

Sailing into Unknown Waters

Where next for Global Gas Trade and Pricing?

*Assessing the prospects for the global gas market
against a background of uncertainty and volatility*



'A New World Order for Gas'

Sailing into Unknown Waters

Where Next for Global Gas Trade and Pricing?

Assessing the prospects for the global gas market to 2030 against the background of uncertainty and volatility in the financial and energy sectors

October 2009



Griffin House, 1st Floor South, 161 Hammersmith Road, London W6 8BS, UK
Tel: +44 20 7950 1600 Fax: +44 20 7950 1550

CONTENTS

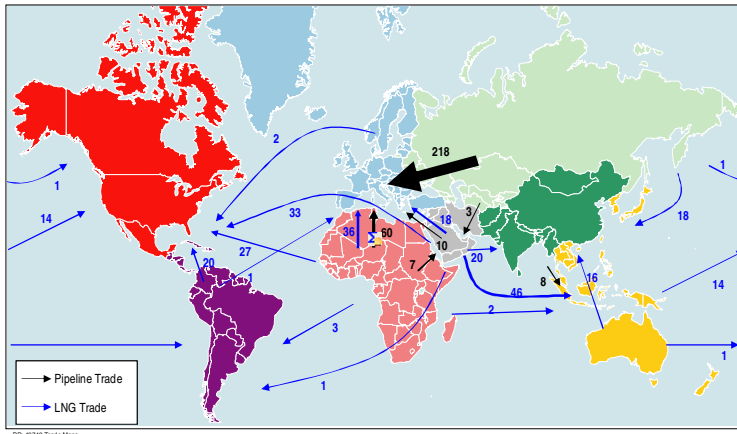
SECTION	Page
1. A New World Order for Gas?	1
2. Need for the Study	2
3. Study Scope	3
4. Methodology	5
5. Study Team	7
6. Costs and Subscription Details	8
7. Subscription Terms and Conditions	10

APPENDIX	Page
A. Contact Details	11
B. Credentials	12
C. Table of Contents	13
D. Detailed Scenario Descriptions	18

A New World Order for Gas?

The last three years have seen unprecedented rises in wholesale gas prices both in the competitive gas markets of the US and UK and the oil-linked contract markets of continental Europe and the Far East, followed by sharp declines as the world headed towards economic recession.

Inter-region Gas and LNG Flow Projection



Nexant's new multiclient study *Sailing into Unknown Waters* assesses the prospects for the global gas market through to 2030 against the background of uncertainty and volatility in the financial, economic and energy sectors.

The analysis suggests that when the global economy eventually emerges from the recession many of old assumptions of the past will have gone:

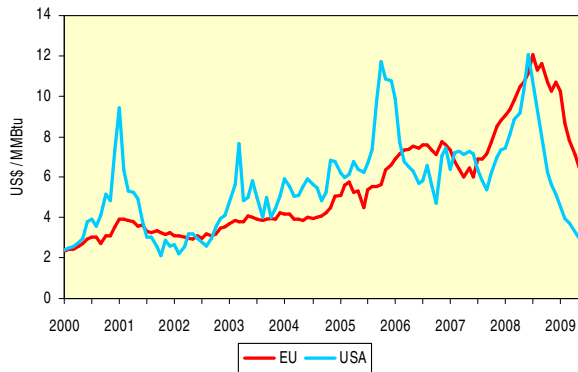
KEY QUESTIONS

- Will there be a slow recovery or return to rapid growth?
- Will enough infrastructure be built to meet rising gas demand?
- Will developments in North America impact world gas trade to an extent not seen before?
- Will the Middle East and Africa emerge as the flexible suppliers of LNG?
- Will recent decoupling of gas and oil prices extend into the longer term?
- Where will gas prices go?

Need for the Study

Decision makers in international gas markets are used to managing an uncertain future but never before has *the degree of uncertainty been as great as it is now*.

Selected Gas Import Prices



The last three years have seen unprecedented rises in wholesale gas prices followed by sharp declines as the world headed into economic recession.

Key players in the gas market are asking – what happens next?

The new Nexant study *Sailing into Unknown Waters* looks at the longer term implications of these developments and what this means for future gas demand, supply, infrastructure, trade and prices, through to 2030.

Sailing into Unknown Waters develops and discusses in detail the results and implications of three different scenarios. The study will assist subscribers with long term planning, policy development and executive decision making and providing a comprehensive understanding of future gas pricing parameters. Nexant's scenario approach is designed to provide a tool for navigating these uncertain waters and addresses important questions for companies and organisations.

Sailing into Unknown Waters

E & P Companies – will want to know if long term demand for gas will be sufficient to justify significant investment in supply and infrastructure. Essential for E & P companies will be the range of gas price outcomes that could be reasonably envisaged.

Pipeline and Storage Companies – will gain a greater understanding of supply and demand conditions in the countries and regions which are to be supplied by their projects.

LNG Developers – currently have a large number of projects in the process of being developed. Decisions are needed on the next wave of projects waiting for financial approval. Some projects may be delayed; some may be cancelled. The study assesses the ability of LNG suppliers to compete for markets against alternative supplies by pipeline as well as LNG.

Governments in Gas Producing Countries - will benefit from a wider understanding of developments in gas markets, security of demand and potential gas price scenarios.

