



Annual Report 2009

Oxford Institute for Energy Studies



Annual Report 2009

About the Oxford Institute for Energy Studies

The Oxford Institute for Energy Studies, a recognized independent centre of the University of Oxford, was founded in 1982 as a centre for advanced research into the social science aspects of energy. A non-profit making charity, it is distinguished from similar institutions elsewhere in the world in two important ways.

First, the Institute is committed to achieving the highest academic standards. Oxford University and three of its colleges – St Antony's, St Catherine's and Nuffield – are Members of the Institute and occupy seats on the Board of Governors.

Second, the Institute is committed to the idea of cooperation between scholars representing different sides of the international energy debate. Members of the Institute represent both the oil-producing and oil-consuming nations. This international character is also reflected in the composition of the research team. Such cooperation is intended to lead to more informed assumptions concerning the behaviour, motivations and objectives of the various agents operating in the international energy scene.

This combination of academic excellence with attention to pressing real-life problems in the energy world provides a unique forum in which study and discussion can take place. Research carried out at the Institute is designed to encompass the following disciplines:

- the economics of petroleum, gas, coal, nuclear power, solar and renewable energy;
- the politics and sociology of energy;
- the international relations of oil- and gas-producing and -consuming nations;
- the economic development of oil- and gas-producing countries and the energy problems of other developing countries; and
- the economics and politics of the environment in its relationship with energy.

As a general policy the Institute concentrates on research in energy issues of international significance or which have implications for the interface of producers and consumers.



57 Woodstock Road
Oxford OX2 6FA
United Kingdom
Tel: +44 (0)1865 311377
Fax: +44 (0)1865 310527
E-mail: information@oxfordenergy.org
www.oxfordenergy.org

Registered Charity No. 286084
Recognised Independent Centre of the University of Oxford

Contents

- 4 *Message from the Chairman*
- 6 *Director's Report*
- 12 *Research*
- 26 *Journals & Website*
- 27 *Lectures & Seminars*
- 29 *Library*
- 30 *Research Team & Staff*
- 38 *Visiting Research Fellows, Research
Advisors, Contributing Authors &
Students*
- 44 *Accounts*
- 47 *Members*
- 48 *Governors/Trustees*
- 49 *Contributors*
- 53 *Recent Publications*

Message from the Chairman

In the last two years the energy sector has faced a complex set of problems and challenges. It has confronted the effects of a major financial crisis and a long economic recession. Both have been contained but not fully resolved. Global economic recovery is fragile and uneven, and short-term prospects point to a period of relatively slow growth. In 2009, world demand for oil contracted sharply. In the OECD countries demand has stabilised at a lower level and not much growth is envisaged in 2011. Producing countries and oil companies suffered a major oil price collapse that has affected their desire and, in some instances, their aptitude to invest in large-scale, complex projects, with long lead times. OPEC effectively adjusted its production in order to protect prices and non-OPEC countries, with few exceptions, saw their oil output decline. This restricted supply to a relatively low rate of growth. At the same time a major imbalance developed in natural gas markets. It might take at least two more years to regain demand levels observed in 2008. Meanwhile, the supply of unconventional gas should continue to increase in the USA and a number of major LNG projects will come on stream. These conditions of excess supply will keep natural gas prices at low levels.

The disappointing failure of the Copenhagen climate change negotiations at the end of 2009 adds uncertainty to mid- and long-term energy policy on a worldwide basis. Under very different scenarios oil and gas will continue to play a central role in the supply of energy well into this century. However, prices, regulations and technological change will determine the actual path that the energy transition will take to a sustainable future. Technical change is necessary in order to reduce the costs and the risks in finding, developing

and producing hydrocarbons, both the yet to be found resources located in harsher environments and in prolonging the life and increasing recovery rates of mature oil and gas fields. New technologies are also required to reduce the carbon intensity of our energy matrix and carbon emissions. Changing patterns of energy use, fuel mix and levels of demand must be made compatible with economic growth. Scientific evidence regarding the risks and potential consequences of global warming confer a strong sense of urgency to policy design and decision making.

Writing in 2010 it is plain that the lessons from the Macondo disaster in the Gulf of Mexico must be fully assimilated by the oil industry, governments, financial markets and public opinion. Practices will be modified, regulations revised and their enforcement improved. A fruitful exchange of experiences, and a more open discussion of regulatory styles and institutions, is now taking place between oil companies, governments and regulators. Environmental disaster planning and emergency preparedness will have to be strengthened. Reactions to this catastrophic accident can bring about significant changes in the structure and operation of the oil industry in deepwater and other frontier areas. The displacement of smaller independent companies by the majors in high cost, high risk projects, a change in the relationships between the operator and its partners and a rearrangement of the division of labour between oil and service companies could well take place.

All of these trends, events and possible outcomes signal a situation in which multiple inflexion points are appearing. This explains in part the appreciative interest in the Institute's analysis, comment and advice by major stake

holders in the oil and gas business. In these difficult days it has showed the importance of identifying increasing interlinkages in the energy world, one of its strengths. Also, the Institute has continued to play an active role in the consumer/producer dialogue. Our Natural Gas Research Programme has contributed to a better understanding of global and regional natural gas markets, and to their evolving interconnection. The interest generated in our work has allowed us to benefit from new and additional contributions by our benefactors. This is allowing the Institute to prudently expand the size and scope of its research effort. I am confident that a stronger relationship with Oxford University will allow us to recruit, retain and broaden our research staff. Our highest priority continues to be the strengthening of the Oil and Middle East Programme. We

are seeking additional support from oil producers in the Gulf and from large international oil companies, both in terms of their own expertise and financially as well. However, we are also looking forward to expand to new areas of potential supply such as Brazil.

The complexities, the financial magnitudes involved and the importance of global energy problems and issues are not only challenging, they are also intellectually exciting. Under these conditions, the Institute must deploy a major effort and mobilise all its resources – internal and external – to produce relevant research and promote serious discussion. It will have to attract talented young men and women for these purposes.

Adrian Lajous
Chairman of the Board

Director's Report

The calendar year 2009 was extremely challenging for all those involved in international energy markets and for the Oxford Institute for Energy Studies. In many ways, it was even more extraordinary than the previous year, which saw unprecedented swings in oil prices – up to a peak of \$147 in July down to a low of about \$35 at the end. It is worth recalling that, at the beginning of 2009, uncertainty about prospects for the world economy, and for oil and other commodity prices was extreme. There was talk of disaster, comparable to the great depression of the interwar years. Through the first half of the year, there were arguments amongst analysts and forecasters about whether the downturn would be L-shaped, U-shaped, 'bath'-shaped, or V-shaped. The climate of extreme uncertainty affected the whole industry. We are very grateful for continuing support from our benefactors, sponsors and friends through this difficult period.

In the event, the 'great recession' was V-shaped with rapid recovery reflecting both the exceptional policy measures applied by major countries and the virulence of the international stock-building cycle. But even a V-shaped recession (applying to growth rates) leaves a hangover of excess capacity in the world economy – the so-called 'level effect'. And looking further forward, even at the end of the year and into 2010, there were major worries about the durability of the recovery – with some fearing a renewed slowdown or even a 'double dip'.

All this had major effects on international energy markets. For natural gas, the level effect, lowering demand relative to the previous trend, led to excess supply and low prices. Supply was boosted by the build-up of LNG capacity and the remarkable expansion of US unconventional gas supplies. The excess may take several years to work off. For oil markets, the situation was different. A combination of OPEC production

cuts, pessimistic news about depletion rates and non-OPEC supplies, and rapid recovery (notably in China and India) led to an approximate doubling of the oil price to about \$70 by the summer. For the rest of the year oil prices appeared to have stabilised in a rough 'band' between about \$70 and \$85 per barrel. In fact futures prices were relatively strong throughout – and the disequilibrium of the early months of the year, with prompt oil prices far below futures prices, was resolved by rises at the short end.

During 2009, OIES was obviously affected by the global recession and the extreme uncertainty relating to energy markets. But the effects were mixed. The demand for the Institute's research and for objective commentary increased markedly. The Gas Programme, for example, expanded – going from strength to strength. Issues relating to the interactions between the global economy, energy markets, oil and gas prices and volatility all increased in saliency as did issues relating to particular countries and regions – the Middle East and North Africa, India, China, Latin America and so on. The Institute, as one of the few academic institutions concerned with piecing together the global picture, was well placed to respond – especially due to its worldwide network of members, benefactors, sponsors and friends. On the other hand, the Institute was bound to be affected by the financial pressures and uncertainties being experienced by the international energy industry.

The OIES Board had previously agreed on a strategy of substantial expansion – an objective of roughly doubling in size over a five-year period – in order to cope with the increasing complexity, scale and scope of the issues facing international energy producers and consumers. Early in the year, it was decided to continue with this strategy – though with caution. In particular, this ruled out retrenchment in the face of the difficulties and uncertainties.

In the summer, the second floor of Belsyre Court, immediately below the premises of OIES, was unexpectedly vacated by the tenants, Childhood Cancer Research. Given the plans for expansion, this was too good an opportunity to miss and the decision was taken to seek to take on the additional space – which would nearly double the Institute’s physical size. This strategy was strongly endorsed by the Board in November and negotiations were successfully completed by the end of the year –with a view to occupying the new offices by mid 2010.

With premises available, the challenge now is to accelerate recruitment and to expand the scale and scope of the Institute’s research activities.

Recruitment and Staff

No staff members left the Institute during 2009, though this conceals some changes during the year. **Paul Segal**, one of the ‘post doc’ researchers on a fixed term contract applied to continue for an additional academic year. This was agreed to and greatly welcomed, as much of his research was ongoing and increasingly important to OIES.

The formal position of **Bassam Fattouh** also changed. He formally left SOAS and started as University Research Lecturer at the Department for International Development in Oxford, joint with OIES (and Director of OIES’s Oil and the Middle East programme). Later in the year however, he applied for and was appointed as part time Professor in Finance at SOAS (thus resigning from his Research Lectureship at Oxford). This change makes little difference to his role at OIES and he continues as Senior Research Fellow and Director of the Oil and Middle East Programme.

Generally, the picture during the year is of expansion of research staff and capabilities. **Hakim Darbouche**, on completion of his doctorate at Liverpool University, joined the Institute in April as a Research Fellow, working, in the first instance, mainly on natural gas in Algeria and more

widely in the MENA region. **Andy Flower**, an expert on LNG issues, joined the Institute in May as a (part time) Senior Research Fellow. **Florence Gény**, from Statoil was seconded to OIES to work specifically on the potential for unconventional gas in Europe. **Laura El-Katiri**, with a background in Middle East Studies at St Antony’s College, was recruited as a research assistant working on both oil and gas issues in the Middle East. **Anupama Sen** joined as a ‘post doc’ Research Fellow to work specifically on the India Programme. She had just completed her doctorate in Cambridge University with a thesis on Electricity and Regional Industrial Development in India. **Howard Rodgers**, previously with BP, joined, at the end of 2009, as (part time) Senior Research Fellow with the Gas Programme. Essentially his role is to strengthen the Gas Programme, working with its Director Jonathan Stern. Prof **Yelena Kalyuzhnova**, Director of the Centre for Euro Asian Studies at Reading University joined as Visiting Senior Research Fellow in September. She is an expert on the economics of energy and transition economics. Many of her research interests parallel those of researchers at OIES.

These appointments reflect the Institute’s general policy of recruiting both experienced researchers with a background in the industry and younger academics at a relatively early stage in their careers. The engagement of researchers on secondment from industry or other institutions (as in the case of Florence Gény, working on shale gas) to work on particular, highly topical, projects is not new, but is likely to expand and become more integrated into the Institute’s procedures.

Strategy and Organisation

As noted in previous Reports, the Institute’s structure can, in rough terms, be seen as spanning four main areas,

- The Oil and Middle East Programme (directed by Professor Bassam Fattouh)

- The Natural Gas Programme (directed by Professor Jonathan Stern)
- The Power Sector (directed by Malcolm Keay)
- Energy and Climate Change (directed by Benito Müller)

These areas clearly overlap – and the interactions between the different areas are extremely important for an Institute engaged in interdisciplinary research and commentary. They are also of different sizes (the Gas Programme presently accounts for about half of the Institute’s activity.) Other programmes and projects cut across these boundaries. For example, the China Programme is concerned with energy, environmental and climate change policy and the interaction between macroeconomic policy developments and energy and climate change concerns in China. Likewise, the India programme is concerned with oil and gas in India as well as wider issues about development in India and India’s role in international energy. David Buchan’s project on European Energy Policy obviously cuts across the boundaries, with a regional focus. The same is true of the work on US policy (David Robinson), and on Central Asia, and Russia. Moreover, analytical and empirical skills cross boundaries and it is important for the Institute to have the right mix.

Priorities for recruitment and expansion in the near future include oil markets and the Middle East – including oil price volatility and the comparative study of fiscal regimes and contracting arrangements – and an increased regional focus on Latin America, especially Brazil. The China programme has been held back by institutional difficulties and limited funding. The climate change aspects, which were on an accelerated timetable to feed into the Copenhagen processes, have, however, been successfully completed. The wider energy and macroeconomic aspects need to be recast as the project goes

forward. There is also a need to recruit a macroeconomist to work on the interactions between energy markets, the global economy, and finance.

Activities and Research in 2009

The Institute had a total 48 staff and senior advisers at the end of 2009, many of whom are part time. There were three visiting researchers during the year. This represents a small expansion on the year before – and an increase of about one-third since 2007.

As indicated in the body of this Annual Report, three books and 17 Working Papers were published during the year – as well as numerous ‘comments’. David Buchan’s book, *Energy and Climate Change: Europe at the Crossroads* is a highly readable account of the twists and turns of European energy policy as its focus has changed from liberalisation, to security concerns, and to climate change policy. Simon Pirani’s edited book on Russian and CIS gas markets is unique, filling an increasingly important gap in research coverage of international gas markets. A further book on gas in the Middle East and North Africa region (eds Bassam Fattouh and Jonathan Stern) is in preparation – for expected publication in late 2010. In fact, at the end of 2009, there were five books in the ‘pipeline’ for future publication.

An important innovation during 2009 was the institution of an ‘Oil Day’, roughly comparable with the well established ‘Gas Days’ which have been running for the past several years. This workshop, with invited participation, took place in October in New College (dinner) and St. Catherine’s College (workshop/conference). The conference focused on the topical debates over oil price volatility and regulation, on the one hand, and the developing producer/consumer dialogue, on the other. We are very grateful to Saudi Aramco for sponsorship and for a grant to finance this extremely successful event.

Part of the background to this event is that Bassam Fattouh was appointed

as a member of the expert group set up to report on the issues involved, and the lessons to be learned from the recent oil price swings – as an input into a final report which was submitted to the Ministerial Energy Meeting in Cancun in March 2010. His paper, 'Oil Market Dynamics through the lens of the 2000–2009 price cycle' has been published on the Institute's web-site.

Further, high level, workshops, or 'Oil Days', focusing on topical concerns, are planned for 2010 and beyond.

