

# Oxford Institute for Energy Studies



**Annual Report 2010**

## 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. The University of Oxford 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 other forms of 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.



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# Message from the Chairman

I see with great pleasure that the Institute has been fully consolidated and is now initiating a new expansionary phase. It has improved its physical infrastructure, strengthened its staff, widened its network of relationships, and defined its status as a recognized independent centre of the Oxford of University. The Oil and the Middle East Programme has been launched, with work concentrating on oil price formation and the effect of financial markets on the level and volatility of prices. Also, a review of natural gas developments in North Africa and the Gulf has been very timely.

Special recognition must be given to the way in which the Natural Gas Programme has matured in a period that witnessed fundamental change in natural gas markets and a rapid development of LNG. The programme has shed light on this process of change and informed the discussion on the future role of natural gas with thoughtful comment, the publication of a large number of working papers, and significant books. The active interaction of our research staff with the sponsors of the gas programme provided mutual benefits, enriched our research, and proved to be a useful and successful model. Under the able and vigorous leadership of Jonathan Stern, the programme made an important contribution to the overall consolidation of the Institute's activities during a difficult period of transition in its management.

The increasing role of natural gas in the energy matrix will continue to be a central area of study, particularly in power generation. The oil and gas industry missed the importance of the change brought about by the rapid development of shale gas in the USA. It was slow in fully grasping the increased importance

of gas assets in the portfolios of the super-majors and independents. Nor did it understand the full implications of widening natural gas price differentials, and the extent to which gas and liquid hydrocarbon prices decoupled. These topics were carefully explored by a number of our researchers and started to appear in their publications during 2010.

Although the Middle East remains our key area of interest in oil matters, we must now direct work to the east and the south, following the direction of trade flows and the discovery of newly producing deepwater areas in Africa and South America. Work on these areas implies a wise selection of research topics and the active recruitment of new talent.

As we approach the thirtieth anniversary of the Institute in 2012, we must prepare to celebrate its achievements over this period and, more importantly, renew its research agenda, strengthen further its research staff, and seek additional support from our founding members and our sponsors.

**Adrián Lajous**  
Chairman of the Board

# Director's Report

In retrospect, the calendar year 2010 is likely to appear as a period of false optimism about the world economy. The V shaped recovery from the 'great recession', which started in the second quarter of 2009, consolidated into 2010. The 'dominant story', looking forward, was of a two speed world, with rapid and continuing growth in non-OECD countries (especially in China and India), with moderate growth in the developed world. The picture that emerged during 2010 was of a substantial downward 'level effect' from the 'great recession' on the world economy (especially in the OECD countries) with growth expected to continue at rates comparable to those seen before the recession, but with no return to the previous extrapolated trend. The continuing 'level effect' implied a substantial fall (as compared with previous extrapolations) in the projected demand for oil and gas – which played out differently, however, for the two fuels.

In the case of natural gas, the effects of the downward shift in demand were exacerbated by two major developments on the supply side. The first was the coming on stream of a large increase in LNG supply, in particular from Qatar. The second was the remarkable story of the expansion of shale gas production in the USA – which reversed the anticipation that the USA would become a large importer of LNG within the Atlantic basin. The result was essentially a 'gas glut', expected to last a number of years, and downward pressure on prices. For oil, supply side developments worked quite differently. A combination of disappointing production from non-OPEC producers, worries about decline rates, a lack of investment, high costs world-wide, and successful production cuts by OPEC during the recession, tightened the picture looking forward. By the summer of 2009 oil prices had recovered from their recession lows (roughly doubling to around \$75 per barrel) and, until late in 2010, appeared

to have stabilized within an implicit band of between \$70 and \$85 per barrel. By the end of 2010, spot oil prices appeared to have broken out of the band in an upward direction. Notably, this was before any effects on prices from the Arab Spring of 2011.

Clearly, as far as the energy industry is concerned, the relative stability of 2010 compared to the uncertainties and gyrations of expectations in 2009 was a relief. The same was true for OIES, which had come through 2009 relatively well. OIES's financial position was, on most indicators, somewhat better by 2010 than in the years before the financial crisis and recession. This reflected new and increased benefactions as well as skilful management of the Institute's funds by Brewin Dolphin. Most importantly, the increased saliency of international energy issues and their interaction with the global financial crisis, and new agendas such as climate change and energy security, naturally increase demand for the Institute's research and for objective commentary on major issues affecting the industry. We are very grateful for the continuing support from our network of members, benefactors, sponsors, and friends.

## Infrastructure

The Board's strategy of substantial expansion in response to the increasing complexity and scope of the issues surrounding international energy markets has been referred to in previous Annual Reports. The year 2010 saw the successful completion of two major enabling projects to improve the physical and research capacity of the Institute. The first was the expansion of the floor space by moving into an additional floor in Belsyre Court – nearly doubling the office space available. The move into the new floor was completed in September 2010. The new (refurbished) floor contains a large well equipped room, now used for internal seminars, meetings, and small lectures. The

reception area for the Institute is now on the refurbished second floor. An additional benefit is that OIES now has an air-conditioned server-room which controls our IT access to the outside world. The second major project – which has been gestating for some time – is the complete redesign and update of the OIES website. The new website is a vast improvement – modern and user friendly. We are very grateful to Kate Teasdale, who is to be congratulated on the successful conclusion of both these developments.

These investments mean that OIES is well-positioned to expand as the opportunity arises. It also means that larger numbers of visiting students and other academic researchers can be accommodated.

#### **Recruitment and staff**

For the second year running, there has been very little turnover of research staff. Paul Segal took up his lectureship in Economics at Sussex University – but remains a Senior Visiting Research Fellow and actively involved in the Institute's research work. Malcolm Keay was on Sabbatical leave in Guyana for a term at the beginning of 2010. John Rhys, previously a Senior Research Adviser, moved to become a Senior Research Fellow, strengthening the Institute's work on the power sector and climate change issues. Edwin Lim became a Senior Research Adviser. His input on China will be invaluable. Altogether 55 researchers are listed in this Report – many of whom are part time. The mix reflects the Institute's policy of recruiting both experienced researchers, many with a background in industry, as well as academics from a variety of social science backgrounds.

Priorities for recruitment include further appointments relating to oil, and to the economics and geopolitics of the Middle East. The Institute is also actively seeking to appoint a senior economist to work on the global economy, finance, oil, and the Middle East, for which new funds are available. Depending on circumstances and the field of

candidates, we are considering whether this appointment might be made under the procedures for joint appointments with the University.

#### **Relations with the University**

The Institute's formal position in relation to the University of Oxford is as a Recognized Independent Centre (RIC). This status was established in 2007 and has been running now for a number of years. Generally, the new relationship (which replaced the old status of an Associated Institute) has been working well. Oversight is provided by the University's Joint Committee for the Coordination of Independent Research Centres. As part of their procedures, one Centre is subject to assessment by the Committee (afforded by two advisers) each year. In 2010 it was the turn of OIES.

The assessment procedure involves written material (such as the accounts and a full description of the way in which OIES operates) and a visit by the Committee to clarify any issues and to meet staff members. This visit took place in June 2010. It proved to be an extremely useful occasion which undoubtedly helped to improve understanding on both sides. The Committee's subsequent Report was discussed at the February 2011 meeting of the Joint Committee before being sent on to the University's General Purposes Committee.

Generally, the system is working well, though there are still a number of areas where the relationship between the University and the RICs could be improved. The Institute's work is becoming better understood and appreciated within the University, though it is probably still true that that OIES is better known outside than inside Oxford.

#### **Activities and research in 2010**

As indicated in this Report, one major book was published during 2010: *European Natural Gas Demand, Supply, and Pricing* by Anouk Honoré, and it is expected to become the standard work on this subject. Several other

books are in preparation and are well advanced for publication in 2011. Notable amongst these is a book to be published early in 2011 on the production and consumption of natural gas in the MENA region, edited by Bassam Fattouh and Jonathan Stern. This important book is the result of cooperation between the Institute's Oil and the Middle East Programme and the Natural Gas Programme. Eighteen Working Papers were published during the year (on a very wide range of topics) as well as numerous comments.

After last year's initiation of an 'Oil Day' focusing on topical debates on oil price volatility and the producer-consumer dialogue, a further high level event – essentially a one day workshop/seminar – was organized for 2010. This was very well attended by industry, government, and financial specialists and focused on the details of the oil pricing system and the potential impacts of regulation. We are very grateful to CME Group (formerly known as Nymex) and ICE for jointly sponsoring this workshop and the preceding dinner at New College. Further events are planned for 2011, one of which will focus on Brazil. Meanwhile, the Natural Gas Programme goes from strength to strength. The regular sponsors' meetings and the 'Gas Day' were all highly successful. Membership is expanding – to the point where the Programme is now essentially at capacity.

The Institute's cross-cutting programmes on India and China are moving forward. Three members of the Institute (myself, Anupama Sen, and Paul Segal) made a presentation to regional government officials in Rajasthan on international experience with 'oil funds' as well as fiscal and governance issues relating to resource revenues. These presentations are being turned into a working paper for distribution to Indian officials. Anil K. Jain's book on Indian gas is in preparation for publication in 2011, as is a policy-oriented Working Paper by Anil Jain and Anupama Sen on the same subject. Generally, the Institute's

visibility and reputation within India is increasing rapidly. The China Programme is, as noted in previous Reports, still in need of additional funding – but OIES's visibility and links with China have been transformed over the last few years. As part of the overall programme, David Robinson and Benito Müller carried out a study on the potential for EU/China collaboration to reduce greenhouse gas emissions in the Chinese power sector. Their report was launched at the UNFCCC meeting in Tianjin in October 2010. Since then the Spanish government has signed an MOU with China on collaboration in the development of renewable energies. OIES's network of contacts and links with Chinese researchers and officials continues to expand.

A further cross-cutting programme, focusing on Latin America, has been initiated. Part of this is through a project jointly organized by Lawrence Whitehead and the James A Baker Institute for Public Policy at Rice University, Houston Texas. Paul Segal has contributed an important paper on 'The Political Economy of Oil Distribution in Mexico'. Beyond this, the Institute has been developing its links with Brazil – a priority for future research.

The Institute's annual 'Brainstorming' was held in Athens in late April. We are extremely grateful to Olayan for generous support for this outstandingly successful occasion.

The Institute continues its successful programme of internal seminars – held now in the new seminar room. These are proving invaluable in bringing together the various different strands of research, and fostering academic interactions within the Institute. The Lecture series, joint with St Antony's College, continues to bring distinguished speakers to Oxford and to attract large audiences.

#### **General**

As a research institute, OIES depends greatly on the continuing dedication

of its administrative staff, Kate Teasdale, Susan Millar, Margaret Ko, and Lavinia Brandon. We are very grateful for the way in which they foster the relaxed but productive research atmosphere which is one of the main characteristics of OIES. The interactive and networking aspects of the Institute's research also benefit greatly from the close relationship which exists with two sister institutions, the Oxford Energy Policy Club and the Oxford Energy Seminar. From a wider perspective, the OIES 'model' also depends crucially on the increasingly close and productive relationships that have been built up with its members, benefactors, sponsors, and friends. It is these linkages that allow a relatively small Institute to develop its global reach and reputation. These relationships will become even more important as the Institute widens its scope and expands over the next few years.

