to *Shipper* by electronic transmission all allocation data, relevant to *Shipper,* used for invoicing.

[Pipeline Company] shall with regard to allocations keep an auditable record of all underlying data on an *Hourly* basis per meter run which are used for the determination of the invoices and allocations for the period legally required. *Parties* acknowledge the confidential nature of the underlying data in a situation of commingled stream and the restrictions this imposes on *Shipper's* access to such underlying data.

6.2.3 Any dispute regarding allocations shall be resolved by an *Expert* as provided for in Article 19.

6.3 Incorrect operation of measuring equipment

In the event that incorrect operation of the measuring equipment is ascertained at the *Entry Point* or the *Exit Point, Shipper* shall not be required to accept any retroactive allocation with regard to an *Entry Point or Exit Point* where an *OBA* exists. In case no *OBA* exists, the period of the retroactive allocation will be no longer than the period referred to in the *Operating Procedures Book* with regard to this allocation procedure. Readjustment of delivered *Quantities of Gas* will be settled via the *Gas Balance.*

Article 7 Balancing

7.1 Principles of *hourly* balancing and matching.

7.1.1 *Shipper* shall nominate for any *Hour* equal *Quantities of Gas* as *Entry Gas* and *Exit Gas* and will use its best endeavors to make available *Entry Gas* and take *Exit Gas* at a uniform rate within any *Hour* in conformity with the *Confirmations* for that *Hour. [Pipeline Company]* shall apply a matching procedure to ensure that the *Properly Nominated Quantity of Entry Gas* and the *Properly Nominated Quantity of Exit Gas* are the same.

7.1.2 *Nominations* at the *Entry Point* and the *Exit Point* will be checked by *[Pipeline Company]* against the contracted *Transmission Capacity.*

7.1.3 If possible after consultation with *Shipper, [Pipeline Company]* has the right to make available the *Hourly Quantities of Exit Gas* in such a way that the sum of the *Hourly Confirmations* during the relevant *Gas Day* is met, provided the *Receiving Downstream Grid* concerned agrees and *Shipper* meets its volume entry requirements with the *Receiving Downstream Grid* concerned.

7.2 The *Gas Balance*

7.2.1 For any *Hour* during a Gas *Day* the difference between the allocated *Quantity of Entry Gas* and the allocated *Quantity of Exit Gas* will be allocated to the Gas *Balance* for that *Gas Day.* The *Gas Balance* is negative if the allocated *Quantity of Exit Gas* is higher than the allocated *Quantity of Entry Gas.* The Gas *Balance* is positive if the allocated *Quantity of Exit Gas* is lower than the allocated *Quantity of Entry Gas. [Pipeline Company]* shall endeavor to minimize the Gas *Balance* at the end of the Gas *Day.*

7.2.2 The maximum allowable positive and negative *Gas Balance* shall be laid down in the *Operating Procedures Book.*

7.2.3 *[Pipeline Company]* and *Shipper* will settle *Quantities of Gas* in the Gas *Balance* in kind by means of the appropriate *Nominations* and *Confirmations* for the *Quantities of Gas* to be settled at the *Entry Point* and/or the *Exit Point.* During such settlement the matching procedure and the checking against the contracted *Transmission Capacity* regarding the *Nominations* at the *Entry Point* and the *Exit Point* will take into account any such settlement of the *Gas Balance.*

7.2.4 Timing of a settlement of *Quantities of Gas* in the *Gas Balance* will be at any convenient moment to be decided by *[Pipeline Company],* taking into account a notice period to be provided for in the *Operating Procedures Book,* operational issues with regard to *Shipper's* position and the position of *Shipper* with regard to transmission agreements with the relevant *Delivering Upstream Grid* or *Receiving Downstream Grid.*

7.2.5 At the termination of the *Agreement,* the *Gas Balance* will be settled as follows:

The price used for settlement of the *Gas Balance* will be [one of two suitable European hub index prices — national balancing point or NetConnect Germany, for example] as published by [a reputable industry price reporting service — Argus or Heren, for example] for the first day of the month following the date of termination on which the indexes are published.

In case of a negative Gas *Balance* the higher of the two prices will apply, in case of a positive Gas *Balance* the lower price will apply. Amounts chargeable related to the settlement of the Gas *Balance* will be invoiced in accordance with Article 12.

7.3 Imbalances

7.3.1 It is recognized between *Parties* that

(a) the inability of *[Pipeline Company]* to take *Quantities of Entry Gas,* and
(b) the inability of *[Pipeline Company]* to make available *Quantities of Exit Gas,* and
(c) the refusal of *[Pipeline Company]* to take *Entry Gas* as a consequence of Article 5.1.4,and
(d) the refusal of *Shipper* to take *Exit Gas* as a consequence of Article 5.2.4

and the consequent cessation of taking *Quantities of Exit Gas* and the consequent cessation of delivering equivalent *Quantities of Entry Gas* by *Shipper* take time to be implemented operationally and are likely to lead to the occurrence of imbalances.