The annual 'Brainstorming' was held in Paris in April. We are extremely grateful to TOTAL for generous sponsorship of this extremely successful occasion. Not surprisingly, given the timing, the world recession and prospects for oil and gas markets were high on the agenda. It was notable that, despite the uncertainties, there was a shift towards optimism about prospects for the world economy in the second half of the year, and about prospects for 'reasonable' oil prices. The Gas programme held its extremely successful 'Gas Day' in September for sponsors, benefactors and others. One of the Institute's priorities is to increase the number of such interactive, workshop-type events, which clearly draw on the Institute's unique strengths.

The Institute continues its successful programme of internal seminars, which bring together the various strands of research. The programme involves a mix of internal and external research presentations. The seminar series, joint with St. Antony's College, initiated in 2008 by Shamil Yenikeeff, on energy security and geopolitics, continues to attract distinguished speakers and large audiences. I stress again that the interactive and 'networking' aspects of the Institute's research activity continues to benefit greatly from its relationships with its sister institutions, the Oxford Energy Policy Club and the Oxford Energy Seminar and from the increasingly close, on-going interactions with the Institute's sponsors and benefactors.

OIES depends crucially on its administrative staff, Kate Teasdale, Susan Millar, Margaret Ko and Lavinia Brandon. It is they who foster the productive research atmosphere, which is the outstanding characteristic of the Institute. We are very grateful.

Research in 2009

Local Content Policies and Economic Nationalism in the Oil and Gas Sector

Over the past five years state influence in the economy and the appropriation of resource rent (economic nationalism) have increased in many resource rich countries including Russia and Kazakhstan. Worldwide an increasing number of energy-producing countries are adopting local content (LC) rules. In academic studies LC is a comparatively recent field. LC policies are primarily targeted at international oil companies (IOCs), but may, depending on the individual structure of hydrocarbon production, also target private domestic oil companies (PDOCs). At the same time there is growing national and international opposition to LC rules. National Oil Companies (NOCs) frequently act as the monitor or regulatory body of LC implementation. Market forces and resource access increasingly compel NOCs to internationalise their activities. In light of the growing prevalence for LC policies Professor Yelena Kalyuzhnova, firstly, examines what determines the institutional and macro demand for LC. Secondly, her research attempts to analyse the distributional impacts of LC policies. Given the (potentially) multifarious factors of demand for LC she is analysing the economic impacts of LC policies.

Environmental Attitudes and Impacts on Local Content Policy Formation in Kazakhstan

In this project Professor Kalyuzhnova analyses state–civil society interaction and policy accountability in Kazakhstan. Specifically, the project examines how environmental attitudes across different state–civil society segments are articulated and enacted in the local content policy formation process. A comparative

institutional analysis is utilised to test theories of natural resource rent extraction and circulation and their relationship to environmental and local content policies. Population surveys and key actor interviews are conducted to provide objective specific data. The environment–‘local content’ focus aims to combine a number of external and internal policy factors and will reveal additional generalisable insights into state–civil society interaction in Kazakhstan.

The Economics of Energy-Rich Countries

Paul Segal has been researching the economics of energy-rich countries. Oil revenues can be a blessing, but they can also raise economic and political challenges that require careful handling. This research has two strands.

The first strand investigates the distribution of energy revenues in energy-exporting countries. Dr Segal has been working on the case of Kuwait, with Bassam Fattouh and Laura El-Katiri, and on the case of Mexico in a joint project between OIES and the James Baker III Institute of Public Policy at Rice University, Houston, Texas. One method of distributing resource revenues used by many energy-rich countries, including Kuwait and Mexico, is to subsidise energy prices for the population. But these subsidies can create large economic distortions and are highly inefficient, particularly when energy prices are very high. They also tend to benefit the richer parts of the population and typically provide little benefit to poorer households. In addition to the country-specific work, Dr Segal’s OIES Special Paper 22, “Resource Rents, Redistribution and Halving Global Poverty: The Resource Dividend,” analyses a policy called the *Resource Dividend*, whereby resource revenues are distributed as a cash payment directly and

unconditionally to all citizens. He estimates the potential impact the policy could have on global poverty if all countries followed the policy using the rents from their natural resources. He finds that global poverty would be dramatically reduced, being better-than halved as long as commodity prices do not drop below their 2004 level. Thus the first United Nations Millennium Development Goal could be achieved through a single policy. This paper also considers the nature of resource rents, legal and political arguments over their distribution, and the administrative and institutional challenges faced by resource-rich countries.

The second strand considers the role of technical change and investment in energy-rich countries, and its effect on the structure of growth. When a country discovers large quantities of hydrocarbons or other resources, much of the investment that would have taken place in the rest of the economy gets directed instead towards the resource sector. By presenting a dynamic model of sector-specific, or directed, technical change, the paper analyses the impact that a resource discovery can have over time on the structure of the economy and the distribution of income. In this sense it presents a dynamic version of the classic static Dutch disease model, and suggests that the long-run impact of a resource discovery may be different from that predicted by static models. Not only will the resource discovery cause a once-off reduction in non-resource tradables such as manufacturing, but it will lead to a decline of technical progress in manufacturing, as the companies and individuals who invest in new technologies are attracted into the resource sector.

Basis Variation and the Role of Inventories: Evidence from the Crude Oil Market

This paper, by Bassam Fattouh published in 2009, investigates the dynamics of the spread between the

futures price and the spot price (the basis) in the context of the crude oil market and explores to what extent these are affected by the dynamics of crude oil stocks and OPEC behaviour. The spread between futures prices at various maturities is modeled as a Markov Regime Switching (MRS) process. The estimation method allows us to identify one regime characterised by relatively low volatility and in which the mean basis is positive (contango) while the second regime is characterised by high volatility and in which the mean spread is negative (backwardation). Our results show that the basis exhibits different dynamics within these two regimes and a non-linear relationship between changes in crude oil stocks and the basis where the sensitivity of the basis to changes in crude oil stocks is higher when the market is characterised by low stocks. We also test whether crude oil stocks affect the transition probability of moving from one state to another. Interestingly, we find that an increase in the level of stocks decreases the persistence of staying in the contango regime. This result can be explained in terms of the oil market structure. A rapid accumulation of inventories and rising crude oil stocks to levels that OPEC considers undesirable may induce the Organization to engage in output cuts to trim inventories and change the shape of the forward curve.

The Battle for Russian Oil: Corporations, Regions and the State

This book, by Shamil Midkhatovich Yenikeyeff, to be published by the Oxford University Press in 2010, deals with a highly important transitional period of Russian politics covering the Yeltsin and Putin eras. The main theme of these two eras has been the question of who controls the domestic oil industry: the Kremlin, Russian regional barons, or the oligarchs. The relationships between these actors have defined the evolution of the Russian political system since the collapse of the Soviet Union to the present day.

The initial arrangements of the early 1990s between the Kremlin and the regions with regard to the oil sector imposed considerable constraints on the business activities of federal oil companies throughout the Russian Federation. This book examines the main problems that these companies faced in their formative years and their subsequent strategies aimed at undermining regional control over the key aspects of national oil production. It argues that since the late 1990s, federal corporate groups have successfully undermined the hold of regional authorities on the national oil sector. As a result, the Kremlin with the help of oligarchs, managed to reintegrate the semi-confederal Russian Federation economically and politically. This set the stage for the present situation of further centralisation of state control over the Russian national oil sector and the emergence of Russia as a hydrocarbon power.

Sino-Russian Oil and Gas Cooperation

Keun-Wook Paik's book project on Sino-Russian Oil and Gas Cooperation: half-empty or half-full? covers the ups and downs of oil and gas relationships between two energy giants during the period 1993–2009. This project reviews the status of the oil and gas industry in China and the Asian part of Russia. China has already developed the first West–East gas pipeline and the second pipeline is being constructed. Russia is set to complete the first stage of the East Siberia Pacific Ocean Crude Oil Pipeline by the end of 2009. In particular, the recent and massive scale of lending finalised the long delayed decision on the spur pipeline from the ESPO line. In this context, Sino-Russian oil cooperation is on the right track. However, there is no sign of a breakthrough in the gas price negotiations between Russia and China and this continued delay will help the expansion of LNG supply to the coastal areas of China. This study will also review factors such as oil and gas supply from the Central

Asian Republics, China's massive foreign reserves, and Russia's gas exports to Korea – which will have a serious effect on Sino-Russian oil and gas cooperation. The final draft of this book is due in Spring 2010.

The Diffusion of Innovations to National Oil Companies

The high price that has recently rewarded the exporters of oil and gas has provided national oil companies with great revenues. Questions then arise: how have these windfalls been used? To what extent have they been allocated to investments in the oil and gas industries in the exporting countries? Or to their adoption of technical and financial innovations that have emerged in the developed countries that generate these innovations? Are these innovations available to the national oil companies for the modernisation of their own industries? And are they worth adopting? What is likely to happen to the national oil companies if they fail to respond to these technical and financial changes? John Enos's research focuses on those national oil companies that are net exporters of oil and gas and whose ownership rests in the developing countries of Central Asia, the Middle East and Africa. The largest of these exporters are members of OPEC, but there are others who have not reached their desirable size, so the sample of national oil companies to be surveyed is larger than OPEC's complement. The sample of technical innovations will include one each in the functional areas of exploration and production, and four in the area of oil refining. The innovations in finance will touch on the new techniques that have emerged with the increase in international financial flows and in the growth of independent jurisdictions.

Where Does Russia Stand?

Russia appears to be at a crossroads in its emerging stance towards major forces in the world energy markets. A significant shift in the behaviour of this key non-OPEC producer could

have considerable implications on how global markets develop. In the current times of high energy prices, Russia is quickly developing features usually present in traditional oil/gas-exporting economies. Shamil Midkhatovich Yenikeyeff's continuing research will attempt to establish whether these features show that the Russian government has failed to diversify the national economy, making it even more sensitive to export revenues. In this respect the project will examine the changing role of the state in the Russian oil/gas industry and the country's growing fiscal dependency on exports of mineral resources.

Kazakhstan's Oil and Gas: Export Markets and Export Routes

The geographic proximity of Kazakhstan to Russia, China, Central Asia and the Caspian region makes this oil- and gas-producing country an important player in energy exports from the CIS. The method with which Kazakhstan – the second largest oil and gas producer in the former USSR after Russia – chooses to develop its hydrocarbon resources and relevant export infrastructure will have significant implications for oil and gas exports from other energy-producing countries of the former Soviet Union, as well as OPEC. Dr Yenikeyeff's book is to examine the various scenarios under which Kazakhstan could deliver its oil and gas to potential export markets.

Energy and the Transformation of International Relations: Toward a New Producer-Consumer Framework

With energy security at the top of the global agenda, this book, edited by **Andreas Wenger, Robert W. Orttung** and **Jeronim Perovic** and published by Oxford University Press in 2009 examines the evolving new producer-consumer framework. The old system was not sustainable since

it was characterised by relatively cheap energy, consumption largely concentrated in the West, producers with excess capacity, little awareness of the consequences for the environment of burning fossil fuels, and a general lack of interest in promoting causes such as energy efficiency and alternative sources of energy to replace the traditional reliance on coal, oil, and natural gas. The new system includes the rise of new consumers such as China and India, the growing power of energy producers and their state-run companies, and increasing awareness of global warming. This book examines the evolving relations between the key producers (Middle East, Russia, Latin America, and Africa) and traditional consumers such as the USA and Europe, and new consumers such as China and India as they adjust to evolving market and political realities. At the centre of the book is the key question of how dynamics in the global energy market affect the nature of international relations. The various chapters on each of the producers and consumers and the conclusion argue that while conflict over resources is possible, there are many opportunities for international cooperation in the energy sphere. Although coal, oil, and gas will define energy usage for the foreseeable future, greater efficiency and alternative sources of energy will play an important role in shaping the new producer-consumer framework.

UK Energy Policy and the End of Market Fundamentalism

This project looks at changes in attitudes towards liberalisation of energy markets in the UK since 1990. Malcolm Keay contributed a chapter on the ability of the electricity market to deliver energy security and environmental protection – concluding that more interventionist approaches would be needed.

Energy and Climate Change: Europe at the Crossroads

David Buchan's book, published by Oxford University Press in 2009, traces the spreading out of energy policy from being a relatively narrow concern of the Brussels anti-trust division and market liberalisers, to become the focus of worry (and at last action) about dependence on a resurgent Russia, and to develop into the Union's highest profile international policy through EU leadership on climate change (cemented with major policy reforms agreed in December 2008). A central theme of the book is to examine what added value does, or should, the EU bring to the policies of its 27 member states. He finds that the gap between potential and performance in EU policy was wide in the areas of energy security, nuclear power and energy research, but may be narrowest in the most important area of all, the effort to control climate change. This last policy goal, he argues, should have overall priority, but neglect of energy security could jeopardise public support for the long march to a low-carbon economy.

The Transformation of the European Union's 10 new Central and Eastern States to Cleaner Energy

This study, by David Buchan examines the economics and politics behind the east-west rift that has opened up inside the European Union on energy and climate change issues. This rift is Western Europe's desire for world climate leadership, and Eastern Europe's reluctance or inability to pay higher prices for cleaner energy. The new member states, the EU-10, argue they have already made considerable sacrifices to improve energy efficiency, and in moving further towards a low-carbon economy they have been handicapped by the EU's failure to help them use more (relatively clean) gas without increasing dependence on Russia, and by EU insistence on the closure of their Soviet-era nuclear power plants. The study also addresses

other contentions of the EU-10 states – that EU energy/climate policy template is unsuitable for them as developing countries, will prevent their economies ever catching older member states up, and will entail them merely replacing one sort of dependence (on Russian gas) for another sort of dependence (on west European renewable energy technology).

US Energy and Climate Change Policy

Over the next few years, the US Administration will play a central role in global climate negotiations – without US climate legislation, it is unlikely that the world will reach a credible deal to address climate change. The electricity sector is the most important contributor to CO₂ emissions in the USA, and addressing emissions in that sector is a necessary condition for reaching a global climate agreement. David Robinson's research examines the link between the electricity industry and climate change policy in the USA; it illustrates how electricity, and in particular coal-based electricity, contributes to climate change. It examines the tensions in US policy making related to the efforts to limit coal-based generation and to cap CO₂ emissions in the sector. And it analyses the role of regulation and of market mechanisms in trying to mitigate CO₂ emissions from US coal-based generation. It identifies the necessary conditions for the USA to pass legislation that will enable the world to reach a meaningful global agreement.

US Energy and Climate Legislation – The Big Deal

US energy and climate change legislation will have a powerful influence on any global agreement replacing the Kyoto Protocol when it expires in 2012. In this paper published in 2009, Dr. David Robinson analyses draft US legislation (specifically the Waxman Markey Bill) and argues that it will fail to promote an early transition to a low carbon economy mainly due

to its exaggerated efforts to smooth the transition for the coal industry and its customers. He proposes amendments to the draft legislation.