# Research

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

State influence in the economy and the appropriation of resource rent (economic nationalism) has increased in many resource rich countries including Russia and Kazakhstan over the past five years. 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 internationalize their activities. In light of the growing prevalence for LC policies, Professor Yelena Kalyuzhnova's continuing research 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 Yelena 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 utilized 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 generalizable insights into state-civil society interaction in Kazakhstan.

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

This book, by Shamil Midkhatovich Yenikeeff, to be published by the Oxford University Press in 2011, 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 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 centralization 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 *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 1993–2010. This project reviews the status of the oil and gas industry in China and in the Asian part of Russia. China has already developed its first west–east gas pipeline and the second is being constructed. Russia has completed the first stage of the East Siberia Pacific Ocean (ESPO) Crude Oil Pipeline. In particular, recent and massive lending has finalized 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, even though Gazprom argues the final price agreement will be settled by 2011, 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.

### **Where Does Russia Stand?**

Russia appears to be at a crossroads in its emerging stance towards major forces in 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 era 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, thus 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 for OPEC. Dr Yenikeyeff's book is to examine the various scenarios under which Kazakhstan could deliver its oil and gas to potential export markets.

### **The Strategic Implications of Russia's Eastern Oil Resources**

This working paper, by James Henderson and due to be published in March 2011, outlines the renewed focus on the oil sector in Eastern Russia, with a particular focus on those resources which are likely to fill the new East Siberia Pacific Ocean pipeline. Russian oil exports have historically been focused on western markets, with the country's huge trunk pipelines taking all the crude not used in domestic refineries from Siberia into the heart of Europe, or to Russia's Baltic or Black Sea coasts for onward transport into the global oil

markets. However, Russia's position in European and other western markets has now matured to a level where further expansion will be difficult to achieve, and as a result the rapid growth of the Asia-Pacific economies, and in particular China, over the past two decades has led to a re-focusing of Russia's strategic and energy interests. This paper therefore examines the renewed enthusiasm for investment in oil resources in east Siberia and the far east. The key catalyst required to encourage increased activity in this sector has always been considered to be the construction of pipeline infrastructure to allow any oil from new fields to be moved to market, and the Russian State has now provided this incentive via its wholly owned transport company Transneft, which opened the East Siberia Pacific Ocean pipeline in December 2009. This pipeline not only provides a link to Russia's Pacific coast, but as of January 2011 has also provided a direct link to the world's fastest growing oil market, China. This paper will examine the strategic importance of this new pipeline route, both in terms of Russia's relations with China, and also in the context of the impact of newly emerging Russian crude on the Asia-Pacific oil market. In particular it will focus on the ability of Russia to increase production from its eastern regions to fill the full capacity of the ESPO, and will examine the plans of all the companies involved in the development of licences and fields from Krasnoyarsk in the west to Sakhalin Island in the east, looking in detail at the specific assets that will provide the bulk of Russia's oil exports to eastern markets. The paper will also discuss the fiscal incentives that the Russian State is starting to provide in order to encourage companies to make the long-term investment decisions needed to develop oil fields in the region, and will also provide estimates, by company, of the potential amount and timing of oil production that could possibly emerge as a result. The overall goal will therefore be to analyse the potential for Russia's eastern territories to produce sufficient

oil to balance the gradual decline expected in the west of the country, thereby allowing the Russian oil industry to meet the government's overall target for production in 2030 of around 10 mmbpd. Further it will also explore the opportunity for Russian exports to make a greater contribution to the crude mix supplying demand in the Asia-Pacific region, as the country's crude oil is transported to its eastern borders via the expanding pipeline infrastructure.

### **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 have they been used in the adoption of emerging technical and financial innovations in the developed countries that have generated these innovations? Are these innovations available to the national oil companies for the modernization 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 which are as yet too small, 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 from 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.

## **An Anatomy of the Crude Oil Pricing System**

This report by Bassam Fattouh, to be published in 2011, analyses the main features of the current crude oil pricing system and describes the structure of the main benchmarks currently used – namely Brent West Texas Intermediate (WTI) and Dubai–Oman. It clearly identifies the various financial layers that have emerged around these physical benchmarks, and analyses the links between the different financial layers and between the financial layers and the physical benchmarks, and then evaluates how these links influence the price discovery and oil price formation process in the crude oil market. The report finds the assumption that the process of identifying the price of benchmarks in the current oil pricing system can be isolated from financial layers to be rather simplistic. The different layers of the oil market are highly interconnected and form a complex web of links, all of which play a role in the price discovery process. The report also calls for a broadening of the empirical research to include the trading strategies of physical players; any analysis limited to non-commercial participants in the futures market and their role in the oil price formation process is incomplete. The report also emphasizes the distinction between trade in price differentials, and trade in price levels, and finds that the level of the oil price which consumers, producers, and their governments are most concerned with is not the most relevant feature in the current pricing system. Instead the identification of price differentials and the adjustments in these differentials in the various layers underlie the basis of the current oil pricing system.

## **Oil Market Dynamics through the Lens of the 2002–2009 Price Cycle**

During the period 2002 to 2008 the oil market experienced a sustained increase in prices, with the annual average price rising year-on-year for

seven consecutive years. This boom ended with a spectacular collapse towards the end of 2008. These sharp price movements have captured public and political attention and have raised concerns with both major consumers and producers about the adverse economic, political, and social consequences of such violent price movements. In this paper, published in 2010, Bassam Fattouh analyses the dynamics of the oil market through the lens of the 2002–2009 price cycle, proposing an inclusive framework that emphasizes the dual nature of crude oil as a physical commodity and as a financial asset, and highlights the role of expectations in the formation of the oil price. The paper then assesses the various proposals put forward to enhance oil price stability, highlighting their advantages and limitations. This paper was prepared while the author 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.

## **Anatomy of an Oil-Based Welfare State: Rent Distribution in Kuwait**

This paper on the distribution of oil rents in Kuwait, written by Paul Segal with Laura El-Katiri and Bassam Fattouh and titled ‘Anatomy of an Oil-Based Welfare State: Rent Distribution in Kuwait’, was completed in 2010 and is forthcoming in David Held and Kristian Ulrichsen (eds.), *The Transformation of the Gulf: Politics, Economics and the Global Order*, 2010, Routledge. Oil has created a wealthy and relatively egalitarian economy based on an extensive distributive system that provides Kuwaiti citizens with essential services including free healthcare, education, and social security. The most important fact about Kuwait’s oil wealth, therefore, is that it has been successfully used to benefit

its citizens. This feat has been achieved through a broad distributive welfare state. Nevertheless, Kuwait's policies of rent distribution have developed in an ad hoc manner into an uncoordinated system. Some of Kuwait's policies of rent distribution – such as subsidizing utilities and providing public employment – have resulted in substantial distortions, inefficiencies, and institutional deficiencies and the paper argues that there remains substantial scope for improvement.

## **UK Energy Policy and the End of Market Fundamentalism**

The UK's model of privatizing its energy industries and progressively leaving energy policy to be determined by market forces and 'competition' has been imitated to a greater or lesser extent throughout the world. This influence, plus the fact that we now have more than two decades of experience of this model under our belt, means that a comprehensive critical appraisal is timely. This multi-author book, edited by Ian Rutledge and Philip Wright, and to be published by Oxford University Press in 2011, is designed to achieve this objective by bringing together previously disparate critiques by a distinguished cast of contributors, and by covering the whole range of energy industries, oil, gas, coal, and electricity, from upstream to downstream. In so doing, it offers historical perspective, challenges the extensive literature which has bolstered liberalization, and considers whether the UK is going to need to redesign its dysfunctional energy markets or opt for more state intervention in order to address the urgent security of supply and environmental agendas which now confront the country. The authors of the chapters are: 'UK Energy Policy and Market Fundamentalism: a Historical Overview', Ian Rutledge; 'A Requiem for the UK's Petroleum Fiscal Regime', Juan Carlos Boué and Philip Wright; 'Managing the UK's Remaining Oil and Gas Resources: a Future Role for the State?', Peter Odell; 'The Premature Demise of the British Coal Industry and the Future of Coal Consumption in

the UK', Jonathan Winterton and Philip Wright; 'Gas Storage: a Case of Market Failure', Jonathan Stern; 'Wholesale Gas Markets: Conductors for Insecurities of Supply', Philip Wright; 'Electricity Generation and Wholesale Markets', Dominic Maclaine; 'Energy Markets, Industry Structure, and Portfolio Power', Ian Rutledge; 'Liberalisation and Fuel Poverty', Brenda Boardman; 'Can the Market Deliver Security and Environmental Protection in Electricity Generation?', Malcolm Keay; 'What Future for Nuclear Power in a Liberalised Energy Market?', Steve Thomas; 'Liberalised Energy Markets: an Obstacle to Renewables?', Robert Gross and Philip Heptonstall; 'Energy Efficiency and Conservation in the UK: Missed Opportunities and Future Challenges', Adrian Pitts; 'The Future of Combined Heat and Power: the Current Debate and its Policy Implications', Matthew Simmons and Gareth Young; 'From Liberalisation to Intervention: Europe, the UK, and the Changing Agenda', David Buchan; 'The Content and Delivery of Future UK Energy Policy', Ian Rutledge and Philip Wright.

## **Eastern Europe's energy challenge: meeting its EU climate commitments**

This paper, by David Buchan and published in 2010, calls for a new EU energy and climate deal in which east European member states would be required to do more – but also to be paid more – to increase renewable energy and improve energy efficiency. David Buchan argues that Brussels is right to look east for further emission reductions, and that extra money can be found for the 10 new member states there by redirecting funds within the existing EU budget and by Europeanizing national renewable energy subsidies. The 76-page study traces central and eastern Europe's considerable progress in transforming its energy system since emerging from communism 20 years ago, but warns its governments that they 'cannot be easily helped more if they will not help

themselves' by giving climate change the same priority as energy security.

### **California's Climate Policy – a Model?**

California has clear lessons to offer the rest of the USA and the world, in energy efficiency achieved through persistent pressure on energy appliance standards, and clever public regulation of its private energy companies. Energy efficiency is increasingly important if the task of de-carbonizing the power and transport systems of growing economies is not to become unmanageable. This paper by David Buchan, published in 2010, highlights California's unusual combination of wealth, technology, natural resources, and legal room for manoeuvre that enables the state to pursue a climate policy different from that of the US federal government, but that is also probably hard to replicate elsewhere.

### **US Energy and Climate Change Policy**

This research project, led by David Robinson, examines the critical importance of coal-based generation as a source of greenhouse gas emissions, and analyses the difficulties in cutting these emissions. It focuses on the USA – which along with China accounts for over 60 per cent of these emissions – and how the US 'coal lobby' has contributed to the failure to pass federal climate change legislation. It analyses the implications of this failure, both in the USA and in international trade and climate change negotiations.

### **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 Müller have carried out a study on the potential for large-scale EU–China collaboration to reduce CO<sub>2</sub> emissions in the Chinese power sector. The project is finished and the report was launched at the UNFCCC meeting in Tianjin

in October 2010. Since then, the Spanish Government has adopted a proposal from the paper, to sign an MOU with China to collaborate in the development of renewable and alternative energies. The Spanish Secretary of State for Energy has also asked the authors of the report to participate in developing the MOU and – in an official letter – has supported the broader proposal in the paper, namely an EU–China agreement to further joint ventures to lower carbon emissions in the Chinese power sector.