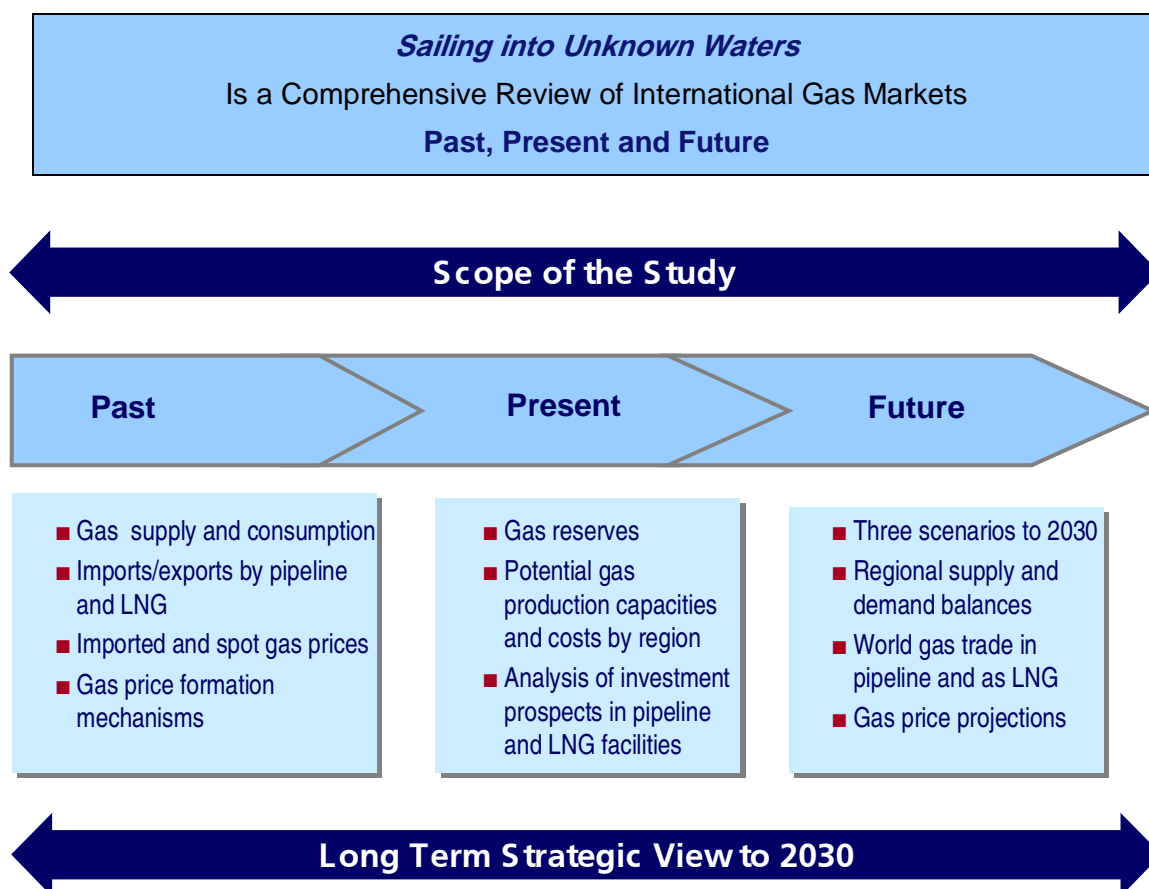
Power Plant Developers – will be interested in the range of gas price projections as a key input to their assessment of specific projects.

Gas Utilities – need to keep their gas purchasing strategy under constant review. The study's outputs will enhance the assessment of options by highlighting potential sources of future supply by pipeline and LNG, opportunities to diversify supplies and the range of future price levels.

Investors, Banks and Finance Companies – will gain a greater understanding of what may happen to gas prices in the longer term, the outlook for infrastructure projects in all aspects of the gas chain and the future for international gas trade.

Governments in Gas Consuming Countries - will find the scenario analysis an important input to the development of energy policy and the role of natural gas within that policy and security of supply issues.

Study Scope



Sailing into Unknown Waters takes a long term strategic view of the global gas market out to 2030 covering the prospects for the global gas markets. Using a scenario approach the study looks at three possible outcomes:

Will we see renewed growth in demand with *adequate supply and infrastructure* resulting in reasonable price levels?

Or, is the longer term horizon for the gas sector going to be dominated by *over supply* in a declining market maybe leading to lower gas prices?

Alternatively, will demand for gas continue to increase against a background of delayed projects and *constrained supply*, lead to sharp increases in gas prices?

Each of the three scenarios is described in detail in separate chapters with assumptions on gas supply capability, potential demand, and existing and future infrastructure being described in detail and on a regional basis, highlighting the key interconnections. A further chapter of the report compares results across the three scenarios and draws overall conclusions from the analysis.

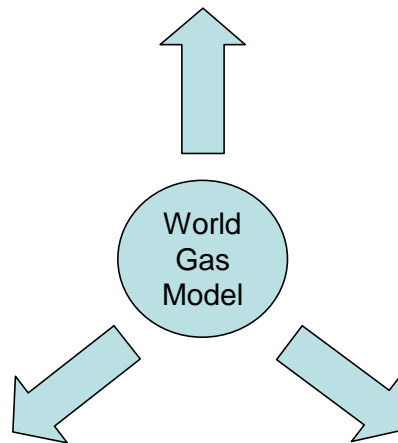
Scenarios

Recognising the huge uncertainties facing the industry, *Sailing into Unknown Waters* considers three scenarios the key features of which are:

Reference Scenario

Slow return to demand growth after the global recession.

