Oxford Institute for Energy Studies

Annual Report 2012
About the Oxford Institute for Energy Studies

The Oxford Institute for Energy Studies (OIES), 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 OIES concentrates on research into energy issues of international significance or which have implications for the interface of producers and consumers.

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

Registered Charity No. 286084
Recognized Independent Centre of the University of Oxford
# Contents

4  Director’s Report  
9  Research  
29  Journals and Website  
30  Lectures and Seminars  
32  Library  
33  Research Team and Staff  
41  Visiting Research Fellows, Research Advisers, Contributing Authors, and Students  
51  Accounts  
54  Members  
55  Governors and Trustees  
56  Contributors  
61  Recent Publications
Director’s Report

The year 2012 was, in many ways, extraordinary. Global growth, which had slowed disappointingly in 2011 after the bounce back in 2010, slowed further in 2012. This below par performance was accompanied by increasing fears of a ‘double dip’ recession, especially in developed countries. Notably, however, China and India also slowed down, in 2012, to 7.8 per cent and 5.1 per cent respectively. The previous picture of rapid growth in emerging market economies balancing slow growth and continuing high unemployment in the developed world was increasingly questioned – giving way to more generalized worries about the world economy. Broadly speaking, a resumption of something like trend growth was still anticipated in the medium term, but the point at which that was expected to happen was being pushed further and further into the future. Moreover, the risks, mostly on the downside, appeared to be rising sharply.

Some of the forces bearing on the world economy during 2012, as well as on the international oil market, were geopolitical, notably the aftermath of the Arab Spring (especially the worsening conflict in Syria) and the escalating sanctions on Iran (the Brent oil price peaked at $127 in March 2012 largely reflecting worries over Iran). The other big sources of concern were the developing crisis in the Euro area – which appeared to be going from bad to worse – and worries over possible slow-downs, or even hard landings, in some of the emerging markets – especially China, India, and Brazil. By the middle of the year, it is fair to say that prospects for the world economy appeared to be dominated by hard-to-quantify downside risks, especially those surrounding the possible breakup of the euro area, with multiple, disorderly exits. This all changed in the second half of the year, which was characterized by a marked reduction of perceived risks. Most importantly, the change in policy by the ECB towards engaging in Outright Monetary Transactions in the secondary bond market (announced at the beginning of August) resulted in a marked diminution of interest rate spreads between periphery and core countries. Though the situation in the Euro area remained dire – aggregate growth for the year as a whole was minus 0.6 per cent, with further recession projected for 2013 – the perceived risk of breakup essentially disappeared. A further worry developed in the second half of 2012 over the ‘fiscal cliff’ in the USA which, if unresolved, could have led automatically to a sharp fiscal contraction of about 5 per cent of US GDP. Though ‘taken to the wire’, most of the problem was resolved – though some fiscal tightening remained for 2013, due to automatic expenditure reductions – known as ‘sequestration’. Finally, towards the end of the year and at the beginning of 2013, the US data seemed to suggest that the US economy was poised for recovery, despite the drag from sequestration.

Looking forward to 2013 and beyond, global prospects appeared somewhat more ‘balanced’; in the negative sense, this was because risks to emerging market countries looked somewhat greater, while in the positive sense, risks to developed country growth (especially from a Euro area break-up) had diminished. Moreover, in the USA, and in a number of other industrialized countries such as the UK, there appeared to be upside possibilities as the recovery strengthened and confidence improved.

Against this volatile background, developments in international oil and gas markets were very different. In the case of oil, the price for Brent crude remained ‘range bound’ continuing the pattern of the previous year. Oil prices averaged about $111 for 2012 as a whole. As documented in many of the Institute’s research outputs, much of this stability reflected opposing forces. For example, geopolitical worries
(demonstrated by the situation in Iran), were balanced by the mounting crisis in the Euro area. Likewise, the rapid build up of shale oil production in the USA tended to be matched by declines elsewhere. Nevertheless, both the level of oil prices and their relative stability in 2012 (and into 2013) remain quite difficult to explain, though the behaviour of major oil producers, such as Saudi Arabia – and the signals given to the market – are certainly part of the picture.

For natural gas, the issues were very different. The sluggish growth in the world economy had the predictable effect on demand, especially in Europe. This, combined with the continuing build-up of shale gas production in the USA (freeing up potential supplies, such as LNG, for the European market), although partially balanced by increased LNG demand from Japan following the Fukushima disaster in the previous year, led to excess supply in Europe. This, in turn, put intense pressure on the gas pricing system in Europe, with increased gas-to-gas competition via the developing European hubs. By the beginning of 2013, with pressure on European energy utilities and on the Russian supplier, Gazprom, the old system of pricing natural gas via oil-linked contracts was, essentially, breaking down – an outcome predicted in a series of working papers published by the Institute’s Natural Gas Programme going back over several years. An important strand of research is whether similar developments should be anticipated elsewhere – especially in Asia.

Both these broad developments illustrate the increasing importance of the global focus of the Institute’s research as well as its interdisciplinary nature, combining economic, political, and policy analysis. Both oil and international gas markets are increasingly global.

**Staffing and priorities**

During 2012, there has been very little turnover of research staff. As far as full-time staff are concerned, there has been no turnover at all. The total size of the Institute – always difficult to gauge due to part-timers and distance working – remains around 46 research fellows (including visiting research fellows). During the year, two research fellows, Anupama Sen and Katja Yafimava, were promoted to senior research positions reflecting their increasing role in the Institute’s research and other activities. The Institute continued its policy of encouraging visiting researchers from a wide range of countries and backgrounds. There were seven visiting researchers in this category during 2012. A new scheme, made possible by the generosity of Saudi Aramco, of awarding three short-term Fellowships (maximum six months) to promising researchers at the start of their careers, was set up in 2013. It is hoped that this will be a continuing programme.

The Institute is still small in relation to the increasingly wide range of issues (and academic disciplines) involved. It would not be possible to cover the ground that we do without the network of Members, Benefactors, and friends and associates who, together, make the Institute what it is. We are extremely grateful for continuing support from all over the world.

The Institute needs to expand its research capabilities. Priorities for recruitment include further appointments relating to oil and the economics and geopolitics of the Middle East. An expansion of research capability in this core area is a long-standing objective which has proved difficult to achieve due to the scarcity of suitable people. The Institute’s rising reputation should help to make recruitment easier in the future. It is already apparent that more and more researchers are keen to work on particular projects – such as working papers – and/or to cooperate with the Institute on joint research endeavours.

The Institute has relatively long-standing programmes relating to China and to India. Both have been limited by
a mixture of internal research capacity and funding. We are very grateful to the Al Njoo Foundation which agreed in 2012 to sponsor OIES’s work on China with sufficient resources and commitment to seek to appoint a Mandarin speaking researcher at post-doctoral or equivalent level. It was agreed that such a researcher should be appointed as soon as possible in 2013, subject to potential delays in the process, due to the need to advertise widely, as well as possible visa issues. It was also agreed in late 2012 that OIES would mount a workshop in Beijing, jointly with Renmin University, on the general subject of the implications of US energy developments and policy on the global economy and on China. This, highly successful, workshop took place in late March, 2013. We are very grateful to the FCO’s Prosperity Fund (via the British Embassy in Beijing) for partial funding for this initiative. The year 2012 also saw important developments in the India programme. OIES was approached by the umbrella organization for the Indian oil and gas industry to help in setting up an Institute in Delhi, to be modelled on OIES. This ambitious project, however, ran aground in the summer of 2012, although it was still live and it was hoped that it would be restarted in 2013. Other international developments include a (joint) study on the integration of renewable energy (wind power) in Columbia (again with FCO funding) and the start of an OIES programme on Africa.

A project to integrate and systematize OIES research on the power sector (including climate change aspects) was put forward by David Robinson, and discussed in the Academic Committee. It is widely recognized that many different strands of OIES energy research increasingly come together in the power sector and that the future is likely to be increasingly ‘electric’. There are various models of how this might work and how it might be funded – including, as one possibility, a structure akin to the way the Natural Gas programme works. It is widely agreed that a key first step would be to recruit one or more young researchers.

A committee to consider ‘succession planning’ for the appointment of a new Director – to ensure a smooth transition when the time came – had been set up in the previous year. At the Board meeting in November 2012 this became a ‘search committee’ and it was decided to advertise for the role. It was recognized that the process might take some time.

**Relations with the University**

As noted in previous Reports, formal and informal relationships with the University are extremely important to the Institute. The formal relationship as a Recognized Independent Centre (RIC) continues to work well, though the fact that the RICs are independent charities, as well as being associated with the University, inevitably raises tensions. Oversight by the University’s Joint Committee for the Coordination of Independent Research Centres obviously involves making sure that the protocols of the RIC agreement are being adhered to – including the requirements that research should meet the general standards of the University and that it should be ‘complementary’ to the wider activities of the University. In common with the other RICS, OIES is keen that the two-way relationships of mutual benefit should be emphasized. OIES is unique in that it relates most obviously to the Social Science Division of the University (as well as, increasingly, to Natural, Physical, and Life Sciences).