The central issue in the research is to identify barriers preventing large-scale collaboration which would promote zero emission technologies in China, and to seek to lower those barriers through an EU–China high-level agreement. The study draws on the example of the wind sector to demonstrate the potential of such an agreement. It identifies ways in which 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.

### **CO<sub>2</sub> emissions from energy use: the third energy transition**

There have been only three fundamental energy transitions in human history; the discovery of fire, the industrial revolution, and the transition currently under way to low carbon energy. This research, by Malcolm Keay, looks into the nature of the present transition, how it can be effected, and what its consequences might be. The first module looks mainly at the past; one output was a paper published electronically in November 2007, entitled 'Energy: the Long View' which examined long-term energy developments (i.e. over hundreds of years) in order to help identify the basic drivers of energy

demand and the associated emissions. The second module, currently under way, looks in more detail at whether existing policies designed to reduce CO<sub>2</sub> emissions are properly targeted on significant emissions drivers, and on the areas where intervention can make a major difference. The third module will look forward at the implications of the shift for the energy sector and society more widely.

### **Emissions Trading with Profit-Neutral Permit Allocations**

This paper, by Cameron Hepburn, John K-H Quah, and Robert Ritz, published in January 2010, examines the impact of an emissions trading scheme (ETS) on industry output price, costs, emissions, market shares, and profits. Formulae are developed for the number of emissions permits that have to be freely allocated to firms in order to neutralize any adverse impact the ETS may have on profits. Under quite general conditions industry profits are preserved so long as firms are freely allocated a fraction of their total demand for permits, with this fraction lower than the industry's Herfindahl index. The results of this research have important implications for ETS design, especially for its ability to raise government revenue.

### **The Reformed Financial Mechanism of the UNFCCC Part II: The Question of Oversight Post Copenhagen Synthesis Report**

This paper by Benito Müller, published in April 2010, analyses four areas of oversight: How to design decision making (processes and remits) for the UNFCCC COP and RFM executive body so as to ensure sufficient political oversight and buy-in, without the danger of over-politicized micro-management of the RFM and its financial flows; How to ensure proper stakeholder representation, in particular how to design the process of selection of stakeholder representatives and how to design their

role in the decision-making process; How to design independent oversight (audit monitoring and evaluation) procedures within the framework of existing legal arrangements which will provide sufficient safeguards against malpractice both at the international and the national level; How to oversee financial flows to ensure compliance with financial commitments.

### **The Reformed Financial Mechanism of the UNFCCC Promoting Transparency & Accountability**

The fight against climate change needs the full engagement of developing countries. And for this to happen, argues Luis Gomez-Echeverri, national institutions with the capacity to identify priorities and manage the resources for action are urgently needed. This report focuses on the institutional needs and best practices already in existence. This paper was published in March 2010.

### **The Reformed Financial Mechanism of the UNFCCC: Renegotiating the role of civil society in the governance of climate change**

To what extent have existing institutions for climate change finance succeeded in bringing the voices of poor and disadvantaged sections of civil society to the decision-making table? This paper by Anju Sharma, published in April 2010, analyses the models for civil society engagement adopted by the Global Environment Facility and the World Bank's Climate Investment Funds. It finds that both do little more than provide an occasional venue for a poorly defined entity called 'global civil society' to voice concerns, where interactions are limited to one-off events rather than being included in a continuous and integrated process of mutually beneficial engagement. The paper calls on civil society to use the strengths and legitimacy they bring to the process to renegotiate the

terms of their engagement, calling particularly for a more 'bottom-up' process for bringing local voices to the fore; resources for sustaining and improving the quality of civil society engagement; and formalized processes of mutual accountability.

### **Copenhagen 2009: Failure or final wake-up call for our leaders?**

This paper by Benito Müller, published in February 2010, looks at the recent UN Climate Change Conference in Copenhagen, evaluates what happened, and suggests what lessons ought to be learned.

### **Electric Vehicles**

David Robinson has begun a research project on the potential market for electric vehicles. The central question he addresses is what potential they have to influence world oil demand and CO<sub>2</sub> emission reductions. He published a first article on this subject in the February 2010 Oxford Energy Forum.

### **Electricity sector reform to deal with new low carbon objectives**

David Robinson has begun research on the reform of competitive wholesale markets in the electricity sector to meet the joint objectives of reducing carbon emissions (through renewable energy quotas) and resource adequacy (keeping the lights on). In September 2010, he published a joint paper with colleagues from the Brattle Group on this topic for the BIEE (British Institute for Energy Economics) conference on the changing role of government and markets in the electricity sector.

### **The Economics of Energy-Rich Countries**

Paul Segal's research has focused primarily on the management and distribution of hydrocarbon revenues.

He has also continued working on the macroeconomics of oil prices.

Dr Segal's OIES paper 'Resource Rents, Redistribution, and Halving Global Poverty: The Resource Dividend', was accepted in 2010 for publication by *World Development*, the top journal in the field of economic development. The paper considers the proposal that each country distributes its resource rents directly to citizens as a universal and unconditional cash transfer, or Resource Dividend, and it estimates its potential impact on global poverty for the years 2000–6. Using a global dataset on resource rents and the distribution of income, the study finds that if every developing country implemented the policy, then the number of people living below \$1-a-day would be cut by between 27 and 66 per cent, depending on the year and the assumptions made. Looking ahead, poverty could be better than halved as long as commodity prices do not drop below their 2004 level. This paper has elicited considerable interest globally, leading Dr Segal to begin an informal collaboration on the issue with the Revenue Watch Institute in New York, and with the Natural Resource Charter.

Dr Segal has also been working on the distribution of oil revenues in Mexico in a project jointly organized by Lawrence Whitehead and the James A. Baker III Institute for Public Policy, Rice University, Houston, Texas. He presented his paper 'The Political Economy of Oil Distribution in Mexico' in Oxford in November 2010, and will be presenting a revised version in Mexico in 2011. The paper analyses the distributive impact of fiscal policy in Mexico in the context of its substantial oil revenues. Dr Segal finds that while Mexico's fiscal system appears progressive, in the sense that the poor receive more in benefits from the fiscal system than they pay in taxes, a closer analysis reveals that all but the richest 10 per cent of citizens receive less from the fiscal system than their share of oil revenues. The net effect of fiscal policy, therefore, is to transfer entitlements to oil revenues to the richest 10 per

cent, from everyone else. In this sense the fiscal system is highly regressive.

In December 2010, Dr Segal wrote and gave a presentation on the management of oil revenues to the State Government of Rajasthan, India, with Anupama Sen and Christopher Allsopp, on the invitation of Cairn India. Rajasthan is expecting to produce significant quantities of oil in the near future, and the discussion covered such issues as the importance of transparency in revenue collection and expenditure, the efficient use and investment of revenues, and ways in which oil revenues can be used to reduce poverty and to further social goals.

Regarding the macroeconomics of oil prices, Dr Segal's OIES paper 'Oil Price Shocks and the Macroeconomy', was accepted for publication by the *Oxford Review of Economic Policy*, and is forthcoming in 2011. The paper argues that the effect of oil prices on macroeconomic outcomes can only be understood in the context of broader macroeconomic policy, and monetary policy in particular. Oil price rises do not cause recessions per se, but rather, when oil price rises lead to inflation, then monetary authorities tend to raise interest rates in response, thereby reducing output. The fact that oil price rises have tended not to pass through to inflation in more recent years explains why their impact on aggregate output has also declined.

## The Economics of Energy in India

Anupama Sen has been researching the economics of energy in India. India's economy has been growing at an average of 8 per cent in the last few years. Although India is primarily a 'coal economy', rapid growth has led to growth and diversification in energy use in the last few years, including efforts to encourage exploration for hydrocarbons within India, and to increase the use of non-conventional energy sources. Despite this, per capita energy consumption is very

poor, at about 30 per cent of the world average, and a large proportion of the population lack access to any form of modern commercial energy. Factors that have contributed to this include, first, capacity constraints that have restricted diversification, despite early signs of an impending shortage in power, one of the largest energy consuming sectors. Second, there are physical and regulatory constraints in distributional infrastructure, including grid connectivity and pipeline networks, restricting the substitution of energy sources. Third, and most importantly, there are distortions in pricing, at two 'points'; prices paid by marketing/distribution companies to exploration companies, and, prices paid by energy users to marketing/distribution companies, both of which have been set well below costs, and sustained through policies that are untenable in the long run. The problems in India's energy sector relate to its wider transition from a planned to a market-oriented economy, and to the lack of policy 'connectedness' between energy producing and energy consuming sectors. Policy changes in energy pricing during 2010, particularly in oil and gas, have pushed the focus of the problem further into downstream consuming sectors.

Anupama's research on Indian energy covers aspects of these main factors. In 'The Economic Effects of Electricity Deregulation in Indian States' a panel data econometric analysis, using an 'index' to measure electricity reform, is conducted for Indian states, taking into account India's political economy and regional diversity. It explores the outcomes of a 'generic' model of reform on key economic variables including prices and investment flows. Results show that outcomes are counterintuitive to those 'expected', mainly because of the levels of distortions, primarily in electricity pricing, that existed prior to implementing reform. Outcomes therefore tend to be negative with the implementation of reform, but stabilize at a 'baseline' level on the reform index, which this paper identifies. In

'Natural Gas in India: An Analysis of Policy' (joint with Anil Jain) research analysing India's policy on natural gas identifies two areas of policy that are likely to influence the future role of the gas sector; specific aspects of the fiscal regime in exploration and production, and pricing in the main downstream gas consuming sectors (power, fertilizers, and city gas). This paper then breaks down and analyses policy on pricing in downstream sectors and suggests options to help the transition towards market-oriented functioning, whilst ensuring the provision of basic goods which use gas as an input in manufacturing, to the poorest section of the population. It draws from experience in the liberalization of oil prices in India. In research on 'Oil Revenues and Economic Development: The Case of Rajasthan, India' (joint with Paul Segal), policy options for the use of oil revenues in an Indian state are explored, in relation to India's fiscal regime for hydrocarbons, its system of fiscal federalism, and levels of economic development. The emerging 'feature' across all the above is the independent administering of policy on energy by different government ministries, and the simultaneous interconnectedness, mainly through underlying price distortions, between energy producing and consuming sectors. Future work will continue to explore this.

### **Natural Gas in India: Liberalization and Policy**

India's energy consumption pattern is in a state of transition with gas assuming increasing importance. The share of gas in the primary commercial energy mix is likely to rise from its current levels of 10 per cent, to 20 per cent by 2024–5. Large gas discoveries in the eastern offshore, which came into production in 2009, have already doubled domestic gas production. LNG receiving terminals are also being expanded and have started attracting cargoes from suppliers/contracted buyers, even by re-direction, during the economic slowdown. However, national gas policies, which were

formulated during an era of planning and shortages when the only sources of supply were the National Oil Companies (NOCs), have not kept pace with recent developments, and continue to follow the earlier system of controlled pricing and distribution. Although there have been some significant recent policy changes in gas pricing, for the optimum development of this valuable natural resource, policies under the previous system need to be reworked to fit a liberalizing sector, and to give more importance to commercial considerations in decision making. Anil Jain examines this emerging gas market in India for the short and medium timeframes. He discusses the existing policy framework with regard to gas utilization and pricing, and the various ramifications of this for the major consuming sectors – power, fertilizers, and city gas. The New Exploration Licensing Policy (NELP) – India's contractual regime for exploration and production since the late 1990s – is also reviewed, and recommendations made for this (or future) fiscal regimes. This study is to be published as a book by the OIES.