7.3.2 *Parties* will use reasonable endeavors to restore any such imbalance as soon as reasonably practicable. After the occurrence of any of the events described in Article 7.3.1 *Parties* shall inform each other if possible at least two (2) *Hours* before normal operations are to be resumed. Any differences between the *Quantities of Entry Gas* delivered by *Shipper* and *Quantities of Exit Gas* taken by *Shipper* during such periods will be settled via the *Gas Balance.*

Article 8 Operation

8.1 *Operating Procedures Book*

Parties shall apply the *Operating Procedures Book.* It is understood between *Parties* that the *Operating Procedures Book* takes into account the possibility of transmission agreements between *[Pipeline Company]* and the *CDC* or other *Shippers* concerning interruptible gas transmission in reverse flow from European Union countries to the transit countries.

It is understood between *Parties* that negotiations are foreseen between *[Pipeline Company]* and launching shippers with respect to the terms and conditions of the *Operating Procedures Book* applicable under the original CDC transmission service agreements. To the extent these negotiations result in terms and conditions for *Shipper* better than laid down in the *Operating Procedures Book [Pipeline Company]* is entitled to amend the content of the *Operating Procedures Book* accordingly.

[Pipeline Company] has the right to reject a *Nomination* or a *Renomination* if this *(Re)Nomination* is not given according to the *Operating Procedures Book.*

8.2 Capacity restrictions

8.2.1 Notwithstanding the provisions of Article 8.3, *[Pipeline Company]* shall inform *Shipper* as soon as reasonably possible whenever a reduction of the *Transmission Capacity* occurs, provided such reduction is not related to the possible interruption of *Interruptible Transmission Capacity* due to the use of firm transmission capacities. Such information shall contain the amount of the capacity reduction, the expected duration and reasons for such reduction. If it is necessary to reduce or part or all of the services, *[Pipeline Company]* shall be authorized to reduce for operational purposes the relevant *Transmission Capacity,* thereby giving priority according to the priority principles as described in the *Operating Procedures Book* to a reduction of interruptible transmission capacities. For the avoidance of doubt, *Shipper's* rights and remedies shall remain unaffected.

8.2.2 When reducing the *Firm Transmission Capacity* under these *Conditions* and the firm transmission capacity contracted by other *Shippers,* the firm transmission capacity remaining for the *Shipper* shall be calculated by *[Pipeline Company]* by multiplying the remaining firm transmission capacity for all *Shippers* with the ratio of the *Firm Transmission Capacity* and the sum of all firm transmission capacities.

8.2.3 Notwithstanding the above, if *[Pipeline Company]* establishes that the cause of the interruption or reduction of *Transmission Capacity* in the *Pipeline Facilities* can be related to any particular agreement(s) between *[Pipeline Company]* and one or more *Shippers*

(including the CDC as *Shipper),* then *[Pipeline Company]* shall - within the limits of its technical possibilities and contractual obligations - reduce or interrupt the transmission capacity booked under such agreement(s) before reducing *Transmission Capacity* on a pro rata basis as provided for in this Article 8.2.

8.3 Planned maintenance

For the purpose of maintenance of, or any other activities affecting the *BBL-Facilities, [Pipeline Company]* shall have the right to have up to fifteen (15) *Reduced Delivery Days* in each *Year.* All such *Reduced Delivery Days* shall be between April 1 and October 1 in any *Year* and shall be determined by *[Pipeline Company]* as follows:

(1) During the month of September prior to the commencement of a *Year [Pipeline Company]* shall, besides announcement on its *Web Site,* notify *Shipper* of a period of thirty (30) consecutive Gas *Days* during the period between April 1, 06.00 Hours CET and October 1, 06.00 Hours CET in the following *Year* within which period *Pipeline Company* will nominate the fifteen (15) *Reduced Delivery Days* it is entitled to take in that *Year* in accordance with this Article 8, and

(2) during the month of November prior to the *Year* it concerns *[Pipeline Company]* shall, besides announcement on its *Web Site,* notify *Shipper* of a single period of up to fifteen (15) consecutive Gas *Days* falling within the period nominated by *[Pipeline Company]* under Article 8.3 (1) during which *[Pipeline Company]* will carry out the proposed planned maintenance.

[Pipeline Company] shall use reasonable endeavors to minimize the disruption caused to *Shipper* as a result of maintenance and use reasonable endeavors to coordinate maintenance with the *Delivering Upstream Grid* and *Receiving Downstream Grid.*

[Pipeline Company] shall give an indication to *Shipper* of the available *Transmission Capacity* on a *Reduced Delivery Day* as soon as reasonable possible.

Shipper shall not be entitled to any reduction in the fixed capacity fee (component C-2), nor shall *Shipper* have any other entitlement(s) against *[Pipeline Company],* in respect of any reduction in *Transmission Capacity* related to this Article 8.3.