Balanced Clean Development in China – Energy Workstream

This work is part of a wider OIES project on balanced clean development in China, which is looking at the interactions between macroeconomic rebalancing in China and energy and environmental policy. The energy workstream is looking at such issues as trade-offs and challenges in the energy sector; energy security; carbon mitigation opportunities in the power sector; and demand side efficiency. The work is being conducted in cooperation with a number of Chinese institutions including the Energy Research Institute of the NDRC and Tsinghua University. Various background papers have been prepared for the first phase of the project, which aims to identify the key constraints and policy options. For this phase, Malcolm Key has produced studies of the development of the gas supply in London and its relevance for Chinese cities; the motivations and evolution of European climate change policies; an overview of the main themes of the Chinese energy situation and energy policy; and an analysis of the development of energy demand following the industrial revolution in Europe, drawing out the implications for the future of energy in China.

Balanced Clean Development in China – Climate Change

This research project is part of the OIES project on Balanced Clean Development in China. David Robinson and Benito Muller have carried out a study on the potential for EU–Chinese large-scale collaboration to reduce CO₂ emissions in the Chinese power sector. The project is finished and the recommendations are being considered by the European Commission for possible inclusion in their negotiations with China in the

context of the EU–China Partnership on Climate Change. The central issue in their research is to identify barriers to large-scale collaboration to promote zero emission technologies in China and to seek to lower those barriers through a EU–Chinese high-level agreement. The study draws on the example of the wind sector to demonstrate the potential of such an agreement. It identifies ways that EU and Chinese enterprises could promote wind power generation in China, under the umbrella of a joint commitment – in which the EU would help to finance expanded development of wind parks (e.g. improved operations, site choice, adaptation of turbines, more and better transmission) in return for the Chinese lowering barriers to foreign investment in this part of the business.

CO₂ Emissions from Energy Use: Key Drivers and Policy Responses

The work on Chinese energy relates to the wider issue of reducing the CO₂ emissions associated with energy use. Policy makers have been treating this as a key objective of energy policy for many years but their efforts are having little impact, in large part because they have not focused on the primary emissions drivers or on evidence-based policy solutions. This research, by Malcolm Key, consists of a number of modules, designed to provide more understanding about the nature of the problem and to identify the areas where policy intervention is likely to be most effective. The first module was a paper published electronically in November 2007, entitled *Energy: the Long View* which looks at long-term energy developments (ie over hundreds of years) in order to help identify the basic drivers of energy demand and the associated emissions. A second module, currently under way, looks in more detail at whether existing policies to reduce CO₂ emissions are properly targeted on significant emissions drivers and on the areas where intervention can make a major

difference. It is clear that a main focus of those concerned with climate change should be to develop policies which can effectively reduce power sector emissions in China, India (and the USA), and the China study referred to above therefore links directly with the core themes of this module.

Carbon Leakage under Incomplete Environmental Regulation: An Industry-level Approach

Carbon leakage is a major concern for policy makers involved with environmental initiatives such as the European Union's emissions trading scheme and similar cap-and-trade proposals in the United States, Australia, and elsewhere. In this paper, Robert Ritz provides a framework for understanding the drivers underlying carbon leakage at the level of an individual sector in which only a subset of firms is covered by such regulation. The paper provides simple formulae to estimate leakage rates using information on industry characteristics that is typically available to the analyst. Illustrative estimates for the steel industry in the EU ETS suggest carbon leakage of 25–30 percent or (much) higher – unless environmental-efficiency improvements by regulated firms are substantial. This paper was circulated as an OIES Energy & Environment paper (EV46) in November 2009.

Additionality in the Clean Development Mechanism: Why and What?

The rules of the Kyoto Protocol Clean Development Mechanism (CDM) stipulate that activities which would (have) occur(ed) in the absence of the CDM – projects that are 'non-additional' – should not be certified as offsets in the form of Certified Emission Reductions (CERs). Why should this be so? By far the most common justification in defence of CDM additionality is that it protects the

environmental integrity of the regime. However, this paper by Benito Müller, published in 2009, presents a case on assumptions that are not undisputed. Moreover, as the Kyoto Protocol stipulation that developing countries should not be subject to emission limitations can also be used to argue against CDM additionality, the paper observes that, in certain cases, there are indeed reasons for introducing additionality, and in others, reasons for rejecting it. On this issue it concludes that the only way forward is to try to come to a mutually acceptable compromise between the proponents and the opponents of additionality in the CDM. The paper then turns to consider current practice in the light of these findings and concludes that, if one does wish to opt for (investment) additionality, there is really no reason for the current differentiated treatment between offset generation in Annex B and offset generation in non-Annex I, where only the former is subject to (investment) additionality tests. However, for pragmatic reasons, it may be better to level the playing field by abandoning (investment) additionality tests throughout the regime.

The Gas Sector in India: Deconstructing Policy

India's energy consumption pattern is in a state of transition with gas assuming greater importance. The share of gas in the primary commercial energy mix is likely to rise from the present level of 8 percent to 20 percent by 2024–25. The large gas discoveries off the east coast of India which came into production in 2009, have already doubled domestic production. LNG receiving terminals are also being expanded and have started attracting cargoes from suppliers/contracted buyers, even by re-direction in the present economic slowdown. However, national gas policies which were formulated during the era of shortages, when the only sources of supply were the National Oil Companies (NOCs), have not kept pace with these recent developments, and continue to follow the earlier system of pricing and

distribution control. For optimum development of this valuable natural resource, these policies need to be reworked to give more importance to commercial considerations in decision making. Anil Jain has examined this emerging gas market in India with an incisive analysis of the demand and supply situation, both for the short and medium timeframes. He has also discussed the existing policy framework with regard to gas utilisation and pricing, and the various ramifications of this on major consuming sectors like fertilisers and power. The New Exploration Licensing Policy (NELP), on the basis of which all future oil and gas exploration is likely to take place, has also been dealt with in an in-depth analysis. This study is soon to be published as a book by the OIES.

Russian and CIS Gas Markets and their Impact on Europe

This book, edited by Simon Pirani and published in early 2009, deals with the political economy of CIS gas markets. There has been little discussion of, and attention devoted to, these markets – with the exception of Russia – by those outside the region. Viewed in a European (and even a global) context, CIS countries rank among the largest gas producers and markets yet, Russia aside, there is relatively little information available about them. In Europe, they have been viewed largely in the context of Russian gas transit. The 2006 Russia–Ukraine and 2007 Russia–Belarus incidents highlighted the importance of those countries for EU gas supplies. The death of the Turkmen president in December 2006 illustrated the potential fragility of Central Asian gas contracts with Russia and other customers. The development of gas production and markets in Caspian and Caucasus countries will be of substantial importance to the creation of any ‘fourth corridor’ through which additional gas supplies might flow to Europe. The chapters of the book will focus on gas markets and the political economy of decision making in these countries. The aim is

to demonstrate why European (and other) countries dependent on CIS trade and transit need to understand the internal dynamics of these markets.

Charting the Gaps: EU Regulation of Gas Transmission Tariffs in the Netherlands and the UK

After over a decade of politically sensitive regulatory development regarding third party access tariffs, cost-reflectivity became the European tariffication principle and entry–exit the structure of choice. The Netherlands and the UK are often cited as examples of good implementation of European regulation. This paper, by Manuel Klop published in 2009, analyses the three key regulatory questions that need to be answered: which costs are reflected, how they are reflected in the total revenue requirement, how this revenue requirement is allocated to shippers. The paper then establishes that these questions are answered very differently in the Netherlands and in the UK. If the advanced implementation of the same set of EU regulations can lead to two different systems in two different countries, the EU regulation clearly fails to streamline regulation. Depending on the regulatory objectives pursued, streamlining regulation may be necessary and renewed regulatory efforts are required. In doing so, the way in which the three key questions are answered is vital.

The Russo-Ukrainian Gas Dispute of January 2009: A Comprehensive Assessment

This paper by Jonathan Stern, Simon Pirani and Katja Yafimava, published in early 2009, is the first major academic study of the January 2009 Russo-Ukrainian gas dispute during which 20 percent of Europe’s gas supplies were cut off for two weeks. This study, published less than a month after the dispute was settled, concludes that this dispute had no winners. Moreover,

with the exception of European gas companies and some European heads of state, none of the parties involved has emerged with any great credit. There is no evidence that Russia intended to use energy as an economic or political 'weapon' against European countries. The role of 'oligarchs', while certainly unhelpful, was not decisive. This crisis demonstrated that the two sides lost control of their bilateral gas relationship, and that neither the European Union nor the Energy Charter Treaty was decisive in its resolution. The consequences of the dispute go far beyond narrow judgements about legal and contractual responsibilities. The issue for the future is that since Russian gas supplies through Ukraine have been cut off once, they could be cut off again. Thus the problem for both sides is one of credibility in relation to future supplies and transit. The potential for Europe to reduce its dependence on, or diversify away from, Russian gas supplies is very limited in anything other than the long term.

A New Paradigm for Natural Gas Pricing in Asia: A Perspective on Market Value

The period since 2003 has seen wild swings in oil prices up to \$150/bbl and back down to below \$50/bbl. Because of the link between crude oil and LNG prices in the Pacific region, LNG price swings have been almost as dramatic, particularly in relation to prices of spot cargoes during 2007–08. The impacts on the major Pacific LNG importers have been severe and fundamental problems remain, even after the significant fall in oil (and therefore LNG) prices since mid-2008. This paper, by Akira Miyamoto and Chikako Ishiguro published in 2009, questions the logic of continuing to price Pacific Basin LNG supplies on the basis of the Japan crude cocktail (JCC) and suggests that moving towards a netback market price would be beneficial in terms of retaining and expanding regional gas markets. Netback market pricing would

produce much more differentiation of LNG prices in Asia because the energy markets in these countries are diverse in terms of fuel usage.

The Impact of the Russia–Ukraine Gas Crisis in South Eastern Europe

During the first three weeks of January 2009, it became clear that by far the most serious impacts of the loss of Russian gas supplies through Ukraine were being suffered in South East Europe. Aleksandar Kovacevic's paper, published in early 2009, explains not only the hardship being caused by the crisis, but also the severe shortcomings in the utilisation of fuels and networks throughout the region which were being revealed by these events. Such problems exacerbated what would anyway have been a serious situation with the loss of the predominant – and in the case of many countries the only – source of gas supply, and the lack of interconnections which would have allowed the region to receive gas from available supplies elsewhere in Europe. In South Eastern Europe the crisis therefore defined an energy efficiency and energy interconnection agenda for European utility stakeholders and policy makers.

Problems and Prospects for the 'Fourth Corridor': The Position and Role of Turkey in Gas Transit to Europe

The subject of Caspian and Middle East gas pipelines to Europe has become increasingly important and emotive in the late 2000s with many projects and aspirations being advanced to create a '4th corridor' aimed at significantly reducing dependence on (primarily) Russian gas. The role of Turkey will be critical for all of these projects. While the details of pipeline projects are well known, the role and aspirations of Turkey as an energy transit country have received less attention. Some have portrayed Turkey as a country critical to European energy security

and a potential hub for Caspian and Middle East (oil and) gas supplies. But some Turkish statements and commercial positions in relation to pipeline projects have raised questions about the conditions that the country may intend to attach to this role, some of which could be seen as obstacles to natural gas transit. In this paper published in 2009 Gareth Winrow has consulted many Turkish stakeholders in relation to the different aspects of these issues, and his paper sets out the conflicting views which make this subject confusing for those attempting to establish the reality of Caspian gas supplies to Europe.

The Nature of LNG Arbitrage: An Analysis of the Main Barriers to the Growth of the Global LNG Arbitrage Market

This paper, by Polina Zhuravleva published in 2009, is one of the first to provide a rigorous definition of LNG arbitrage and analyse the different types of transactions, and barriers to the future growth of this type of trade. The author's conclusion that most of the existing barriers to trade can be eliminated if participants have incentives to do so, should be of interest to all LNG stakeholders.

The Changing Relationship between NOCs and IOCs in the LNG Chain

The NOC/IOC relationship has become a subject of increasingly intense debate and discussion in the oil and gas community over the past few years. Post-2003 increases in oil and gas prices, availability of technology from service companies, and increased confidence and competence of NOCs, have all contributed to a phenomenon generally known as 'resource nationalism'. Many NOCs are not only major international companies in their own right, but also have decades of experience in the development of LNG projects. This has raised the questions

as to whether the 'old bargain' of allowing IOCs access to gas reserves in return for finance, technology and LNG project management and development skills, will continue to be attractive to NOCs. David Ledesma's paper investigates the issues of whether, and in which respects, IOCs would continue to be considered essential partners by NOCs in the development of LNG projects. His experience and personal involvement in LNG projects over a long period of time made him an ideal person to interview a group of stakeholders and assess both their views and the rapidly changing nature of the LNG landscape as gas prices soared, and then retreated, during the period over which the study was carried out. This paper was published in 2009.

The German Gas Market post 2005: Development of Real Competition

A study by Heiko Lohmann on German gas liberalisation, published in 2006, describes the development – or non-development – of the German gas market from 2000 until the beginning of 2006. For different reasons the results of formal gas market liberalisation did not lead to significant changes of the market structure. Competition from new entrants played a more than limited role, traditional contract structures prevailed and market prices had no significance. The main reasons for this market situation were, the regime for Third Party Access to infrastructure, the very strong ties among German gas companies and long-term contractual relations between the different gas companies along the delivery chain. That study describes the beginnings of change in the market and argues that this could lead to future changes in market structure, albeit expected to take place rather slowly. Since 2006 and particularly in 2007 changes were much faster than the study anticipated. Although official German institutions like the regulator or the Bundeskartellamt

still judge competition to be not very effective – usually based on 2006 data – this new study will argue that institutional conditions and market behaviour have changed significantly compared to the period 2000–2005. These changes and drivers are the focus of this paper by Heiko Lohmann published in summer 2009.

Continental European Long-Term Gas Contracts: Is a Transition away from Oil Product-linked Pricing Inevitable and Imminent?

In this paper Jonathan Stern argues that a transition away from formal contractual oil product price linkage in Continental European long-term gas contracts is inevitable and imminent. The conclusion of inevitability arises from the diminishing rationale of the price linkage with oil, as the markets into which oil products and gas are sold have diverged substantially. The conclusion that formal contractual decoupling is imminent in 2009–10, arises from market conditions in which long-term contract prices have become untenable in the face of a surplus of gas supply which has already seen short-term prices at market hubs at around half of oil-linked levels for several months. These supply surplus conditions seem likely to remain for at least one to two years (and arguably longer). However, contractual delinking does not mean that oil prices will become irrelevant to gas prices, and although the current supply surplus may last for at least two years, it is not a permanent phenomenon. This paper was published in 2009.

Future Gas Production in Russia: Is the Concern about Lack of Investment Justified?