New supply and infrastructure projects are brought forward in a timely manner to meet the growth in demand.



Surplus Scenario

Demand growth as in the Reference Scenario, but more gas infrastructure is developed leading to greater availability of gas supply.

Constrained Scenario

Gas demand recovers more strongly following the recession but investment in infrastructure does not keep up with demand leading to constraints on gas consumption.

None of the scenarios should be regarded as Nexant's view of the most likely outcome for international gas markets. Rather, the scenarios are designed to test what might happen in terms of gas production, trade and prices under three essential market states: broad balance, supply surplus and supply deficit.

For a fuller description of the scenarios see Appendix D.

Methodology

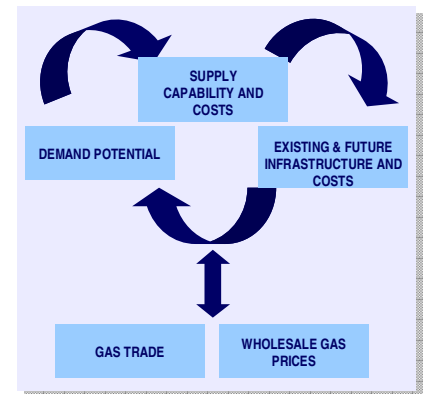
The comprehensive discussion of past, present and future trends is underpinned by Nexant databases and detailed market research.

The scenario analysis of the outlook for the world gas industry to 2030 has been underpinned by Nexant's proprietary *World Gas Model (WGM)*.

The World Gas Model has been developed by Nexant Global Gas to support our consultancy assignments and multiclient studies

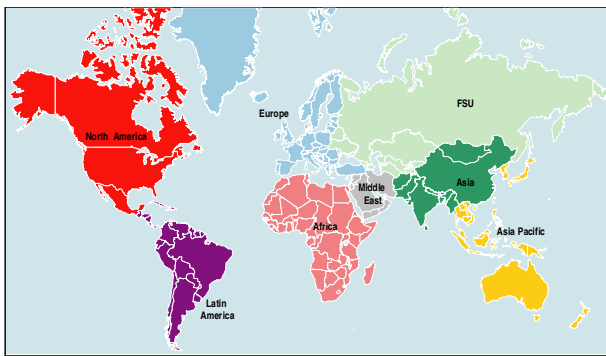
The World Gas Model is an optimisation programme which matches gas supply and consumption on a country by country basis. The pattern of supply is optimised by minimising the total cost of production and transport (pipeline and LNG) from producing areas to market within specified constraints. Constraints include physical capacities of production, pipelines, LNG liquefaction and regasification plant and storage as well as commercial constraints imposed by long term gas supply contracts.

World Gas Model



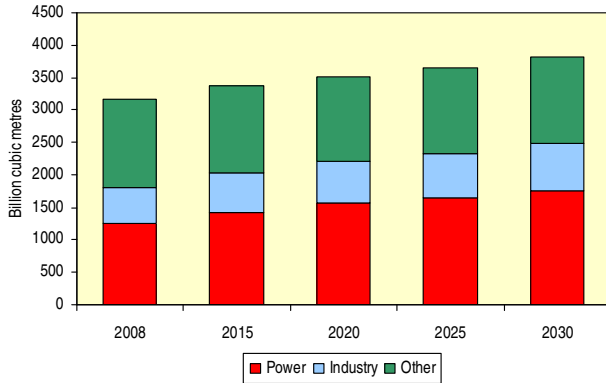
Global Coverage

Regions



The study considers every country in the world which either consumes or produces natural gas. Large countries including USA, Canada and Russia are further segmented by region. The focus is on the growing international trade of gas by pipeline and as LNG.

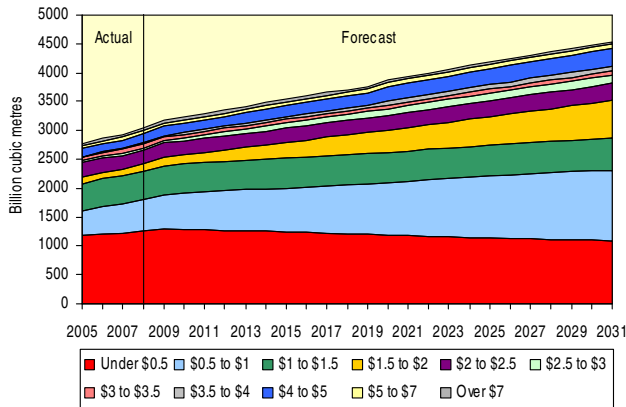
Changing Structure of Gas Demand



Gas Demand

Energy demand forecasts are built up for each country taking account of trends in population, economic growth and energy intensity. Natural gas contribution to energy supply involves consideration of investment decisions in particular in the power generation market where gas competes with coal, nuclear and renewable energy. Economic, environmental and political considerations all play a part in determining this mix.

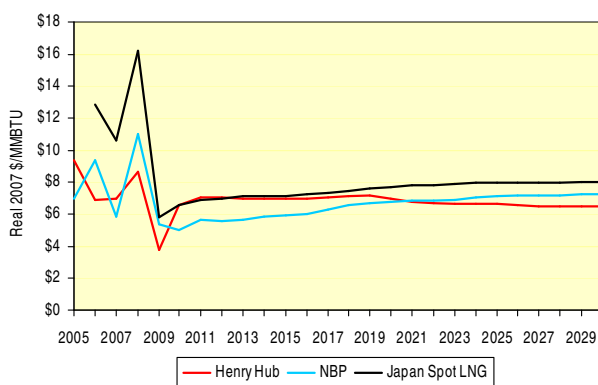
World Gas Supply Potential and Costs



Gas Supply and Infrastructure

The model includes detailed data for the infrastructure needed to support international trade including production fields and basins, pipelines, LNG liquefaction and regasification terminals and storage facilities, together with associated costs.