Article 9 Liability

9.1 Liability of *Shipper*

9.1.1 *Shipper* shall not be liable to *[Pipeline Company]* under any circumstances, for any direct, indirect or consequential loss or damage incurred by *[Pipeline Company]* arising out of or in connection with the *Agreement,* including, without limitation, loss of profits, loss of business expectations or opportunities, loss of contract or any damage to third parties, except:

(i) with regard to direct loss or damage to *Pipeline Facilities* including the reasonable costs of cleaning as defined in Article 9.1.2, and

(ii) with regard to all loss or damage caused by *Shipper's* willful misconduct or gross negligence as defined in Article 9.3, and

(iii) with respect to breach by *Shipper* of any warranty under the *Agreement.*

9.1.2 *Shipper* shall be liable to *[Pipeline Company]* for direct loss or damage to the *Pipeline Facilities,* including the reasonable costs of cleaning, to the extent such loss or damage is caused by and is a consequence of an identified deviation in quality from the quality specifications mentioned in Article 5.1.1 and/or an identified deviation in pressure from the pressure specification mentioned in Article 5.1.2 of the *Entry Gas* delivered to *[Pipeline Company]*

(i) during the period before *[Pipeline Company]* has given notice to *Shipper* that *[Pipeline Company]* either refuses or accepts the delivery of said pressure deficient or quality deficient *Entry Gas,* as provided for in Article 5.1.4, and

(ii) during a period of one (1) *Hour* from *[Pipeline Company]'s* receipt of the notice of *Shipper* or of a third party on behalf of *Shipper* as specified in Article 5.1.4 has lapsed, whichever notice occurs first.

In the event *Shipper* is not liable to *[Pipeline Company]* for damage to the *Pipeline Facilities* pursuant to this Article 9.1.2, *[Pipeline Company]* shall hold harmless and indemnify *Shipper* from and against all claims by third parties concerning loss or damage to the *Pipeline Facilities.*

9.2 Liability of *[Pipeline Company]*

9.2.1 *[Pipeline Company]* shall not be liable to *Shipper* under any circumstances, for any direct, indirect or consequential loss or damage incurred by *Shipper* and arising out of it or in connection with the *Agreement,* including, without limitation, loss of profits, loss of business expectations or opportunities, loss of contract or any damage to third parties, except:

(i) with regard to direct loss or damage to facilities at or near the *Exit Point* including the reasonable costs of cleaning such facilities as defined in Article 9.2.2, and

(ii) all loss or damages caused by *[Pipeline Company]'s* willful misconduct or gross negligence as defined in Article 9.3, and

(iii) with respect to breach by *[Pipeline Company]* of any warranty under the *Agreement.*

9.2.2 *[Pipeline Company]* shall be liable to *Shipper* for direct loss or damage to the facilities at or near the *Exit Point* (which the *Shipper* is liable for towards third parties), including the reasonable costs of cleaning, to the extent such loss or damage is caused by and is a consequence of an identified deviation in quality from the quality specifications mentioned in Article 5.2.1 and/or an identified deviation in pressure from the pressure specification mentioned in Article 5.2.2 of the *Exit Gas* delivered to *Shipper*

(i) during the period before *Shipper* has given notice to *[Pipeline Company]* that *Shipper* either refuses or accepts the delivery of said pressure deficient or quality deficient *Exit Gas,* as provided for in Article 5.2.4, and

(ii) during a period of one (1) *Hour* from *Shipper's* receipt of the notice of *[Pipeline Company]* or of a third party on behalf of *[Pipeline Company]* as specified in Article 5.2.4 has lapsed, whichever notice occurs first.

In the event *[Pipeline Company]* is not liable to *Shipper* for damage to the facilities pursuant to this Article 9.2.2, *Shipper* shall hold harmless and indemnify *[Pipeline Company]* from and against all claims by third parties concerning loss or damage to these facilities.

9.3 Willful misconduct or gross negligence

For the purpose of these *Conditions* "willful misconduct or gross negligence" means an intentional and conscious or reckless disregard by a *Party* or any of its *Affiliated Companies* (acting for and on behalf of a *Party)* and/or its (or such *Affiliated Company's)* officers, directors or employees of managerial or supervisory status of any provisions of the *Agreement* or, generally, of the obligations of a *Reasonable and Prudent* party.

9.4 Limitation of liability

In the event a *Party* is liable under the provisions of the *Agreement,* all liability to the other *Party* for whatever kind of damage will per event be limited to the amount of two million and five hundred thousand (2,500,000) *Euro* (€) or, if higher, to the fee for the *Transmission Capacity,* with a maximum of the fee for one (1) *Year* except in case of willful misconduct.

Article 10 Force Majeure

10.1 If a *Party* is unable, wholly or in part, to fulfill any obligation under the *Agreement* due to *Force Majeure,* such *Party* will, by giving written notice and reasonably full particulars to the other *Party* promptly after the occurrence of such *Force Majeure,* be relieved of its obligations under the *Agreement* to the extent that the fulfillment of these obligations is rendered impossible by such *Force Majeure.* The *Party* claiming Force *Majeure* shall, when giving the particulars of such *Force Majeure,* also notify the other *Party* if possible of the period of time which said *Party* estimates it will require to remedy the *Force Majeure* situation and shall keep the other *Party* regularly informed as to the progress of such remedy. However, there shall be no obligation of the *Party* claiming *Force Majeure* (i) to settle any labor dispute, except in such a manner as it shall deem fit in its own judgment, and (ii) to negotiate, arrange or agree alternative transportation for Gas.

The *Party* claiming Force *Majeure* shall use reasonable endeavors to mitigate the effects of such Force *Majeure* and to rectify the circumstances causing the failure.

10.2 Any failure to timely pay amounts which are owed under the *Agreement* shall not be excused by *Force Majeure,* unless the payment procedure itself is affected by *Force Majeure,* the payment concerned is obstructed by law or is forbidden by any governmental

authority.