In this paper, published in 2009, Jonathan Stern shows that the short-term outlook for Russian gas supply which has emerged since late 2008 has radically changed, due to the global recession and reduced levels of gas

demand in Russia, CIS countries and Europe. Concern about Gazprom's ability to deliver volumes contracted to European buyers has been replaced by the latter asking for relief from their contractual obligations to take these volumes. For this reason, the decision to delay investments in new production is entirely logical. In addition, the paper shows how the Russian gas supply 'roadmap' for the next several decades has become much clearer; Gazprom has much more time than previously believed to commence its Yamal Peninsula development. Accusations that Gazprom is 'not investing' in new supply make no sense without detailed discussion of the different supply and demand elements of the Russian gas matrix and how these may evolve over the next decade. And when Gazprom proposes investments in new pipelines which would help to guarantee the delivery of Russian gas to Europe against exactly the type of transit interruptions experienced in 2006 and 2009, these are opposed by many in Europe on geopolitical grounds. Continued unfocused criticism about lack of investment obscures, rather than illuminates, the complexity of the Russian gas situation.

The Impact of the Economic Crisis on CIS Gas Markets

As the book on CIS gas markets, edited by Simon Pirani was being completed in late 2008, it was already clear that recession storm clouds were gathering. By the time the book was published in early 2009, the global impact of the recession and specific impacts on CIS countries, had become clearer and had the potential to change some of the shorter-term conclusions in the book. At that point, it was agreed that it would be sensible to 'rewrite the conclusions' of the book in the wake of global recession, and this study is the result of that decision. In addition to recession and demand and production decline much else has happened in CIS gas markets during 2009. The January 2009 Russia–Ukraine crisis and its aftermath

was a seminal event that caused significant aftershocks in Europe as well as in the countries themselves. The hiatus in Turkmen–Russian gas relations in the wake of the April 2009 pipeline explosion appears to have dramatically reduced the prospects for large-scale gas trade between the countries, at least in the short term. In Russia, Gazprom appears to have borne the brunt of the reduction in gas production, which may be close to 90 Bcm in 2009, caused by demand decline in CIS and European markets. This study by Simon Pirani is designed to address these and other events that have arisen during 2009 in respect of CIS gas markets, many of which have consequences for European countries. In so doing, it illustrates many of the trends set out in the book and provides readers with a valuable update of what has been an extremely turbulent and eventful year.

Natural Gas in Greece and Albania: Supply and Demand Prospects to 2015

In the wake of the January 2009 Russia–Ukraine crisis, south east Europe began to receive more attention from the European gas community with the realisation that, for these markets, security of supply is a far more urgent issue than for most of north west Europe. However, because – with the exception of Romania – there are few large gas markets in the region, published work is still mainly conducted at a regional level without detailed analysis of specific countries. This study by Anastasios Giamouridis fills a major gap in easily accessible literature on the regional markets and complements the Institute’s previous publications on this region. Secondly, it stresses the importance of these two – relatively small but key – markets for new interconnectors, transit pipelines and LNG terminals. The future of these projects is still unclear but, with most of the public commentary focused on their political and geopolitical merits, there is a clear need for independent studies

which are principally concerned with whether, and in what time frame, they can be achieved commercially.

European Natural Gas Demand, Supply and Pricing: Cycles, Seasons and the Impact of LNG Price Arbitrage

The future prospects for gas in Europe are much less bright than had seemed the case a few years ago. Demand is likely to increase more slowly because gas-fired power generation is less attractive given high oil-linked prices, and security of supply is a cause of concern due to the ongoing depletion of indigenous resources and increasing import dependence. The subject of this study by Anouk Honoré is European gas demand and supply balances into the next ten years. The research, to be published as a book in 2010, will consider recent developments and prospects in the gas markets in Europe and aims to identify factors for gas demand growth, cycles of supply shortage (or surplus), and the impact of seasonality and LNG price arbitrage in balancing the market.

The Evolution of Gas Trading in the UK

Patrick Heather’s continuing research examines the development of the liberalised UK natural gas market from a trader’s viewpoint. This will give a different perspective from the more usual ‘histories’ and recall how the ‘traders’ club’ evolved from its quiet beginnings in the mid-90s, through the influx of foreign investment and subsequent increase in the number of counterparties, to the post-Enron shake out. Following the more recent changing environment and security of supply questions, what does the future hold for UK gas trading? Will it continue to lead in the quest for a more liberalised transparent and liquid European gas marketplace?

Gas and Power in Southern Europe: Iberian Peninsula and Italy

The Spanish energy sector has undergone many changes in recent years. The first part of Anouk Honoré's study looks at the demand for natural gas in the Spanish market. One of the most challenging issues is that Spain's demand for energy has grown rapidly and that this growth shows no sign of abating. The country's indigenous energy resources are limited and unlikely to increase significantly, with the exception of some form of renewable energy production, in particular wind. Growth in the use of natural gas in power generation led to increased security of supply concerns compared to hydroelectricity, but also to reduced environmental impacts compared to coal generation. Spain is the fastest growing gas market in Europe, and the energy industry has coped relatively well so far in satisfying the rapidly increasing demand for natural gas. The second part of this study will look at the energy supply to Spain. The weak cross-border gas and electricity interconnections and low electricity trade compared to total demand lead to a situation not dissimilar to that of an island. Spain is the only market in Europe where LNG is a price taker, and it is particularly interesting to examine this topic in order to understand the risks and opportunities of a growing dependence on LNG in the country. The third part of the study will consider possible scenarios for the Spanish market in the next decade. After considering demand and supply balances, we will look at the liberalisation process of its markets, the probable entrance of new players into the energy market competing with the incumbents, and the consequences of these developments for the Spanish market and for the different players in this market.

Natural Gas in the UK: An Industry in Search of a Policy?

Under the fully integrated (British Gas) regime all aspects of supply/demand forecasting and matching, and supply system planning in the short, medium, and long term (however defined) were carried out by British Gas. BG had access to all the available downstream data, as well as direct relationships with upstream players, regulators and government. There was a clear, single, responsibility for all planning, investment, and customer care, with a well-defined methodology (1 in 20/1 in 50) and modelling capability. There was central planning, reporting and system operation. Liberalisation has inevitably diffused responsibility for marketing, planning and operating distribution and transmission systems. It has also diffused knowledge, data and forecasts. The most precise data about customer behaviour now resides with National Grid (NG), which does not deal directly with most customers, except to record their usage. Modelling of past gas flows and short-term forecasting of most customer demands is carried out by NG as the agent for distribution grid operators and marketers. It also produces forecasts of demand and supply based on aggregates of marketer/shipper intentions so that it can propose, and agree with Ofgem, changes in transmission system capacity. Development of storage and importation capacity is the responsibility of whoever wants to plan it. NG aggregates shippers' forecasts of UKCS/imported gas supplies through the various pipeline links, LNG terminals and gas stores, separating capacity (which is eventually guaranteed) from throughput (which is not). Some of the questions that John Elkins addresses in his research are, whether the role of NG is now simply to warn other players in the UK market about potential shortfalls in capacity and throughput, and suggest remedies. It is the responsibility of marketers to provide a mix of contract and spot supplies to satisfy their customer demand. How far ahead

do they, should they, plan? Because gas is an essential commodity, it can be argued that there is still a need for central oversight, which can only logically be supplied by National Grid/Ofgem, but this goes against the principle of market-determined outcomes to which all governments and regulators have devoted their efforts over the past twenty years. Is it time to recognise that without some degree of long-term planning, roughly half of the UK's energy supplies will be exposed to very significant risks with potentially highly undesirable results?

It will analyse Libya's investment environment by studying the political, institutional and legal impediments to foreign investment in the country, assessing the prospects for sectoral reform against the background of anticipated political change at the helm of the state. This paper will also vet the Libyan gas market to offer an insight into its underlying trends in terms of domestic consumption and upstream activities and understand the main economic/commercial issues facing the gas industry in the short to medium term.

The Independent Gas Sector in Russia

In his research James Henderson looks at the history of gas production in Russia and the main non-Gazprom gas producers, their development, their relationship with Gazprom and the state and their current situation, the current trading environment for non-Gazprom suppliers, the economics of independent gas supply and the potential role of the independent gas sector in Russia.

Natural Gas in Libya

Libya is a pioneer in the natural gas, particularly LNG, industry in the Mediterranean region. However, its confrontation with Western countries between 1970 and 2000 had a debilitating effect on the development of its gas industry. As foreign investment in Libya's upstream gas business became increasingly scarce over this period, the natural gas sector lagged behind the rest of the hydrocarbon industry. The international rehabilitation of Libya since 1999 led to renewed optimism about the prospects of gas development, as major IOCs returned to the country with large-scale investment projects. Yet, with a few exceptions, the results so far have been extremely disappointing and Libya's gas 'potential' remains elusive. This proposed research project by Hakim Darbouche will dissect the reasons behind this subdued outcome.

Journals and Website

In addition to its ongoing research programmes, the Institute publishes a debating journal and hosts an increasingly popular website. These activities not only help meet our goal as an educational charity, but also complement our research and place us at the centre of important debates within the field of energy.

Oxford Energy Forum

The Institute's quarterly debating journal, now in its twenty-first year, continues to tackle topical issues facing the energy world. In addition to two debates set by the editor, each issue generally carries a feature article, a Personal Commentary article, and the popular back page where *Asinus Muses* takes a light-hearted look at the energy world. During the year, issues covered included oil price volatility, wind power, oil and gas investments, EU energy policy. Our thanks to the authors of all articles that appeared in OEF in 2009, and to Robert Mabro, the editor.

Web Site –

www.oxfordenergy.org

The site contains full information on OIES presentations, publications and published articles, research in progress and staff. The *Comment* section provides an assessment of important energy events by members of the research staff. The Natural Gas Programme has a dedicated section within the main site.

During 2009 the catalogue of working papers, energy comments and presentations on the Institute's website continued to grow. The site now holds more than 150 working papers along with over 100 presentations and energy comments, all of which are freely available to download. There were over 200,000 visitors to the website in 2009 and subscriptions to the Institute's email notification service continued to increase.

Lectures and Seminars in 2009

As part of its mandate to promote scholarly cooperation between energy producers and consumers, and its commitment to education, the Institute strives to disseminate the results of its research as widely as possible. The lectures and seminars enable the Institute's researchers to present the findings of completed projects and to subject work in progress to the criticism of colleagues in industry, government and academia. It also helps the Institute to introduce itself to new audiences and to promote recently published monographs and books. In 2009 the Institute's Research Fellows, Director and President gave over ninety lectures, presentations and talks at various conferences, workshops, seminars and meetings during the year.

Oil Price Volatility: Causes and Mitigation Strategies

On 9 October 2009, the Oxford Institute for Energy Studies held a one-day conference in Oxford on 'Oil Price Volatility: Causes and Measures of Mitigation Strategies'. The conference focused on three themes: the role of fundamentals and financial factors in explaining the recent sharp swings in oil prices and the marked increase in price volatility; an assessment of the plans and strategies currently pursued to dampen oil price volatility; and the potential measures that could be adopted to mitigate the impact of sharp swings in the oil price on the energy industry. The group of participants included key senior figures from government, oil companies, the financial industry, and academia. The conference was conducted under the Chatham House Rule of non-attribution.

Energy Lectures

The Institute's Natural Gas Programme organised its fourth annual 'Gas Day' in September 2009 to discuss current issues in natural gas including 'The impact

of economic recession and financial crisis on the gas industry', with a special focus on the macroeconomic outlook and gas demand, Liquefied Natural Gas (LNG) projects and supply issues, and pipeline, gas suppliers and transit problems. The seminar, held at St Anne's College, Oxford, was attended by more than eighty people including sponsors of the Natural Gas Programme and Institute and invited guests.

The geopolitics of energy seminar series, run in association with St Antony's College, Oxford, and organised by Dr Shamil Yenikeyeff ran during Hilary and Trinity terms in 2009. The series focused on the role played by geopolitics in the energy sector. Lectures given included, *Geopolitics of Liquefied Natural Gas: Is LNG a solution to Europe's pipeline dependence?* by Mr Michael Stoppard of IHS CERA; *Resource Nationalism in Latin America* by Dr Juan Carlos Boué of the Ministry of Energy and Petroleum, Venezuela; *OPEC and the Oil Price Crisis* by Dr Bassam Fattouh, Director of the Oil and Middle East Programme, OIES and *The Yukos Affair* by Professor Richard Sakwa, Professor of Russian and European Studies, University of Kent. Our thanks go to all those who gave lectures during 2009. The programme for 2010 is currently being planned.

XX Brainstorming

Since 1990 the Institute has been holding an annual brainstorming meeting, which draws together people from producing and consuming countries, national and private oil companies, governments and financial institutes and other research organisations. The twentieth was held this year in April in Paris, France with the kind support of Total. Over thirty-five participants engaged in a lively discussion on a wide range of energy issues including the global economic outlook and risks, climate

change and carbon trading, oil demand, supply and pricing, natural gas and LNG, OPEC, geopolitics and exploration and production.

Gas Programme Sponsors Meeting

The Institute's Natural Gas Programme held its bi-annual Sponsors' Meetings on 22–23 April 2009 at Worcester College, Oxford and on 15–16 September 2009 at the Chemistry Research Laboratory, Oxford. The meetings were attended by the Natural Gas Programme Sponsors and authors of the Programme from a range of countries and backgrounds: academia, industry and journalism. Ongoing research projects and progress reports were discussed. The April meeting discussed natural gas in Russia and the CIS, LNG, the Middle East and North Africa, the economic crisis, demand, prices and Germany and the UK. The September meeting focused on European imported gas supply, European and global economic recession and energy and finally on recent developments in the European gas market (Netherlands, UK, Greece/Albania and contracts).

Library

The Institute's library is its most valuable research tool. In 2009, the Institute continued to expand its collection through the addition of some 30 volumes. The library has in excess of 13,000 titles, comprising one of the world's foremost public collections of books, journals and statistical sources within its specialist subject area. In addition, around 150 journals and annuals, many of a statistical nature, were received either through subscription or donation. There are now lengthy back files of some of these serial publications. The library also receives over 30 company reports each year.

The Institute has been fortunate in being able to acquire historical materials from a number of sources. In 1984 the Institute purchased the library from Walter J. Levy's London office. Since then the Institute has acquired other materials from the late Professor Edith Penrose and from the Middle East Centre and the Latin American Centre at St Antony's College. In 1988 Shell generously donated an extensive collection of periodicals to the library. During 1992 Walter Greaves kindly donated many items from his library. In 1993 John Mitchell donated material that he had collected over many years. Historical statistics are of obvious use in research; other publications that may seem no longer useful to commercial companies may still be of worth to the Institute. In 2001 Jim Jensen, former President of Jensen Associates, retired and sold his library. The Institute purchased a number of his books and journals for our collection.

The Institute is always interested to hear from companies that are clearing space on their shelves, in case they have material that fills an important gap in our collection. The library is used not only by staff, but also by students from Oxford and other universities and by researchers from abroad. The Institute's policy remains to maintain the collection as

a valuable research tool and to ensure it is as widely accessible as possible.

