WORLD LNG to 2020

Prospects for Trade & Shipping

The world LNG industry is currently going through a period of massive expansion and change, featuring:

- Large-scale demand growth
- Emergence of new supply sources
- Emergence of new import markets
- Increasing contract flexibility
- Higher levels of spot market and short-term contracts
- Speculative LNG carrier newbuilding orders
- Changes in vessel size and cargo containment/propulsion systems.

With trade volumes forecast to increase by a massive 71% by 2010 and 172% by 2020, the LNG sector is in a period of large-scale expansion.

This Report examines the current and historical development of LNG trade, detailing developments by major importer and exporter. By examining the prospects for individual LNG suppliers and import markets under alternative forward scenarios, detailed analysis is included on future prospects for LNG trade volume and structure through to 2020. This is translated into the projected number of extra LNG carriers required throughout the future period.

The analysis is widened through consideration of likely developments in other aspects of LNG shipping – including vessel technical developments, shipyard activity, LNG spot market development, and the potential for LNG alternatives such as CNG.

Whilst the overall outlook is one of growth, the Report also includes analysis of some 'Worst Case' scenarios – providing an indication of the potential full market implications of sudden disruptions to LNG supply or to LNG imports.

This Report therefore provides invaluable independent analysis on the development of LNG trade and shipping to 2020 - a period set to witness massive expansion and change throughout the LNG sector. It represents the most up to date and comprehensive examination of LNG sector prospects, and is essential reading for all parties with an interest in this sector.

CONTENTS

SECTION 1 INTRODUCTION & EXECUTIVE SUMMARY

Includes an overview of the Report's aims, as well as a summary of the methodology underlying the analyses.

This Section also includes a summary of the most significant points and conclusions drawn from the main body of the Report. They are presented in the order of the corresponding Sections for ease of reference.

SECTION 2 LNG FLEET DEVELOPMENTS 1970-2004

The world fleet of LNG carriers has expanded from 8 vessels in 1970 to the current total of 152, and the growth in the capacity of the fleet is currently at the fastest rate ever, with a total of 59 vessels on order – representing approximately 45% of existing LNG capacity. This Section examines fleet developments, the current age profile and a detailed breakdown of the current orderbook.

As well as analysing the involvement of individual shipyards in recent and future LNG carrier construction, the Section also focuses attention on fleet ownership, vessel newbuilding prices, vessel size and cargo containment systems, providing an invaluable insight into recent and current trends.

SECTION 3 LNG SUPPLY & DEMAND 1970-2004

In recent years, there has been a large-scale shift in favour of gas in national energy profiles - this Section examines the development of natural gas within primary energy demand, and highlights the associated changes in regional gas consumption and LNG imports. The Section also includes a summary of the main features emerging for each of the world's main LNG import and export markets in turn, including capacity, contract volumes, and import/export patterns.

SECTION 4 LNG – TRADE 1970-2003

The aggregate level of world LNG trade has continued to expand in recent years – with over 10% growth in 2000 followed by 5-6% annual growth in subsequent years. Attention in this Section is centred on detailing trade patterns and volumes, with analysis of detailed trade matrices and individual trade routes.

With shipping demand a function of trade volume and haul length, the evolution of the demand for LNG carriers is analysed in full, including discussion of ship size deployment.

SECTION 5 LNG IMPORT MARKETS TO 2020

The profile of LNG import markets is changing dramatically – linked to a strong trend in favour of gas within national energy profiles, low LNG import prices, and the deregulation of energy/gas markets in Europe and Asia. The net effect is for demand expansion in existing import markets and the emergence of a number of new sources of LNG demand. With import demand forecast to increase by 172% in the period to 2020, this Section details the expected development of annual import volumes for existing and new individual markets. The latter include large-scale import development for markets in Europe (especially the UK), Latin America and Asia (especially India and China).

A set of alternative forward scenarios is developed for each market, detailing the expected level of annual imports in each case.

SECTION 6 LNG EXPORTS TO 2020

This Section details LNG export prospects by individual country - in terms of their forecast development as well as within the alternative forward scenarios throughout the study period to 2020. Evolving export capacity is analysed, as is contract development. There are plans for the development of LNG capacity in a number of new exporting countries – including Iran, Yemen, Bolivia, Venezuela, Peru, Egypt, Angola, Norway and Russia - these are discussed in terms of their likely realisation and associated volumes.

SECTION 7 LNG TRADE & SHIPPING DEMAND TO 2020

This Section details the forecast development of LNG trade patterns/volumes and shipping demand throughput the study period. It also analyses the projected development profiles in the alternative forward scenarios. This includes analyses for trade flows and LNG carrier employment – in terms of both exporting and importing countries. With shipping demand set to expand even faster than trade volumes due to evolving trade patterns (by over 190% by 2020), this Section provides a detailed examination of the areas of most significance for LNG employment growth.

SECTION 8 LNG FLEET & SHIPPING REQUIREMENTS TO 2020

The implications of the expected forward development of trade volumes and patterns for LNG carrier demand are examined. The prospects for vessel scrapping are also considered, as too the impact of deliveries from the massive volume of LNG carriers currently on order at world shipyards. The resultant demand/supply conditions facing the LNG market over the near-term are evaluated, as too the requirements for extra LNG vessels throughout the study period.

The Section also includes analysis and discussion on the main features of LNG shipping likely to emerge, including

larger vessels;	spot market employment;	onboard liquefaction;
floating terminals;	propulsion systems;	alternative containment systems;

Compressed Natural Gas (CNG) trade is also investigated as an alternative to LNG.

Also included here is an investigation into some 'Worst Case' scenarios for the LNG trade - including the disruption to supply from a leading exporter (resulting for example from a sudden plant shutdown), and the temporary/permanent cessation of purchases by a leading importer (due, for example, to a terrorist incident or threat).

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WORLD LNG to 2020
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WORLD LNG to 2020 Prospects for Trade & Shipping

Includes detailed analysis and forecasts on:

- **Trade Volumes & Patterns**
- **Demand for LNG Carriers**
- **Import Demand**
- **LNG Fleet Development**

This Report represents the most up to date and comprehensive analysis of the rapidly changing LNG sector, with its detailed forecasts and projections making it essential reading for all parties associated with the industry.

"WORLD LNG to 2020: PROSPECTS FOR TRADE & SHIPPING" is one of a large number of detailed shipping industry reports researched and published by **Ocean Shipping Consultants Ltd.**

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