

International Gas OCTOBER 2007
INTERNATIONAL GAS UNION

International Gas OCTOBER 2007



www.igu.org
ONWARD TO OSLO
IGU Secretariat moves
to Norway



**Remora fish and great whites.
Bumblebees and fruit trees.
Clownfish and anemone.**

**Examples of
win-win partnerships.**

PETRONAS is Malaysia's integrated oil and gas corporation founded a little more than 30 years ago. Through partnerships with established players, we have enabled companies to explore and develop our oil and gas resources, and we have, in turn, benefitted by learning from these experts. This symbiosis allows us to grow and prosper together.

Today we are a multinational oil and gas corporation with a strong ranking on the FORTUNE Global 500[®] and operations in more than 30 countries worldwide. We have developed our own strengths and competencies to be able to venture out and offer more value to our own businesses and those of our partners.

Nature has a lot to teach us. Let's learn from each other.

*FORTUNE Global 500 is a registered trademark of the FORTUNE magazine division of Time Inc.



PETRONAS

Your Preferred Gas Partner

As an established oil and gas multinational ranked on the FORTUNE Global 500®, it comes as no surprise that PETRONAS is an integrated global gas player, with activities covering the entire gas value chain. We are involved in exploration and production of natural gas resources to gas processing and liquefaction, transmission pipeline network operations, marketing and trading, LNG shipping, gas district cooling and supply of industrial utilities. We continue to expand our capabilities and markets in each segment and build upon partnerships we have cemented over the years.



Flagship Facility – PETRONAS LNG Complex

PETRONAS has built its reputation as a trusted, reliable and capability-driven player in the Liquefied Natural Gas (LNG) business for over twenty-five years. Our pride stems not only from developing the PETRONAS LNG Complex in Bintulu, Sarawak - the world's largest LNG production facility in a single location - but more in the unblemished record of over 4,000 timely and uninterrupted LNG shipments to date.

With this strong experience, we continue to add value to the win-win partnerships we have maintained over the years with our Far East buyers, and are winning new customers with our solid track record.

Exploring and Producing Natural Gas

Gas constitutes about 75% of Malaysia's hydrocarbon reserves and PETRONAS continues to harvest and maximise the value of this precious resource in a sustainable manner. Additional discoveries were made offshore Sabah recently, generating new terminalling, processing and pipeline projects to monetise the gas. The Sabah-Sarawak Integrated Oil and Gas Project is due to come onstream in 2010, feeding more gas to the PETRONAS LNG Complex in Bintulu, Sarawak which is scheduled to increase production from its current 23 million tonnes per annum output.

Overseas, we have signed agreements with Turkmenistan and Iran, adding to our reserves base from two of the largest natural gas resources in the world. Already we are producing gas from our West Delta Deep Marine and Damietta concessions in Egypt.

Bringing it Downstream, Globally

Our Egyptian foray is a fully-integrated project, bringing gas from the West Delta Deep Marine block to our Egyptian LNG plant. With the completion of the Dragon LNG regasification terminal in Wales, United Kingdom, we will have a fully-integrated LNG operation in the Atlantic Basin in 2008.

Our trading arm, ASEAN LNG Trading Company is already securing inter-Atlantic spot cargoes, adding further value to our gas.

Full Flexibility – LNG Shipping

MISC Berhad is already well-known in the LNG shipping arena, with its unchallenged status as the world's single largest owner-operator of LNG vessels. PETRONAS' ability to leverage on its shipping subsidiary's fleet of 23 vessels to date, which is to be expanded to 29 by the end of 2009, is a strong contributing factor to its reputation as a trusted and reliable LNG supplier.

World-Class Transmission Pipeline Operations

In addition to its excellent track record in LNG operations, PETRONAS also has the proven capability to design, build, operate and maintain gas processing and transmission pipeline infrastructure to world-class standards. Our domestic Peninsular Gas Utilisation (PGU) system, consisting of six gas processing plants and a network of 2,500 kms of pipelines continues to be the backbone of Malaysia's industrial and petrochemical sectors.

The PGU is linked to the Trans Thailand-Malaysia Gas Pipeline system in the north and to Singapore in the south, forming an integral part of the Trans-ASEAN Gas Pipeline system. PETRONAS has been entrusted to lead this project under the auspices of the ASEAN Council on Petroleum (ASCOPE) to further enhance the region's security of supply.

We also hold equity in gas transmission pipeline businesses in Australia, Argentina and Indonesia. In Australia notably, we are the second biggest shareholder in APA Group, the country's biggest transmission pipeline operator.