The Institute would like to offer thanks to: Blackwells, Elsevier, Energy Intelligence Group, the European Commission, ICEED, IEA, IFS, IMF, Gas Matters, Global Market Briefings, the Middle East Economic Survey, OAPC, OPEC, OECD, Oxford University Press, Petroleum Argus, Petroleum Intelligence, for supplying either free of charge, or at a significantly discounted price, important trade journals, statistical sources and other materials vital to our research work, which could not have been afforded otherwise.

Research Team and Staff

Christopher Allsopp CBE was appointed Director in January 2006; he is an Emeritus Fellow of New College. He is author of a Review of Statistics for Economic Policymaking (the 'Allsopp Review'). He is a former Member of the Monetary Policy Committee (2000–2003) and of the Court of Directors of the Bank of England (1997–2000). He is the Editor of the *Oxford Review of Economic Policy* and a Director of Oxford Economic Forecasting. Previous activities include working at HM Treasury, the OECD and the Bank of England (where he was Adviser from 1980 to 1983) as well as extensive involvement with domestic and international policy issues as consultant to international institutions and private sector organisations. He has published extensively on monetary, fiscal and exchange rate issues as well as the problems of economic reform and transition. His involvement in the economics of oil and other energy issues goes back to the shocks of the 1970s. He has been involved with the work of the Oxford Institute for Energy Studies since its inception.

David Buchan, Senior Research Fellow, joined the Institute in January 2007. He was educated in Oxford and Geneva. He started his writing career in 1970 with *The Economist* and in 1975 joined the *Financial Times* where he remained until 2006. He was based in Brussels, Washington DC and Paris and covered energy, defence, the Soviet bloc and diplomacy. From 2000 to 2002 he was the FT Energy Editor. David Buchan completed his book *Energy and Climate Change: Europe at the Crossroads*, and is currently engaged in research on the political and economic difficulties of central and eastern Europe's energy transformation, from the communist era to EU membership. He also wrote the energy chapter in 'Policy-making in the European Union' to be published by Oxford University Press in 2010.

Hakim Darbouche, Research Fellow, joined the Institute in April

2009. His work focuses on North African/Algerian gas issues, Euro-Mediterranean relations, and the political economy of the Maghreb. Prior to joining the OIES, Dr Darbouche served as an advisor to a NATO agency in Brussels, dealing with parliamentary diplomacy activities in Mediterranean and Middle East partner countries. He was notably in charge of the conception of high-profile visits and seminars, in coordination with MENA government officials, in addition to drafting specialised reports and speeches, including on energy issues. Hakim Darbouche read International Relations at the universities of Liverpool and Sussex where he was awarded a PhD in 2009 and BA in 2003 respectively, and received diplomatic training in 2004 at the Diplomatic Academies of London and Moscow. He is an associate of the Centre for European Policy Studies (CEPS) in Brussels and Deputy Editor of the journal *Mediterranean Politics*.

John Elkins, Research Fellow, was until two years ago managing editor of the Gas Strategies publications department, responsible for *Gas Matters*, *Gas Matters Today* and other publications. He is still actively involved as Associate Editor, and is a regular presenter at the Gas Strategies Gas Chain training course. He joined Gas Strategies as a consultant in 1995 after leaving British Gas HQ where he held various posts involving liaison with Regions on annual and peak forecasting methodology and preparation of amalgamated national annual and peak supply and demand forecasts. He was Secretary of the Matching Panel, which advised the British Gas board on supply/demand issues for company plans and negotiations with Ofgas, OFT and the Monopolies Commission. He joined the Institute in January 2008 and, apart from editing many of its gas programme working papers, he is currently writing 'Natural

Gas in the UK: An Industry in Search of a Policy?’ to be published in 2010.

Bassam Fattouh, Director of the Oil and Middle East Programme is also Research Fellow at St Antony’s College, Oxford University; and Professor at the School of Oriental and African Studies. He has published a variety of articles on the international oil pricing system, OPEC pricing power, security of Middle Eastern oil supplies, and the dynamics of oil prices and oil price differentials; his articles have appeared in *Energy Economics*, *The Energy Journal*, and *Energy Policy*. Recently, Dr Fattouh served as a member of an independent expert group established to provide recommendations to the 12th International Energy Forum (IEF) Ministerial Meeting in Cancun (29–31 March 2010) for strengthening the architecture of the producer–consumer dialogue through the IEF and reducing energy market volatility. Bassam Fattouh has also published in non-energy related areas where his papers have appeared in the *Journal of Development Economics*, *Oxford Review of Economic Policy*, *Economic Inquiry*, *Empirical Economics*, *Journal of Financial Intermediation*, *Economics Letters* and *Macroeconomic Dynamics* and in other journals and books.

Andy Flower, Senior Research Fellow, joined the Institute in May 2009. He works as an independent consultant specialising in the LNG business. His areas of expertise include: strategy, marketing, project structures, LNG shipping, pricing, LNG supply and demand and project economics. He retired from BP in 2001 after 32 years of service, including 22 involved in LNG and natural gas business activities. His last post prior to retirement was as Senior Adviser, Global LNG. At various times during his career, Flower was involved in liquefaction projects in Nigeria, Abu Dhabi, Australia, Qatar, Indonesia and Trinidad. He has provided advice to companies planning LNG receiving terminals in North America, Europe and Asia and has negotiated LNG sales contracts with buyers in all the major LNG markets.

Floris van Foreest, Research Fellow, joined the Institute in October 2008. He works as a strategy consultant in the energy sector. His main expertise lies in the field of electricity market analysis, energy transition and security of gas supply. He has worked at several large multinational companies as project manager. His research is concentrated around the role of natural gas in the transition towards a low carbon energy system. He studied Business Economics and Political Science at the Universities of Groningen and Amsterdam.

Florence Gény, Research Fellow, joined the Institute in September 2009. She is seconded from Statoil, where she works with business development and strategy in international exploration and production. Her main areas of expertise are upstream contracts (fiscal regimes, production sharing, joint operatorship) and commercial structures, in particular in gas value chains, and energy industry trends. Her research currently focuses on unconventional gas in North America and Europe and impacts on gas markets. She graduated from Ecole des Hautes Etudes Commerciales (HEC) with a Master in Science of Management and from Université Paris XI with a Master in Business Law.

Patrick Heather, Research Fellow, joined the Institute in June 2006. He is an energy markets consultant and worked as Trading Manager for BG Group from 2002 to 2004. Prior to that he worked at PowerGen plc where he set up their trading capability and managed the trading desks. He has over twenty years experience of trading in natural gas and oil.

Cameron Hepburn, Senior Research Fellow, joined the Institute in November 2006. He is an economist specialising in climate change policy, emissions trading and the incentives for investment and deployment of low-carbon energy technologies. He is also a Senior Research Fellow of the Smith School of Enterprise and the Environment at Oxford University,

a Research Fellow at New College, and a Visiting Fellow at the London School of Economics. His research ranges from specific questions within moral and political philosophy to detailed issues of economic policy and business strategy, including the design of emissions trading schemes. He contributed two background papers to the Stern Review on the Economics of Climate Change, co-edited 'The Economics and Politics of Climate Change' (with Dieter Helm), serves as a member of Defra's Academic Panel and has done advisory work for several governments and the OECD. Cameron holds degrees in law and chemical engineering from Melbourne University and an MPhil and DPhil in economics from Oxford. He also serves as a Director of Vivid Economics Ltd, a London-based consultancy, and as a Director of Climate Bridge Ltd, an emissions reductions project developer in China and India. Prior to his academic career, Cameron worked with Shell Australia and McKinsey as a business analyst in Melbourne and Vienna.

Anouk Honoré, Research Fellow, joined the Oxford Institute for Energy Studies in April 2004. She is a Senior Research Fellow in the Natural Gas Research Programme. Her research at the OIES focuses on European natural gas issues with particular emphasis on the gas market fundamentals and power generation. Her main areas of expertise include building scenarios on natural gas demand and supply in 35 European countries (the 27 member countries in the European Union plus Albania, Bosnia and Herzegovina, Croatia, Norway, Republic of Macedonia, Serbia and Montenegro, Switzerland and Turkey). Her forthcoming publication 'European Gas Demand, Supply & Pricing: cycles, seasons and the impact of LNG price arbitrage' will be published by the Oxford University Press in 2010. Before joining the Institute, she worked at the International Energy Agency in Paris. Her work focused mainly on natural gas issues in the member countries, in China

and in Latin America. Ms Honore holds a PhD in Economics, a MA in Environmental and Natural Resources Economics and a LLM in International Administration (public law).

Anil Jain, Senior Research Fellow, is a member of the Indian Administrative Service, the federal civil service of India. He holds a Bachelor's Degree with Honours in Economics and an MBA with specialisation in Marketing. He further underwent a one-year Diploma programme from the Indian Institute of Foreign Trade. He has over two decades of administrative experience both at field and policy formulation levels. He has held senior positions in the provincial and federal governments in the Ministries of Agriculture, Mining, Revenue and Petroleum & Natural Gas. During the years 2003 to 2008, as Director and Joint Secretary in the Ministry of Petroleum and Natural Gas of the Government of India, he piloted the petroleum exploration and international cooperation activities. He has been closely associated with the development of the natural gas sector (including award of acreages, development of discoveries, pricing and distribution) and its deregulation. He is presently associated with promotion of industries in the Indian state of Madhya Pradesh.

Laura El-Katiri, Research Assistant, joined the Institute in October 2009. She holds an M.Phil in Modern Middle Eastern Studies from the University of Oxford, and provides research assistance to Jonathan Stern and Bassam Fattouh with their projects. In particular, she has assisted work on the Institute's forthcoming book *Natural Gas Markets in the Middle East and North Africa*, due to be published in October 2010.

Frances Kennet, Development Director, joined the Institute in April 2007. She read English at Oxford University and has worked in publishing for many years, as an author and managing editor. She returned to Oxford ten years ago to

complete a doctorate in theology and subsequently to work in fundraising. Her previous post was at Regent's Park College Oxford where she established a complete development programme including the set-up of donor research and identification, an Annual Fund Appeal, reports and submissions to fundraising bodies, several publications for various segments of the support base, numerous events and functions in the UK and USA, and a database system for funds reporting.

Malcolm Keay, Senior Research Fellow, joined the Institute in January 2005. His career has ranged widely across the energy scene, including the public sector (he was Director of Energy Policy at the UK DTI in 1996 to 1999 and before that was a Division Head at the International Energy Agency), the private sector (as Senior Managing Consultant at Oxera) and the non-profit sector (at Chatham House and the World Coal Institute). He has acted as an adviser on many energy studies, including as Special Adviser to the House of Lords Committee Inquiry into Energy Security in Europe and Director of the Energy and Climate Change Study for the World Energy Council. His research focuses on the implications of electricity market liberalisation for the achievement of key energy policy objectives in particular the environment.

David Ledesma, Research Fellow, is an independent gas and LNG consultant focusing on gas and LNG strategy along the value chain including the structuring of commercial arrangements, financing and markets for pipeline gas and LNG projects. He is one of the authors for the Institute's book 'Gas in Asia' published in June 2008 and in July 2009 he published a paper 'The Changing relationship between NOCs and IOCs in the LNG chain'. He is currently authoring a chapter for a second book on Gas and LNG in the Middle East. David also gives numerous commercial training courses on gas and LNG in the UK and overseas, writes on gas and LNG and presents regularly at conferences.

He is an associate of Outsights, an independent futures and scenario planning consultancy. During thirty years in the energy and utility sector David has worked on the development of complex integrated energy projects, negotiations at government level, and in the management of joint ventures. While with Shell, he worked in Malaysia and the Netherlands and travelled extensively to Oman and Asia. He was a key member of the team that closed a major LNG project in the Middle East. He is an experienced commercial manager with hands-on experience of developing and closing commercial gas transactions as well as developing business strategy. From 2000 to 2005, as Director of Consulting then Managing Director of the Gas Strategies Group (formally EconoMatters Ltd), David worked on and managed LNG and gas consulting assignments around the world. He has a degree in Economics and Geography from the University of Exeter, UK. He joined the Institute in November 2007.

Robert Mabro, CBE, Honorary President, was Director of the Institute until April 2003. He is an Emeritus Fellow of St Antony's College, a Fellow of St Catherine's College and a lay director on the board of ICE Futures, the oil futures exchange in London. He is also the Dean of the Oxford Energy Seminar and the honorary secretary of the Oxford Energy Policy Club. In November 2005 Robert Mabro stepped down as President of the Institute. The Board of Governors appointed him Honorary President in November 2006. He is currently the editor of the *Oxford Energy Forum*.

Benito Müller, Director (Energy & Environment) joined the Institute in 1996, is also Managing Director of Oxford Climate Policy (a not-for-profit company aimed at capacity building for developing country climate change negotiators), and Director of the European Capacity Building Initiative (ecbi), an international initiative for sustained capacity building in support of international climate change negotiations. Dr Müller is a

Supernumerary Fellow of Wolfson College, Oxford and a member of the Philosophy Faculty of Oxford University. He is Senior Research Associate of Queen Elizabeth House, the University's International Development Centre, and an Associate Fellow of its Environmental Change Institute. He is on the board of directors of the Stockholm Environment Institute (Oxford) and of Climate Strategies, a London-based academic network organisation focused on developing and delivering research to meet the needs of international climate change policymaking. He was also a Specialist Adviser on Climate Change to the International Development Committee of the UK House of Commons. Dr Müller received his doctorate (DPhil.) in Philosophy from the University of Oxford specialising in Philosophy of Language and of Science and was formerly a Research Fellow at Wolfson College and a Lecturer in Logic at the Queen's College, Oxford. He has a Diploma in Mathematics from the Eidgenössische Technische Hochschule (ETH) in Zürich, Switzerland. He has also been an expert reviewer of the Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC).

Keun-Wook Paik, Senior Research Fellow, joined the Institute in January 2007. He is a specialist on Northeast Asia's oil and gas issues, in particular Sino-Russian oil and gas cooperation, China's natural gas industry, and DPRK's offshore oil exploration. Currently he is associate fellow, Energy, Environment and Development Programme, Chatham House. He is the author of *Gas and Oil in Northeast Asia: Policies, Projects and Prospects* (London: Royal Institute of International Affairs, 1995), and co-author/supervisor of *China Natural Gas Report* (China OGP, Xinhua News Agency & RIIA, 1998). The new and comprehensive study on China's gas expansion was done in 2004 and the edited version was published by Chatham House in 2005. Dr Paik has contributed well over 35 papers to *Energy Policy*, *Journal of*

Energy and Development, *Geopolitics of Energy*, *The Pacific Review*, *Energy Exploration & Exploitation*, *Oil & Gas Journal*, *Petroleum Economist*, *Pipeline and Gas Technology*, *FT Asia Gas Report*, *China Daily Business Weekly*, *China Brief*, *The World Today*, *RIIA Briefing papers*, and *Asia-Pacific Review*. He is currently working on his second book project on Sino-Russian Oil and Gas Cooperation (to be published in 2009), and contributed the Korea Gas Industry chapter for the OIES book *Natural Gas in Asia: the challenges of growth in China, India, Japan and Korea*, 2nd Edition published in 2008.