10.3 If any *Party* claims *Force Majeure* under the *Agreement,* no *Party* shall be entitled to terminate the *Agreement* or to terminate the obligation to perform services under the *Agreement on* the grounds of such *Force Majeure* provided however, that if,

(a) in case of a *Contract Period* of three hundred and sixty five (365) *Days* or less, a Force *Majeure* situation lasts for a period of more than twenty five (25) percent of the *Contract period,* the *Party* who did not claim *Force Majeure* shall be entitled to terminate the *Agreement,* provided that the Force *Majeure* situation still exists at the time of the termination; and

(b) in case of a *Contract Period* of more than three hundred and sixty five (365) *Days, a Force Majeure* situation (i) lasts for a period of more than three hundred and sixty five (365) *Days,* or (ii) Force *Majeure* has occurred on three hundred and sixty five (365) *Days* in a period of one thousand four hundred and sixty (1460) consecutive *Days,* the *Party* who did not claim *Force Majeure* shall be entitled to terminate this *Agreement,* provided that in the event of (i) the Force *Majeure* situation still exists at the time of the termination.

Such a termination may be made by registered letter.

10.4 Amounts that are due and payable by *Shipper* cannot be withheld on the grounds of *Force Majeure* affecting *[Pipeline Company]* to the extent those amounts are chargeable for services that were performed by *[Pipeline Company]* prior to the occurrence of the event qualifying as *Force Majeure* or for services that are unaffected by such *Force Majeure* event.

Article 11 Fees and Taxes

11.1 The consideration for the services to be paid by *Shipper* shall exist of three components:

- the service fee
- the component C-1 and
- the component C-2.

The service fee is the fee as mentioned in Article 3.1 (d) as consideration for *Shipper* having the status of *Shipper.*

The component C-1 is the fixed capacity fee as mentioned in the *Agreement.*

The component C-2 is a variable fee related to the costs of gas or other fuel or energy for Gas compression at the *Entry Point,* and shall be determined as follows:

(1) The annual capacity charge, if any, will be negotiated on the basis of the share of *Shipper's Firm Transmission Capacity* in the total contracted firm transmission capacity from [Entry Point to be determined] to [Exit Point(s) to be determined]

(2) The commodity charge will be passed on via a *Monthly* payment based on the actual

Quantities of Gas allocated to *Shipper* at the *Entry Point.*

(3) The annual reconciliation of the fuel/energy costs actually incurred will be calculated and charged to *Shipper* in the *Year* following the *Year* for which the reconciliation was done, taking into account

(a) the difference in commodity charge between the estimated and the realized amounts because of for example load factor differences, and

(b) any imbalance charges for fuel/energy used.

[Pipeline Company] shall use its best endeavors to keep the costs under the fuel/energy contracts concluded and imbalance charges as low as possible.

11.2 If at any time during the term of the *Agreement* the reference calendar year or the basis of computation of an index is discontinued or changed, *Parties* shall adapt the definition of or agree on a substitute for such index in such a way that as much as possible the same effect is achieved as if such index had remained unchanged.

11.3 Whenever any of the indices or components of the indices to be used in a tariff calculation have

(1) not been published and are unlikely to be published for a period of twelve (12) months or any shorter period to be agreed upon between *Parties,* or

(2) in the opinion of one *Party* been wrongly computed or published, or

(3) in the opinion of one *Party* changed the basis of the calculation so that its validity for the purpose of calculating the tariffs will be materially affected over a period of at least twelve (12) months,

then either *Party* may notify the other *Party* within three (3) months after the occurrence of such circumstances and *Parties* shall endeavor to agree upon an appropriate amendment to or a replacement of such indices. If, however, within six (6) months from the date of said notice no such agreement has been reached, then the matter shall forthwith be referred to an *Expert* for such amendment or replacement, in accordance with the provisions of Article 19.

11.4 Reduction of amounts chargeable

The amount chargeable with respect to the fixed capacity fee (component C-1) shall be reduced pro rata according to the *Interruption Notice(s)* and reduction as specified in Article 8.2.1, provided such reduction shall not apply for reductions due to a reduced *Transmission Capacity* according to Article 8.3.

The reduction will be based upon one hundred percent (100%) of the amount chargeable for the fixed service fee (component C-1) for the month in question under the *Agreement.*

11.5 All calculations made with respect to tariffs shall be made to four (4) decimal places. A figure of five (5) or more in the fifth (5th) decimal place shall cause a rounding up of the fourth (4th) decimal place. The amounts payable so determined shall be rounded to two (2) decimal places for application.

11.6 All amounts due by *Shipper* under the *Agreement* are exclusive of any *Tax. [Pipeline Company]* is entitled to add to such amounts due by *Shipper* all *Tax* lawfully imposed on *[Pipeline Company]* by any *Competent Authority* with respect to the services performed by *[Pipeline Company]* under the *Agreement* to the extent that *[Pipeline Company]* is actually economically affected by such *Tax* and subject to *Shipper's* right to verify, at its expense, by means of a certified auditor's statement that such *Tax* has been duly paid or will have to be paid. For the avoidance of doubt, the *Tax* referred to in this Article 11.6 does not include *[Pipeline Company]* corporate income tax and the like.