It is also true that the governance structure of OIES includes a relatively large ‘Oxford’ component, including the heads of three Colleges (Nuffield, St. Antony’s, and St. Catherine’s) as well as three representatives appointed by Council. The articles specify that the ‘Oxford’ representation amongst its Governing Board should exceed 25 per cent and be less than 50 per cent.

OIES has been working closely with Professor Sir Chris Llewellyn Smith, the University’s Director for Energy Research, and others to
improve the links between those, across the University, engaged in Energy Research, and to improve the visibility of energy research in Oxford. Planning for a ‘UK Energy Day’ to discuss and debate UK energy policy (directed, inter alia, towards Oxford Alumni involved in the energy sector) was initiated in November, with full participation of OIES. (The Energy Day, which was extremely well attended, finally took place in the Zoology Lecture Hall in May 2013). OIES is also represented on a steering committee, also set up by Chris Llewellyn Smith, to coordinate and expand energy research across the University.

Activities, research and dissemination in 2012

The wide range of OIES’s research is detailed in this Report. As in the previous year, three books were published for the Institute by Oxford University Press in 2012. The first, Natural Gas in India: Liberalisation and Policy, by Anil K Jain (a Visiting Senior Research Fellow) was launched in Delhi at a very well attended reception, co-hosted by OIES and the Indian Council for World Affairs (ICWA), by Montek Singh Ahluwalia, the Deputy Chairman of the Planning Commission. This book, which provides a timely and candid assessment of policy towards natural gas in India, has been very well received and has contributed greatly to the visibility of OIES’s research and reputation in India. Keun-Wook Paik’s book, Sino-Russian Oil and Gas Cooperation – the Reality and Implications, explores the many aspects of the new Sino-Russian relationship connected with the countries’ oil and gas sectors. Its launch in London, generously sponsored by Statoil, took place at the Royal United Services Institute (RUSI) on 15 November. The book has been translated into Chinese – the Chinese version was launched in Beijing early in 2013. Other ‘launches’ of the English version include presentations in Tokyo (at the Institute for Energy Economics, Japan (IEEJ)) and in Seoul (at the Korean Institute for Energy Economics (KIEE)). The book is also being translated into Japanese and into Korean. This book is based on Dr Paik’s unrivalled knowledge arising from 25 years specializing on this subject and is essentially unique. The third book, The Pricing of Internationally Traded Gas, edited by Jonathan Stern, is a multi-authored project, and is the first of its kind in its field. Its launch in London, in late 2012, was kindly hosted by BP. This book too is being translated into Chinese.

The Institute’s policy is to give free access to all its research publications and commentary via its website (with the exception of published books and monographs). Twenty-four Working Papers, on a very wide range of subjects, were published during 2012. Shorter Energy Comments, many of them on current policy issues, are widely read. The Institute’s quarterly newsletter, the Oxford Energy Forum, is now free to download (hard copy is still available). The Energy Forum is edited by Bassam Fattouh, who is to be congratulated on its success. Typically, each issue is devoted to a ‘theme’. Themes covered in 2012 were: Oil Price Benchmarks, Energy Subsidies, Natural Gas Demand and Supply, and Africa’s Energy Outlook. The research content of the Institute’s website is increasing rapidly, as is its use by people engaged in the energy industries and in policy making bodies all over the world.

There has been an expansion in the number of Institute events. The annual ‘gas day’, held in November 2012, was as successful as ever, and was filled to capacity. There were two ‘oil events’ in 2012 with invited participation (held under the Chatham House Rule). The first, in January 2012, focused on ‘The Outlook for Brazilian Oil’. Roughly half the participants were from the Brazilian energy sector, with others coming from the international oil industry as well as regulatory and financial institutions. This successful event was kindly sponsored by the Energy Intelligence Group. The second, sponsored by Saudi Aramco and held in November, was on the theme of ‘The Changing North American Energy Scene and its Impact on Traditional
Suppliers and their Export Markets. A further ‘oil event’ is planned for early 2013 on the subject of ‘US Shale Oil and the Implications for Pricing Benchmarks’. The Institute’s annual ‘Brainstorming’ meeting took place in Seville in May. We are very grateful to Cheniere for generous sponsorship support for this event.

The Institute continues its programme of internal seminars – which are now advertised throughout the University. The lecture series, held jointly with St Antony’s College, continues to attract distinguished speakers and large audiences.

**General**

As a research institute, OIES continues to depend on the dedication of all involved. As shown in this Report, the research productivity of OIES is extraordinary, and its reputation and influence continue to increase. The relaxed but productive research atmosphere, one of the main characteristics of OIES, owes a huge amount to the administrative staff: Kate Teasdale, Susan Millar, Margaret Ko, Lavinia Brandon, and Jo Ilott. The interactive and networking aspects of OIES continue to benefit greatly from the close historical and current relationships with its two sister institutions: the Oxford Energy Policy Club (which meets twice annually in St Antony’s College) and the Oxford Energy Seminar (held annually at St Catherine’s College).

As noted, OIES is a relatively small institute with a high and growing reputation. It is enormously dependent on its benefactors and friends throughout the world. The OIES model is working well. It is more and more apparent, however, that it needs to grow in order to cope with increasingly complex energy issues in an increasingly complex world.
Research

Assessing the Financialization Hypothesis

In this paper, Bassam Fattouh and Lavan Mahadeva assess whether financialization can impact oil market behaviour over and above structural fundamental changes, and whether these changes affect final consumers’ welfare. While shifts arising in financial investors’ preferences and wealth can explain the rise in participation of purely financial investors, they fail to explain key features such as the movements in the basis. Instead, anticipated changes in the physical layer of the oil market can better explain many of the features often attributed to financialization. We also find that greater financialization has no harmful effects on consumer welfare. Our paper shows that from a regulatory point of view, it is crucial in the first instance to identify the channels through which financialization can result in market failure and then design policies accordingly.

Financialization in Oil Markets – lessons for policy

In the last decade, purely financial players with no interest in the physical commodity such as hedge funds, pension funds, insurance companies, and retail investors have become more prominent in oil futures and derivatives markets. In parallel, there has been an explosion in the variety of instruments that permit speculation in oil. These movements in financial participation bear some rough relation to the oil price. Some have been led to conclude that greater financial participation has changed oil price behaviour. There have even been calls for policy intervention to limit financial participation in oil per se. In this comment, Bassam Fattouh and Lavan Mahadeva discuss recent research on whether underlying changes in the incentives and constraints of purely financial players could have interfered with the workings of the oil market. We find no support for the view that greater financialization has had an important effect on oil market variables and harmed final consumers. In contrast, shifts in expectations of supply and demand can have important impacts on prices, spreads, welfare, and even on financial market participation. Therefore, before oil financial market policies are contemplated, it is crucial in the first instance to identify the channels through which financialization can result in market failure.

The Role of Speculation in Oil Markets: What Have We Learned So Far?

A popular view is that the surge in the price of oil during 2003–8 cannot be explained by economic fundamentals, but was caused by the increased financialization of oil futures markets, which in turn allowed speculation to become a major determinant of the spot price of oil. This interpretation has been driving policy efforts to regulate oil futures markets. This survey, by Bassam Fattouh, Lavan Mahadeva, and Lutz Kilian, reviews the evidence supporting this view. They identify six strands in the literature corresponding to different empirical methodologies and discuss to what extent each approach sheds light on the role of speculation. Their main finding suggests that the existing evidence is not supportive of an important role for speculation in driving the spot price of oil after 2003. However, there is evidence that both oil futures prices and spot prices were driven by the same economic fundamentals.

OPEC: What Difference Has It Made?

The main purpose of this research, by Bassam Fattouh and Lavan Mahadeva, is to review the evolution of OPEC models and to link this evolution to some key events in the oil market. Our main conclusion is that OPEC’s pricing power varies over time. There
are many instances in which OPEC can lose the power to limit oil price movements – either up or down. Such changes in pricing power are brought about by market conditions and can occur both in weak and tight market conditions. Because of OPEC’s varying conduct, there is no single model that fits its behaviour and hence analysts have been forced to choose from a wide range of models to explain certain episodes. The empirical literature has not been successful in distinguishing between the various competing models, as these models offer very similar predictions. Forthcoming in Volume 5 of the Annual Review of Resource Economics (2013).