A Gas Price Forecast



Gas Prices

Contract prices are calculated within the model based on assumed oil and oil product prices in Europe and Asia.

Spot prices for gas in North America and for LNG trade are determined in relation to the marginal cost of supply.

Study Team



The Study Team will include the following senior staff members from Nexant's Global Gas consulting practice and will be supported by a group of experienced research assistants from our offices in Europe, the US and Asia.

Dr. Mostefa Ouki is Vice President, Energy Resources and heads Nexant's Global Gas practice. He has over twenty years of experience of managing and participating in gas and energy-related techno-economic studies throughout the world. He has managed numerous gas projects, including assignments in support of LNG and cross-border gas pipeline

projects commissioned by national and international oil and gas companies, multilateral development agencies and financing institutions. Dr. Ouki started his training in gas with the Gas Exports Directorate of Algeria's oil and gas company Sonatrach in Algiers and worked as a consultant on gas development projects for the World Bank in Washington, D.C. Prior to the formation of Nexant, he was with the energy technology and consulting group of Bechtel.

Mike Fulwood – Study Co-Director – is a Principal in Nexant's Global Gas practice. He has thirty years of experience in the energy industry, the last ten years in consultancy. Previously, he worked as Director at British Gas Transco, the gas transportation business unit of British Gas. Before that, he was President of British Gas Americas and led a high-calibre team responsible for developing downstream gas projects and investments in North and South America. Mr. Fulwood has been lead advisor to governments as well as energy and utility companies on acquisitions, project development and regulatory matters. He has worked on several assignments in developing and transition economies, advising clients on liberalising and restructuring gas markets. Mr. Fulwood has advised clients in Asia on the development of an LNG import terminal and has recently completed an assignment on international gas markets and gas pricing for the Gas Exporting Countries Forum. He is a current member of the International Gas Union's Strategy, Economics and Regulation Committee, focussing on gas price formation.

Brian Little – Study Co-Director – is a Principal in Nexant's Global Gas practice. He has over thirty five years of experience in the energy industry, including ten years in consultancy and over twenty five years working for British Gas. Mr. Little's experience in British Gas included the evaluation of long term supply contracts, as well as the development of the spot market for gas. Mr. Little's areas of expertise include all aspects of market analysis, modelling, forecasting and benchmarking. He led the development of a model of the European Gas industry to examine how future developments may unfold following the implementation of the European Gas Directive and is currently overseeing Nexant's World Gas Model. Mr. Little has provided advice to clients in Asia on gas markets and pricing and was responsible for the gas market modelling and pricing analysis on an assignment on international gas markets and gas pricing for the Gas Exporting Countries Forum.

John Servello is a Principal in Nexant's Global Gas practice. He has over thirty five years' experience in upstream developments. During his career working for national and international oil and gas companies and a major consultancy, he has led and participated in numerous studies that have included hydrocarbon reserve estimations and production supply availability. Mr. Servello has also played an active advisory role in the rapidly expanding international LNG business, focusing on stranded gas reserves and supply for integrated grassroots projects. He has managed or played a key role in natural gas and LNG studies, which included the review of gas reserves and development costs, supply and demand forecasts and comparison of liquefaction technologies. He has executed assignments on the due diligence analysis of West Africa and South America base load LNG projects, focusing on natural gas reserves and supply predictions and on the upstream strategy of Middle Eastern gas producers.

The Subscription Details

We wish to subscribe to Nexant's study:

“Sailing into Unknown Waters – Where Next for Global Gas Trade and Pricing?”

and understand that:

The price of the study is **US\$19,500 (nineteen thousand five hundred U.S. dollars)**. These fees are net of all local taxes.

Subscribers will receive:

- Two (2) hard copies of the report
- A CD-ROM which includes an Adobe pdf copy of the report plus outputs for supply and demand, trade and prices at the country and regional level. This information will be presented in easily readable tabular and chart formats
- Access to electronic downloads of the report via a password-protected area from www.chemsystems.com

Additional hard copies will be available at US\$500 (five hundred U.S. dollars) per copy. Additional CD-ROM copies will be available for US\$200 (two hundred U.S. dollars) each.

The study is an original effort of Nexant based on their own research, though it is understood that a part of the study has involved the collection of information available from third parties, both published and unpublished. Nexant does not believe that the study contains confidential technical information of third parties.

Except for information that is or becomes generally available to the public in a printed publication, or is already in the possession of the purchaser or developed independently by the purchaser, or is received by the purchaser in good faith from a third party, any information in the subject study is for the sole and confidential use of the purchaser and its more than 51 percent owned affiliates. Said information may be used in research and commercial activities of the purchaser and its affiliates on a confidential basis.

Each purchaser agrees to use reasonable efforts to protect the confidential nature of the final report. The foregoing obligations of the purchaser shall, in no event, continue beyond three (3) years from the date of publication.