Diversifying Gas Utilisation

As gas is a clean and efficient fuel, PETRONAS is leading the way in diversifying its use in Malaysia. We have established Natural Gas for Vehicles facilities in our stations and are actively promoting its use in the transportation sector.

Our Gas District Cooling facilities also use gas as an energy source to produce chilled water for air-conditioning and electricity generation in the Kuala Lumpur City Centre, the PETRONAS Twin Towers, the Kuala Lumpur International Airport and the federal administrative complex in Putrajaya.

R&D activities are ongoing at our research and technical facilities, which also houses the ASCOPE Gas Centre, to support our gas business and participate in local and regional technology development.

PETRONAS - Strategic Partner of Choice

Leveraging on our ability to ensure security of supply from our large gas reserves and the synergy of connectivity throughout the whole value chain of our gas business, we continue to build our reputation as a trusted, reliable and capability-driven partner of choice. ■



MALAYSIAN
Gas
ASSOCIATION

The Malaysian Gas Association (MGA) established in 1986 aspires to create synergy in realising and harnessing the potential of the gas industry by driving the increased utilisation of gas through research and development initiatives, while promoting its usage domestically and internationally. Committed to making meaningful contributions to the gas industry, PETRONAS holds the MGA presidency. With a membership of 130 corporate organisations, MGA actively participates in worldwide gas activities under the auspices of the International Gas Union.

MGA and PETRONAS will be hosting the 25th World Gas Conference in 2012 in Kuala Lumpur.

Construction Dragon LNG Terminal well under way, Milford Haven (UK)



Pegaz LNG, Le Verdon, Port of Bordeaux (FR)



MapleLNG, development of LNG Terminal at Goldboro, Nova Scotia (CAN)



Aerial photo site LionGas, Rotterdam (NL)



4Gas is an independent company dedicated to developing and operating LNG import terminals around the world. 4Gas is the world's only independent  LNG-terminating company with a global reach. Our objective is to establish a global terminal network that will play a crucial role in  fulfilling the increasing needs of countries and companies for access to natural gas. We developed Dragon LNG in  Wales which will enter service in 2007. 4Gas has received the Environmental Permit for LionGas in Rotterdam and is  currently permitting the proposed MapleLNG terminal in Goldboro, Nova Scotia and Pegaz LNG In Bordeaux, France. 4Gas is dedicated to LNG. www.4gas.com

Dedicated to LNG



International Gas OCTOBER 2007

The IGU Magazine

Published by International Systems and Communications Limited (ISC)
in conjunction with the International Gas Union (IGU).

Copyright © 2007. The entire content of this publication is protected by copyright, full details of which are available from the publisher. All rights reserved. No part of this publication may be reproduced, stored in retrieval systems or transmitted in any form or by any means – electronic, mechanical, photocopying, recording or otherwise – without the prior permission of the copyright owner.

International Systems and
Communications Limited
36 Grosvenor Gardens
London SW1W 0EB
England

Telephone: + 44 20 7730 5454
Facsimile: + 44 20 7730 6936
E-mail: general@intscltd.demon.co.uk
Website: www.isyscom.com

International Gas Union
c/o StatoilHydro ASA
Oslo
Norway

Website: www.igu.org



Vision, Mission and Objectives

The International Gas Union (IGU) is a worldwide, non-profit organisation promoting the progress of the gas industry. Through its many member countries representing approximately 95% of global gas sales, IGU covers all aspects of the natural gas industry.

● The Vision

Recognising that natural gas has an important part to play in satisfying the global need for an environment-friendly energy source, IGU will be the most influential, effective and independent non-profit organisation, while serving as the spokesman for the gas industry worldwide.

● The Mission

IGU will actively, directly and through its members, promote the technical and economic progress of the global gas industry.

IGU will work towards improving the competitiveness of gas in the world energy markets. By promoting the development and application of new technologies and best practices, IGU will help optimise the economics of the entire gas chain, while emphasising sound environmental performance, safety and reliability.

IGU – serving as a global information clearing house – will promote transfer of technology and know-how.

In carrying out this mission, IGU will maximise value to its members and gas customers.