The Dubai Benchmark and its Role in the International Oil Pricing System

Despite the existence of other regional crudes with a much larger physical base, more than 25 years have passed, and most cargoes from the Gulf destined for Asia are still priced against Dubai. Nevertheless, the nature of the Dubai benchmark has evolved and many of the institutional and pricing details have witnessed major transformations, driven in large part by the decline in Dubai’s oil production and innovations in the pricing mechanisms introduced in the 2000s. Bassam Fattouh, in this paper, traces the Dubai Benchmark, its historical evolution, and the way in which it functions today. In theory (and in practice to some extent), the price of Dubai may be identified from the financial layers that have emerged around Dubai and Brent. The Brent complex sets the price level for Dubai while the EFS and the inter-month Dubai spread market set the price differentials against Brent. Since physical benchmarks constitute the pricing basis of the large majority of physical transactions, some observers claim that derivatives instruments – such as futures and swaps – derive their value from the price of these physical benchmarks. However, this is a gross over-simplification and does not accurately reflect the process of crude oil price formation in the case of Dubai. A version of this commentary was reprinted in Energy & Geopolitical Risk 3:4 (April 2012).

Brent Prices: Impact of PRA Methodology on Price Formation

Oil prices are largely formed at the junction of the financial sphere and the physical sphere. This is particularly true for the main markers, such as Brent prices. The term ‘Brent prices’ may refer to several type of contracts traded by physical and financial participants. The main contracts interacting in the Brent sphere are ICE Brent futures contracts, Dtd. Brent, Forward Brent, and Brent CFDs. In this article, Christophe Barret looks at the interaction between these contracts, resulting in part from the price assessment methodology of Price Reporting Agencies (PRAs). He comes to the conclusion that changes in PRAs’ methodology in the past ten years, first aimed at avoiding price manipulation, can guarantee an anchor to the physical market for oil prices today.

Optimal fiscal policy in the face of oil windfalls and other known unknowns

When a country discovers new oil reserves, there are only estimates of how much revenue this will generate and how costly it will be to extract. Even if holdings of other assets can act as a buffer against this unpredictability, the returns to those buffers can themselves be expected to be uncertain. How should fiscal policy be aligned to take best advantage of the windfall in the face of these known unknowns? In this paper, Lavan Mahadeva derives the policy implications of joint uncertainty in oil revenue windfalls and capital markets, gauging the effects on a calibrated model of Colombia. He compares the welfare consequences of revenue volatility, volatile capital markets,
procyclicality in capital markets, and political impatience. The paper was written after a suggestion from the Ministry of Finance in Colombia.

Why Can Natural Resource Abundance Make Things Worse? – Limited Financial Development or Political Impatience?

Is the failure of natural resource abundance to achieve improved economic outcomes due to limited financial development or to fiscal policy short termism? Lavan Mahadeva answers this question in a precautionary savings model where both resource revenues and asset returns are uncertain. Calibrating for Colombia, he finds that under policy impatience, welfare costs are large, net assets are insufficient, and discretionary expenditures are too sensitive to resource revenues. If financial markets are underdeveloped, welfare costs of the same magnitude can be generated, but financial underdevelopment cannot also explain why there are insufficient net effective assets, nor the heightened sensitivity to revenues and is not the main reason why natural resource abundance can make things worse.

How to Spend It: Resource Wealth and the Distribution of Resource Rents

Natural resource revenues differ from other government revenues both in their time profile, and in their political and legal status: they are volatile and exhaustible, and belong to all citizens of the country in which they are located. This paper, by Paul Segal, discusses the theory of natural resource revenues and examines expenditure practices in a range of resource-rich countries. It considers both the distributional impact and the efficiency of expenditure policies, focusing on the extent to which they succeed in providing all citizens with their share of the benefits due to natural resources.

Fiscal Policy and Natural Resource Entitlements: Who Benefits from Mexican Oil?

In this paper, Paul Segal suggests a new approach to analysing the distribution of natural resource revenues and applies it to the case of Mexico. He defines a natural resource entitlement as a citizen’s per capita share of their country’s natural resource rents. The main finding is that, according to official estimates, Mexican fiscal policy transfers oil entitlements from the bottom 90 per cent of the population to the top 10 per cent of the population. This implies that, although fiscal policy is progressive relative to market income, it is regressive once oil entitlements are taken into account. The author considers a fiscal reform that would ensure that every citizen received their oil entitlement, and in doing so would eliminate extreme poverty.

Energy Subsidies in the Arab World

The policy of maintaining tight control of domestic energy prices has characterized the political and economic environment in most Arab countries, together with many other parts of the world, for decades. The objectives behind such a policy cover: overall welfare objectives, such as expanding energy access and protecting poor households’ incomes; economic development objectives, such as fostering industrial growth and smoothing domestic consumption; and political considerations, including the distribution of oil and natural gas rents in resource-rich countries. While energy subsidies may be seen as achieving some of a country’s objectives, this paper argues that they are a costly and inefficient way of doing so. Energy subsidies distort price signals, with serious implications on efficiency and the optimal allocation of resources. Energy subsidies also tend to be regressive, with high-income households and
industries benefiting proportionately the most from low energy prices.

However, despite such adverse effects, energy subsidies constitute an important social safety net for the poor in many parts of the Arab world, and any attempts to reduce or eliminate them in the absence of compensatory programmes would lead to a decline in households' welfare and erode the competitiveness of certain industries. Therefore, a critical factor for successful reforms will be the ability of governments to compensate their populations for the reduction or removal of subsidies through carefully designed mitigation measures that protect the poorest and assist the economy in its long-term adaptation.

This research, by Bassam Fattouh and Laura El-Katiri, argues that a reform of energy pricing mechanisms in the Arab world may be seen as beneficial from more than one perspective, and as offering potential paths for reform. Nevertheless, the authors recognize that the current political climate in the region will render the reform of domestic energy prices difficult in practice, such that reform may indeed be a medium- to long-term endeavour. The research was prepared for the UNDP as part of its Arab World Development Report research paper series. A shorter version under the title ‘Energy Subsidies in the Middle East and North Africa’ is due to be published in Energy Strategy Reviews, forthcoming in 2013.

**Energy and Arab Economic Development**

Like no other region, energy resources have shaped the Arab world and its modern-day development trajectory. Endowed with some of the world’s most important oil and natural gas reserves, countries in the Arab world have, over the past four decades, produced and exported more oil than those of any other region, and hold reserves sufficient to supply world energy markets for more than another hundred years at current rates of production. Its energy wealth has benefited the Arab world, despite significant differences in national resources, and in their management, across the region.

Significant challenges also derive from the Arab energy-led development model, particularly the region’s patterns of domestic energy consumption, rising demand for energy, and rising domestic investment needs. This paper attempts to provide a very brief overview of the role energy has played in driving economic development in the Arab world, its effects on development choices, and the challenges faced by the resultant development model. It does so by looking at four different aspects of energy-led development: 1) the effect of energy on regional Arab economic growth; 2) the inter-linkages between energy and Arab economic structures; 3) the implications of energy for intra-regional integration; and 4) evolving challenges from this development model.

This research, by Bassam Fattouh and Laura El-Katiri, was published in December 2012 as a UNDP Arab Human Development Research Paper.

**On Oil Embargos and the Myth of the Iranian Oil Weapon**

The exchange of threats between Iran and the West vis-à-vis Iranian oil exports to European and other consumer countries has received wide attention among policy makers and analysts. IMF officials predict that crude oil prices could increase by as much as 30 per cent in case of a halt of Iran’s exports to OECD countries, if other sources don’t offset the loss of Iranian crude oil. Others claim that all the elements are set for ‘the $200 a barrel scenario’. However, this commentary offers a less pessimistic view, and argues that the potential impacts of such threats on oil market dynamics are often exaggerated. Oil embargos against individual producing
countries are, in reality, difficult to implement, for they require a concerted effort by a large number of buyers to prevent oil producers from diverting crude oil from one market to another. Where they result in a tightening of oil markets and rising prices for consumer nations, they can be relaxed or amended. As for the use of an Iranian oil weapon, the fact remains that despite continuous threats, Iran has never used the oil weapon; the oil weapon remains an indiscriminate policy measure that all producers, including Iran, are reluctant to use; and if ever employed, it is likely to be ineffective and counterproductive from a producer’s point of view. Nevertheless, fears that governments may pursue policies to restrict the flow of energy supplies rattle markets and place a premium on the oil price and contribute to increased price volatility. This energy comment, by Laura El-Katiri and Bassam Fattouh, was also reprinted in Energy & Geopolitical Risk 3:2 (February 2012), 10–16.

The GCC and the Nuclear Question

For a long time, nuclear energy appeared to be an unlikely scenario for the Gulf Cooperation Council (GCC) states. However, the late 2000s have seen a policy U-turn in the GCC’s attitude toward nuclear power, with the United Arab Emirates and Saudi Arabia now pursuing plans for their own nuclear reactors by the 2020s. The introduction of civilian nuclear programmes to the GCC is symptomatic of a more structural shift in the way the GCC and the wider Gulf produces and consumes energy. Rapidly rising levels of domestic energy consumption have already made the GCC a regional energy consumer rivaling the combined energy demand of Latin America. This renders alternative sources of energy, including nuclear power, an increasingly attractive long-term solution in view of the region’s otherwise rapidly rising drag on its own main export products – crude oil and natural gas. However, nuclear power raises a number of economic, political, and security question in the fragile Gulf region. This energy comment, by Laura El-Katiri, explores the reasons for the GCC’s pursuit of nuclear power, and questions the economic and political rationale behind the move.