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

There is no specific UK policy which deals with natural gas – the most important element in the UK's non-transport energy balance. Gas seems to be increasingly regarded as a major problem, because of the security aspects of growing import dependence, rather than as a possible solution to meeting 2020 carbon reduction targets. In this paper, published in 2010, John Elkins examines the future for natural gas in the UK and suggests that policy is needed, at the very least in respect of security of supply, particularly if it should turn out that gas will play a more central role than currently anticipated in compensating for slower than desired development of low carbon generation capacity.

## The Evolution and Functioning of the Traded Gas Market in Britain

Trading has revolutionized the commercial operation of the British gas market since the mid-1990s and promises to have a similar impact in Continental Europe in the 2010s. Yet it is very difficult for those outside the industry to understand exactly how gas trading evolved and how it operates. This study traces the rise, fall, and rise again of trading since the 1990s explaining the institutions, regulation, and contractual mechanisms which underpin trading. This study by Patrick Heather, published in August 2010, is the first study to fully explain the operation of the traded gas market in Britain.

## UK Gas Market Supply and Flexibility to 2025

With the decline of its domestic gas production, the UK has become an importing gas market connected to a diverse range of suppliers including Norway, The Netherlands, and multiple LNG producers. The UK's future supply mix, and the ways in which seasonal flexibility will be delivered, can only be understood in the context of an evolving global supply picture. Using an extension of the analytical framework developed for his earlier paper on LNG arbitrage, Howard Rogers explores the trade off between increased UK seasonal storage build, and reliance on interconnector pipelines to Continental Europe where significant new storage capacity is already under construction. This is studied over a range of future UK supply scenarios. The conclusion is that, based on current forward curve seasonal price differentials, new offshore UK storage is unlikely to be economic without additional regulatory support mechanisms, although reliance on interconnectors exposes the UK to low probability, high impact supply security events. Through a separate piece of detailed analysis, the report examines the

intermittency in wind generation due to hourly wind variation using data from 20 weather stations. By 2020, installed wind capacity in the order of 30 GW would require significant gas fired generation to absorb fluctuation in wind generation output, to the extent that gas consumption in the power sector would be similar to that in 2009. A key challenge at high levels of installed wind capacity is the provision of short lead time flexibility in the supply to gas fired power stations. This is likely to require a mixture of onshore salt cavern storage and flexible LNG regassification capacity. Publication is expected in mid 2011.

## The Role of Natural Gas in the Dutch Energy Transition: towards low-carbon electricity supply

This paper, by Floris van Forest, looks at the potential role of natural gas in the energy transition of one of Europe's leading natural gas markets. The main question addressed in this paper is: In what way could the nature and magnitude of the role of gas in the energy transition be affected by the development of a low-carbon power generation mix? This will largely depend on the political and commercial choices regarding this mix. What factors determine these choices? What are the implications for the role of gas? This paper discusses three scenarios that assume the dominance of a specific low-carbon generation technology. The decision in favour of one specific technology can have an impact on the future role of gas in the Dutch energy system. For example, an increasing integration of intermittent wind capacity increases the need for flexibility to maintain grid stability. The main provider for this flexibility in the Netherlands is gas-fired generation. In this paper the following generation scenarios are developed: Wind scenario: realization of large scale wind capacity (10 GW) by 2020; Nuclear scenario: realization of large scale nuclear capacity (3–4 GW) by 2025; Coal with CCS scenario:

realization of large scale coal/CCS capacity (3–4 GW) by 2025. Chapters 2 and 3 elaborate on the current policies around energy transition and the characteristics of the Netherlands as a gas country. They provide the background for the scenarios and subsequent analysis. The scenarios are elaborated in Chapter 4, and in Chapter 5 the underlying fundamental issues of future development of low-carbon generation capacity in the Netherlands and the implications for the role of gas are discussed. The final chapter highlights the economic dimension of decisions regarding large scale generation capacity development. This paper was published in January 2010.

### **Can Unconventional Gas be a Game Changer in European Gas Markets?**

Although unconventional gas development will not be a game changer for European gas markets overall, it could have a significant impact in individual countries, although probably not this decade. Florence Gény's study, published in December 2010, argues that much more stringent European environmental standards, difficulties of access to land and fresh water, and lack of incentives for landowners to allow companies to drill will require a completely different business model for unconventional gas development in Europe compared to what has been seen in the USA. Although the impact could be greater in Poland and Germany, overall it would be surprising if unconventional gas provided more than 5 per cent of European gas demand before the early 2020s.

### **European Natural Gas Demand, Supply & Pricing: cycles, seasons and the impact of LNG price arbitrage**

This book by Anouk Honoré, published in December 2010 by Oxford University Press, deals in detail with

the most important European gas markets, encompassing 35 countries including Turkey. It provides an in-depth analysis of demand, supply, and pricing. The rationale of this research stems from the fact that, while there is much material dealing with gas supply availability, there is very little research on European gas demand from publicly available sources. The central contribution of the book is that it provides not simply an analysis, but also a methodology, for looking at the evolution of European gas demand and supply. Data on all the main European gas metrics are provided in a clear and understandable framework, which allows readers to apply their own assumptions, and also to include new data as they become available.

Summarized in six bullet points, the main conclusions were: 1/ The timing and the shape of the gas demand growth recovery in Europe remain uncertain; 2/ But despite the general pessimism, there is some potential for additional demand, driven mostly by the construction of new gas-fired power plants; 3/ We expect natural gas demand to increase by 50 bcm (up to 635 bcm) or 0.6 per cent per year on average by 2020, but with major differences between national markets, sectors of consumption, and period of recovery; 4/ European gas demand will be close to Take-or-Pay (TOP) levels of contracted pipeline gas in 2010, but the tightness should relax in 2011–12; 5/ Contracted gas, including LNG, is sufficient to cover gas demand until 2014; 6/ Europe will need to secure additional gas post 2015, a period of large uncertainty for world gas supply in general. This book extends the OIES Natural Gas Programme's regional gas studies which have so far covered Asia and CIS countries and which, in the near future, will extend to the Middle East and North Africa.

## **Economic recession and natural gas demand in Europe: what happened in 2008–10**

Anouk Honoré's research, to be published in January 2011, is a companion piece to her book *European Natural Gas Demand, Supply, & Prices: Cycles, seasons, and the impact of LNG price arbitrage*. It offers a statistical update on gas demand, explaining the impacts of both economic recession and recovery, and of the cold temperatures in the winters of 2008–9 and 2009–10. It provides some concise analysis on gas demand trends and the main sectors of consumption. The appendices give additional statistical details by country. Dr. Honoré concludes that natural gas demand in Europe will recover progressively, however the cold temperatures at the beginning and the end of 2010 which boosted gas demand have masked the underlying demand growth due to post recession economic recovery.

## **Focus on the Spanish gas market**

Spain's indigenous energy resources are limited and unlikely to increase significantly, with the exception of some form of renewable energy production, in particular wind. The growth in the use of natural gas in power generation has led to increased security of supply concerns compared to hydroelectricity, but also to reduced environmental impacts compared to coal generation. Spain was the fastest growing gas market in Europe, and one of the key drivers for future gas demand growth in the region. Since the recession and the 8.6 per cent decline in gas consumption in 2009, questions have been raised regarding the dynamics of the national gas market. This research by Anouk Honoré provides an in-depth analysis of the Spanish gas (and power) market, focusing on the major challenges and particularities of this rather isolated market where 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. It draws some conclusions and envisages possible scenarios for future opportunities and difficulties in the 2010s and beyond. Publication is expected in mid 2011.

## **The Transition to Hub-Based Gas Pricing in Continental Europe**

In this research, published in March 2011, Jonathan Stern and Howard Rogers argue that Continental European gas markets are moving inexorably from oil-linked to hub-based pricing. Market prices for gas increasingly reflect a complex combination of national, regional, and global supply and demand for gas rather than oil products. An increasingly competitive European gas market, created by third party access enforced by a combination of EU and national regulations, means that any supplier refusing to supply gas at hub prices will lose customers. The commercial risk for utilities which are importing gas at oil-linked prices under long-term contracts but forced to sell at market prices has become untenable. The European gas industry is in the early stages of a commercial paradigm shift away from oil-linked and towards hub-based pricing. This is likely to be accompanied by major changes in contractual arrangements including termination of many existing long-term contracts probably involving significant litigation.

## **Does Natural Gas Need a Decarbonization Strategy? The cases of the Netherlands and the UK**

The proposition that natural gas could be a 'transition fuel' has been frequently used in previous years by the gas industry when addressing the future outlook of gas. The main arguments are its (relatively) low emissions compared

to other fossil fuels, high efficiency in power generation, and the ability to accommodate intermittent renewable capacity. The term transition fuel implies a certain end date, depending on the timeframe of this transition. The proposition of being a 'destination fuel' could give natural gas an even stronger foothold in future energy supply. However, are these propositions supported by verifiable developments around gas and government policies? In other words, how viable or credible are these claims for a long term role for gas? This research, to be published in spring 2011, by Floris van Foreest examines the viability and credibility of these propositions in relation to two of Europe's biggest gas markets: the UK and the Netherlands.

### **Non-Gazprom Gas Producers in Russia**

This monograph by James Henderson, published in November 2010, details the potential for companies other than Gazprom to play an increasing role in the Russian gas sector over the next two decades. Gazprom has dominated the Russian gas sector in the post-Soviet era, accounting for two-thirds of the country's gas reserves and at times almost 90 per cent of its production. However, a combination of factors may alter the future landscape of the Russian gas industry. Gazprom's Soviet legacy fields in the heartland of west Siberia are in decline, and its big new developments are in remote, high cost Arctic regions such as the Yamal peninsula. The commerciality of these fields has been put in doubt by falling global gas prices, caused by the emergence of new supply sources (particularly unconventional gas in the USA) and a stagnation of demand growth across Europe due to the 2008–9 economic crisis. As a result, Russia and Gazprom are being forced to reconsider the cost competitiveness of other Russian sources of gas supply, leading to the possibility of a significant increase in non-Gazprom domestic production over the next two decades, especially

as imports from Central Asia are no longer a cheap alternative.

This study examines the potential for non-Gazprom producers such as Novatek, the Russian oil companies, and others, including international players, to dramatically increase their contribution to Russia's gas supply. It concludes that they already have the resources which could enable them to produce up to a third of the country's domestic gas output by 2030. The key to enabling this growth in non-Gazprom supply will be continued progress in domestic market reform and liberalization, including access to the Russian gas transmission system. The increasing alignment of political and commercial interests towards this goal suggests that, although Gazprom will undoubtedly continue to be the dominant player in the sector, a significant opportunity for domestic and international third party producers may now be emerging.