Simon Pirani, Senior Research Fellow on the natural gas programme, joined the Institute in September 2007, and is editor of its book, *Russian and CIS Gas Markets and their Impact on Europe*. He studied Russian at the University of London, wrote a doctoral dissertation at the University of Essex, and is author of a monograph on Soviet history, *The Russian Revolution in Retreat*, published by Routledge in 2008. He worked in journalism and publishing since 1977, including a spell as editor of the UK mineworkers' trade union journal in 1990–95. He writes about energy, politics and the economy of the former Soviet Union in financial and industry publications including *Gas Matters*, *Project Finance*, *Emerging Markets Finance and Trade*. His research at the Institute focuses on the development of natural gas markets, and changing consumption patterns, in the former Soviet Union. His latest book *Change in Putin's Russia: Power, Money and People*, was published in 2009 and he is the author of *The Impact of the Economic Crisis on the CIS Gas Sector* an Institute working paper published in 2009.

Robert Ritz, Research Fellow, joined the Institute in October 2007. He is also a Career Development Fellow in Economics at St Hugh's College, Oxford and a Postdoctoral Research Fellow in the Department of Economics at Oxford University. Robert's research interests are in industrial organisation, environmental economics and corporate finance, with a particular

focus on the design of emissions trading schemes such as the EU ETS, and their impact on firms. He holds a DPhil. in Economics from Nuffield College, Oxford, an M.A. in Financial Economics (First class honours) from the University of St Andrews, and attended the University of Pennsylvania and its Wharton School as a visiting McNeil Scholar. During his studies, Robert worked for the Bank of England, McKinsey & Company, Bertelsmann, Nomura International and SET Select Energy Trading.

David Robinson, Senior Research Fellow, joined the Institute in July 2007. He is a consulting economist (and Principal of The Brattle Group) who advises clients on public policy and corporate strategy, especially related to energy and climate change. He spent 18 years with National Economic Research Associates (NERA), an international firm of micro-economic consultants where he was the co-Chair of European Operations and of the Global Energy and Telecom Practices. Prior to NERA, he worked at the International Energy Agency (IEA) and wrote his doctoral dissertation at Oxford University on the vertical disintegration of the international petroleum industry.

Howard Rogers, Senior Research Fellow, joined the Institute in January 2009 after taking early retirement from BP. A Chemical Engineering Graduate and Chartered Engineer, Howard began his career troubleshooting and raising efficiencies on process plant. Most of his career was spent in business development, strategy, planning, mergers and acquisitions and negotiation roles in upstream oil and gas in European, North American, Middle East and FSU locations. In 1999 Howard joined BP's Gas and Power division and was responsible for analysing the UK gas market as it transitioned from exporter to net importer. This brief expanded to cover the European region. In 2003 Howard became Head of Global Gas Fundamental Analysis, responsible for BP's forecasting and insight into trends in natural gas supply, demand and

pricing trends at the global level. In 2009 Howard worked on his first OIES paper 'LNG Trade flows in the Atlantic Basin: Trends and Discontinuities'. The paper describes the development of a modelling framework which provides a rationale for interaction between the regional markets of Asia, Europe and North America facilitated by LNG arbitrage. Using public domain supply and demand scenarios the paper sets out the dynamics that will influence regional gas prices to 2020.

Paul Segal, Research Fellow, works on economic development, the economics of resource-rich countries, and the macroeconomics of oil prices. He completed his DPhil in Economics at Nuffield College, Oxford, in 2006, having previously been a consultant economist at the United Nations Development Programme in New York and a Research Fellow at Harvard University. He has been a visiting scholar at the National Bureau of Economic Research in Cambridge, Massachusetts, and at the Centro de Investigación y Docencia Económicas in Mexico City.

Anupama Sen, Research Fellow, joined the Institute in October 2009 as part of the India Programme. She holds an MSc from the London School of Economics and a PhD from the University of Cambridge. Her doctoral thesis empirically assesses the differential economic impacts of autonomous electricity reform in Indian states whilst accounting for their inherent economic and political diversity. Some results from her thesis have been published as 'The Economic Effects of Electricity Deregulation: An Empirical Analysis of Indian States' (Cambridge Working Paper in Economics, January 2010). Her research has been accepted for presentation at various conferences, including the 1st International Conference on Infrastructure Economics and Development, the 25th Annual Congress of the European Economic Association, and the 3rd International Workshop on Empirical Methods in Energy Economics. Her work at the

Institute is broadening to include wider themes within India's energy sector, including oil, gas and climate change. She is currently working on research into production sharing contracts in the gas sector with Anil Jain, and future proposed research includes an investigation of the optimal fiscal regime for attracting E&P investments in India. As part of a longer-term initiative, Anupama is also developing a collaborative link between the OIES and an Indian institution, on Indian energy research.

Jonathan Stern, Director of Gas Research is also Honorary Professor at the Centre for Energy, Petroleum & Mineral Law & Policy, University of Dundee; and Visiting Professor at Imperial College's Centre for Environmental Policy in London. He is a Member of the Board of Advisors for the Center for Energy Economics, Bureau of Economic Geology at University of Texas at Austin. He is the author of several books and many shorter works on energy and natural gas issues in: the UK, Europe (western and eastern), the former Soviet Union and Asia. The second edition of his edited volume: *Natural Gas in Asia: The challenges of growth in China, India, Japan and Korea* was published by Oxford University Press in 2008. His most recent publications are: co-author of: *The Russo-Ukrainian Gas Dispute of January 2009: A comprehensive assessment*, *Future Gas Production in Russia: is the concern about lack of investment justified?* and *Continental European Long-Term Gas Contracts: is a transition away from oil product-linked pricing inevitable and imminent?* which can be found on the OIES website. He is currently (with Bassam Fattouh) editing a book on *Natural Gas in the Middle East and North Africa*, to be published by Oxford University Press in 2010.

Katja Yafimava, Research Fellow, joined the Institute in November 2006 to work at the Natural Gas Research Programme. She holds a D.Phil. in Geography and an M.Phil. in Russian and East European Studies from

Oxford University (Corpus Christi College). The topic of her doctorate thesis was 'The Importance of Russian Gas Transit across Western CIS Countries for EU Energy Security, 1998–2007'. She is currently working on a book 'The Transit Dimension of EU Energy Security: Russian gas transit across Ukraine, Belarus and Moldova' to be published by OUP in 2010. She has authored a chapter on the Belarus gas market as well as co-authored a chapter on Moldova for 'Russian and CIS Gas Markets and their Impact on Europe' edited by Simon Pirani and published by OUP in February 2009. She also co-authored a working paper on the January 2009 Ukrainian gas crisis together with Simon Pirani and Jonathan Stern. Her book 'Post-Soviet Russian-Belarusian Relationships: the role of gas transit pipelines' was published in March 2007. Prior to joining the Institute and in parallel with her doctoral studies, she was an intern at Shell (2005) and at the Energy Charter Secretariat (2006).

Shamil Midkhatovich Yenikeeff, Research Fellow, is a Senior Associate Member at the Russian and Eurasian Studies Centre, St Antony's College, University of Oxford. He holds a first class degree with honours in law from the Bashkir State University, Russia, and an MPhil and DPhil. in Politics from the University of Oxford. In the 1990s he worked in the Russian parliament as an advisor to the Chairman of the subcommittee for the organisation of the state authority system in Russia. He has also been involved with a number of consulting companies specialising in the Russian oil industry and regional development. His current research focuses on the political economy of the oil and gas sectors of Russia and Kazakhstan with emphasis on economic policies, state-business relations, corporate strategies, political, and economic risks. He runs 'The Geopolitics of Energy' lecture series under the joint auspices of the Oxford Institute for Energy Studies and St Antony's College, University of Oxford. He writes and presents on Russian–European energy relations,

Russia and OPEC, Caspian and Central Asian energy issues, and the development of Arctic hydrocarbons. Amongst his latest publications is *Kazakhstan's Gas: Export Markets and Export Routes*, which examines the politics and geopolitics of Kazakhstan's gas sector. He is also writing a chapter on Kazakhstan for, *Russian and CIS Gas Markets and their Impact on Europe*, to be published by Oxford University Press in 2009. He is the author of *The Battle for Russian Oil: Corporations, Regions, and the State*, a forthcoming book on the politics of the Russian oil sector under Yeltsin and Putin, to be published by Oxford University Press (2010).

Jimin Zhao, Research Fellow, joined the Institute in September 2007.

Renfeng Zhao, Research Fellow, joined the Institute in 2007 to participate in a project on balanced clean development in China. His work focuses on China's energy strategy and development policies, and China's energy diplomacy and its geopolitical implications. Previously, he worked at *China Daily* as energy

and finance correspondent from 1997 to 2005. He holds a double master's degree in Journalism and Global Studies from EU Erasmus Mundus Programme. He was a Parvin/Freedom Forum Fellow at the University of Hawaii and the East-West Center.

The following staff contributed to the work of the Institute in 2007. Their dedication and professionalism was essential to its continued smooth running.

- **Lavinia Brandon** provides administrative support and has responsibility for managing and maintaining the Institute's excellent library.
- **Margaret Ko** is responsible for the Institute's accounts.
- **Susan Millar** manages the Oxford Energy Policy Club, Oxford Energy Seminar.
- **Kate Teasdale** is the Institute's administrator.

Visiting Research Fellows, Research Advisors, Students and Contributing Authors

Robert Arnott, Senior Research Advisor, is currently a Director on the boards of Petroceltic International PLC and Spring Energy ASA having spent five years with DNO where he advised the company on international business development and corporate strategy. He is also a Director of Impax Environmental Markets PLC, which invests in clean energy, waste and water technologies. He worked as a Senior Fellow at the Institute from 2001 to 2005; his research focused on all aspects of mature oil and gas provinces, as well as the corporate strategies of the major energy companies. He has a strong background in all aspects of exploration and production and is recognised for his research on the upstream oil and gas industry. He worked as a geologist and economist with Royal Dutch Shell prior to entering the City in 1991, where he held senior positions as an oil and gas equity analyst for ten years.

Michael Bradshaw, Visiting Senior Research Fellow, joined the Institute in August 2008. He is Professor of Human Geography and former Head in the Department of Geography at the University of Leicester, UK. His PhD is from the University of British Columbia, Canada. Previously he worked in the School of Geography at the University of Birmingham. His research is on the economic geography of Russia, with a particular focus on resource development and on the Russian Far East and energy relations with NE Asia. In 2007 he received the 'Back Award' in recognition of his research on applied aspects of economic transformation in the post-socialist world. He is Editor in Chief

of Blackwell Geography Compass and Senior Contributing Editor of the journal *Eurasian Geography and Economics*. In addition to his involvement in OIES, he is also an Honorary Senior Research Fellow in the Centre for Russian and East European Studies at the University of Birmingham and an Associate Fellow of the Russia and Eurasia Programme at Chatham House in London. He is a member of the Council of the Royal Geographical Society (with the Institute of British Geographers). In October 2008 he will start a three-year programme of research on Global Energy Dilemmas, funded by a Leverhulme Trust Major Research Fellowship.

John Enos, Visiting Research Fellow, is Emeritus Fellow in Economics of Magdalen College. He joined the Institute in 1994 to carry out a study of improvements to oil refinery processing units in the last half-century. He completed his research on the fluid catalytic cracking process, now published as *Technical Progress and Profits: Process Improvements in Petroleum Refining*. His current research focuses on the diffusion of innovations to large state-owned oil companies.

Marianne Haug, Senior Research Advisor, teaches Energy Policy and Sustainable Development at the University of Hohenheim, Stuttgart in Germany. She is Chairman of the Board of the Forum für Zukunftsenergien, Berlin, Germany's only independent forum for energy policy and Member of the Advisory Board of the OMV Future Energy Fund. At the European Commission, she serves as Chair of the

AGE7 – Advisory Group for Energy for the 7th Framework Programme and is a member of the High-level Advisory Council for the European Technology Platform on Hydrogen & Fuel Cell. During the years 2001–2005, she served as Director at the International Energy Agency (IEA) in Paris in charge of the Office of Energy Efficiency, Technology and R&D, after a long career as Director at the World Bank in Washington and in the private sector.

Anke Hertwig, Visiting Research Fellow, joined the Institute in April 2009 for a period of six months. She is a postgraduate student at the University of Leipzig studying economic policy. Her research at the Institute formed part of her dissertation. Her stay was funded by the Foundation of German Business.

Charles Henderson CB, Senior Research Advisor, is retired from the Department of Trade and Industry where he was Head of the Energy Directorate. He is former Chairman of TOTAL Oil's business in the UK and a member of the Monopolies and Mergers Commission.

Paul Horsnell, Research Advisor, is a Managing Director and Head of Commodities Research at Barclays Capital, the investment banking division of Barclays Bank plc. He is responsible for Barclays Capital's research in global commodities markets, covering energy, base metals, precious metals, carbon and agricultural products. Barclays Capital has a team of commodities analysts based in London, New York, San Francisco and Singapore. Dr. Horsnell joined Barclays Capital in 2003 from JPMorgan where he was Head of Energy Research. Prior to that, he was Assistant Director for Research at the Oxford Institute for Energy Studies and a Research Fellow in Economics at Lincoln College, Oxford University. He is the author of *Oil in Asia*, and (with Robert Mabro) *Oil Markets and Prices: The Brent Market and the Formation of World Oil Prices*. He holds a degree in Philosophy, Politics and Economics,

and a doctorate in Economics, both from Keble College, Oxford.

Chikako Ishiguro, Contributing Author, is General Manager, Research Department, Osaka Gas International Transport Inc.

Yelena Kalyuzhnova, Senior Visiting Research Fellow, founded and is Director of the Centre for Euro-Asian Studies at the University of Reading, UK. She is an authoritative expert on the economics of energy and transition economies. Professor Kalyuzhnova is the author of the first book in English about the Kazakhstani economy. She is involved in collaboration on a wide range of topics with a number of private companies (BG Group, Burren Energy, ChevronTexaco, Shell International) and international organisations such as UNECE, the World Bank, the IMF and the EBRD. She has contributed to numerous economic studies for international organisations (The World Bank, European Bank for Reconstruction and Development, Economic Commission for Europe, United Nations, UNDP, etc) and is a frequent speaker at international level on economic, environmental and energy issues. Professor Kalyuzhnova is an economic adviser on Caspian issues to the Rt. Hon. Lord Fraser of Carmyllie, Q.C., House of Lords and an economic adviser to the All-Party Parliamentary Group on Kazakhstan, House of Commons, UK Parliament.

Elin Kinnader, Visiting Research Fellow, came to the Institute as an intern in September 2009 for three months. She is studying for a Masters degree in Oriental Studies at the University of Uppsala, Sweden and interned at the Institute for Security and Development Policy, Sweden. Whilst at the Institute her research focused on the Turkish–Iranian gas relationship; the results are to be published as a working paper in the Gas Programme series in 2010.