The Impact of Russia’s Refinery Upgrade Plans on Global Fuel Oil Markets

While higher fuel specifications and regulatory changes in the bunkers market are most likely to have a big impact on long-term fuel oil demand, a structural shift of a similar magnitude on the supply side is already taking place, particularly in Russia, the largest exporter of fuel oil. The Russian government’s firmly stated commitment to the regeneration of its country’s refining industry, and its determination to ensure that domestic demand for higher quality products is met, would suggest that a sharp decline in fuel oil exports by 2016 seems inevitable. In this working paper James Henderson and Bassam Fattouh show that in the past, price relationships between high-sulphur and low-sulphur fuel oil, and between heavy fuel oil and crude oil and diesel, have been subject to structural breaks, but price movement did not increase or decrease without bounds, as the refining industry continued to adjust to increasing demand for petroleum products and changing global demand patterns towards cleaner products. Looking ahead, as investment in upgrading of refining units accelerates in Russia, price spreads are likely to exhibit similar behaviour to that in the past few years.

Rosneft – On the Road to Global NOC Status?

Having re-established itself over the past five years as a global-scale oil company, Rosneft now faces a number of significant challenges. In common with many NOCs, its global significance is based entirely on its
domestic asset base, and despite the size of Russia’s resources Rosneft does face the problem that its existing assets in the core areas of West Siberia and European Russia are going into gradual decline. This decline can be offset by the development of new areas such as East Siberia, the Arctic, and offshore fields, but these regions are remote and their exploitation will require advanced and expensive new technology. In parallel with this issue, Rosneft is also facing pressure from its majority owner, the Russian government, to act as a catalyst for establishing a greater role for Russia in the global economy, using its energy resources as an important tool. The company is therefore looking to increase the diversity of its asset base by investing overseas at a time when the competition for global oil reserves is high and Rosneft itself has limited experience of dealing in the international asset market.

In this paper, James Henderson explores how Rosneft may be attempting to meet these twin challenges, using the example of peer NOCs that have experienced similar problems. Petrobras and Statoil are both partially privatized, upstream focused NOCs who have established international businesses both as a way of supplementing and diversifying their domestic resource bases and also as a means of acquiring and exploiting technological and operating experience that could be applied across their asset portfolios. Both companies also have a much longer history as corporate entities than Rosneft, and gained listings on an international stock exchange (in New York) in 2000/1, five to six years before Rosneft’s own privatization. As a result, they can provide a clear analogy for the strategy and tactics that Rosneft may use in the development of its own business model, and indeed it appears that in 2011 Russia’s NOC is already taking a similar path to its ‘Partial NOC’ peers.

Joint Ventures in the Russian Offshore – Positive News but only for the Long Term

In this energy comment, James Henderson explores the potential behind recent joint ventures in the Russian offshore. In the post-Soviet era, joint ventures between foreign and domestic companies in the Russian oil and gas sector have been relatively rare, mainly because domestic companies have been reluctant to accept potential competitors into their asset base. However, the increasing maturity of Russia’s onshore fields, especially those in West Siberia, and the potential for the country’s production to go into sharp decline over the next decade, has prompted the Russian government to promote offshore development as a potential solution. President Putin has encouraged his state oil company to seek international partnership to bring in the requisite technical and management expertise, as well as the much-needed capital to fund what will be very expensive projects. He has also ensured that the government will now provide a more benign tax regime that would enhance the commercial returns on any new field developments and bring Russia more into line with its international peer countries. The immediate consequence of this activity has been the formation of three joint venture partnerships – between Rosneft and Exxon, ENI, and Statoil respectively – with the IOCs finally seizing the chance to exploit their competitive advantages in a region with huge resource potential. However, despite the undoubted benefits which these new partnerships can bring for all parties in terms of technical knowledge exchange, reciprocal asset deals, diversification of risk, and potential upside from exploration success, it would appear doubtful whether the results of their activity can be anything other than a long-term solution to Russia’s production issues. With a first exploration well not due before 2014, and with any further exploration and appraisal work set to take place...
during the period to 2020 and beyond, it seems almost inconceivable that the first significant oil production could occur before 2025/6 at the earliest, with 2030 a more likely date.

**Protection against Default in Long Term Petroleum Joint Ventures**

Sharing costs and risks are the basic foundation of any joint venture. However, the required financial commitments might be jeopardized either by a co-venturer who cannot afford the payment of the related costs or a co-venturer who simply chooses not to pay its share. The petroleum industry tends to rely on the forfeiture of interests as a threat to deter such behaviour, but as a remedy this is often uncertain in terms of its enforceability and it could operate to the benefit of the defaulting party. In this paper, Eduardo Pereira considers options such as collateral support provision, secured interests, and cross-default options structured over wider asset interests.

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

This book, by Shamil Midkhatovich Yenikeyeff, to be published by the Oxford University Press in 2012, deals with the politics of the Russian oil industry from 1991 to the present day. Within this twenty year period, fierce battles emerged over who controls Russia’s oil industry: the Kremlin, Russian regional governors, or the oligarchs? These clashes determined the course of development for Russia’s oil sector, and have shaped the evolution of Russia’s political system, from the collapse of the Soviet Union to the present day.

The book explores four themes: The first theme presents a story of the expanded influence of regional governors over Russia’s internal politics and economy in the 1990s. As a result, fledging domestic oil companies experienced considerable constraints on their business activities within a semi-disintegrated Russian state. The second theme examines the economic and political strategies deployed by these companies to achieve corporate consolidation over Russia’s oil sector in the late 1990s to early 2000s. During this period, oligarchs succeeded not only in undermining the grip of regional governors on the domestic oil industry, but also in emerging as a new political threat to the Kremlin. The third theme, then, focuses on the Kremlin’s re-assertion of state control over the national oil sector, and the declining political power of governors and oligarchs in Russia in the 2000s. Finally, the book reveals how the Kremlin elite, resource-rich regions, and oil companies view the future of the domestic oil industry and its role in the modernization of Russia.

**Sino-Russian Oil and Gas Cooperation**

China and Russia are giant countries whose recent economic and energy experience could hardly be more different: in the one, unprecedentedly rapid industrialization has sent its share of world primary energy consumption soaring from 7 to 20 per cent since 1985 (overtaking the USA); in the other the collapse of centrally planned industry has reduced its share from 11 to 6 per cent during the same period. China has tried to exploit its modest energy endowments sparingly, while forging a world-wide supply structure that prevents it from being deprived of the imports its economy needs. Russia meanwhile has become a major oil and gas exporter, possessing more than 20 per cent of the world’s gas reserves, part of which it is eager to sell to China. Inevitably, therefore, energy is at the centre of relations between these two countries. Keun-Wook Paik’s book, *Sino-Russian Oil and Gas Cooperation – The Reality and Implications* was published by Oxford University Press in October 2012.
An Evaluation of the Fiscal Terms for Hydrocarbons Exploration and Production in India

This ongoing project by Anupama Sen evaluates the fiscal terms of the regime for exploration and production of hydrocarbons in India under the ‘New Exploration Licensing Policy’ covering the period 1999–2010. It reviews theoretical and conceptual issues in the design of fiscal regimes for exploration (such as contract theory, and the issue of ‘what to tax’). The research summarizes and highlights the main issues and concerns under the current fiscal regime, which has been in place since 1999. It then sets up a simple model to demonstrate the equivalency of outcomes under different fiscal systems (including Production Sharing Contracts and Concessions) using the fiscal terms of the Indian regime. The analysis highlights the main issues faced under the Indian fiscal regime, based on past experience and policy implementation (for instance, problems with contract enforcement, the holdup problem, and pricing), and varies the parameters of the model in an attempt to explore how, in retrospect, these issues could have been addressed through the fiscal terms of the regime.

An Empirical Analysis of Auctions for Oil and Gas Exploration Leases in India

This ongoing research, by Anupama Sen, is a comprehensive analysis of the system of first price sealed bid auctions used for exploration licences in India’s oil and gas sector, which is arguably one of the most transparent exercises in resource allocation in the country. Despite this, after a period equivalent to three exploration cycles, only one large discovery of gas has been made, despite the large number of contracts (nearly 300) signed and investment committed. In 2011 and 2012, the production of hydrocarbons under the existing fiscal regime dropped drastically, and there was a downward revision in the overall estimate of recoverable reserves. Although it is reasonable to partly attribute this situation to geology, and partly to exogenous factors, this paper argues that the format and implementation of the auctions have not always led to ‘efficient’ outcomes. This research applies an econometric modelling framework to a dataset of variables, collected during fieldwork in India, representing eight rounds of auctions for oil and gas exploration licences, covering the period 1999–2010, to explore patterns and trends in the values of the winning (high) bids. The paper uses a specification that has been successfully applied in existing empirical literature to analyse lease auction market performance in other world regions, for example to the US Outer Continental Shelf. The basic conceptual framework underlying the analysis specifies that the value of the high or winning bid is a function of three sets of factors: economics, structure, and conduct. In addition to factors such as the international price of crude oil, the analysis aims to explore the responsiveness of winning bids to factors such as: the degree of competition amongst bidders (size of bidding firms; single or multiple bids for a licence); the perceived quality of the block (location and prospectivity); and the bidding methods used (solo or joint bidding). The results of the analysis are expected to provide insights into policy options, given the objectives of Indian policymakers to engender energy security. This paper, to be completed in 2013, aims to fill a gap in existing empirical literature, specifically on India.