Optional Extras

A full one day presentation and workshop at the subscribers' office is available for an additional **US\$6,000 (six thousand U.S. dollars)** plus travel expenses as incurred, subject to a separate written agreement.

Invoicing

Invoices will be sent for the full amount to the Subscriber's address at the same time as the report copies.

If the foregoing terms are acceptable, please sign below to confirm subscriber's agreement and return to Nexant.

AUTHORISATION and SUBSCRIPTION FORM

We wish to subscribe to *“Sailing into Unknown Waters - Where Next for Global Gas Trade and Pricing?”*
At the price of US\$19,500.00 (nineteen thousand five hundred U.S. dollars)

AGREED TO AND ACCEPTED:

AGREED TO AND ACCEPTED:

SUBSCRIBER:

NEXANT LIMITED.

Name:

Name:

Title:

Title:

Address:

Address:

.....

.....

.....

.....

Phone:

Phone:

Fax:

Fax:

Email:

Email:

Date:

Date:

Signature:

Signature:

“Sailing into Unknown Waters – Where Next for Global Gas Trade and Pricing?”

_____ US\$19,500

_____ extra hard copies @US\$500 each

_____ extra CD-ROM copies at US\$200 each

Total Cost: US\$ _____

We shall pay Nexant Limited the applicable fee stated above plus applicable taxes (including but not limited to VAT, withholding tax and any other applicable deductions).

If your company requires a purchase order number, please provide the number below:

Purchase Order Number: _____

NEXANT LIMITED,
GRIFFIN HOUSE, 1ST FLOOR
161 HAMMERSMITH ROAD
LONDON W6 8BS, UK.
FAX: +44 207 950 1550

1. SERVICES

NEXANT agrees to perform for CLIENT the Services described in this Agreement with that degree of skill and judgement normally exercised by recognised professional firms performing services of a similar nature.

2. RESPONSIBILITY

NEXANT shall perform the Services as an independent contractor in accordance with its own methods, the terms of this Agreement, and applicable laws and regulations. NEXANT's liability arising out of or in connection with the Services shall be limited to re-performing at its own expense any such Services which are (a) deficient because of NEXANT's failure to perform such Services in accordance with the standards imposed by law upon professionals performing services of a similar nature, and (b) reported in writing to NEXANT within a reasonable time, not to exceed thirty (30) days after the discovery thereof, but in no event later than ninety (90) days from the completion of the Services.

NEXANT's total liability to CLIENT arising out of or in connection with the Agreement shall not exceed the total Fee paid to NEXANT under the Agreement, and CLIENT agrees to release NEXANT from any liability in excess thereof. CLIENT agrees to release NEXANT from any liability for loss of or damage to CLIENT's property.

Under no circumstances shall NEXANT be liable to CLIENT for any consequential or incidental damages, including but not limited to loss of use or loss of profit.

Releases from and limitations of liability expressed in the Agreement shall apply even in the event of the fault or negligence of the party released or whose liability is limited, and shall extend to the directors, officers and employees, and related entities of such party.

CLIENT hereby agrees to defend, indemnify and hold harmless NEXANT, its respective officers, employees, agents, assigns and successors in interest from and against any and all third party liability, damages, losses, claims, demands, actions, causes of action, costs including attorney's fees and expenses for death or injury to person or damage to property arising out of or in connection with the Agreement, to the extent caused by CLIENT's acts or omissions of any kind, including negligence.

3. REPORT

The Report may not be reproduced, distributed or used without first obtaining prior written consent by NEXANT. Neither NEXANT, CLIENT nor any person acting on behalf of either assumes any liabilities with respect to the use of or for damages resulting from the use of any information contained in the report. NEXANT does not represent or warrant that any assumed conditions will come to pass.

4. FORCE MAJEURE

Neither party shall be considered in default in the performance of its obligations hereunder to the extent that the performance of any such obligation is prevented or delayed by any cause, existing or future, which is beyond the reasonable control of such party. In such event, the schedule and compensation for the performance of the Services shall be equitably adjusted.

5. SUBCONTRACT RIGHTS

NEXANT shall have the right to subcontract any portion of the Services to its related entities without the prior approval of CLIENT. NEXANT guarantees the compliance of such related entities with the terms of this Agreement and that CLIENT will not incur any duplication of costs by reason of such subcontracts.

6. USE OF NAME AND PUBLICITY

Each party agrees that it will not, without the prior written consent of the other party in each instance use in advertising, publicity, or otherwise the name of the other party, or any affiliate, partner, employee or agent of the other party, or any trade name, trademark, trade device, service mark, symbol or any abbreviation, contraction, or simulation thereof owned by the other party or its affiliates. Provided, however, that either Party may disclose the existence of a contractual relationship between the Parties for promotional purposes.

7. TERMINATION

CLIENT may terminate the Services at any time upon written notice and payment to NEXANT of that portion of the Fee, which reasonably reflects the portion of the Services performed to the date of termination, including a reasonable fee thereon, plus all reasonable costs incurred as a result of such termination. Upon such termination, NEXANT's liability to CLIENT arising out of or in connection with the performance of the Services shall cease.

Nexant may terminate the Services at any time upon written notice to the Client. Any fees paid by the Client will be re-imbursed by Nexant. Upon such termination Nexant's liability to the Client arising out of or in connection with the performance of the Services shall cease.

8. PAYMENT

For the performance of the Services, CLIENT shall pay NEXANT a total Fee specified in the Subscription Form.