### **The April 2010 Russo-Ukrainian Gas Agreement and its Implications for Europe**

This study, published in June 2010, by Jonathan Stern, Katja Yafimava, and Simon Pirani reviews the gas agreements made between Russia and Ukraine this year. The authors warn that while prospects for a new Russo-Ukrainian 'gas war' have receded in the short term, fault lines remain in the agreements that could cause problems in future – which is of concern to a European market dealing with the latest Russo-Belarusian dispute. The authors point out that the agreements made between Russia and Ukraine in April 2010 to exchange a discount on Ukraine's gas imports for an extension of the lease on Russia's Black Sea naval base reverses progress made towards depoliticizing gas relationships. They examine the transit diversification projects undertaken by Gazprom and major European energy companies such as Nord Stream which are reducing reliance on

Ukraine and Belarus, and argue that within two years the era of 'gas wars' in their present form will be over. The authors also analyse the Ukrainian gas sector's outstanding problems, including excessive consumption and negligible progress towards market reform, and argue that unless tackled these will continue to obstruct Ukraine's economic development.

### **The June 2010 Russian-Belarusian Gas Transit Dispute: a surprise that was to be expected**

In this paper published in July 2010, Katja Yafimava argues that the June 2010 Russia-Belarus gas transit dispute should not have come as a surprise to Europeans. The January 2007 supply and transit contract was more of a 'work in progress' rather than a finished agreement, and its lack of clarity and transparency about price methodology and the relationship between prices and transit fees contributed to the dispute. Another contributory factor was Belarus' desire to improve its economic conditions (adversely affected by the 2008 economic crisis and the 2010 changes in the Russian oil export regime) and postpone a transition to European 'netback' gas prices until 2014-15 before its bargaining power vis-à-vis Gazprom declined further with the completion of the Nord Stream pipeline in 2012. Decreasing Russian government tolerance of Belarus may have made achieving this aim even more difficult and the dispute more likely.

### **The Transit Dimension of EU Energy Security: Russian Gas Transit Across Ukraine, Belarus, and Moldova**

This research by Katja Yafimava will be published as a book by Oxford University Press in 2011. It analyses how EU transit, and hence energy, security is affected by the governance structures of the Eurasian gas network

and by asymmetrical power relations between its actors, in particular between Russia and western CIS states (Ukraine, Belarus, and Moldova) and their national gas companies. The book identifies the threats to security of Russian gas transit across the western CIS, explains why and how unresolved Russia-western CIS bilateral issues led to the appearance of these threats, and determines whether the existing bilateral frameworks (supply and transit contracts and intergovernmental agreements) are adequate and sufficient to ensure security of transit across the western CIS. It identifies EU energy policy gaps and explains how these reduce the Union's ability to deal with such threats, and also suggests how transit security could be incorporated into existing policy frameworks. Finally the book suggests how transit security threats can be reduced through the joint employment of both bilateral and multilateral frameworks, and how the latter (the Energy Charter Treaty and the Energy Community Treaty) could contribute towards increased security of Russian gas transit across the western CIS.

### **Natural Gas Markets in the Middle East and North Africa**

This research examines the gas supply, demand, and trade prospects for the entire Middle East and North African region. This will be the first academic book, to be published in 2011 by Oxford University Press, in any language to provide a comprehensive analysis of market prospects in countries with 40 per cent of the world's proven gas reserves. The main conclusion of the book is that the majority of countries are encountering increasingly serious problems in meeting very rapidly increasing gas demand, mainly for power generation but also for new petrochemical projects. Despite huge reserves, countries are struggling to cope with demand growth of 6-7 per cent per annum, partly resulting from very low domestic prices which are between a third to a sixth of the cost of new domestic

production, and an even smaller fraction of the price of internationally traded gas. This situation is causing countries, including those which have traditionally been exporters, to import pipeline gas and LNG. Middle East and North African countries urgently need to raise domestic gas prices to at least cost-based – and eventually to internationally traded – levels, a task which would have been extremely difficult even prior to the recent political upheavals in the region, but which now seems beyond either existing or new governments. Failure to increase prices will either cause subsidies, and hence financial deficits, to increase to unmanageable levels, or a future of increasingly serious power shortages.

The only exception to these general trends will be Qatar, already the largest LNG exporter in the world, but where growth potential beyond current projects is uncertain. Saudi Arabia may continue its current policy of no imports/no exports, but only at the expense of increasing use of oil in power generation. Algerian exports will continue to grow slowly but will peak before the end of this decade. Iraq and Israel could become modest exporters of gas but (aside from Qatar) the general outlook for exports from the region is relatively bleak.

This is a multi-author book, edited by Bassam Fattouh and Jonathan Stern. The authors of the chapters are: 'Algeria's Natural Gas Market', Hakim Darbouche; 'The Libyan Gas Industry', Waniss A. Otman; 'The Role of Natural Gas in North African Transit Countries', Waniss A. Otman and Hakim Darbouche; 'Egypt's Natural Gas Market', Hakim Darbouche and Robert Mabro; 'The Mashreq, Israel, and the Palestinian Territories', Andrew Cleary; 'The Saudi Gas Sector and its Role in Industrialization', Bassam Fattouh; 'Natural Gas in Iraq', Lorian Yacoub and Ian Rutledge; 'The Iranian Gas Industry', Siamak Adibi and Fereidun Fesharaki; 'Qatar's Gas Revolution', Justin Dargin; 'LNG in Qatar', Andy Flower; 'Natural Gas

in Oman', David Ledesma; 'The UAE Gas Sector', Justin Dargin and Andy Flower; 'Natural Gas in Bahrain and Kuwait', Randa Alami; 'Natural Gas – A Lifeline for Yemen', Franz Gerner and Silvana Tordo; and 'Conclusion', Bassam Fattouh and Jonathan Stern.

### **Algeria's shifting gas export policy: Between policy and market constraints**

This research by Hakim Darbouche, to be published early in 2011, analyses the main drivers of Algeria's gas export strategy since the early 2000s. It argues that, after suffering a series of setbacks owing to the policy inconsistencies of the administration of former energy minister Chakib Khelil, Algeria's gas export strategy now faces a number of constraints as a result of changing market conditions. The situation inherited by the new leadership at Sonatrach and the Algerian energy ministry leaves limited options for the optimization of Algeria's gas exports in the short to medium term. Up to about 2014, the maximization of the value of available exports is highly likely to take precedence over the preservation of market share, while large parts of the country's gas export infrastructure will be under-utilized for most of the 2010s. To address this situation, decision-makers in Algeria will have to take meaningful action to improve the gas supply–demand balance.

### **The Turkish-Iranian Gas Relationship: Politically Successful, Commercially Problematic**

Iran–Turkey gas trade is the only large scale operating pipeline gas export to Europe from the Caspian and Middle East region. Given the interest in developing much larger pipeline exports to Europe from this region it is therefore of considerable importance. Elin Kinnander's paper, published in January 2010, traces the political and commercial aspects of this trade. From a political standpoint both sides

continue to hail their gas relationship as an outstanding success which will increase greatly in the future. However the commercial story is entirely different, with periodic interruptions by both sides and price disagreements leading to international arbitration. Despite the political success of the trade these commercial problems raise questions as to how large and how fast any expansion of exports will be.

## International Gas Markets

Despite generalizations to the contrary, there is as yet no 'global natural gas market', but as regional markets become more interconnected, natural gas can be said to be 'globalizing'. This chapter in *A Technical and Legal Guide to the Global Hydrocarbons Markets*, to be published by Stronachs in 2011, looks at the following regions: North America, Europe, Russia and CIS, Middle East and North Africa, some of the major Asian countries; and at international LNG developments. The aim, when tackling these huge subjects has been to focus on their likely impact on international gas trade. The aim of the chapter is to give the reader some insight into the main gas issues of most of the major regions but also the problems of expanding LNG and pipeline gas trade on an increasingly global basis. This chapter is a multi-author work from the staff of the Natural Gas Research Programme at the Oxford Institute for Energy Studies. Jonathan Stern wrote the introduction, Asian section, conclusions, and was responsible for overall editing of the chapter. The authors of the other sections are: Florence Gény – North America, Anouk Honoré – Europe, Simon Pirani – Russia and CIS, Hakim Darbouche – Middle East and North Africa, Howard Rogers – LNG developments.

## LNG Trade-flows in the Atlantic Basin, Trends and Discontinuities

LNG trade exerts a defining influence on the development of regional and

global gas flows and prices. In this paper, published in March 2010, Howard Rogers develops a framework which rationalizes these interactions, based upon the differing market and price formation structures of Europe, North America, and Asia. A model based on this framework is described and the outcome of a set of key assumptions used to describe the potential future dynamics of this system. Since 2008 markets have moved from a 'very tight world' of competition for LNG cargoes and prices around oil parity, to a 'very loose world' of surplus and prices well below oil parity. The study concludes that the dynamics of future trade flows could imply a succession of these cycles rather than the achievement of a stable converged global gas system. This would suggest that price volatility could increase – and with it the opportunities for trading – which will have a significant impact on markets which continue to link gas prices to those of oil.

# 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 global oil demand dynamics, a review of the Copenhagen Summit, the future of the electric car, energy poverty, the credit crunch and international energy markets, reforming the UK electricity markets, and gas-to-power in North Africa. Our thanks to the authors of all articles that appeared in OEF in 2010, and to Robert Mabro, the editor.

## Website –

### [www.oxfordenergy.org](http://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 2010 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. Subscriptions to the Institute's email notification service continued to increase.

# Lectures and Seminars

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. They also help 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 90 lectures, presentations, and talks at various conferences, workshops, seminars, and meetings during the year.

## Energy Lectures

The geopolitics of energy seminar series, run in association with St Antony's College, Oxford, and organized by Dr Shamil Yenikeeff held two lectures in 2010. 'Russian Natural Resources: Curse? Weapon? Both?' by Simon Pirani, Senior Research Fellow, OIES and 'Oil Prices are Governed by Greed, not Scarcity' by Tom Bower, author. Seminars for 2011 are currently being planned.

## XXI 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 organizations. The twenty-first was held this year in April in Athens, Greece with the kind support of the Olayan Group. Over 40 participants engaged in a lively discussion on a wide range of energy issues including the global economic outlook and risks, the oil and refining sectors, oil supply and demand, OPEC, LNG and natural gas, climate change and carbon trading,

alternative energy, the fuel mix and the utility sector, and geopolitics.

## 2010 Gas Day

The Institute's Natural Gas Programme organized its fifth annual 'Gas Day' in September 2010 to discuss current issues in natural gas including 'The Economic Recovery and Gas Demand', with a special focus on the macroeconomic outlook and gas demand in Europe, the USA, and LNG in Asia; 'Production and Upstream Developments'; and 'Pricing and Contractual Change'. The seminar, held at St Anne's College, Oxford, was attended by more than 80 people including sponsors of the Natural Gas Programme and the Institute, and invited guests.