● Objectives

In striving towards the vision and fulfilling the mission, IGU will regarding:

ECONOMY: Promote all activities within the entire gas chain, which can add to the technical and economic progress of gas;

CUSTOMERS: Encourage development of good customer services and customer relations;

TECHNOLOGY: Encourage research and development towards new and better technologies for the gas community;

SAFETY: Promote the safe production, transmission, distribution and utilisation of gas;

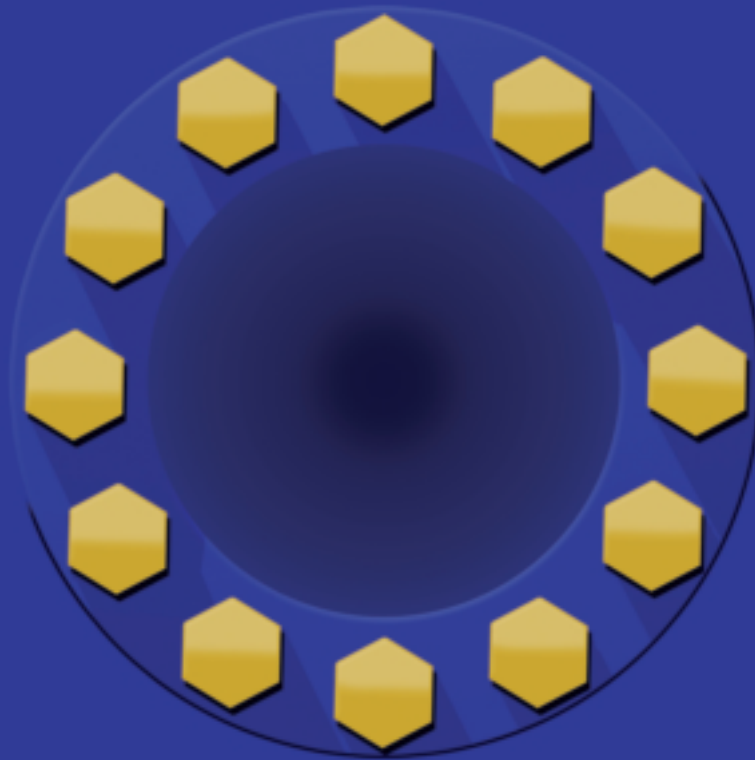
ENVIRONMENT: Encourage and promote development of clean technology, renewable energy applications and other activities, which will add to the environmental benefits of gas;

INTERNATIONAL GAS TRADE: Encourage international trade in gas by supporting non-discriminatory policies and sound contracting principles and practices;

LEGAL: Promote and contribute to the development of legislation concerning:

- the establishment of equitable, non-discriminatory and reasonable environmental and energy efficiency regulations, and
- efforts to establish appropriate and relevant international standards, as well as
- the promotion of and participation in the exchange of information relating to regulatory processes;

COOPERATION: Enhance partnership with industry and manufacturers, and cooperation with governments, policy makers and international energy related organisations, and promote the exchange of information among members in order to help them in improving the efficiency and safety of gas operations.



Gasunie, the gas roundabout of NW Europe

Gasunie is one of the largest gas transporters in Europe. As the manager of the Dutch gas transport grid, our company continues to offer and expand its services. To secure continued deliveries in the future, expanding of the gas transport grid and realising connections to new gas sources are essential.