Amounts owed to NEXANT for more than thirty (30) days beyond the agreed payment date shall accrue the statutory rate of interest applying to late payment under the Late Payment of Commercial Debts (Interest Act 1998).

9. DISPUTE FEES AND COSTS

In the event of a dispute under the Agreement, the prevailing party shall be entitled to recover its reasonable and necessary attorney's fees and costs incurred in connection with such dispute.

If in the future NEXANT is requested by CLIENT to provide assistance, give testimony, review documents or the like in connection with claims, disputes, investigations or litigation involving the project or facilities to which this Agreement pertains, then CLIENT shall compensate NEXANT time and expenses (including reasonable and necessary attorney's fees) incurred by NEXANT in connection with such activities.

10. COMPLETE AGREEMENT

The signed Subscription Form along this Terms and Conditions constitute the Agreement between CLIENT and NEXANT with respect to the subject matter referenced herein and merge all of the previous and contemporaneous discussions, representations, understandings and agreements between the parties with respect to the subject matter of this Agreement. This Agreement shall not be altered except in writing, signed by both parties.

To the extent there is a conflict between these Terms and Conditions and other provisions of the Agreement between NEXANT and the CLIENT, these Terms and Conditions shall take precedence.

11. THIRD PARTY LIABILITY

A person who is not a party to this Agreement shall have no right under the Contracts (Rights of Third Parties) Act 1999 to enforce any of its terms.

12. APPLICABLE LAW

This Agreement and the relationship between the parties shall be governed by and interpreted in accordance with English law. The parties further agree that no claim may be brought against any party in contract, tort or otherwise save in so far as such claim could be brought in English law without reference to the law of any other country.

Contact Details

For further information on the Study contents, please contact:

Mr. Mike Fulwood

Tel: + 44 20 7950 1591
 Mobile: + 44 7786 276 316
 Email: mfulwood@nexant.com

Mr. Brian Little

Tel: + 44 20 7950 1521
 Mobile: + 44 7786 276 307
 Email: blittle@nexant.com

Please send your orders to one of the following addresses:

EUROPE

Nexant Ltd.

Griffin House
 161 Hammersmith Road
 London, W6 8BS
 United Kingdom

Attn: Dr. Mostefa Ouki
 Vice President
 Tel: + 44 20 7950 1580
 Fax: + 44 20 7950 1550
 Email: maouki@nexant.com

AMERICAS

Nexant, Inc.

44 South Broadway, 4th Floor
 White Plains, NY 10601-4425
 USA

Attn: Don Bari
 Senior Vice President
 Tel: + 1 914 609 0301
 Fax: + 1 914 609 0399
 e-mail: dbari@nexant.com

Attn: Heidi Junker Coleman
 Multi-client Programs Administrator
 e-mail: hcoleman@nexant.com

ASIA

Nexant (Asia) Ltd

22nd Floor, Rasa Tower 1
 555 Phahonyothin Road
 Kwaeng Chatuchak
 Khet Chatuchak Bangkok 10900
 Thailand

Attn: Andrew Spiers
 Senior Vice President
 Tel: + 66 2 793 4618
 Fax: + 66 2 937 0144
 Email: aspiers@nexant.com

NEXANT'S GLOBAL GAS PRACTICE

Nexant's Global Gas specialists have considerable experience and an established track record in every area of the gas business, ranging from the initial investment strategy and planning stage through to the provision of institution and capacity building services for gas sector development, as well as assessing the impact of gas on overall energy sector development. We have provided extensive advisory support for the development of LNG export/import projects and cross-border gas pipeline projects.

Our consultants offer a wide range of experience that has been gained through operational and executive management positions with international and national oil & gas companies; major engineering companies; management consultancies and international development banks.

Our range of services includes:

- Investment Strategy & Planning
 - Strategic planning & policy development
 - Technical & commercial due diligence
 - National gas master plans
 - Gas contract structuring and negotiation
 - Economic & financial analysis of projects
 - Gas pricing and tariff strategies
 - Gas trading & risk assessment strategies
- Gas Market Analyses
 - Gas monetization studies
 - Gas supply & demand side analyses
 - LNG market studies
 - Forecasts of gas prices and gas flows
 - Gas to power & chemicals assessments
 - Multiclient studies on market developments
- Regulatory Services
 - Gas sector restructuring & privatisation
 - Legal & regulatory advice and support
 - Development of regulatory pricing regimes
 - Design and modelling of gas tariffs and rates
 - Development of network codes
- Gas Infrastructure Studies
 - Gas transmission, distribution & storage
 - LNG export and import infrastructure
 - Cross-border gas pipeline infrastructure
- Institution & Capacity Building
 - Institution building for gas sector development
 - Organisation design and development
 - Public courses and tailor-made in-house training