## Gas Programme Sponsors Meeting

The Institute's Natural Gas Programme held its bi-annual Sponsors' Meetings on 6 July 2010 at St. Hugh's College, Oxford and on 15 September 2010 at Worcester College, 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 July meeting discussed European Gas Issues including unconventional gas, the UK market and options for a European gas price index, Russia and CIS Issues, including Belarus and transit issues, the April Russia-Ukraine agreement, and initial conclusions of the OIES MENA book. The September meeting focused on European Gas Issues including European demand recovery, UK supply, flexibility, and storage, continental trading hub development, and gas decarbonization; and on CIS/Middle East and LNG Issues, including non-Gazprom Russian producers, CIS gas consumption, conclusions from the OIES MENA book, and the expectation versus reality of the LNG supply wave.

# Library

The Institute's library is its most valuable research tool. In 2010, 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 its 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 its collection. The library is used not only by staff, but also by students from Oxford and other universities, and by researchers from abroad. It remains the Institute's policy 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, OAPEC, 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, Oxford. He is author of a Review of Statistics for Economic Policymaking (the 'Allsopp Review'). He is a former Member of the Monetary Policy Committee (2000–3) 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 organizations. 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* in 2009. Following his 2010 paper on Eastern Europe's energy and climate challenge, he is currently researching a paper on the European Union's interventionism in energy policy with particular reference to planning and finance. He also wrote the energy chapter in *Policy-making in the European Union* published by Oxford University Press in 2010, and the European chapter in *UK Energy Policy and the End of Market*

*Fundamentalism* to be published in 2011 by Oxford University Press for OIES.

**Hakim Darbouche**, Research Fellow, joined the Institute in April 2009. He is an expert on North Africa, focusing on energy, political economy, politics, and international relations, and has published extensively on issues relating to these themes. Prior to joining the Institute, he served as adviser on MENA affairs to a NATO agency in Brussels. He has a PhD in International Relations from the University of Liverpool. In Oxford, he is also a senior member of St. Antony's College and a Region Head on the MENA Desk at Oxford Analytica.

**John Elkins**, Research Fellow, was until three 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, has written 'Natural Gas in the UK: An Industry in Search of a Policy?', which was published in 2010.

**Bassam Fattouh**, Director of the Oil and Middle East Programme, is also Research Fellow at St Antony's College, Oxford; 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*, *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 specializing 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 strategy consultant for a Dutch energy company. His main expertise lies in the field of electricity market analysis, energy transition, and security of gas supply. Previously, he held different positions at large

multinational companies as project manager. His research concentrates on the role of natural gas in energy transition in the Netherlands. 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 École des Hautes Études 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 20 years experience of trading in natural gas and oil.

**Cameron Hepburn**, Senior Research Fellow, joined the Institute in November 2006. He is an economist specializing in environmental and public policy. He holds Fellowships at the LSE and the University of Oxford. He was educated at Melbourne University in Law and Chemical Engineering, and earned his doctorate in economics from Oxford (as a Rhodes Scholar). He is actively involved in public policy as a member of the DEFRA Academic Panel and as a founder of Vivid Economics. He contributed two background research papers to the Stern Review on the Economics of Climate Change. Cameron has been

interviewed for TV, radio, and the printed press in various countries. Cameron is also a director of Climate Bridge, a company devoted to reducing greenhouse gas emissions in China.

**Anouk Honoré**, Senior Research Fellow, joined the Oxford Institute for Energy Studies in April 2004. She works in the Natural Gas Research Programme. Her research at the OIES focuses on various natural gas issues, with particular emphasis on the European region, market fundamentals (supply and demand), building and analysing scenarios, and power generation. In 2010, she published a book at the Oxford University Press on *European Natural Gas Demand, Supply & Pricing: cycles, seasons and the impact of LNG price arbitrage*. A companion piece on 'Economic recession and natural gas demand in Europe: what happened in 2008–2010?' was published in January 2011, providing a statistical update on gas demand since the book was finished, explaining the impacts of both economic recession and recovery, and cold temperatures in winters 2008–9 and 2009–10. Before joining the Institute, she worked at the International Energy Agency in Paris. Her work focused mainly on natural gas policies in the 28 IEA member countries, but also in China and in Latin America. She is a Council Member of the British Institute for Energy Economics. Dr Honoré holds a PhD in Economics, a MA in Environmental and Natural Resources Economics, and a LL.M 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 specialization in Marketing. He also took a one-year Diploma programme at the Indian Institute of Foreign Trade, New Delhi. He has over two and a half 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, Industries, Revenue, and Petroleum and Natural Gas. In separate assignments, he has been exposed to the differing development-related issues faced by villages and small and large industries. 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 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. Presently, he is posted as Special Commissioner at New Delhi, the national capital, where he promotes the interests of the provincial State Government of Madhya Pradesh.

**Laura El-Katiri**, Junior Research Fellow, joined the Institute in October 2009 as a Research Assistant to the Oil and Natural Gas Programmes. Since October 2010, she has worked as a Junior Research Fellow on energy-related political economy topics in the Gulf States, while also continuing with research assistance to Bassam Fattouh and Jonathan Stern. She holds an MPhil in Modern Middle Eastern Studies from the University of Oxford.

**Frances Kennet**, Development Director, joined the Institute in April 2007. She read English at the University of Oxford and has worked in publishing for many years, as an author and managing editor. She returned to Oxford 10 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. She left the Institute in January 2010.

**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 from 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 liberalization for the achievement of key energy policy objectives, in particular the environment. He contributed the chapter entitled 'Can the Market Deliver Security and Environmental Protection in Electricity Generation?' to *UK Energy Policy and the End of Market Fundamentalism* by Ian Rutledge and Philip Wrights (eds.) to be published in 2011 by Oxford University Press for the Oxford Institute for Energy Studies, which updates the analysis and conclusions of his earlier monograph *The Dynamics of Power* to argue that governments have failed to develop policies which will enable them to meet their environmental targets in the context of liberalized markets, and that more interventionist approaches would be needed.

**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 of the Institute's book *Natural 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 30 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 and Climate Change, 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 the University of Oxford. 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 organization 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 specializing 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 north-east 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 North-East 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 and RIIA, 1998). The new and comprehensive study on China's gas expansion 'The Implications of China's Gas Expansion

towards Natural Gas Market in Asia', was published by Chatham House in 2004. 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 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 the author of a monograph on Soviet history, *The Russian Revolution in Retreat*, published by Routledge in 2008. He has 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*, and *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 Russian and CIS Gas Markets' an Institute working paper published in 2009, and co-author of 'The April 2010 Russo-Ukrainian gas agreement and its implications for Europe' published in 2010.

**John Rhys**, Senior Research Fellow, joined the Institute in March 2010,

having been one of its senior research advisers. He 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 privatizations. 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.

**David Robinson**, Senior Research Fellow, joined the Institute in July 2007. He is a consulting economist who advises on public policy and corporate strategy, especially in relation to energy and climate change. He is a Senior Adviser to The Brattle Group of consultants, and was previously a Director of NERA, where he was the co-Chair of European Operations and of the Global Energy and Telecom Practices. He also worked at the International Energy Agency (IEA) and wrote his doctoral dissertation at the University of Oxford on the vertical disintegration of the international petroleum industry.

**Howard Rogers**, Senior Research Fellow, joined the Institute in January 2009 after a long career in BP in upstream oil and gas business development and strategy, including postings to the USA, Kuwait, and Azerbaijan. His last post in BP was Head of Fundamental Analysis, Global Gas. In 2010 he published an OIES research paper 'LNG Trade-flows in the Atlantic Basin: Trends

and Discontinuities' on the subject of LNG arbitrage between the regional markets of Asia, Europe, and North America, based on a quantitative modelling framework. With Jonathan Stern he will co-author a paper on the transition to hub-based gas pricing in continental Europe in early 2011. His current project is on UK gas market supply and flexibility needs to 2025, including the interaction of gas and wind generation in the power sector.

**Anupama Sen**, Research Fellow, joined the Institute in October 2009 to work on the economics of energy in India. She holds a PhD from the University of Cambridge, where she was a Cambridge Nehru Scholar, an MSc in Economic Development from the London School of Economics, and a BA (Hons) in Economics from St Xavier's College, the University of Mumbai. She is a Fellow of the Cambridge Commonwealth Society. Her doctoral research involved an empirical analysis of the economic impacts of autonomous electricity sector deregulation in Indian states, whilst accounting for their inherent economic and political diversity; it also involved extensive fieldwork in India. Her research interests are in the economic and applied econometric analysis of energy sector reform in developing countries. She has presented her research findings at various forums, including the World Bank's International Conference on Infrastructure Economics and Development, the Annual Congress of the European Economic Association, and the International Workshop on Empirical Methods in Energy Economics. Her current work at the Institute is broadening to include wider themes within India's energy sector, including oil, gas, and climate change, with a particular focus on the interconnectedness of these themes, particularly through factors such as energy pricing in downstream consuming sectors.

**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 Advisers for the Center for Energy Economics, Bureau of Economic Geology at University of Texas at Austin.

He is the author of several books, including *The Future of Russian Gas and Gazprom* (Oxford University Press, 2005) and many shorter works on energy and natural gas issues. During 2010, Jonathan Stern's major research project was co-editing (with Bassam Fattouh) the Gas Programme's book on *Natural Gas Markets in the Middle East and North Africa*. This book, which comprises 15 chapters covering 19 regional countries was sent to the editor in September. He also wrote a chapter on 'Gas Storage: a Case of Market Failure', for another OIES book entitled, *UK Energy Policy and the End of Market Fundamentalism*, edited by Ian Rutledge and Philip Wright. He also co-authored (with Simon Pirani and Katja Yafimava) 'The April 2010 Russo-Ukrainian Gas Agreement and its Implications for Europe', published by the Institute in June 2010.

Another publication during the year was, 'The New Security Environment for European Gas: Worsening Geopolitics and Increasing Global Competition for LNG', in eds Francois Leveque et al., *Security of Energy Supply in Europe: Natural Gas, Nuclear and Hydrogen*, Edward Elgar: 2010; (a chapter based on previously published Institute research). During the year he continued to work on European gas pricing developments, and general Russian and CIS gas issues.

**Katja Yafimava**, Research Fellow, joined the Institute in November 2006 to work in the Natural Gas Research Programme. She holds a DPhil in Geography and an MPhil in Russian and East European Studies from the University of Oxford (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 2011. 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. She published a working paper on the June 2010 Russia–Belarus gas dispute, a short version of which also appeared in *Petroleum Review*. She also reviewed several papers for *Journal of European integration* and *The Energy Journal*. She has also presented her work at various conferences (The Skolkovo School of Management, Moscow; SITE, Stockholm; CEU, Budapest). 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 Yenikeyeff**, Research Fellow, is a Senior Associate Member at the Russian and Eurasian Studies Centre, St Antony's College, Oxford. Dr Yenikeyeff 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 adviser to the Chairman of the subcommittee for the organization of the state authority system in Russia. He has also been involved with a number of consulting companies specializing 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, and political and economic risks. Dr

Yenikeyeff writes and presents on Russian-European energy relations, Russia and OPEC, Caspian and Central Asian energy issues, and the development of Arctic hydrocarbons. His publications have appeared in a number of industry and academic journals. Amongst the latest of these is the monograph 'Kazakhstan's Gas: Export Markets and Export Routes', as well as a study on natural resource management in Russia (co-authored with Valery Kryukov and Anatoly Tokarev) which will be published in an upcoming OIES monograph, and featured as a chapter in Paul Collier and Tony Venables (eds.), *Plundered Nations? Successes and Failures in Natural Resource Extraction* (Palgrave Macmillan, 2011). Dr Yenikeyeff is also 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, Putin, and Medvedev to be published by Oxford University Press in 2011. He runs the Geopolitics of Energy lecture series under the joint auspices of the Oxford Institute for Energy Studies and St Antony's College, Oxford.