Natural Gas in India: Liberalisation and Policy

A classic dilemma in an economy in transition from planning and price control to freer markets is how to gain greater flexibility and efficiency without sacrificing social objectives. Anil Jain, an experienced policy maker, meticulously analyses how, in today’s rapidly developing Indian economy, this problem has been a central one.
for the small but important and rapidly growing natural gas industry. In the past, gas, a major input for the fertilisers needed by poor farmers, has been heavily subsidised. Now, as prices are being set loose, the search is on for other, perhaps more targeted, forms of subsidisation. Jain assesses whether future policies in the gas industry can achieve the twin objectives of efficiency and equity in a more complex economic setting in which, on paper at least, the government has less power to intervene. The resolution of such questions in this and other industries may be an important political determinant of the ability of the economy to continue its present growth path. Anil Jain’s research was published as a book *Natural Gas in India: Liberalisation and Policy* by Oxford University Press in 2012.

### The Impact of a Globalising Market on Future European Gas Supply and Pricing: The Importance of Asian Demand and North American Supply

The shale revolution in North America, the economic recession in Europe, the Arab Spring, and the Fukushima nuclear incident in Japan provide examples of events which have had impacts on gas supply, demand, and pricing far beyond their immediate geographical regions. While this clearly demonstrates an increasing ‘connectedness’, the current stage of development of the international gas trade cannot be compared with the global oil market. This said, the increasing ‘globalisation’ of gas – the fact that European gas stakeholders need to pay as much attention to what is happening in gas markets elsewhere in the world as they do to their own regional supply, demand, and pricing dynamics. The study also examines the impact on Russian gas supply and pricing to Europe of different scenario outcomes in North America and Asia, showing that Gazprom may also have to make uncomfortable choices between volume and pricing of European exports over the next decade.

The innovative aspect of the research is that it shows, in a globalising gas market, that Europeans need to pay as much attention to what is happening in gas markets elsewhere in the world as they do to their own regional supply, demand, and pricing dynamics. This working paper was published in January 2012.

### Natural Gas Price Volatility in the UK and North America

Lacking a commonly understood definition, volatility is an often over-generalized term with different meanings to different constituencies. This should not, however, detract from its importance. To traders, volatility is a source of revenue, while to energy-intensive industrial end-users it is often perceived as a threat. Midstream utilities actively work to manage volatility in order to deliver a ‘dampened’ price offer to end-user customers.

In this working paper Sofya Alterman summarizes the insights from an analysis of natural gas, crude oil, and oil products price time series to answer the questions ‘are natural gas prices inherently more volatile than those of oil?’ and the more challenging question ‘can episodes of markedly different gas price volatility be explained by underlying market fundamentals?’. Sofya’s research involved a painstaking analysis of
14 years-worth of daily price data, along with the investigation of the likely drivers of the volatility patterns uncovered. Her results both confirm the relevance of obvious drivers but also show how these can be blunt or offset by other compensating effects, some of which are less widely acknowledged. This research is particularly timely as trading hub development continues apace in Continental Europe. This working paper was published in February 2012.

**Will There be a Shale Gas Revolution in China by 2020?**

This paper, by Fan Gao, assesses the extent to which China is likely to achieve levels of shale gas production by 2020, which would make a meaningful difference to its growing need for imports of pipeline gas and LNG. The study suggests that, given the rather disappointing progress on Coal Bed Methane production since exploration and development work started some 25 years ago, a cautionary approach is needed when anticipating the outlook for shale gas for the remainder of this decade. The specific challenges include water availability and population density demographics, as well as the need to stimulate an innovative competitive dynamic in the Chinese upstream service sector and an appropriate upstream investment framework with foreign participants for the transfer and application of technology.

The paper provides a rare appreciation of the dynamics of the onshore Chinese upstream industry, and from that basis a better understanding of what will be required, on a number of policy levels, to achieve success in Chinese shale gas development. The paper was published in April 2012.

**Continental European Gas Hubs: Are They Fit For Purpose?**

This paper follows naturally from Patrick Heather’s 2010 paper ‘The Evolution and Functioning of the Traded Gas Market in Britain’ which described the genesis and development of Britain’s traded gas market. In Continental Europe both the drivers for change and the challenges to be overcome have been markedly different. Nevertheless, the combination of the EU policy commitment to encourage competition, the catalyst of the economic recession in creating a preference for hub-based price formation mechanisms, and the sea-change in the acceptance of trading by key market players have all contributed to an astonishing development in European gas hubs over the past few years.

Based on extensive research and discussion with the key actors intimately involved, the paper provides deep insights into the characteristics of the individual hubs, the reasons behind their particular evolutionary path, and the prospects for their further development. The paper provides a comprehensive and timely review of gas market developments against the backdrop of the ongoing transition from long-term oil-indexed contracts to hub-based contracts. This working paper, by Patrick Heather, was published in June 2012.

**A realistic perspective on Japan’s LNG Demand after Fukushima**

The earthquake and tsunami which left its toll of destruction and tragic loss of life on Japan’s eastern seaboard on 11 March 2011 was a natural disaster of the highest order. What is less well appreciated is the sheer extent of the damage and disruption to Japan’s industry and energy infrastructure, including its non-nuclear facilities. This working paper addresses, methodically and in detail, the extent of the impact of the 11 March 2011 events on Japan’s energy complex and describes the policy process and political tensions which led to Japan progressively taking its nuclear power facilities offline. It also describes
how, through higher utilization of fossil fuel plant and enforced and voluntary demand conservation measures, the country has coped with this unprecedented reduction in generation capacity. The impact of higher Japanese LNG imports is one component of this response which, through changes in LNG trade-flow patterns since March 2011, has affected not just Asian but arguably also European natural gas markets.

Looking forward, it is expected that Japan’s future energy policy will stress a reduced reliance on nuclear, emphasize renewables in order to pursue carbon dioxide abatement goals, while in practice relying more on LNG as a fuel for power generation and also for space heating and industrial consumers. The key uncertainty is the policy-driven path of future nuclear generation. It is in this context that the paper provides a timely and robust evaluation of Japan’s future LNG import requirements based, inevitably, on a range of scenarios regarding the future utilization of operable nuclear power facilities. This working paper by Akira Miyamoto, Chikako Ishiguro, and Mitsuhiro Nakamura was published in June 2012.

**Issues in the pricing of domestic and internationally-traded gas in MENA and sub-Saharan Africa**

In an age where it is assumed that international natural gas trading will continue to accelerate and that the countries of the Middle East and Africa will play a substantial role in providing the necessary export volumes, this paper by Hakim Darbouche serves as a timely reminder that proved reserves statistics do not necessarily translate smoothly into export flows. Whilst it is evident that the countries of the Middle East and North Africa (MENA) and sub-Saharan Africa hold almost 50 per cent of the world’s proven reserves, with much additional potential for the discovery of more conventional and unconventional resources, a deeper understanding of the political economy of these gas resource-rich countries is necessary in order to realistically appraise their future participation in the global natural gas system.

Although it is unwise and difficult to generalize across such a wide swathe of geography, certain themes recur in this paper. These include: the historic perception of gas having a low inherent value as a by-product of oil production; the use of low-priced gas as a currency for perpetuating the ‘social compact’ between regimes and the subject population; the challenges faced when domestic demand overtakes domestic production availability; and the increasing pressures on state finances as the need for high-priced imports, or the consumption of oil in the domestic power sector, are accepted as seductive but expensive short-term expedients.

The necessity for reform of gas prices (the subsidy of which has, intentionally or otherwise, effectively become an ill-targeted subsidy system) looms larger with the passage of time, though in the aftermath of the Arab Spring, the ability to implement such changes is understandably difficult for regional leaders. Nevertheless, such measures are being attempted, with varying success. In Nigeria this has been met with resistance but, as Hakim describes with justification, in Iran the process has been relatively well managed and appears to be bearing fruit in terms of improved efficiency of gas utilization and a more progressive targeting of subsidy to poorer households.