Investment Strategy & Planning

Gas Market Analyses

Regulatory Services

Gas Infrastructure Studies

Institution & Capacity Building

Table of Contents

Section	Page
Abbreviations	1
1 Executive Summary	1-1
2 Introduction	2-1
2.1 Overview & Study Objective	2-1
2.2 Study Methodology	2-2
2.3 Nexant's World Gas Model	2-5
2.3.1 Global Coverage	2-5
2.3.2 Demand	2-5
2.3.3 Infrastructure and Supply	2-5
2.3.4 Gas Prices	2-5
2.3.5 Optimisation	2-5
2.3.6 Model Flexibility	2-5
2.4 Geographical Regions	2-6
2.5 Report Structure	2-8
3 Market Developments and Gas Pricing	3-1
3.1 Introduction	3-1
3.2 Historical Trends in Gas Production	3-2
3.3 Historical Trends in Gas Consumption	3-4
3.4 Regional Balances	3-8
3.4.1 Introduction	3-8
3.4.2 North America	3-8
3.4.3 Europe	3-9
3.4.4 Asia	3-9
3.4.5 Asia Pacific	3-10
3.4.6 Latin America	3-10
3.4.7 Former Soviet Union	3-11
3.4.8 Africa	3-11
3.4.9 Middle East	3-12
3.5 International Trade in Gas	3-13
3.5.1 International Pipeline Trade	3-13
3.5.2 International Trade in LNG	3-14
3.6 Historical Trends in Gas Pricing	3-15
3.6.1 Pipeline Import prices	3-15
3.6.2 LNG Import Prices	3-16
3.6.3 European Gas Contract Prices	3-18
3.6.4 Spot Market Prices	3-19
3.7 Gas Pricing Mechanisms	3-20
3.7.1 Background	3-20
3.7.2 Gas Price Formation Mechanisms	3-20
3.7.3 Price Formation: Indigenous Production	3-23
3.7.4 Price Formation: Pipeline Imports	3-23
3.7.5 Price Formation: LNG Imports	3-24

Section	Page
3.7.6 Price Formation: Total Imports	3-25
3.7.7 Price Formation: Total Consumption	3-25
3.7.8 Wholesale Prices	3-27
3.7.9 Future of Gas Pricing	3-29
4 Key Assumptions	4-1
4.1 Introduction	4-1
4.2 Assumptions for Economic Growth	4-2
4.2.1 Moderate Economic Recovery	4-2
4.2.2 Constrained Scenario Growth Forecasts	4-3
4.3 Assumptions For Population Growth	4-4
4.4 World Oil Price Assumptions	4-5
4.5 Summary	4-6
5 Energy Demand	5-1
5.1 Introduction	5-1
5.2 Electricity Generation Market	5-2
5.3 Industrial Market	5-4
5.4 Other Markets	5-5
5.5 Total Gas Demand	5-6
5.6 Constrained Scenario Gas Demand Projections	5-8
5.7 Comparison With Forecasts Of International Agencies	5-9
5.8 Summary	5-10
6 Gas Supply Outlook	6-1
6.1 Introduction	6-1
6.2 Gas Reserves	6-2
6.3 Supply Forecasting Methodology	6-4
6.4 Production Cost Methodology	6-5
6.5 North America	6-8
6.5.1 North America Production Capacity	6-8
6.5.2 North America Cost of Gas Production	6-9
6.6 Europe	6-12
6.6.1 Europe Production Capacity	6-12
6.6.2 Europe Cost of Gas Production	6-13
6.7 Asia	6-14
6.7.1 Asia Production Capacity	6-14
6.7.2 Asia Cost of Gas Production	6-15
6.8 Asia Pacific	6-16
6.8.1 Asia Pacific Production Capacity	6-16
6.8.2 Asia Pacific Cost of Gas Production	6-17
6.9 Latin America	6-19
6.9.1 Latin America Production Capacity	6-19
6.9.2 Latin America Cost of Gas Production	6-20
6.10 Former Soviet Union	6-21
6.10.1 FSU Production Capacity	6-21
6.10.2 FSU Cost of Gas Production	6-22

Section	Page
6.11 Africa	6-24
6.11.1 Africa Production Capacity	6-24
6.11.2 Africa Cost of Gas Production	6-26
6.12 Middle East	6-27
6.12.1 Middle East Production Capacity	6-27
6.12.2 Middle East Cost of Gas Production	6-28
6.13 World	6-29
6.13.1 World Production Capacity	6-29
6.13.2 World Cost of Gas Production	6-29
7 Gas Infrastructure and Investment	7-1
7.1 Introduction	7-1
7.2 North America Gas Infrastructure	7-2
7.2.1 Pipelines	7-2
7.2.2 LNG Import and Export Terminals	7-4
7.3 Europe Gas Infrastructure	7-7
7.3.1 Pipelines	7-7
7.3.2 LNG Import and Export Terminals	7-10
7.4 Asia Gas Infrastructure	7-13
7.4.1 Pipelines	7-13
7.4.2 LNG Import and Export Terminals	7-15
7.5 Asia Pacific Gas Infrastructure	7-17
7.5.1 Pipelines	7-17
7.5.2 LNG Import and Export Terminals	7-18
7.6 Latin America Gas Infrastructure	7-23
7.6.1 Pipelines	7-23
7.6.2 LNG Import and Export Terminals	7-24
7.7 Former Soviet Union Gas Infrastructure	7-27
7.7.1 Pipelines	7-27
7.7.2 LNG Import and Export Terminals	7-28
7.8 Middle East Gas Infrastructure	7-29
7.8.1 Pipelines	7-29
7.8.2 LNG Import and Export Terminals	7-29
7.9 Africa Gas Infrastructure	7-32
7.9.1 Pipelines	7-32
7.9.2 LNG Import and Export Terminals	7-32
7.10 Development Costs	7-36
7.10.1 Methodology	7-36
7.10.2 Pipeline Costs and Tariffs	7-36
7.10.3 Liquefaction Plant	7-43
7.10.4 LNG Shipping	7-44
7.10.5 Regasification Plant	7-44