**Jimin Zhao**, Research Fellow, left the Institute in July 2010.

**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 2010. 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 Advisers, Contributing Authors, and Students

**Siamak Adibi**, Contributing Author, is currently head of the Middle East gas team in FACTS Global Energy (FGE), a consulting company based in Singapore. Siamak specializes in the natural gas/LNG business with a focus on the Middle East, North Africa, and CIS countries. He holds an MA in Energy Economics and was previously with the National Iranian Gas Export Company (NIGEC). Recently, he led an in depth study into Middle East and North African countries in FGE focusing on gas. Siamak Adibi has presented at several oil and gas briefings/conferences in Asia and the Middle East. His works have been published in numerous international publications.

**Randa Alami**, Contributing Author, is a development economist specializing in the Middle East, and is currently a Teaching Fellow at the School of Oriental and African Studies, University of London. Previously, Randa worked as a Research Fellow at the Oxford Institute for Energy Studies and at UNCTAD, and has been a consultant to DFID, ESCWA, and others.

**Robert Arnott**, Senior Research Adviser, 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 recognized for his research into 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 10 years.

**Brenda Boardman MBE**, Contributing Author, is Emeritus Fellow at the Environmental Change Institute, University of Oxford, Fellow of the UK's Institute of Energy, and Honorary Visiting Professor at the School of Geography, University of Exeter. As part of her focus on the use of energy in the home, particularly by low income groups, she is author of *Fixing Fuel Poverty: Challenges and Solutions* (Earthscan, 2010).

**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 north-east 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), and in October 2008 he started a three-year programme of research on Global Energy Dilemmas, funded by a Leverhulme Trust Major Research Fellowship.

**Juan Carlos Boué**, Senior Research Adviser, is an oil industry consultant; he started his career working at the international trading arm of *Petróleos Mexicanos* (PEMEX). His professional activities have focused on petroleum, alternating between academia – he was a Senior Research Fellow of the Oxford Institute for Energy Studies from 2000 to 2004 – and industry. From 2005 to 2009, he was special adviser to the Venezuelan minister of Energy and Petroleum, and sat on the boards of most of *Petróleos de Venezuela's* (PDVSA) refining ventures abroad. He has written widely on the industrial economics of oil and gas exploration and production, and petroleum refining industries, as well as on taxation and the political economy of oil in general. His current research concerns the governance mechanisms and legal structure underpinning the international oil industry. He is author of *A Question of Rigs, of Rules, or of Rigging the Rules? Upstream Profits and Taxes in US Gulf Offshore Oil and Gas* (OUP, 2006).

**Andrew Cleary**, Contributing Author, is a partner at Integrity Research and Consultancy, specializing in fragile and natural resource-endowed environments. He has a MScEcon (Intelligence and Strategic Studies) from Aberystwyth University, and researched his dissertation

on Russian natural gas. Andrew Cleary's chapter on Syria, Lebanon, Israel, and Jordan for the Institute's forthcoming book *Natural Gas Markets in the Middle East and North Africa* is his first published work.

**Justin Dargin**, Contributing Author, is an Energy Research Fellow with Harvard University and a Fulbright Scholar of the Middle East. He is a specialist in energy law, and the Middle Eastern oil and gas market. He has many years of experience in the MENA oil and gas market. Previously, Dargin worked in the legal department of OPEC where he advised senior officials on various multilateral issues. He is the author of *Desert Dreams*, a book about the intersection of Middle Eastern geopolitics, energy, and state formation. He sits on the board of directors of the International Energy Foundation.

**John Enos**, Visiting Research Fellow, is Emeritus Fellow in Economics of Magdalen College, Oxford. 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.

**Fereidun Fesharaki**, Contributing Author, is Chairman of FACTS Global Energy (FGE), an energy consulting firm with offices in Singapore, London, Dubai, Honolulu, Beijing, Perth, and Yokohama. He received his PhD in Energy Economics at the University of Surrey and has led energy-related academic research at the East–West Center since 1985. Prior to founding FGE, Dr Fesharaki was at Harvard's Center for Middle Eastern Studies. He was the Energy Adviser to the prime minister of Iran and a Delegate to OPEC's Ministerial Conferences.

**Franz Gerner**, Contributing Author, is a Senior Energy Economist with

15 years experience in the gas sector focusing on gas market reform, restructuring, pricing, and economic regulation. He currently works on the World Bank's gas business and dialogue in Eastern Europe and Central Asia, and has previously covered Egypt and Yemen. He has published widely including a World Bank publication: *Republic of Yemen: A Natural Gas Incentive Framework*.

**Luis Gomez-Echeverri**, Contributing Author, is at IIASA (Laxenburg, Austria) with the Global Energy Assessment team as its Associate Director, and is also adviser on climate change to several institutions and governments. He worked for over 30 years with the UN, most of it with UNDP, where he established and was the first Director of the Environment Division, and with the UNFCCC, where he was Director of Implementation Programmes and the Finance Mechanism, as well as SBI coordinator.

**Robert Gross**, Contributing Author, is a Senior Lecturer in Energy and Environmental Policy, and Director of the Centre for Energy Policy and Technology at Imperial College London, and a co-Director of the UK Energy Research Centre. He co-authored the Cabinet Office's 2002 Energy Review and in 2008 was Specialist Adviser to the House of Lords European Union Select Committee investigation into the feasibility of the EU 2020 targets for renewable energy.

**Marianne Haug**, Senior Research Adviser, 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 Hydrogen & Fuel Cell Technology Platform. During the years 2001–5, 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.

**Elham Hassanzadeh**, Student, visited the Institute for six weeks at the end of 2010. She is currently a doctoral student in Petroleum Law and Policy, Centre for Energy, Petroleum & Mineral Law & Policy (CEPMLP), University of Dundee, UK and a Barrister and Legal Consultant, Central Bar Association, Tehran, Iran.

**Charles Henderson CB**, Senior Research Adviser, 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.

**James Henderson**, Contributing Author, has been analysing the Russian oil and gas industry for the past 15 years. Having been Head of Energy for Wood Mackenzie Consultants in the mid-1990s he moved to Moscow as Head of Oil & Gas Research for Renaissance Capital in 1997, and in 1999 became Head of Equity Research. He returned to the UK in 2002 and is currently Head of Russia for Lambert Energy Advisory in London. He completed his doctoral thesis on partnership in the Russian oil and gas industry at the University of London and received his PhD in 2010.

**Philip Heptonstall**, Contributing Author, is a Research Associate with the UK Energy Research Centre (UKERC) at Imperial College London. He has co-authored several of the UKERC Technology and Policy Assessment studies including 'Investment in Electricity Generation – the role of costs, incentives and risks' (UKERC, 2007).

**Paul Horsnell**, Research Adviser, 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. He is the author of *Oil in Asia: Markets, Trading, Refining and Deregulation* (OUP/OIES 1997), and (with Robert Mabro) *Oil Markets and Prices: The Brent Market and the Formation of World Oil Prices* (OUP/OIES 1993). He holds a degree in Philosophy, Politics, and Economics, and a doctorate in Economics, both from Keble College, Oxford.

**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 organizations such as UNECE, the World Bank, the IMF, and the EBRD. She has contributed to numerous economic studies for international organizations (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**, Contributing Author, 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 Turkey–Iran gas relationship.

**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 Belgrade University. He is principal author of the energy–poverty analysis '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 author of 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 (1992–8) and a contributor to the Black Sea and Central Asia panel at the Harriman Institute, Columbia University. Aleksandar has been a member of the Advisory Board to the Russian Power Conference since 2002, and of the UNECE Group of Experts in Sustainable Energy, as well as a regular consultant to the World Bank and contributor to the 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 Adviser, is Founder and Managing Director of IFG Development Initiatives (IFGDI), an economics and corporate advisory consultancy specializing 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 the University of Oxford, 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.

**Dominic Maclaine**, Contributing Author, is a journalist who has covered the development of UK government energy policy for 18 years. He currently edits the *New Power* publication. He initially trained as an electronics engineer and went on to carry out PhD research investigating the costs and benefits of introducing electricity retail competition in England and Wales.

**Joan MacNaughton**, Senior Research Adviser, joined the Institute in September 2006. She is Senior Vice-President, Power and Environmental Policies, Alstom Power. An influential figure in the energy and climate policy debate in a variety of UK, EU, and international roles, Joan helped to put climate change at the centre of energy policy, oversaw the energy agenda during the UK's Presidency of the EU, led the energy work agreed at the G8 Gleneagles Summit, and Chaired the Governing Board of the International Energy Agency. Joan now spearheads

Alstom Power's clean power advocacy, focused on reducing power generation CO<sub>2</sub> emissions. President Elect of the Energy Institute; Member, Board of Directors at International Emissions Trading Association; Board of Governors, Chair of Administration and Budget Committee at Argonne National Laboratory; Member of Policy, Legal, and Regulatory Steering Group at GCCSI.

**Andrea Mastromarino**, Student, visited the Institute for three months from September 2010 to carry out research for his MA degree at the Luiss Guido Carli University, Rome.

**John Mitchell**, Senior Research Adviser is an Associate Research Fellow at Chatham House and Honorary Fellow at the Centre for Energy, Petroleum & Mineral Law & Policy at the University of Dundee. In November 2007 he received a lifetime achievement award for research from King Abdullah at the opening of the 3rd OPEC Summit in Riyadh. He 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, and head of BP's Policy Review Unit. Mitchell has written three books: *The New Economy of Oil* (2001), *Companies in a World of Conflict* (editor, 1998) both published by Chatham House/Earthscan; and *The New Geopolitics of Energy* (Chatham House 1996). He was a contributor to *Oil Titans* by Valérie Marcel (Brookings/Chatham House, 2006), and has written numerous reports, briefing papers, and journal articles, including 'More for Asia: Rebalancing Global Oil And Gas' (Chatham House 2010).

**Peter Odell**, Contributing Author, is Emeritus Professor of International Energy Studies at the Erasmus University in Rotterdam, where he was previously Director of the Centre for International Energy Studies. His career started out with Shell International before he took up a Lectureship at the London School of Economics in 1961. In 1991 he

was honoured by the International Association for Energy Economics for his 'outstanding contributions to the subject and its literature', and in 1994 he was awarded the Royal Scottish Geographical Society's Centennial Medal for his studies on the development of North Sea oil and gas. His collected papers are published as *Oil & Gas: Crises and Controversies*, Volume 1: *Global Issues*, Volume 2: *Europe's Entanglement*, (Multi-Science 2001 and 2002).

**Waniss A. Otman**, Contributing Author, is a petroleum economist who specializes in the area of risk and uncertainty analysis. He holds a PhD in risk analysis of investment in the upstream oil and gas sector, as well as related LLM, MSc, and BSc Degrees. He has written many peer-reviewed articles and authored these books: *The Libyan Petroleum Industry in the Twenty-First Century*; *The Libyan Economy: Economic Diversification and International Repositioning*; *Libyan Oil and Gas Resources*; *Oil and Gas Fiscal Review*, *Iraq Energy Institute*; *Understanding Modern Libya*; and *Africa's Energy and Natural Resources in the Global Economy*.