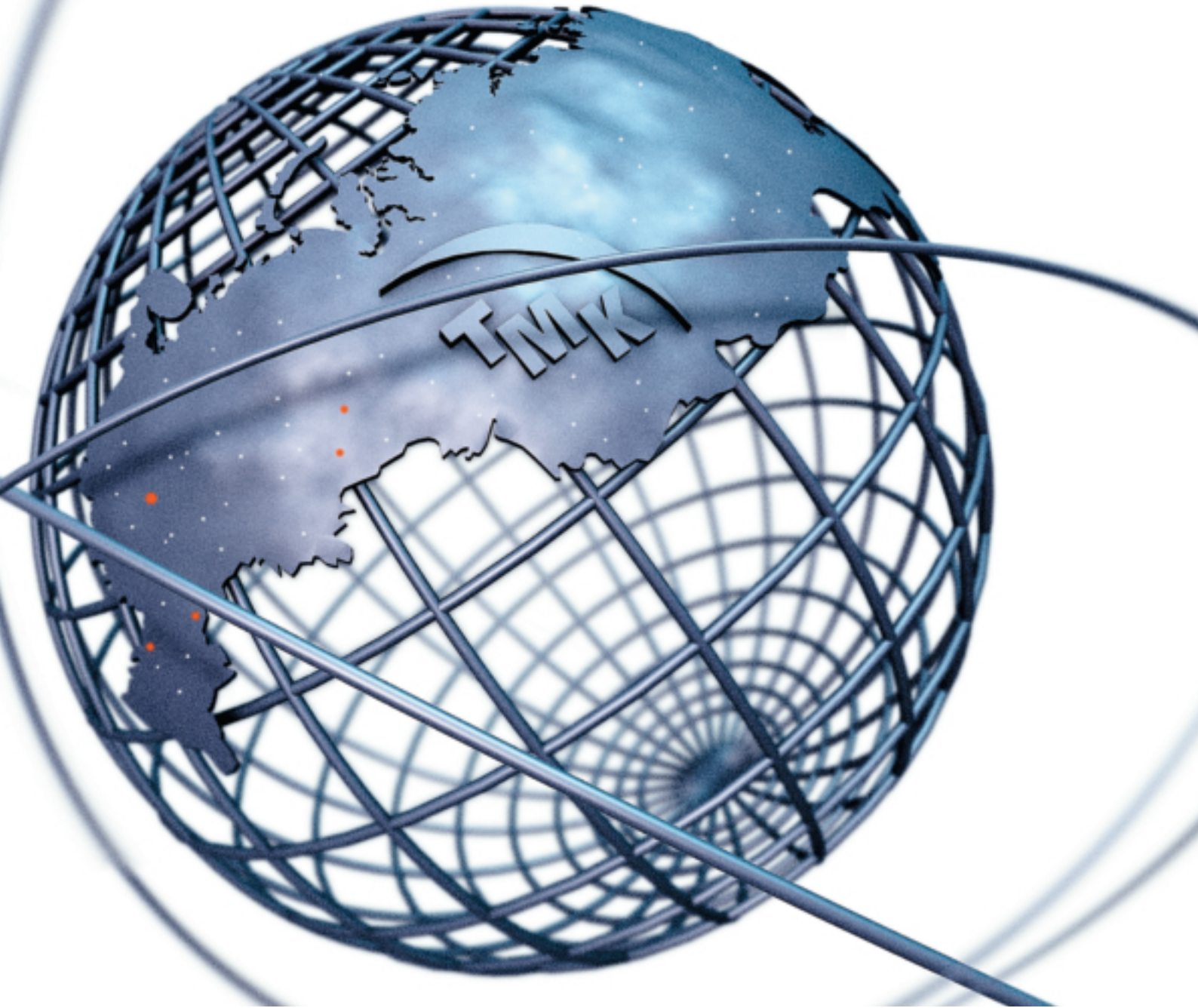
The strategic location of grid, the geological conditions, the know-how and expertise are strong trumps to turn Gasunie into Europe's key roundabout for natural gas. For more information please visit our website: www.gasunie.nl

gasunie

takes gas transport further

GLOBAL TUBULAR SOLUTIONS

WWW.TMK-GROUP.COM



TMK is one of the leading manufacturers of pipe products in Russia and the world. The Company's production facilities are located in Russia and Romania. The Company's products are supplied to more than 60 countries around the world.

TMK's products are used in the oil-and-gas complex, in energy, machine building, construction, shipbuilding, in aviation, space equipment and in agriculture. TMK's products are certified according to international standards.

TMK representative offices operate in Azerbaijan, Kazakhstan, China, the USA, and also in countries of

South-East Asia, the Middle East and the European Union. The company TMK Global AG is TMK's exclusive dealer outside the borders of Russia and the CIS.

TMK: 105062, Russian Federation, Moscow, Podsosensky per., 5/1.
Tel.: +7 495 775 76 00
Fax: +7 495 775 76 01

TMK Global AG: 7, Basteiplatz, Zurich, Switzerland, 8001.
Tel.: +41 43 888 73 00
Fax: +41 43 888 73 01





Contents

Introduction

Vision, Mission and Objectives	6
Message from the President	12
Message from the Secretary General	14
Countries Represented in IGU October 2007	16
IGU Organisation	22
From the IGU Secretariat	26
Moving to Norway <i>By Mark Blacklock</i>	36
IGM: Intergas Marketing Activities Go Global as IGU Marketing Committee <i>By Marc Hall</i>	40
News from Organisations Affiliated to IGU	44
Call for Papers Now Open for IGRC 2008 <i>By Rob Aptroot</i>	52

Coordination Committee Progress Report 59

Introduction and Key Developments	62
Progress Reports from the Committees	68
Progress Reports from the Task Forces	94
Annex – Addresses	100