Section	Page
8.1 Introduction	8-1
8.2 Global Production and Consumption	8-4
8.2.1 Production	8-4
8.2.2 Consumption	8-6
8.3 Regional Supply and Demand Balances	8-7
8.3.1 North America	8-7
8.3.2 Europe	8-8
8.3.3 Asia	8-10
8.3.4 Asia Pacific	8-11
8.3.5 Latin America	8-12
8.3.6 Former Soviet Union	8-13
8.3.7 Africa	8-14
8.3.8 Middle East	8-15
8.4 Inter-Regional Trade	8-16
8.4.1 Trade by Pipeline	8-16
8.4.2 Trade by LNG	8-17
8.5 Wholesale Price Forecasts	8-22
8.5.1 North America	8-22
8.5.2 Asia Pacific	8-24
8.5.3 Europe	8-25
8.5.4 World Summary	8-26
8.6 Summary	8-28
9 Surplus Scenario Results	9-1
9.1 Introduction	9-1
9.2 Global Production and Consumption	9-5
9.2.1 Production	9-5
9.2.2 Consumption	9-7
9.3 Regional Supply and Demand Balances	9-8
9.3.1 North America	9-8
9.3.2 Europe	9-9
9.3.3 Asia	9-11
9.3.4 Asia Pacific	9-12
9.3.5 Latin America	9-13
9.3.6 Former Soviet Union	9-14
9.3.7 Africa	9-16
9.3.8 Middle East	9-17
9.4 Inter-Regional Trade	9-19
9.4.1 Trade by Pipeline	9-19
9.4.2 Trade by LNG	9-20
9.5 Wholesale Price Forecasts	9-25
9.5.1 North America	9-25
9.5.2 Asia Pacific	9-27
9.5.3 Europe	9-28
9.5.4 World Summary	9-29
9.6 Summary	9-31

Section	Page
10 Constrained Scenario Results	10-1
10.1 Introduction	10-1
10.2 Global Production and Consumption	10-4
10.2.1 Production	10-4
10.2.2 Consumption	10-6
10.3 Regional Supply and Demand Balances	10-7
10.3.1 North America	10-7
10.3.2 Europe	10-9
10.3.3 Asia	10-11
10.3.4 Asia Pacific	10-12
10.3.5 Latin America	10-14
10.3.6 Former Soviet Union	10-15
10.3.7 Africa	10-16
10.3.8 Middle East	10-17
10.4 Inter-Regional Trade	10-18
10.4.1 Trade by Pipeline	10-18
10.4.2 Trade by LNG	10-19
10.5 Wholesale Price Forecasts	10-24
10.5.1 North America	10-24
10.5.2 Asia Pacific	10-26
10.5.3 Europe	10-27
10.5.4 World Summary	10-28
10.6 Summary	10-30
11 Scenario Comparisons and Conclusions	11-1
11.1 Introduction	11-1
11.2 Scenario Comparisons	11-3
11.2.1 Global Production and Consumption	11-3
11.2.2 Regional Supply and Demand Balances	11-3
11.2.3 Inter-Regional Trade	11-15
11.2.4 Wholesale Price Forecasts	11-24
11.3 Risks and Uncertainties	11-32
11.3.1 Short to Medium Term	11-33
11.3.2 Longer Term	11-34
11.4 Conclusions	11-37
Boxes	
3.1 Impact of the Recession on Demand for Natural Gas	3-5
3.2 IGU Gas Price Study Methodology	3-21
3.3 Future of Gas Pricing	3-30
11.1 Forecasting Spot Market Prices	11-29

Recognising the huge uncertainties facing the industry, Nexant's "Sailing into Unknown Waters" considers three scenarios the key features of which are described below. It should be stressed that none of the scenarios should be regarded as Nexant's view of the most likely outcome for international gas markets. Rather, the scenarios are designed to test what might happen in terms of gas production, trade and prices under three essential market states: broad balance, supply surplus and supply deficit.

- ***Reference Scenario***

Slow but steady gas demand growth is renewed after a downturn as a result of the global economic recession. But this growth is slower than anticipated prior to the recession. Gas will continue to be regarded as the fossil fuel of choice for power generation, but will face long term competition from nuclear, renewables and clean coal. Many, but not all, of the new supply and infrastructure projects under construction or at an advanced stage of planning are assumed to be brought forward and these provide sufficient capacity to meet the moderate growth in demand. Overall, there is enough supply and transport infrastructure to meet the potential demand envisaged at the projected levels of economic growth, but so much as to generate a gas bubble and intensive competition.

- ***Surplus Scenario***

Economic recovery and gas demand assumptions are the same as in Reference Scenario. However, producers and project developers foresee a return to faster and more sustained gas demand growth and respond by developing most of the planned investments in new gas production and infrastructure projects. Thus, growth in available supply outstrips demand creating surplus production capacity and under-utilised pipelines and LNG facilities. The result would be a buyers' market with downward pressure on prices.

- ***Constrained Scenario***

Under this scenario, the world economy returns more quickly to strong growth rates generating higher demand levels than assumed in the Reference and Surplus Scenarios. However, continued uncertainty about markets and prices results in a prolonged stand-off with producers continuing to delay investment decisions leading to a tight market. The resulting high gas prices, coupled with shortage of supply may lead to significant levels of demand destruction as consumers, particularly power generators, turn to alternative fuels including nuclear, clean coal and alternative energies. Consequently, actual gas consumption is constrained by available supply to levels below the assumed demand levels entered into the model.