11.7 *Shipper* will be responsible for making such declarations as are required by the authorities in the transit countries and the receiving countries in respect of statistical declarations or customs declarations covering the Gas transported.

Article 12 Invoicing and Payment

12.1 Within ten (10) *Business Days* after the first day of a calendar month *[Pipeline Company]* shall submit to *Shipper* a fixed invoice. This fixed invoice shall show, if and in so far as applicable,

- the amounts chargeable in accordance with component C-1 for said *Month* for *Transmission Capacity* contracted before the start of such calendar month, and
- the amounts chargeable in accordance with component C-1 for the previous *Month* for *Transmission Capacity* contracted after the start of such calendar month, and
- the reduction of the amounts chargeable in accordance with component C-1 for the previous *Month* for *Transmission Capacity.*

As soon as possible after the first day of a calendar month *[Pipeline Company]* shall submit to *Shipper* a variable invoice. This variable invoice shall show, if and in so far as applicable,

- the *Quantities of Gas* allocated to *Shipper* at the *Entry Point* for the applicable *Month,* and
- the amounts chargeable in accordance with component C-2 for the applicable *Month* for variable costs, and
- the amounts chargeable in accordance with Article 6.1.2 for the applicable Month, and
- in case of termination of the *Agreement* the amounts chargeable as a result of that termination, i.e. settlement of the *Gas Balance.*

Amounts chargeable can be provisional, for example in case of the lack of timely availability of the required metering data and/or final allocation figures, and will in that case be labeled as such.

12.2 Settlement of amounts undercharged or overcharged because of a provisional calculation or as a result of recalculation in case of early termination of services or settlement of a dispute or measurement errors will be made with interest. The basis for the calculation of interest

will be the difference on a *Monthly* basis between the *Monthly* amounts provisionally charged and the final *Monthly* amounts calculated. The interest period with respect to said difference will commence on the ultimate date of payment (determined according to Article 12.3) of the original *Monthly* invoice to which the adjustment relates if the difference results in an additional payment from *Shipper* to *[Pipeline Company]* and will commence at the date of payment of the original invoice if the difference results in a refund from *[Pipeline Company]* to *Shipper.* The interest rate to be applied shall be the arithmetic mean of *EURIBOR* for the calendar months to which the calculation of interest relates plus two percent (2%) per annum and rounded to two (2) decimal places.

12.3 An invoice shall be paid by the debtor in such a manner that the creditor will have the money at its free disposal at an account specified by the creditor within fourteen (14) days of the invoice date.
If a *Party* disputes the correctness of an invoice this shall not affect the obligation to pay within the specified period, except in the case of an obvious error. Such issues must be raised as soon as possible, but in any event within a period of two (2) years after the invoice date. After the end of this period an invoice can no longer be disputed. In case of an obvious error, the undisputed part of the invoice should be paid anyhow within the specified period. If all or any part of an invoice is not paid by the due date, interest shall be payable at a rate that shall be the arithmetic mean of *EURIBOR* for the calendar months to which the calculation of interest relates plus four percent (4%) per annum and rounded to two (2) decimal places.

12.4 If in respect of any *Month* amounts of money are due by *[Pipeline Company]* to *Shipper* as well as by *Shipper* to *[Pipeline Company],* the net amount due for such *Month* shall be payable by *Shipper* to *[Pipeline Company]* or by *[Pipeline Company]* to *Shipper* as the case may be.

12.5 Notwithstanding the credit control provisions in the *Credit Control Protocol,* if during the term of the *Agreement* there is, in the reasonable opinion *of [Pipeline Company], a* material deterioration in the financial resources, creditworthiness or a material adverse change in the financial standing of *Shipper,* its guarantor and/or an *Affiliated Company* of *Shipper,* including but not limited to a downgrading of the public credit rating by Moody's and/or Standard & Poor's, when compared to its financial standing as at the date of the *Agreement,* which change in *[Pipeline Company]'s* reasonable opinion may adversely affect *Shipper's* ability to perform its financial obligations under the *Agreement, [Pipeline Company]* may request *Shipper* in a duly motivated written notice to provide to *[Pipeline Company]* reasonable security for the performance of its financial obligations under the *Agreement* within five (5) *Business Days* of the request therefore. For this purpose *[Pipeline Company]* may inter alia require advance payment or the deposition of a security or the provision of a parent company guarantee, a bank guarantee or a Letter of Credit in a form reasonably acceptable by *[Pipeline Company].*

12.6 The invoices and statements referred to in Article 12.1 may be rendered during the normal office hours of *[Pipeline Company]* by any secure (electronic) data communication system agreed between *Parties,* in which event the receipt by *Shipper* of such invoice or statement shall be confirmed by *Shipper* as soon as possible by letter or by fax. Each such statement shall be accompanied by such documents as may be reasonably necessary for verifying the same. Said documents shall be deemed to be part of such statement.