Clearly, if the region is to play a greater role in the global natural gas trade than at present, the task of pricing reform and resource governance in general is significant. This paper offers an objective appraisal of these challenges faced and an understanding of the country-specific dynamics. This working paper by Hakim Darbouche was published in June 2012.
The Offshore Discovery in the Republic of Cyprus – Monetisation Prospects and Challenges

The discovery of a significant gas field offshore Cyprus in December 2011 by Noble Energy came close on the heels of the major discoveries in adjacent offshore Israel, further astounding the international upstream exploration and production community who had largely overlooked the prospectivity of this area. For the Republic of Cyprus, whose economy is dominated by tourism and the service sector, and whose prospects appear overshadowed by a wider Eurozone economic malaise, this discovery superficially offers a path to lower domestic energy costs and substantial export revenues.

In this working paper, Anastasios Giamouridis describes the status of the Aphrodite discovery and applications for the second licensing round, and the options for the development of the field and the export strategy for gas produced in excess of Cyprus’ modest current and future consumption needs. He juxtaposes the logical process of field and export option development by the operator facing the customary field size uncertainty ahead of further appraisal drilling with the rising expectations not just of the Cypriot government but also of neighbouring countries – both those with aspirations to share in this source of hydrocarbon wealth and those openly disputing the Cypriot sovereign hydrocarbon ownership rights.

This paper, as well as presenting a detailed and comprehensive account of the challenges facing Cyprus in the monetisation of its hydrocarbon resource, exemplifies the OIES Natural Gas Programme’s desire to integrate the factual aspects of the natural gas industry with the interlinking social and geopolitical considerations, in an independent and objective manner. This working paper was published in July 2012.

Gas with CCS in the UK – Waiting for Godot?

This paper shows that all aspects of the implementation of CCS projects are complex, albeit that the underlying technologies have been used individually in the petrochemical, refining, and upstream industries for decades. Even for those who can make little claim to understanding the technical aspects of the different processes, the uncertainty of the economic assumptions, and the number of commercial interfaces required for transportation and storage (or enhanced oil recovery recycling and storage) of the carbon dioxide represent daunting challenges. Costs and technical and commercial complexity go a long way towards explaining why there is no gas-fired power plant with carbon dioxide capture and storage in operation or under construction anywhere in the world. The few gas-related CCS projects which exist serve to process natural gas to grid specification and either store carbon dioxide close to gas production sites, or use it for enhanced oil recovery.

With slower than expected progress of other forms of power generation, UK policy makers have come to the realization that gas-fired capacity will remain important for a considerable period of time. This in turn will mean that the question of whether CCS should be fitted (and retrofitted) to gas-fired power generation is likely to move higher up the UK’s climate policy agenda. Howard Rogers’ study demonstrates, on paper, that gas-fired generation with CCS can be more competitive than the low-carbon generation options that it is generally assumed will see the most significant growth in the UK over the next decade, but the commercial complexities of CCS projects set out in this paper, do not give cause for optimism about its future development, in the absence of a clear and sustained commitment from government. This working paper was published in September 2012.
The Gas Relationship between the Baltic States and Russia – Politics and Commercial Realities

While the OIES Natural Gas Programme has published extensively on gas relationships between Russia and all European and CIS countries, this is the first paper which addresses the Baltic States: Estonia, Latvia, and Lithuania. While Russian gas exports to the Baltic countries are small in numerical terms, they are highly significant both politically and in the energy balances of those countries.

Agnia Grigas’ work on Baltic Energy relations with Russia is the first of which we are aware which gives a detailed account of such relationship in a post-Soviet world. While these markets are small, they have a number of complex attributes such as: huge storage capacity in Latvia, pipeline interconnections between the countries, Russia’s reliance on Lithuania for transit to Kaliningrad, and substantial Gazprom sector shareholdings.

Twenty years after the end of the Soviet Union the Baltic States remain completely dependent on Russian gas, despite a conviction throughout the region that this relationship has been, and remains, economically exploitative. The study reviews the evolution of Russian gas relations with the Baltic States, including their (so far unsuccessful) determination to diversify supplies by importing LNG. Disagreements between Gazprom and Baltic governments over ownership of gas networks, together with antitrust proceedings brought by DG COMP against Gazprom, have given this paper a very topical significance. This working paper by Agnia Grigas was published in October 2012.

The Potential Impact of North American LNG Exports

At present the divergence between the US Henry Hub, European hub or oil-indexed prices, and Asian LNG JCC contract prices has never been so marked. However, just as ‘nature abhors a vacuum’, trade and arbitrage dynamics will inevitable seek to exploit such price differences and, in doing so, reduce them. Beyond 2015, new sources of LNG supply from Australia, North America, and East Africa will accelerate such arbitrage activity, although the scale and timing of these new ‘waves’ of LNG are subject to considerable uncertainty.

This paper, by James Henderson, focuses on future North American LNG exports which, while subject to political and production performance uncertainty, have the potential to create a considerable impact in the likely destination markets of Asia, and also (through displacement of other Middle East or African-sourced LNG) Europe. Whilst it is unlikely that all the identified US and Canadian LNG export projects will proceed, there is the potential that sufficient investment will be forthcoming to allow arbitrage to proceed to its ‘equilibrium’, given favourable policy decisions.

The paper provides a timely summary of the investment intentions, policy options and consequences, the extent to which the prospect of LNG exports are stimulating a desire to move to a hub-based price formation mechanism in Asia, and the consequent dilemmas facing LNG suppliers (and would-be suppliers) who have a strong preference for JCC-based pricing. For observers of the increasingly interlinked global gas scene and those who are interested in the evolution of gas pricing mechanisms, this paper provides an informative and comprehensive description of the ‘state of play’ of this potentially game-changing development. This paper was published in October 2012.
The Pricing of Internationally Traded Gas

This is the first book in any language to focus exclusively on the pricing of internationally traded gas. Gas accounts for around 25 per cent of global energy demand and international gas trade is growing rapidly. The first chapter looks at some of the economic theory of energy pricing, looking at the contribution that theory can make to the study of international gas pricing. This is followed by a historical chapter tracing the origins and development of international gas pricing in North America, Europe, Asia, and the former Soviet Union since the 1970s, and other regions up to the early 2000s. The main part of the book focuses on developments in the 2000s, with a view to how gas pricing is likely to develop during the 2010s and beyond. Aside from the traditional gas trading regions, the book covers: the Middle East, North Africa, sub-Saharan Africa, Latin America, south-east Asia, India, China, and Pacific Basin LNG. These national and regional studies are followed by chapters on the globalization of gas markets and prices, and the potential development of a ‘gas-OPEC’. The concluding chapter considers the extent to which international gas pricing is likely to remain regional or whether gas could become a ‘global market’ – with a global price – akin to the crude oil market. A third possibility to be considered is whether international pricing is likely to come under the control of a small group of countries – a possible ‘gas OPEC’ – similar to the influence of OPEC in the crude oil market.


Central Asian and Caspian Gas Production and the Constraint on Exports

There has been a great deal of discussion about the central Asian and Caspian region’s potential to produce and export gas, and about projects designed to establish new pipeline routes, for example to Europe and south Asia. The discovery of the South Yolotan (Galkynysh) field in Turkmenistan, now confirmed as one of the world’s largest, has renewed interest in the region. But the reality has confounded many expectations. Apart from traditional export routes to Russia and Iran, the only new corridor opened up has been to China. This detailed survey of the region, focused mainly on the four main gas producers (Turkmenistan, Uzbekistan, Kazakhstan, and Azerbaijan), and examined why the presence of considerable resources does not necessarily guarantee rapid development. The political and economic background, the upstream conditions, and domestic markets
are considered, as is the export trade. This working paper by Simon Pirani was published in December 2012.

**Perspectives for Biogas in Europe**

This paper, by Floris van Foreest, assesses the prospects and challenges facing biomass in the future European energy mix. In studies and discussions of future energy sources, the term ‘gas’ tends to be synonymous with ‘natural gas’ with its attendant issues of upstream exploration and production dynamics, geopolitics, and the ubiquitous speculation around shale gas. Biogas is frequently neglected in such a context, despite its potential to contribute to de-carbonization, in some applications using existing transmission networks.

Floris van Foreest describes the present and future conversion processes in which biomass is converted to biogas, the scale and growth of biogas production in individual European countries, and the outlook to 2020 and beyond. The technical and economic challenges facing biogas production, its end-use applications, and the regulatory and supporting subsidy schemes in force are discussed.

While the paper questions whether biogas targets for 2020 will be met, given the current pace of development, it provides the reader with a comprehensive understanding of the subject area and objectively addresses the challenges facing this renewable energy source. This working paper was published in December 2012.