Features 107

Gazprom – Contributing to European Energy Security <i>By Alexander I. Medvedev</i>	110
What's New in Gas Pipeline Pigging? <i>By John Tiratsoo</i>	124
LNG-15: The Challenges of Growth <i>By Mark Blacklock</i>	138
Local Power – Global Opportunities: Natural Gas and the Emerging Decentralised Energy Market <i>By David M. Sweet and Jeff Bell</i>	152
Study Group 5.3 Cooperates with IANGV and Regional NGV Associations <i>By Davor Matic</i>	170
PGC A Presents Norwegian Carbon Capture Developments <i>By Knut Barland and Kari Lindøe Hunsbedt</i>	174
The International Pipeline and Offshore Contractors Association <i>By Luc E. Henriod</i>	180
Revisiting the History of Gas <i>By Adrian Giddings</i>	184
Publications and Documents Available from IGU	190
Events and Acknowledgements	195

The opinions and views expressed by the authors in this magazine are not necessarily those of IGU, its members or the publisher. While every care has been taken in the preparation of this magazine, they are not responsible for the authors' opinions or for any inaccuracies in the articles.

Unless otherwise stated, the dollar (\$) values given in this magazine refer to the US dollar.



Powering reliable and secure business critical communications.

Every day, new communication technologies are invented, new services are introduced, and new opportunities unfold. It takes a new kind of partner to guide you through the complexity of all that's possible.

Alcatel-Lucent is the new global leader in communications - combining two of the industry's top innovators - ready to help you. Alcatel-Lucent offers the most comprehensive portfolio of market-driven solutions and products to help enable reliable and efficient operations, optimise exploration and production and to enhance safety & security in the oil and gas industry. We have brought together people with the experience and expertise to find innovative answers to your challenges - from critical network integration to real-time communication.

Alcatel-Lucent: building communication solutions that meet your business demands. To learn more, visit us at Alcatel-Lucent.com

Because the world is always on.

Alcatel-Lucent 



Message from the President

Increasing Value for our Membership and Society

Dear Colleagues

It is often stated that the vitality of an organisation is measured by its capacity to both learn and expand; and, while entering the second year of the 2006-2009 Triennium, it provides a deep satisfaction within IGU to observe our Union going through this process at an unrelenting pace.

The membership of the technical teams has reached a record of 730 experts from all around the world, and you will read in the Progress Reports that participation in, and commitment to, the successful completion of the technical programme is high, displaying once again the vigorous performance of the win/win virtuous cycle between IGU and its members.

This feeling of value addition from the members is another key element in thriving organisations, and we aim to enhance it by means of several projects launched during this Triennium, involving key issues like sustainability and energy efficiency. As regards the former, we held our first Joint Committee Meeting in May, where we dealt with the topic of CO₂ sequestration, a kick-off to a project which we aim to include in the Triennium's deliverables. You will find an article in the magazine giving further information about this highly relevant theme. Regarding energy efficiency, IGU is establishing an *Energy Efficiency Award* to help promote the concept within our industry. You will be able to read more about it in future issues of the magazine, and we will keep you informed on how this project develops.

As we reflect on the very successful LNG-15 Conference in Barcelona, it is clear that IGU's growth can also be measured by its increasing role in external events, providing keynote addresses and presentations, in line with the Union's Vision to "be the most influential, effective and independent non-profit organisation, while serving as the spokesman for the gas industry worldwide".

An organisation's strengths are also measured by its alliances and relations with other bodies, and again the progress on this front has been very promising. In this vein, cooperation with the International Energy Agency (IEA), which I outlined in my message in the previous issue, is well underway. IGU is contributing to IEA's *Natural Gas Market Review*, while IEA will participate in the Steering Committee of the *2030 Natural Gas Industry Outlook* study.

Other bonds are being nurtured in specific key areas of our industry such as LNG. Indeed, the Coordination Meeting held in Barcelona just before LNG-15 between our Programme Committee D and organisations including GIIGNL, SIGTTO, CLNG, GLE and Eurogas, generated tangible synergies for the development of the technical programme that deals with this increasingly relevant topic. During this Triennium, we are certain that other equally positive exchanges will be developed with diverse organisations covering further fields of our activity.

Moreover, the organisations which have recently been integrated into the Union – IGU Gas Marketing (IGM) and the IGU Research Conference (IGRC) – continue to generate auspicious results, as you can read in the corresponding articles in this issue. I also encourage you to read the article from the International Pipeline & Offshore Contractors Association (IPLOCA), an organisation with which we hope to develop a constructive relationship in the near future.

It is a known fact that healthy organisations also go through changes. At the end of October, responsibility for the IGU Secretariat will pass from Denmark to Norway, concluding my friend Peter Storm's highly productive term as Secretary General. I am sure I speak for all the members of our Union when I extend Peter our warmest congratulations and sincere gratitude, and wish him the best of luck for his new stage, which I am sure will not keep him too far away from us in the years to come.

Ernesto López Anadón



Ernesto López Anadón, President.