**Adrian Pitts**, Contributing Author, is Professor of Sustainable Architecture at Sheffield Hallam University and a former Senior Lecturer at the University of Sheffield. He is author of *Planning and Design Strategies for Sustainability and Profit* (Architectural Press, 2003).

**John K-H Quah**, Contributing Author, is Professor of Economics at the University of Oxford and Fellow of St. Hugh's College, Oxford.

**Robert Ritz**, Visiting Research Fellow, was until September 2010 a Research Fellow at OIES, having joined the Institute in October 2007. He is an economist with research interests in industrial organization and environmental economics. His current research focuses on the design of market-based environmental policy and its impact on firms. Two recent projects are on (i) allocating

emissions permits in a cap-and-trade scheme (such as the EU ETS) to neutralize any adverse impact on firms' profits, and (ii) quantifying the degree of 'carbon leakage' when not all firms in an industry are covered by environmental regulation. He is also interested in the economics of cost pass-through and how different types of risk affect investment decisions of oil and gas companies. He holds a DPhil in Economics from Nuffield College, Oxford, an MA 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.

**Ian Rutledge**, Contributing Author, is director of SERIS (Sheffield Energy and Resources Information Services) and Honorary Senior Research Fellow in the Management School at the University of Sheffield. His career has included three years employment as a miner with the National Coal Board. He is author of *Addicted to Oil: America's Relentless Drive for Energy Security*, published by I.B. Tauris, 2005 and 2006.

**Paul Segal** is Lecturer in Economics at the University of Sussex and a Visiting Senior Research Fellow at OIES. He 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.

**Anju Sharma**, Contributing Author, is a consultant with many years

of experience with national and global civil society organizations. In her former role as Head of the team on Global Environmental Governance at the Centre for Science and Environment in New Delhi, she oversaw the work of the Centre for Science and Environment as Regional Focal Point of the GEF NGO Network in South Asia.

**Adnan Shihab-Eldin**, Senior Research Adviser, currently serves as senior adviser and consultant to a number of public and private institutions, organizations, and companies, including as member and adviser 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 organizations, he taught, lectured on, undertook, and directed research in the physical and engineering sciences as well as in energy economics and technology, at a number of universities and research centres in Kuwait, the USA, 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.

**Nevzat Simsek**, Visiting Research Fellow, is Assistant Professor,

Department of Economics, Faculty of Economics and Administrative Sciences, Dokuz Eylul University, Turkey. He won a scholarship to carry out post-doctoral research on 'Crude Oil and Natural Gas: A Demand and Supply Model for the World Market'. He joined the Institute in July 2010.

**Matthew Simmons**, Contributing Author, is a Project Engineer at Cambridge Design & Commissioning Engineers (CDCE Ltd). His career has focused on sustainability issues nationally and globally. He is a Director of Lorna Walker consulting, and co-author of 'Towards a Sustainable Environment for London' in Hunt et al, *London's Environment: Prospects for a Sustainable World City* (University College London, 2005).

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

**Robert Skinner**, Senior Research Adviser, 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 Adviser, was educated as an economist and as a specialist on the Middle East at Cambridge and the School of Oriental and African Studies; from 1973–9 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 & Mineral Law & 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.

**Eduardo Strube Lima**, Visiting Research Fellow, joined the Institute in August 2010 for a period of four months. He is a junior economist with PETROBRAS in the Corporate Strategy, Market Studies, and Business Department.

**Steve Thomas**, Contributing Author, is Professor of Energy Policy at the University of Greenwich. He was with the Energy Programme of the Science Policy Research Unit at the University of Sussex and has published extensively both on the economics of nuclear power and on energy market liberalization policies in general.

**Silvana Tordo**, Contributing Author, is a Lead Energy Economist at the Oil, Gas, and Mining Policy Division of the World Bank. Her area of focus includes upstream oil and gas sector policies and strategies, legal and institutional frameworks, fiscal terms and petroleum contracts, and

petroleum revenue management. She is a co-author of the World Bank publication *Republic of Yemen: A Natural Gas Incentive Framework*.

**Jonathan Winterton**, Contributing Author, is Professor of Employment and Director of Research at Toulouse Business School. In the 1980s and 1990s he worked extensively on industrial relations in the UK coal industry, including co-authoring (with Ruth Winterton) *Coal, Crisis and Conflict: The 1984–85 Miners' Strike in Yorkshire* (Manchester University Press, 1989).

**Philip Wright**, Senior Research Adviser, 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 liberalization 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 organizations, international organizations, 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 Montpellier<sup>1</sup> 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 Adviser 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 *Natural Gas in Asia*. He is a non-executive director of Saipem S.p.A. and a Senior Associate with CERA.

**Lorian Yacoub**, Contributing Author, is a Doctoral Researcher at the Management School, University of Sheffield. Her current research project,

'Reconstructing Oil Governance in Iraq' specifically looks at the distribution of revenues between the central and regional governorates.

**Gareth Young**, Contributing Author, is Managing Director of Cambridge Design & Commissioning Engineers (CDCE Ltd). He has been a practicing consultant engineer for 35 years, of which 20 were spent with Arup. In 2003 he designed a large 140MW CCGT CCHP plant in East London and he has also undertaken numerous other energy-related commissions.

# Accounts

## **AUDITORS' STATEMENT ON SUMMARISED FINANCIAL STATEMENTS YEAR ENDED 31 DECEMBER 2010**

### **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 2010.

#### **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

13<sup>th</sup> May 2011

|   | Unrestricted<br>funds | Endowment<br>funds | 31.12.10<br>Total<br>funds | 31.12.09<br>Total<br>funds<br>as restated |
|---|-----------------------|--------------------|----------------------------|---|
|   | £                     | £                  | £                          | £   |
| <b>Incoming Resources</b>                     |                       |                    |                            |   |
| Incoming resources from generated funds       |                       |                    |                            |   |
| Voluntary income                              | 464,553               | -                  | 464,553                    | 446,325                                   |
| Incoming resources from charitable activities | 690,579               | -                  | 690,579                    | 581,660                                   |
| <b>Incoming resources from investments</b>    |                       |                    |                            |   |
| Government Stocks                             | 1,524                 | -                  | 1,524                      | 272                                       |
| International Bonds                           | 4,451                 | -                  | 4,451                      | 6,083                                     |
| Corporate Bonds                               | 30,019                | -                  | 30,019                     | 22,649                                    |
| Quoted Securities                             | 77,547                | -                  | 77,547                     | 54,405                                    |
| Deposit account interest                      | 3,068                 | -                  | 3,068                      | 8,721                                     |
| Other incoming resources                      | 5,500                 | -                  | 5,500                      | 5,500                                     |
| <b>Total incoming resources</b>               | <b>1,277,241</b>      | <b>-</b>           | <b>1,277,241</b>           | <b>1,125,615</b>                          |
| <b>Resources Expended</b>                     |                       |                    |                            |   |
| Costs of generating funds                     |                       |                    |                            |   |
| Costs of generating voluntary income          | 14,744                | -                  | 14,744                     | 20,206                                    |
| Charitable activities                         |                       |                    |                            |   |
| Projects and publications                     | 1,282,361             | -                  | 1,282,361                  | 1,136,831                                 |
| Governance costs                              | 62,129                | -                  | 62,129                     | 50,080                                    |
| Other resources expended                      | 15,433                | -                  | 15,433                     | 4,769                                     |
| <b>Total resources expended</b>               | <b>1,374,667</b>      | <b>-</b>           | <b>1,374,667</b>           | <b>1,211,886</b>                          |
| NET INCOMING/<br>(OUTGOING) RESOURCES         | (97,426)              | -                  | (97,426)                   | (86,271)                                  |
| Realised gain/(losses) on investment assets   | 107,857               | -                  | 107,857                    | (518,436)                                 |
| Net income/(expenditure)                      | 10,431                | -                  | 10,431                     | (604,707)                                 |
| Unrealised gains/losses on investment assets  | 217,837               | 315,324            | 533,161                    | 1,316,222                                 |
| Net movement in funds                         | 228,268               | 315,324            | 543,592                    | 711,515                                   |
| RECONCILIATION OF FUNDS                       |                       |                    |                            |   |
| Total funds brought forward                   | 2,251,761             | 3,259,466          | 5,511,227                  | 4,799,712                                 |
| <b>TOTAL FUNDS CARRIED FORWARD</b>            | <b>2,480,029</b>      | <b>3,574,790</b>   | <b>6,054,819</b>           | <b>5,511,227</b>                          |

All incoming resources and resources expended arise from continuing activities.

**BALANCE SHEET AT 31 DECEMBER 2010**

|  | Unrestricted<br>funds | Endowment<br>funds | 31.12.10<br>Total<br>funds | 31.12.09<br>Total<br>funds<br>as restated |
|--|-----------------------|--------------------|----------------------------|---|
|  | £                     | £                  | £                          | £   |
| <b>FIXED ASSETS</b>                          |                       |                    |                            |   |
| Tangible assets                              | 66,347                | -                  | 66,347                     | 34,649                                    |
| Investments                                  | 2,059,171             | 3,574,790          | 5,633,961                  | 5,195,697                                 |
|  | <u>2,125,518</u>      | <u>3,574,790</u>   | <u>5,700,308</u>           | <u>5,230,346</u>                          |
| <b>CURRENT ASSETS</b>                        |                       |                    |                            |   |
| Debtors                                      | 12,418                | -                  | 12,418                     | 2,887                                     |
| Prepayments and accrued income               | 209,154               | -                  | 209,154                    | 115,503                                   |
| Cash at bank                                 | 240,087               | -                  | 240,087                    | 211,899                                   |
|  | <u>461,659</u>        | <u>-</u>           | <u>461,659</u>             | <u>330,289</u>                            |
| <b>CREDITORS</b>                             |                       |                    |                            |   |
| Amounts falling due within one year          | (107,148)             | -                  | (107,148)                  | (49,408)                                  |
| NET CURRENT ASSETS/(LIABILITIES)             | 354,511               | -                  | 354,511                    | 280,881                                   |
| <b>TOTAL ASSETS LESS CURRENT LIABILITIES</b> |                       |                    |                            |   |
|  | <u>2,480,029</u>      | <u>3,574,790</u>   | <u>6,054,819</u>           | <u>5,511,227</u>                          |
| <b>NET ASSETS</b>                            |                       |                    |                            |   |
|  | <u>2,480,029</u>      | <u>3,574,790</u>   | <u>6,054,819</u>           | <u>5,511,227</u>                          |
| <b>FUNDS</b>                                 |                       |                    |                            |   |
| Unrestricted funds                           |                       |                    | 2,480,029                  | 2,251,761                                 |
| Endowment funds                              |                       |                    | 3,574,790                  | 3,259,466                                 |
| <b>TOTAL FUNDS</b>                           |                       |                    | <u>6,054,819</u>           | <u>5,511,227</u>                          |

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## Monographs and Working Papers: Published by Oxford Institute for Energy Studies

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