**East Mediterranean Gas – what kind of a game-changer?**

The discovery of sizable gas resources in the Levant Basin – a geological structure that straddles the territorial waters of Cyprus, Israel, the Palestinian Territories, Lebanon, and Syria – has the potential to be game-changing for the East Mediterranean region. Hitherto net energy importers, these countries are now faced with the prospect of long-term energy self-sufficiency and the development of a new revenue stream for the economy. With the resource potential of the Levant Basin believed to be much higher than the 35 Tcf of gas discovered recently, the East Mediterranean is now the focus of much interest on the part of major upstream investors. However, in the short- to medium-term, the development and monetization of these resources present stakeholders with a set of challenges originating in the region’s complex political make-up, as well as in the fact that their energy and gas utilization policies are still works in progress, over and above the technical difficulties relating to the development of these resources. This paper examines the challenges and opportunities that have arisen following these discoveries, arguing that to 2020 East Mediterranean gas is more likely to be a game-changer for local energy systems than for regional and international gas markets.

This paper, authored by Hakim Darbouche, Bassam Fattouh, and Laura El-Katiri, was published in December 2012.

**Profit margins in energy supply**

John Rhys completed his work (described in the 2011 annual report) with the Institute for Public Policy Research (IPPR) on margins in energy supply businesses. The IPPR report was issued in April 2013.

**Demand side management – Intermittency and electricity storage**

John Rhys continues his analysis of issues relating to demand management and storage, and problematic aspects of these questions for the operation of electricity wholesale markets.
Evolution of global electricity markets: New paradigms, new challenges, new approaches

Malcolm Keay, John Rhys, and David Robinson have co-authored a chapter for a forthcoming book: *Evolution of global electricity markets: New paradigms, new challenges, new approaches*, to be published by Elsevier in 2013. The chapter takes the UK electricity market reforms as a starting point. With a view to identifying policy options for other countries, it explores alternative models of reforming the electricity sector to meet the combined objectives of economic efficiency, resource adequacy, and decarbonization.

UK electricity market reforms

Major reforms have been proposed to UK electricity markets in order to deliver the very large amounts of low-carbon generation investment – nuclear and renewable sources – which will be needed to meet the UK government’s carbon targets. In a series of Comment pieces, Malcolm Keay has analysed the proposals as they have developed and discussed their strengths and weaknesses.

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 carbon dioxide emission reductions. He published a first article on this subject in the February 2010 Oxford Energy Forum.

Decarbonization of the electricity sector: Is there still a place for markets?

This paper is a fuller version of the book chapter described above. In it, Malcolm Keay, John Rhys, and David Robinson look at the policy goal of decarbonizing the electricity sector. They explain why, in many cases, this has led to a move away from reliance on market forces and towards more central control. They then look at a number of alternative models which might leave more room for competition. The paper also examines the wider changes in the electricity industry which will be the result of a move to lower-carbon sources, and discusses a range of issues which governments will need to consider, in addition to promoting the low-carbon investments themselves.

Carbon dioxide emissions from energy use: the third energy transition

Various specific outputs noted elsewhere from Malcolm Keay are linked to a wider study on how the transition to a low-carbon energy system can be effected. Previous work under this heading has looked at long-term energy developments and what they suggest about the underlying drivers of energy use and the associated emissions. The current phase of the project has been looking at specific policy approaches and their limitations. The focus is now moving to the wider implications of decarbonization for the energy sector, in particular the growing importance of the demand side.

Social Cost of Carbon – ‘Cumulative carbon dioxide’

John Rhys’s discussions with Committee on Climate Change staff and others led him to conduct a review of Treasury/DECC guidance on the valuation of carbon dioxide emissions in analysis of public sector policies and projects. Critique of this government guidance, and identification of its shortcomings, has now been published as OIES Comment, and discussed with DECC personnel.

The EU emissions trading system is failing to produce a carbon price that is efficacious in promoting low-carbon
investment or a low-carbon economy. Carbon price projections from this scheme are nevertheless incorporated in the formal guidance issued by the UK Treasury to guide government departments in appraising policy initiatives and projects. The Treasury’s guidance deals with this issue of the carbon price by trying to maintain a distinction between emissions in what it calls the ‘traded sector’ (sectors such as power and aviation covered by the EU ETS) and the ‘non-traded sector’, which includes domestic gas and road transport. The Comment shows that this distinction is untenable and has the potential to create serious distortions in policy. The Comment explains how these are likely to arise.

John Rhys also engaged with OFGEM’s strategic and sustainability assessment (SSA) review on this subject. This work also led on to presentation of a paper on the subject to the BIEE Academic Conference held in Oxford in September 2012.

**General Energy and Climate Policy issues**

John Rhys has continued to pursue this work in the context of the BIEE Climate Change Policy Group and the Parker seminars, leading to his engagement as organiser of a BIEE seminar programme for 2013.

He also received a request from the Committee on Climate Change (CCC) to peer review a report by CCC on the progress of UK policy. This report was for submission by the CCC to the Open Climate Network of the World Resources Institute. The peer review was carried out, and made some suggestions which were welcomed by the CCC.

**How to Operationalize Respective Capabilities according to the UN Framework Convention on Climate Change**

Article 3.1 of the UN Framework Convention on Climate Change (UNFCCC) stipulates that Parties ‘should protect the climate system … in accordance with their common but differentiated responsibilities and respective capabilities’. Regrettably, there is no consensus as to the meaning of this proviso. In particular, its references to ‘responsibilities’ and ‘capabilities’ are notoriously ill-specified: ‘Capability’ – the theme of Benito Müller and Lavan Mahadeva’s work – can refer to many different things. There is ‘institutional capability’, ‘technological capability’, or ‘economic capability’, to name just a few.

Benito Müller and Lavan Mahadeva propose a measure for national ‘differentiated economic capabilities (‘ability to pay’) as an integral part of an operationalization. The primary purpose of the measure is to define or assess climate change cost/burden sharing (schemes). To illustrate the potential use of this methodology, they consider two examples: assessing the fairness of a given cost distribution; and developing a (rule-based) ‘graduation scheme’ regarding obligations to pay.

**Balanced Clean Development in China – Climate Change**

This research project is part of the OIES project on Balanced Clean Development in China. David Robinson and Benito Muller carried out a study on the potential for large-scale collaboration between the EU and China to reduce carbon dioxide emissions in the Chinese power sector. The project is finished and the report was launched at the UNFCCC meeting in Tianjin in October 2010. The central issue in the research is to identify barriers to large-scale
collaboration to promote zero emission technologies in China and to seek to lower those barriers through an EU–China high-level agreement, specifically related to wind power.

David Robinson has developed the argument further, writing and speaking about the potential for agreements involving China to accelerate decarbonization on a global basis by driving down the costs of low-carbon technologies. He has spoken at a number of conferences on the topic, including in Bern (Switzerland) and Dalian (China) in 2011. He has been asked to speak on this topic at a conference in Istanbul (Turkey) in April 2012, and is preparing an OIES paper on the subject.

The research has had policy implications. In 2010, the Spanish Government adopted a proposal from the paper, namely to sign an MOU with China to collaborate in the development of renewable and alternative energies. The Spain–China MOU contributed to global commercial agreements between Spanish companies and Chinese companies in the wind sector. The evidence of success with this combination of political and commercial agreements was used by the British Government and the EU to encourage China to support the sort of comprehensive global climate agreement that emerged in Durban.

Complementarity of CCS and EOR

David Robinson is carrying out research on the complementarity between CCS and EOR projects. On the one hand, CCS is considered as critical in the fight to deal with climate change; but there is very slow progress in developing the technology at scale, and some important demonstration projects have been cancelled. On the other hand, EOR is an important means of increasing global recoverable oil reserves, and should become more attractive as oil prices rise; but there has been very little EOR outside of North America. The research illustrates that EOR can provide a source of revenue and carbon dioxide storage for CCS projects, and that CCS projects can provide carbon dioxide for EOR. It also identifies the key barriers that are slowing this mutually beneficial development.

David participated in a UNFCCC technical workshop in Abu Dhabi in September 2011 that defined the requirements to enable CCS to receive funding under the Clean Development Mechanism of the UNFCCC. He presented a paper on the complementarity of CCS and EOR in Dalian (China) in October 2011. He has published an article on this topic in an industry magazine and has spoken frequently on the topic, including in Abu Dhabi and in Oxford in 2012.

US Energy and Climate Change Policy

David Robinson’s project examines the critical importance of coal-based generation as a source of greenhouse gas emissions, and analyses the difficulties in cutting these emissions. The central argument is that the US coal and electricity lobbies were instrumental in stopping the passage of federal climate change legislation in 2009/10. Although this was considered a victory by these lobbies, the absence of legislation has arguably worsened the prospects for coal and coal-based electricity in the USA, and has had other problematic implications. First, the USA has lost a large part of its credibility and influence in international negotiations over climate change. Second, important parts of the US economy, notably those involving ‘clean coal’ technologies like CCS, and related services, have been weakened as result of diminished demand in the USA and less financial support from the public and private sector. Third, the absence of US legislation has facilitated the growth of ‘unabated’ coal-based generation around the world, noticeably in China and India. This research will lead to an OIES book. Meanwhile, David has
published an OIES Working Paper and an article in the Carbon and Climate Law Review on this topic.