Manuel Klop, Contributing Author, came to the Institute as an intern in

the summer of 2008, while he was an associate visiting student at New College, Oxford. He is currently an MA candidate at the Johns Hopkins School of Advanced International Studies (SAIS) in Washington, DC. After graduating in May 2010, he hopes to join Shell's upstream international practice in The Hague.

Aleksandar Kovacevic, Senior Visiting Research Fellow, started his professional career with the Federal Productivity Institute of the former Yugoslavia in 1986. He graduated in energy economics at the Belgrade University. He is principal author of the energy-poverty analyses ('Stuck in the Past', UNDP, 2004), co-author of the Western Balkans energy policy survey (IEA/UNDP, 2008) and the Public Expenditure and Institutional Review (PEIR) for Serbia and Montenegro (World Bank, 2003) and a number of papers, lectures and media contributions. Over 20 years he has provided strategic advice, complex energy efficiency solutions and emergency situation assistance to major institutional, financial and private clients including assistance to UN OCHA to coordinate rapid reconstruction of the Serbian energy infrastructure after the 1999 war. He was affiliated to PlanEcon before 1992, project manager for Tagarnrog Development project in Russia (1992–1998) and a contributor to the Black Sea and Central Asia panel at the Harriman Institute, Columbia University. Aleksandar is a member of the Advisory Board to the Russian Power Conference since 2002 and UNECE Group of Experts in Sustainable Energy as well as a regular consultant to the World Bank and contributor to Oil and Gas Economy and Law (OGEL) network. He won an Innovation Award at the Power Gen Europe Conference in 2002.

Cyril Lin, Senior Research Advisor, is Founder and Managing Director of IFG Development Initiatives (IFGDI), an economics and corporate advisory consultancy specialising in transition and emerging market economies.

He received his undergraduate and graduate training at MIT, Harvard University and the University of Oxford. Until 2001, he was University Lecturer in Economics at Oxford University, Director of the Centre for Modern Chinese Studies and Fellow in Economics at St Antony's College. He is a member of the team of international economists formed by the China Economic Research and Advisory Programme (CERAP), a non-profit body undertaking economic policy research and advice for Chinese policymakers. In 2006 he initiated the establishment of the Cairncross Memorial Foundation, which aims to support international collaborative research between foreign and Chinese specialists concerning major Chinese public policy issues, including Economics, Energy and the Environment, Governance and the Law.

Heiko Lohmann, Contributing Author, is an independent journalist based in Berlin specialising in German gas issues. He writes for a number of German and English publications about German gas developments. Since 2004, he has been publishing his own monthly newsletter: 'Gasmarkt Deutschland'.

Joan MacNaughton, Senior Research Advisor, joined the Institute in September 2006. She is Senior Vice President, Power and Environmental Policies, Alstom Power. Before that she was a career civil servant advising Ministers at the most senior levels, including as Principal Private Secretary to the Deputy Prime Minister and two Home Secretaries. From 2002, she was Director General, Energy, then Director General, International Energy Security, UK Department of Trade and Industry, until February 2007. She led the energy work at the heart of the Programme of Action agreed by the Gleneagles G8 Summit, and the energy dossier during the UK's 2005 Presidency of the EU. She was elected as Chair of the International Energy Agency Governing Board (2004 to 2006) and appointed

Companion of the Order of the Bath by HM The Queen in June 2005. She is an Honorary Fellow, Energy Institute and President Elect of the Council of the Energy Institute. She is a Member of the Board of Governors, Argonne Laboratory, University of Chicago, where she chairs the Administration and Budget Committee.

John Mitchell, Senior Research Advisor, is an Associate Research Fellow at the Royal Institute of International Affairs (Chatham House). From 1994 to 2001 he was Chairman of the Energy and Environment Programme (now called the Sustainable Development Programme) at Chatham House, where he is currently contributing to a project led by Dr Valerie Marcel on 'National Oil Companies: Challenges for the 21st century'. Dr Mitchell retired in 1993 from British Petroleum where his posts included Special Adviser to the Managing Directors, Regional Co-ordinator for BP's subsidiaries in the Western Hemisphere, non-executive director of various BP subsidiaries, and head of BP's Policy Review Unit. Before joining BP in 1966 he worked in the Ministry of Trade and Industry, first of the Federation of Rhodesia and Nyasaland, and then of Southern Rhodesia. He was born and educated in South Africa, but left in 1956, after graduating from the University of Natal.

Akira Miyamoto, Contributing Author, is Executive Researcher, Energy Resource Business Unit, Osaka Gas Co., Ltd.

Robert Orttung, Contributing Author, is a senior fellow at the Jefferson Institute and a visiting fellow at the Center for Security Studies at the Swiss Federal Institute of Technology (ETH) in Zurich.

Jeronim Perovic, Contributing Author, is a visiting fellow at the Center for Security Studies at ETH Zurich and a scientific collaborator with the Department of History at the University of Basel.

John Rhys, Senior Research Advisor, obtained an Honours degree in Mathematics while at Jesus College, Oxford, and later obtained his PhD in economics at the London School of Economics. He is a former Chief Economist, Electricity Council, and a former Managing Director of NERA UK Economic Consulting, where he was intimately involved in a number of UK energy sector privatisations. As Director of NERA's international energy team he worked extensively on energy sector reform projects worldwide with the World Bank, other development agencies and national governments. He continues to have economic and energy consulting interests, is a Non-Executive Director of an NHS Hospital Trust, and a Visiting Fellow at the University of Sussex, Energy Group. His current interests include energy policy in relation to climate change, on which subject he has given written and oral evidence to the Environmental Audit Committee of the House of Commons.

Adnan Shihab-Eldin, Senior Research Advisor, currently serves as senior advisor and consultant to a number of public and private institutions, organisations and companies, including as member and advisor to Kuwait National Nuclear Energy Committee. In 2005 he served as the Acting Secretary General of the Organization of Petroleum Exporting Countries (OPEC) where he also served as Director of Research, from August 2001 through March 2006. From March 1999 to August 2001 he served as Director of the Division for Africa, East Asia and the Pacific, Department of Technical Cooperation, at the International Atomic Energy Agency (IAEA) in Vienna, Austria. Prior to joining the IAEA, from December 1991 to February 1999, he served as Director of the UNESCO Regional Office for Science and Technology (Cairo) and as the UNESCO Representative in Egypt, Sudan, and Yemen. Prior to his career with international organisations, he taught, lectured on, undertook and directed research in the physical and engineering sciences as well as

energy economics and technology, at a number of universities and research centres in Kuwait, the United States and Europe, including Kuwait University, the Lawrence Berkeley National Laboratory, the University of California at Berkeley, the European Nuclear Research Center in Geneva, Switzerland, and at the Energy and Environment Policy Center at Harvard University in Cambridge, Massachusetts, USA. From 1976 to 1986 he was the Director General of the Kuwait Institute for Scientific Research.

Ian Skeet, Senior Research Advisor, is a consultant to the Institute and former editor of *Oxford Energy Forum*.

Robert Skinner, Senior Research Advisor, is a Former Director of OIES and previously Administrator Northern (Alaskan) Pipeline Agency, VP Oil Sands Total E&P Canada Ltd, Director of Policy Office of International Energy Agency, Assistant Deputy Minister Energy (Canadian Government); he previously held senior government positions in natural gas, nuclear and uranium, petroleum, economic regulation and environment. He is a research geologist and has advised numerous governments and companies in North America, Europe, Asia and Latin America. An Associate Fellow of Chatham House; academic coordinator/energy for the Club of Madrid; member of The Global Policy Council of Bertelsmann Foundation and external reviewer to Emirates Centre for Strategic Studies and Research, he is the author of numerous papers, articles and reports on energy, geopolitics and geology. Currently he is Senior Vice President, Strategy, Commercial and Government Affairs for StatoilHydro's Canadian subsidiary.

Paul Stevens, Senior Research Advisor, was educated as an economist and as a specialist on the Middle East at Cambridge and the School of Oriental and African Studies; from 1973–79 he taught at the American University of Beirut in Lebanon interspersed with two years as an oil consultant; from

1979–93 at the University of Surrey he was lecturer and senior lecturer in economics. From 1993 to 2008, he was Professor of Petroleum Policy and Economics at the Centre for Energy, Petroleum and Mineral Law and Policy, University of Dundee, Scotland, a chair created by BP. In January 2008 he was appointed to an Emeritus Chair. He has now joined on a part-time basis Chatham House (The Royal Institute for International affairs) in London as Senior Research Fellow (Energy). His role is to take over the energy part of the Energy, Environment and Development Programme. He has published extensively on energy economics, the international petroleum industry, economic development issues and the political economy of the Gulf. He also works as a consultant for many companies and governments.

Mr Roger Van Noorden, Senior Research Advisor, is a Fellow of Hertford College where he taught economics from 1963 to 2006. He has been involved with the Oxford Institute for Energy Studies for many years and served on the Board of Governors from 1987 until 2006.

Gareth Winrow, Contributing Author, is an Independent Analyst specialising in issues related to Turkey, energy security and regional security issues in the wider Black Sea and broader Mediterranean regions. He was a Professor at the Department of International Relations, Istanbul Bilgi University, Turkey.

Andreas Wenger, Contributing Author, is Professor of International and Swiss Security Policy and Director of the Center for Security Studies (www.css.ethz.ch) at ETH Zurich.

Philip Wright, Senior Research Advisor, is Honorary Professor of Energy Policy and Economics at the University of Sheffield and a Fellow of the Institute of Energy. Over more than two decades his research, publications, consultancy and teaching have covered all the energy industries and the companies that operate in

them. As well as contributing a critical perspective on the liberalisation of gas and electricity industries, his recent work has also addressed the UK's oil and gas fiscal regime. His views and expertise have been sought by government organisations, international organisations, companies, trade unions and universities in Europe and Latin America. Fluent in French and Spanish, he has been a Visiting Professor at the University of Montpellier¹ and at the University of Cartagena de Indias, Colombia. He currently works as an independent consultant and writer.

Ian Wybrew-Bond is Company Secretary and a Senior Research Advisor to the Institute. After a career in Shell, principally in its international natural gas business, he became a gas adviser to the Institute and co-edited and co-authored the publications *Gas to Europe* and *Gas in Asia*. He is a non-executive director of Saipem S.p.a. and a Senior Associate with CERA.

Polina Zuravleva, Contributing Author, is a Masters student at Mainz University of Applied Science, Germany with London South Bank University

Accounts

AUDITORS' STATEMENT ON SUMMARISED FINANCIAL STATEMENTS

Independent Auditors Statement To The Members of Oxford Institute For Energy Studies

We have examined the summary financial statement for the year ended 31 December 2009.

Respective responsibilities of trustees and auditors

The trustees are responsible for preparing the summary financial statement in accordance with applicable United Kingdom law. Our responsibility is to report to you our opinion on the consistency of the summary financial statement with the full annual financial statements, and its compliance with the relevant requirements of section 427 of the Companies Act 2006 and the regulations made thereunder.

We conducted our work in accordance with Bulletin 2008/3 issued by the Auditing Practices Board. Our report on the charity's full annual financial statements describes the basis of our opinion on those financial statements.

Opinion

In our opinion the summary financial statement is consistent with the full annual financial statements of Oxford Institute for Energy Studies for the year ended 31 December 2009 and complies with the applicable requirements of section 427 of the Companies Act 2006, and the regulations made thereunder.

James Griffin FCA (Senior Statutory Auditor)
for and on behalf of Everett & Son
Chartered Accountants & Statutory Auditors
35 Paul Street
London
EC2A 4UQ

19th July 2010

OXFORD INSTITUTE FOR ENERGY STUDIES STATEMENT OF FINANCIAL ACTIVITIES FOR THE YEAR ENDED 31 DECEMBER 2009

(Incorporating an Income and Expenditure Account)

	Unrestricted funds	Endowment funds	31.12.09 Total funds	31.12.08 Total funds as restated
	£	£	£	£
Incoming Resources				
Incoming resources from generated funds				
Voluntary income	446,325	-	446,325	290,364
Incoming resources from charitable activities	581,660	-	581,660	553,695
Incoming resources from investments				
Government Stocks	272	-	272	-
International Bonds	6,083	-	6,083	11,832
Corporate Bonds	22,649	-	22,649	-
Quoted Securities	54,405	-	54,405	109,165
Deposit account interest	8,721	-	8,721	86,403
Other incoming resources	5,500	-	5,500	4,125
Total incoming resources	1,125,615	-	1,125,615	1,055,584
Resources Expended				
Costs of generating funds				
Costs of generating voluntary income	20,206	-	20,206	28,745
Charitable activities				
Projects and publications	1,151,136	-	1,151,136	1,043,379
Governance costs	50,080	-	50,080	50,814
Total resources expended	1,221,422	-	1,221,422	1,122,938
NET INCOMING/ (OUTGOING) RESOURCES	(95,807)	-	(95,807)	(67,354)
Realised gain/(losses) on investment assets	(518,436)	-	(518,436)	515,191
Net income/(expenditure)	(614,243)	-	(614,243)	447,837
Unrealised gains/losses on investment assets	614,746	701,476	1,316,222	(1,267,780)
Net movement in funds	503	701,476	701,979	(819,943)
RECONCILIATION OF FUNDS				
Total funds brought forward	2,241,722	2,557,990	4,799,712	5,619,655
TOTAL FUNDS CARRIED FORWARD	2,242,225	3,259,466	5,501,691	4,799,712

All incoming resources and resources expended arise from continuing activities.

OXFORD INSTITUTE FOR ENERGY STUDIES BALANCE SHEET AT 31 DECEMBER 2009

	Unrestricted funds	Endowment funds	31.12.09 Total funds	31.12.08 Total funds as restated
	£	£	£	£
FIXED ASSETS				
Tangible assets	25,112	-	25,112	28,488
Investments	1,936,231	3,259,466	5,195,697	4,528,059
	<u>1,961,343</u>	<u>3,259,466</u>	<u>5,220,809</u>	<u>4,556,547</u>
CURRENT ASSETS				
Debtors	2,888	-	2,888	5,330
Prepayments and accrued income	115,503	-	115,503	163,176
Cash at bank	211,899	-	211,899	193,772
	<u>330,290</u>	<u>-</u>	<u>330,290</u>	<u>362,278</u>
CREDITORS				
Amounts falling due within one year	(49,408)	-	(49,408)	(119,113)
NET CURRENT ASSETS/(LIABILITIES)	280,882	-	280,882	243,165
TOTAL ASSETS LESS CURRENT LIABILITIES				
	<u>2,242,225</u>	<u>3,259,466</u>	<u>5,501,691</u>	<u>4,799,712</u>
NET ASSETS				
	<u>2,242,225</u>	<u>3,259,466</u>	<u>5,501,691</u>	<u>4,799,712</u>
FUNDS				
Unrestricted funds			2,242,225	2,241,722
Endowment funds			3,259,466	2,557,990
TOTAL FUNDS			<u>5,501,691</u>	<u>4,799,712</u>

Members of the Institute

The University of Oxford

St Antony's College, Oxford

St Catherine's College, Oxford

Nuffield College, Oxford

Organization of Arab Petroleum Exporting Countries (OAPEC)

Swedish Energy Agency

Institut Français du Pétrole

Secretary of State for Trade and Industry (UK)

Arab Banking Corporation

Arab Petroleum Investments Corporation

The Institute of Energy Economics, Japan

Instituto Mexicano del Petróleo

Rogalandsforskning, Norway

Ministry of Petroleum and Mineral Resources, Saudi Arabia

Canadian Petroleum Studies Inc.