12.7 Annually *[Pipeline Company]* shall provide a reconciliation statement showing the real costs as provided for in the *Agreement.*

Article 13 Term, Suspension, and Termination of Agreement

13.1 The obligation of *[Pipeline Company]* to perform any service under the *Agreement* shall enter into force and become effective after the *Agreement* has been signed by the *Parties* and shall remain in force up to the *End Date.*

13.2 Without prejudice to Article 3 of these *Conditions* and the right to claim damages each *Party* shall be entitled without judicial intervention to terminate the *Agreement* and/or to suspend fulfilling any obligations under the *Agreement* if the other *Party*

(a) is declared bankrupt or declared in a similar legal status affecting the rights of creditors generally, or
(b) fails to fulfill its payment obligations, or
(c) fails to fulfill another material obligation under the *Agreement,* or
(d) does not in time furnish the security mentioned in Article 12.5, or
(e) claims *Force Majeure* as provided for in the A*greement*,
or

with regard to the *Shipper,*

(f) *Shipper* no longer meets one or more of the criteria stated in Article 3.1,

all without prejudice to that other *Party's* obligation to pay judicial and extra-judicial costs as prescribed by law, damages within the framework of Article 9 and interest. With regard to Article 13.2 (b), (c), (d) and (f) a termination of the *Agreement* can only take place after the expiry of fifteen (15) days after sending the notice of termination.

For the avoidance of doubt, Article 13.2 (b) does not apply in case the payment obligation concerned is the subject of a bona fide dispute between the *Parties.*

13.3 Without prejudice to Article 12.5, in the case referred to under Article 13.2 (a) a *Party* shall be entitled to immediately suspend the performance of services under the *Agreement* or to terminate the *Agreement.* In the cases mentioned in Article 13.2 (b), Article 13.2 (c) and Article 13.2 (d) a *Party* shall only exercise these rights after it has summoned the other *Party* in writing to remedy its default within a reasonable period and that other *Party* has not so remedied its default, unless it is apparent that such summons will be of no avail. In the case referred to under Article 13.2 (d) the defaulting *Party* will have a period of five (5) *Business Days* to remedy the default. Where payment obligations are concerned the defaulting *Party* will have a period of ten (10) *Business Days* to remedy the default.

13.4 A *Party* shall notify the other *Party* by registered letter if that *Party* exercises its right to terminate the *Agreement.* All amounts which may be owed by a *Party* to the other *Party* shall be immediately due and payable from the day of receipt of the notification. For the avoidance of doubt, Article 15 will remain in full force after termination of the *Agreement*.

Article 14 Assignment and Sunset Clause

14.1 Unless stated otherwise, and subject in particular to Article 14.3, a *Party* may assign the whole of its rights and obligations under the *Agreement,* with the prior written consent from the other *Party,* which consent shall not be unreasonably withheld or delayed. Consent shall be deemed to be reasonably withheld if in the case of any proposed assignment of obligations the *Party* making the assignment is unable to demonstrate to the reasonable satisfaction of the other *Party* that the proposed assignee has the ability to perform the obligations assigned to it, and, with respect to a proposed assignment by *Shipper,* if the assignee does not qualify as *Shipper* in accordance with Article 3.

14.2 No assignment pursuant to Article 14.1 shall be effective unless and until assignor has ensured that the proposed assignee provides to the other *Party* a direct covenant in favor of and in a form reasonably satisfactory to the other *Party* that the assignee will observe and perform the obligations to be assigned to it.

14.3 With regard to the shipper, the *Caspian Development Corporation* shall not within the first ten (10) years of its incorporation assign its rights and obligations as a *Shipper* on a *Southern Corridor Pipeline* or *Pipelines* without the express approval of the relevant governmental authorities.

14.4 With regard to the shipper, its shipping rights and obligations shall not extend beyond 25 years of the date of the first capacity payment C-1, in accordance with the sunset clause established at its incorporation. Nevertheless, the Parties shall endeavor to arrange assignment of the *Shipper's* rights and obligations to other partied well-qualified to assure the shipping of future gas deliveries formerly conducted by the *CDC*.

Article 15 Confidentiality

15.1 *Parties* agree that the content of the *Agreement,* credit control related documents and all information obtained under these *Conditions* by a *Party* from the other, including all engineering and operational data, shall be held strictly confidential by the receiving *Party* during the term of the *Agreement* and for a period of three (3) years from the *End Date* or the date of early termination. *Parties* declare that neither they nor their legal successors shall make or have made public any information with regard to the contents of the aforementioned documents under these *Conditions* without prior written consent of the other *Party.*

However, a *Party* may make available said contents or information without such prior written consent to

(a) its employees or employees of *Affiliated Companies* or shareholders or members of corporate bodies of an *Affiliated Company* to the extent reasonably necessary for the approval and performance of the *Agreement,* provided that such employees, shareholders and members shall be bound to preserve the secrecy of such information, or

(b) any governmental authority or recognized security exchange, where such disclosure is required by law, order or regulation; in such case the disclosing *Party* shall inform the other *Party* in advance of such disclosure and of its extent, or

(c) banking and financial institutions and their consultants, where such disclosure is necessary in connection with financing arrangements, provided that such *Party* shall first obtain a written undertaking of confidentiality from such banking and financial institutions and their consultants, that is similar to the undertaking of confidentiality that is set forth in this Article 15, or

(d) independent consultants or contractors nominated by a *Party* for the purpose or in connection with the *Agreement,* provided that such *Party* shall first obtain a written undertaking of confidentiality from each consultant or contractor, that is similar to the undertaking of confidentiality that is set forth in this Article 15, or