The State of Kuwait

The Institute is registered as a company limited by guarantee (without share capital). It is also a registered charity that operates as a non-profit educational organisation. It is conceived as an association of various Members, who may be divided into two groups. On the one hand are the University of Oxford and three of its colleges; on the other hand is a selection of governments, public institutions, international and regional organisations, from oil-producing and oil-consuming countries. With the exception of the University and its colleges, each Member has made a once-and-for-all financial contribution. These sums are treated as an endowment, providing for the long-term security of the Institute. All Members of the Institute have the following rights:

- to appoint one or several representatives on the Board of Governors. This gives the Member an active part in the management and supervision of the Institute since the Board is the body empowered with all executive functions;
- to attend the Annual General Meeting of the Institute;
- to enter into any form of cooperation with the Institute that is approved by the Board of Governors, such as the organisation of joint seminars, joint research projects, or exchange visits between scholars of the Institute and scholars from the member countries.

Governors and Trustees of the Institute 2009

Mr Adrián Lajous Chairman of the Board

Dr Christopher Adam Fellow, St Cross College, Oxford

Professor Roger Ainsworth Master, St Catherine's College, Oxford, Vice Chairman of the Board

Mr Ron Brenneman President & Chief Executive Officer, Petro-Canada (*resigned Oct. 2009*)

Mr Haitham Al Ghais Manager, Kuwait Petroleum Corporation, London

Dr Ian Goldin Director, The James Martin 21st Century School, Oxford

Professor Roger Goodman Head, Social Sciences Divisional Office, Oxford

Mr Jean-Luc Karnik Institut Français du Pétrole, France

Dr Abdullah Al-Kuwaiz Vice Chairman of the Board

Mr Rolf Magne Larsen Senior Vice President, Statoil Hydro, Norway

Dr Raul Livas Chief Operating Officer, PEMEX

Professor Margaret Macmillan Warden, St Antony's College, Oxford

Mr Rasheed Mohammed Al-Maraj Governor, Central Bank of Bahrain

Dr Anwar Ali Al-Mudhaf CEO, Al Razzi Holding KSCC

Mr Andres Muld Deputy Director General, Swedish Energy Agency

Dr Masahisa Naitoh Chairman & CEO, The Institute of Energy Economics, Japan

Mr Abbas Ali Naqi Secretary General, OAPEC

Mr William Rickett Director General, Energy, Department for Business, Enterprise and Regulatory Reform (*resigned Sept. 2009*)

HRH Prince Abdulaziz bin Salman Al Saud Vice Minister of Petroleum & Mineral Resources, Saudi Arabia

Mr Nader Sultan, Director, the Oxford Energy Seminar (*appointed May 2009*)

Mr Jay Thornton, Executive Vice President – Energy Supply, Trading & Development, Suncor Energy (*appointed Nov. 2009*)

Mr Laurence Whitehead Fellow, Nuffield College, Oxford

The Honorary President is **Robert Mabro**

The Company Secretary is **Ian Wybrew-Bond**

The auditors are Messrs Everett & Son, of 35 Paul Street, London EC2.

Contributors to end 2009

Membership Contributions

OAPEC
 Energiforskningsnämnden
 Institut Français du Pétrole
 UK Department of Energy
 European Union
 Arab Banking Corporation
 Arab Petroleum Investments Corporation (Apicorp)
 The Institute of Energy Economics, Japan
 Instituto Mexicano del Petróleo
 Rogalandsforskning
 Government of Kuwait
 Government of Saudi Arabia
 Canadian Petroleum Studies Inc

Inauguration Gifts 1983

Ashland Oil
 Atlantic Richfield
 Barclay's
 Britoil
 Chemical Bank
 Citicorp
 Conoco
 Elf-Aquitaine
 ENI/AGIP
 Foster Wheeler
 Fuji Oil
 Gelsenberg
 General Electric (USA)
 International Energy Development Corporation
 INA Universal
 Petroleum Corporation of Jamaica
 Japan National Oil Corporation
 Kernforschungsanlage Julich
 Marathon
 Maraven
 Mobil
 Morgan Stanley
 Nomura Research Institute

Olayan Group
 Petrobrás
 Petróleos de Venezuela
 Petronas
 Phillips
 Qatar General Petroleum Corporation
 Ruhrgas
 Shell International
 Shell Oil (USA)
 Sohio
 Sumitomo Metal Industries
 Texaco
 Texas Eastern
 Tonen Corporation

Current Benefactors

Bahrain Petroleum
 BP Plc
 Cairn Energy Plc
 Chevron Corporation
 ConocoPhillips Co
 Deloitte LLP
 Foster Wheeler Int'l Corp
 Japan Oil, Gas and Metals National Corporation (JOGMEC)
 Kansai Electric Power Co, Inc
 Marathon Petroleum LLC
 McKinsey & Co, Inc
 Mitsubishi Corporation (UK) Plc
 Mitsui & Company
 Olayan Europe Ltd
 Petrobras
 PDV Europa BV
 Reliance Europe Ltd
 Repsol YPF
 Royal Dutch Shell plc
 Royal Ministry of Petroleum and Energy, Norway
 Schlumberger
 Organizacion Techint
 Talisman Energy Inc
 TOTAL S.A

Past Benefactors

Amerada Hess
 ARCO (Atlantic Richfield)
 Arthur Andersen
 Ashland Oil
 British Gas
 Cosmo Oil
 Dubai Aluminium
 EnCana Corporation
 ENI
 Enterprise Oil
 Gulf International Bank
 Halliburton Company
 HSBC Investment Bank plc
 JP Morgan Chase
 Marathon Ashland
 Morgan Stanley
 Murphy Oil Corporation
 Neste Oil Oyj
 Osaka Gas
 Phillips Petroleum
 Schroder Salomon Smith
 Barney (Citigroup)
 Sun Company
 Tokyo Electric Power Company
 Tonen Corporation
 TNK-BP
 Tyumen Oil

Sponsors of the Natural Gas Research Programme

BG Group
 BP plc
 Centrica
 Cheniere Energy
 Dong Energy
 Electricité de France
 Energy Delta Institute
 Gdf-Suez
 Gazprom Marketing and Trading
 Ibedrola
 Jkx Oil & Gas
 Ministry of Petroleum, Norway
 National Grid Transco
 Petro

Qatar Petroleum
 RWE Gas
 StatoilHydro
 Vattenfall

Past Sponsors of the Natural Gas Research Programme

Egyptian Natural Gas Holding Co.
 Nigerian National Petroleum Corporation
 Marathon Oil

Sponsors of the China Project (2008)

Climate Strategies/DFID
 Swedish Energy Administration

Sponsor of the Synergy Project (2003)

European Union

Sponsor of the Cost Benefit Analysis of the Energy Supply Security Policy (2003)

CPB Netherlands Bureau for Economic Policy Analysis

Sponsor of the Saudi Research Project (2003)

Saudi Petroleum Overseas, Ltd.

Sponsor of the Framing of Future Emission Limitation Commitments: A Pilot Study on the Evolution of the UNFCCC Greenhouse Gas Mitigation Regime (2003)

Swiss Agency for the Environment, Forests and Landscape

Additional Sponsors of the US Gulf Oil Market Study (2000)

Ashland International Limited
 Equiva Trading Co
 Koch Industries
 Kuwait Petroleum Corporation
 McKinsey

Morgan Stanley
 PMI Comercio Internacional (Pemex)
 Saudi Aramco
 Taurus Petroleum Services Ltd
 TotalFinaElf

Sponsor of the Kyoto Protocol and Oil Markets Study (1999)

Royal Ministry of Petroleum and Energy, Norway

Additional Sponsors of the European Gas Markets Study (1998)

BP Amoco Gas
 Iberdrola
 In Salah Gas
 Nera
 Statoil
 Total

Additional Sponsors of the Mediterranean Oil Market Study (1997)

Anadarko Petroleum Corporation
 Atlantic Richfield
 BHP Petroleum
 CEPSA
 Deminex
 Kuwait Petroleum Corporation
 Mobil Sales & Supply
 Saudi Aramco
 Sonatrach
 Total
 Veba Oel

Additional Sponsors of the CFD Project (1995)

CEPSA
 Esso Petroleum
 IPE
 Mobil
 OK Petroleum
 Veba Oel

Additional Sponsors of the Oil in Asia Project (1994)

Apicorp
 Bahrain National Oil Company
 Exxon
 Kuwait Petroleum Corporation
 Ministry of Energy and Industry, Qatar
 Mobil
 Morgan Stanley
 Pemex
 Petron
 Saudi Aramco
 Statoil

Additional Sponsors of the Brent Market Study (1991)

European Union
 International Energy Agency
 Mobil
 ÖMV-AG
 OPEC
 Pemex
 Petro-Canada
 Statoil
 UK Department of Trade & Industry

Sponsors of the Oil Product Prices Study (1988)

Britoil
 European Union
 Exxon
 Kuwait Petroleum International
 Mobil
 Ruhrgas
 Statoil
 Texaco
 Veba Oel

Sponsors of the Gas Development in LDCs Study (1986)

Arab Banking Corporation
 British Gas/UK Department of Energy
 British Petroleum
 Dubai Aluminium

Elf-Aquitaine
ENI/AGIP
European Union
Exxon
Foster Wheeler
Gaz de France
OPEC Fund
Petro-Canada
Ruhrgas
Shell International
Statoil
US Department of Energy
World Bank

Sponsors of the North Sea Study (1984)

Amerada Hess
Apicorp
British Petroleum
Britoil
Elf-Aquitaine
Esso Europe
European Union
Mobil
OPEC Secretariat
Pemex
Petromin
Qatar General Petroleum Corporation
Royal Ministry of Petroleum
and Energy, Norway
Shell Oil (USA)
Shell UK
Statoil
Sun
Svenska Petroleum
UK Department of Energy
Veba Oel

Grants

Arab Fund for Economic and
Social Development
Barrows
Bahrain Monetary Agency
Burmah Petroleum Fuels Ltd
European Union
ESRC

GCC
Institute of Energy Economics, Japan
Mr Ali Jaidah
Kuwait Petroleum International
Ministry of Finance, Saudi Arabia
Morgan Stanley
OAPEC
OPEC Fund for International
Development
Oxford Energy Seminar
Mr Abdul Mohsen Qattan
The State of Qatar
Shell Foundation for
Sustainable Development
The United Nations
The World Bank

Recent Publications

Recent publications can be obtained by contacting the Institute directly. A complete list of publications and secure online purchasing are available on the Institute's website at www.oxfordenergy.org

Books

**Published by Oxford University Press for the
Oxford Institute for Energy Studies**

Energy and the Transformation of International Relations: (OIES 35)

Toward a New Producer-Consumer Framework

by *Andreas Wenger et al (eds)*, 2009

Energy and Climate Change: Europe at the Crossroads

by *David Buchan*, 2009 (OIES 34)

Russian and CIS Gas Markets and Their Impact on Europe

by *Simon Pirani et al*, 2009 (OIES 33)

Working Papers

Published by Oxford Institute for Energy Studies

Resource Rents, Redistribution, and Halving Global Poverty: The Resource Dividend

by *Paul Segal*, 2009 (SP 22)

Basis Variation and the Role of Inventories: Evidence from the Crude Oil Market

by *Bassam Fattouh*, 2009 (WPM 38)

Natural Gas in Greece and Albania: Supply and Demand Prospects to 2015

by *Anastasios Giamouridis*, 2009 (NG 37)

The Impact of the Economic Crisis on Russian and CIS Gas Markets

by *Simon Pirani*, 2009 (NG 36)

Future Gas Production in Russia: is the concern about lack of investment justified?

by *Jonathan Stern*, 2009 (NG 35)

Continental European Long-Term Gas Contracts: is a transition away from oil product-linked pricing inevitable and imminent?

by *Jonathan Stern*, 2009 (NG 34)

The German Gas Market post 2005: Development of Real Competition

by *Heiko Lohmann*, 2009 (NG 33)

The Changing Relationship between NOCs and IOCs in the LNG Chain

by *David Ledesma*, 2009 (NG 32)

Nature of LNG Arbitrage, and an Analysis of the Main Barriers for the Growth of Global LNG Arbitrage Market

by *Polina Zhuravleva*, 2009 (NG 31)

Problems and Prospects for the 'Fourth Corridor': The Position and Role of Turkey in Gas Transit to Europe

by *Gareth Winrow*, 2009 (NG 30)

The Impact of the Russia-Ukraine Gas Crisis in South Eastern Europe

by *Aleksandar Kovacevic*, 2009 (NG 29)

A New Paradigm for Natural Gas Pricing in Asia: A Perspective on Market Value

by Akira Miyamoto and Chikako Ishiguro, 2009 (NG 28)

The Russo-Ukrainian gas dispute of January 2009: a comprehensive assessment

by Jonathan Stern, Simon Pirani and Katja Yafimava, 2009 (NG 27)

Charting the Gaps: EU regulation of gas transmission tariffs in the Netherlands and the UK

by Manuel Klop, 2009 (NG 26)

US Energy and Climate Legislation – The Big Deal

by David Robinson, 2009 (EV47)

Carbon Leakage under Incomplete Environmental Regulation: An Industry-Level Approach

by Robert Ritz, 2009 (EV 46)

Additionality in the Clean Development Mechanism: Why and What?

by Benito Müller, 2009 (EV 44)

Other published journal articles, books and book chapters

How do banks respond to increased funding uncertainty?

Discussion Paper #481 by Oxford's Department of Economics in March 2010, Robert Ritz

Algeria's chequered democracy experiment

M. Emerson and R. Youngs (eds) *Democracy's Plight in the European Neighbourhood*, CEPS/FRIDE, Brussels, October 2009, Hakim Darbouche

EU-Algeria trade and energy interests within the EMP

Journal of Contemporary European Studies (a peer-reviewed European studies journal), 17 (3), December 2009, Hakim Darbouche

'Energising' EU-Algerian relations

The International Spectator (a peer-reviewed international affairs journal), forthcoming June 2010, Hakim Darbouche

Third time lucky? Euro-Mediterranean energy cooperation under the Union for the Mediterranean

Research paper to be presented at the World Congress on Middle Eastern Studies, 19–24 July 2010, Barcelona, Anouk Honoré



Oxford Institute for Energy Studies

57 Woodstock Road

Oxford OX2 6FA

United Kingdom

Tel: +44 (0)1865 311377

Fax: +44 (0)1865 310527

information@oxfordenergy.org

<http://www.oxfordenergy.org>

Registered Charity No. 286084