(e) any person or legal entity to which pursuant to Article 14 any right or obligation under the *Agreement* has been or will be assigned or any legal successor of a *Party,* provided that the *Party* assigning or to be legally succeeded shall first obtain a written undertaking of confidentiality from such assignee or legal successor, that is similar to the undertaking of confidentiality that is set forth in this Article 15, or

(f) the *Delivering Upstream Grid* or *Receiving Downstream Grid,* where the disclosure of *Nominations, Confirmations,* metering data and/or allocations, on a confidential basis, is necessary in connection with gas flow procedures at the *Entry Point* respectively the *Exit Point.*

15.2 Notwithstanding the provisions of Article 15.1, the *Party* receiving information may disclose such information without the other *Party's* prior written consent if and to the extent that such information

(a) is already lawfully known to the *Party* receiving the information, or

(b) is already in or enters the public domain other than through the act or omission of the *Party* receiving the information, or

(c) is acquired independently from a third party that is entitled to disseminate such information at the time it is acquired by the *Party* receiving the information.

15.3 *[Pipeline Company]* is entitled to publish on its *Web Site* data to provide third parties insight in the quantity of transmission capacity available for booking and in aggregate form the level of the past usage of *Transmission Capacity* insofar this aggregate information can be published without jeopardizing confidentiality, and does not harm the commercial position of *Shipper.*

Article 16 Interpretation, Modification and Supplements, Other

16.1 The failure at any time of either *Party* to require performance by the other *Party* of any provision under the *Agreement,* shall in no way affect the right of a *Party* to require any performance which may be due thereafter pursuant to such provision, nor shall the waiver by either *Party* of any breach of any provision under the *Agreement* be held to be a waiver of any subsequent breach of such provision.

16.2 Any and all modifications and supplements to these *Conditions* shall not be valid unless drawn up in writing, labeled as subsequent amendment and signed by *Parties* or their

assigns or successors. In case of any conflict between the provisions of a *Grid Connection Agreement* and/or an *Operational Balancing Agreement* and these *Conditions,* these *Conditions* will prevail unless explicitly agreed otherwise.

16.3 If one or more of the provisions of these *Conditions* should be totally or partially void or ineffective, this shall not affect the legal status of the other provisions. *Parties* undertake to cooperate in agreeing as soon as possible on an effective new provision, which approaches the economic purpose and any other effect of the ineffective or void provision as closely as possible.

16.4 *Parties* will at all times give to each other all such information as each may have available and as may be necessary or useful to enable *Parties* to carry out their obligations under the *Agreement* (to the extent that each *Party* is entitled to disclose such information to the other). Either *Party* shall have the right, at its own cost and by notice to the other *Party,* to nominate independent public accountants, who may be assisted by a technical specialist, that are acceptable to the other *Party,* such acceptance not to be unreasonably withheld or delayed, which accountants shall have the right at reasonable hours to examine the books, records and charts of the other *Party* only to the extent necessary to verify the accuracy of any statement, charge or computation made pursuant to any of the provisions under the *Agreement* and to the extent that the auditing *Party* cannot verify such accuracy through the prudent exercise of its own internal controls. Such books, records and charts shall be preserved for a period of at least two (2) years from the *End Date or* the date of early termination of the *Agreement,* provided that if such books, records or charts are related to any facts which are disputed between *Parties* within the aforementioned period, then such books, records or charts shall be preserved until such dispute is settled.

In case the public accountant discovers errors or mistakes in the books, records, statements charges or computations of the other *Party* made pursuant to any of the provisions under the *Agreement* the other *Party* shall bear the relevant costs of the public accountant.

16.5 *[Pipeline Company]* is entitled to amend the content of these *Conditions* if and when in the reasonable opinion of *[Pipeline Company]* such amendment is necessary due to changes in applicable law or, due to changes in the operational scope or, to improve the operation of the *Pipeline facilities,* to improve the operation of the *Agreement* or to ensure the compatibility of the *Agreement* with the conditions of a *Delivering Upstream Grid* or a *Receiving Downstream Grid* for transmission of Gas
and related services.

16.6 *[Pipeline Company]* will inform *Shipper* expeditiously of any material change pursuant to Article 16.5.

16.7 It is acknowledged by *Parties* that changes to the terms and conditions for transport of gas in the networks of the *Delivering Upstream Grid(s)* or *Receiving Downstream Grid(s)* may necessarily require consequential amendments to be made to these *Conditions* (in particular, but without limitation, those changes relating to the making of and the timing of *Nominations* and changes to balancing periods) and in these circumstances either *Party* may give notice to the other whereupon the *Parties* shall negotiate, in good faith, and seek to agree such consequential amendments in such a manner and on such basis as will restore the purpose and intended effect of these *Conditions* as at the date of the *Agreement.*

16.8 All written or oral understandings between *Parties* prior of the date of the *Agreement* concerning the matters treated herein are superseded by the contents of the *Agreement.*

Article 17 Communication, Administration, and Cooperation

17.1 For the communication of data SI Units shall be used whenever possible. All notices shall be given in the English language and in a Russian translation. In case of doubt as to the meaning, the English language version shall prevail.

17.2 Unless otherwise stipulated in these *Conditions* any notice to be given herein shall be in writing and shall be deemed given and effective

(a) upon receipt by the *Party* addressed, or

(b) if given by telex, telefax or (encrypted) electronic mail on the next *Business Day* after the dispatch thereof, with charges prepaid, unless in the case of telex the time of receipt is acknowledged on the telex, in which case the telex shall be deemed given and effective at that time and unless in case of a telefax in which case the telefax shall be deemed to have been received upon confirmation of receipt by the recipient and unless in case of (encrypted) electronic mail in which case the notice shall be deemed to have been received upon confirmation of receipt by the recipient.

17.3 *Parties* undertake to cooperate in good faith with any third parties, in so far as involvement of those parties is directly or indirectly necessary for the fulfillment by *[Pipeline Company] or Shipper* of any obligation under the *Agreement.*

Article 18 Applicable Law and Dispute Resolution

To be drafted in accordance with relevant jurisdiction(s) for the relevant pipeline entity

Article 19 Expert Determination and Procedure

19.1 Whenever, in these *Conditions,* any person is to be appointed as an *Expert* or any matter is to be referred to an *Expert* or whenever, during the term of the *Agreement,* the *Parties* agree that a dispute between them shall be resolved by an *Expert,* the provisions of Article 19 shall apply.

19.2 Expert

The language of the Expert procedure shall be English. Any matter to be referred to an *Expert* shall be resolved by applying the following procedure.

19.3 Appointment

The *Party* wishing the appointment to be made, shall give notice in writing to that effect to the other *Party* and with such notice shall give details of the matter which is proposed to be resolved by the *Expert.*

Parties shall meet in an endeavor to agree upon a single *Expert* to whom the matter in dispute shall be referred for determination.

If within twenty-one (21) days from the service of the said notice *Parties* have either failed to meet or failed to agree upon an *Expert,* then the matter may forthwith be referred by the *Party* wishing the appointment to be made to the President of the 'International Chamber of Commerce' in [Geneva][Stockholm] which shall be requested to make the appointment of the said *Expert* within thirty (30) days and in so doing may take such independent advice as it thinks fit.

Upon an *Expert* being agreed or selected under the foregoing provisions of this Article 19 *Parties* shall forthwith notify such *Expert* of his selection and shall request him within fourteen (14) days to intimate whether or not he is willing and able to accept the appointment.

If such *Expert* shall be either unwilling or unable to accept such appointment or shall not have intimated his willingness and ability to accept such appointment within the said period of fourteen (14) days, then (unless *Parties* are able to agree upon the appointment of another *Expert)* the matter shall again be referred (by either *Party)* in the aforesaid manner to the President of the 'International Chamber of Commerce' in [Geneva][Stockholm] which shall be requested to make a further appointment and the process shall be repeated until an *Expert* is found who accepts appointment.

19.4 Qualification

No person shall be appointed to act as the *Expert* under this Article 19 unless he shall be qualified by education, experience and training to determine the matter in dispute.

Any person appointed as the *Expert* shall be entitled to act as such *Expert,* provided he shall before accepting such appointment fully disclose to *Parties* any interest or duty and any conflict of interest or potential conflict of interest, including all particulars thereof. If such disclosure has been made, any *Party* may require within five (5) *Business Days* from such disclosure removal of the *Expert,* stating the reasons for such removal and such *Expert* shall be replaced in accordance with this Article 19.

If at any time prior to the *Expert* rendering a decision on any matter, a conflict or potential conflict of interest arises, then the *Expert* will fully disclose the particulars of such fact to *Parties.* In that event any *Party* may within five (5) *Business Days* from such disclosure require the removal of the *Expert* and a new *Expert* shall be appointed in accordance with the terms of this Article 19. No person shall be appointed as an *Expert* who at the time of appointment is an employee of either *Party* or of any *Affiliated Company.*

19.5 Decision

The *Expert* appointed shall make his decision based on data, information and submissions supplied and made to him by *Parties* not later than thirty (30) days after his acceptance of appointment and he shall ignore data, information and submissions supplied and made after such thirty (30) days unless the same are furnished in response to a specific request from him.

If within a reasonable period (which shall not exceed ninety (90) days after the acceptance by the *Expert* of his appointment) such *Expert* shall not have rendered a decision then (at the request of either *Party)* a new *Expert* shall be appointed under the provisions of this Article 19 and upon the acceptance by such new *Expert* of his appointment the appointment of the previous *Expert* shall cease.

However, if the previous *Expert* shall have rendered a decision prior to the date upon which the new *Expert* accepts his appointment, such decision shall be binding upon *Parties* and the instructions to the new *Expert* shall be withdrawn.

The *Expert* shall be deemed not to be an arbitrator, but shall render his decision as an *Expert* and the law or legislation relating to arbitrations shall not apply to such *Expert* or his determinations or the procedure by which he reaches his determination.

The determination of the *Expert* shall be final and binding upon *Parties,* save in the event of fraud, manifest material error or failure by the *Expert* to disclose any relevant interest or duty in accordance with Article 19.4 under 'Qualification'.

Each *Party* shall bear the cost and expenses of all counsel, witnesses and employees retained by it in connection with the Expert procedure.