**Energy security in a multipolar world**

A major interdisciplinary project has been conducted under the aegis of the UK Energy Research Council, on the new energy security challenges facing the UK. It approaches security in a broader and more flexible manner than traditional studies, focusing not just on energy supply but on the need to integrate the wide range of energy challenges facing the UK and in particular on the transition to low-carbon energy systems. As part of this project, Malcolm Keay co-authored a chapter on ‘Energy Demand and Energy Efficiency’ which looks at the contribution the demand side can make to security in this wider sense. It concludes that much more attention needs to be given to energy demand, but that energy efficiency is not the key issue. It will form part of the book *Energy Security in a Multipolar World* to be published in 2013.

**The Energiewende – Germany’s gamble**

Germany has set itself a huge challenge in trying to move away from fossil fuels and abandon nuclear power, while still remaining a major industrial power. This challenge to create an Energiewende – an energy turnaround or transformation – has ambitious targets. David Buchan argues Germany is on track to meet only one of its three main targets – a one-third renewable share of electricity in 2020 – and that the country will fail to reach the target – cutting energy consumption by a fifth by 2020 – that would make attainment of the other two goals (emission reduction and renewable energy growth) easier. But, in a broader sense, Germany’s gamble may still come off, provided future gains in renewable technology and jobs can be achieved at lower subsidy cost. No other country can tap such technical expertise from industry or bottom-up activism from municipal companies and citizens’ cooperatives in support of low-carbon energy.

**Europe’s misshapen market – why progress towards a single energy market is proving uneven**

Faster-than-expected national promotion of intermittent renewable energy is panicking governments into developing national back-up capacity schemes for these renewables. The combination of these national renewable and capacity markets would effectively shut off countries’ energy sectors from each other, and negate all the plodding work of building cross-border interconnectors, agreeing pan-European network codes schemes, and coupling power markets.

**Prospects for Wind Energy in Colombia**

David Robinson directed an OIES project (funded by the UK FCO Prosperity Fund) on the potential for private investment in wind power in Colombia under the current regulatory framework. The project analyses how wind power and other intermittent renewables should be compensated for their contribution to electricity system reliability, especially during periods of El Niño, when hydro generation is severely limited. How reliability is measured has an important impact on the profitability of wind power. We show that the current regulation underestimates that contribution. However, even when the contribution to reliability is properly measured, wind power is unattractive for private investors under the existing ‘technology neutral’ regulatory framework. The question for the Colombian Government is whether they wish to actively ‘promote’ wind and other renewable sources of power, as other countries like Peru have done, or to wait until these technologies are competitive without special treatment. If they decide to wait, then we recommend that they
at least level the competitive playing field by (a) compensating properly the contribution of intermittent renewables to system reliability and (b) tax or otherwise take account of the negative externalities (such as the environmental and social costs) of large hydro and coal projects.

The aim of the study is to offer ideas to the Colombian Government on possible regulatory reform. The report was shown to the Ministry of the Environment, the energy regulator (CREG), and potential investors in the energy sector. It was presented at a workshop at the British Embassy in Bogota in May and the final report has been published by the OIES.
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-third year, continues to tackle topical issues facing the energy world. During the year, issues covered have included: Africa’s energy outlook; natural gas demand and supply; the controversy over energy subsidies and oil price benchmarks in international trade. Our thanks go to the authors of all articles that appeared in OEF in 2012, to Bassam Fattouh the editor, and to our guest editors.

Website – www.oxfordenergy.org

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

During 2012 the catalogue of working papers, energy comments, and presentations on the Institute’s website continued to grow. The site now holds more than 200 working papers along with over 200 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. In 2012 the Institute’s Research Fellows, its Programme Directors, and its Director gave numerous presentations, and talks at various conferences, workshops, seminars, and meetings.

Energy Lectures

The Geopolitics of Energy seminar series, run in association with St Antony’s College, Oxford, and organized by Dr Shamil Yenikeyeff, ran during Hilary term in 2012. Lectures given included, Arctic Oil and Gas: Opportunities and Challenges by Tim Reilly, Timothy Krysiek, and Shamil Yenikeyeff; China’s Energy Challenges and their Implications by Michael Chen; and Oil and Politics in Iraq by Gregg Muttitt. Our thanks go to all those who gave lectures in 2012.

XXIII 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, financial institutes, and other research organizations. The twenty-third such meeting was held in May this year in Seville, Spain with the kind support of Cheniere. Over 40 participants engaged in lively discussions on a wide range of energy issues including the global economic outlook and risks, the oil and refining sectors, oil supply and demand, LNG and natural gas, climate change and carbon trading, the changing electricity sector, alternative energy, the future of nuclear power, and geopolitics with a focus on MENA.

Outlook for Brazilian Oil: A Key Source of Relief for Oil Markets or Hyped Expectations?

In January 2012, the OIES successfully held its annual Oil Day; this year’s theme focused entirely on the role of Brazil’s oil production and reserves in today’s and tomorrow’s global oil market. The conference was attended by thirty-five key figures from within the oil industry, including Brazilian oil industry representatives, representatives from IOCs and from financial institutions, price assessment agencies, the energy business community, as well as OIES staff. The conference covered, in one day, different aspects of the Brazilian oil industry, including current outlooks for production and its impact on the global oil market; technological, regulatory, and political challenges to Brazil’s oil industry; and government strategies for the Brazilian energy sector in the short- and long-term.

This year’s event was kindly supported by Energy Intelligence Group.

The Changing North American Energy Scene and its Impact on Traditional Suppliers and their Export Markets

In November 2012, the OIES held a one day seminar on the changing North American energy scene; discussions centred around three main topics: recent developments in North American oil and gas markets and US government policy options; the impact on markets and players; and the geopolitical impact on international relations and US foreign policy. The Seminar was well attended and kindly supported by Saudi Aramco.
2012 Gas Day

The Institute’s Natural Gas Programme organized its seventh annual ‘Gas Day’ in November 2012 to discuss current issues including ‘Asian Gas and LNG Demand Growth – Onwards and Upwards or Hard Landing?’, concentrating on the outlooks for Japanese LNG, Chinese demand for natural gas and LNG, and the ‘overlooked market’ of south-east Asia. Also discussed under the heading of ‘New Cargoes on the Horizon?’ were the prospects for North American LNG exports, the timing and costs of Australian LNG projects, and the emerging new supply province of East Africa. The final session on ‘Gas in the European Energy Mix’ discussed the European economy and implications for energy demand growth, the role of gas in German energy policy, and ‘What is After Oil Indexation for Europe?’

The Seminar, held at St Anne’s College, Oxford, was attended by 91 people including sponsors of the Natural Gas Programme and the Institute, and invited guests from the academic, media, and corporate sectors.

Gas Programme Sponsors Meeting

The Institute’s Natural Gas Programme held its bi-annual Sponsors’ Meetings on 14 and 15 May and on 7 November at St. Hugh’s 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 energy journalism. Ongoing research projects and progress reports were discussed.

The May meeting discussed the book The Pricing of Internationally Traded Gas, the causes of the February 2012 European gas price spike, central Asian gas research, and the EU Third package for gas and the Gas Target Model. European demand and a forthcoming project on the Italian gas market were also discussed. The development of continental European gas hubs, UK gas storage, and UK gas policy completed the European section of the meeting. Key findings and conclusions from the book Natural Gas in India: Liberalisation and Policy were presented. On MENA, two prospective papers on the offshore Cyprus discovery and East Mediterranean offshore gas in general were outlined. On decarbonization prospective papers on biogas and gas with CCS were outlined.

The November meeting focused on a future book on Russian gas, the gas hub database project, the outlook for Japanese LNG post Fukushima, central Asian gas, and Chinese pricing and demand. A paper on North American LNG exports was discussed in addition to an outline of a prospective paper on East African LNG. Gas and German energy policy, Baltic gas relations with Russia, the gas markets of Pakistan and Bangladesh, and the Southern Cone markets were also discussed.
Library

The Institute’s library is its most valuable research tool. In 2012, the Institute continued to expand its collection. 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 many 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 both 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 could 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 would fill 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: Blackwell’s, 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 OIES since its inception.

Juan Carlos Boué, Senior Research Fellow, 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 OIES from 2000 to 2004 – and industry. From 2005 to 2009, he was special advisor 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).

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. In 2012 he published an OIES working paper on Germany’s energy revolution, and an OIES comment on Europe’s internal energy market (to be expanded into a full paper in 2013). He also wrote a policy brief on integrating renewables into the European energy market for the Centre for European Reform, and edited the official publication for the Kuwait congress of the International Energy Forum, which featured a contribution from Bassam Fattouh of the OIES.

Hakim Darbouche, Research Fellow, joined the OIES 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.

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. In 2012 he published an OIES working paper on Germany’s energy revolution, and an OIES comment on Europe’s internal energy market (to be expanded into a full paper in 2013). He also wrote a policy brief on integrating renewables into the European energy market for the Centre for European Reform, and edited the official publication for the Kuwait congress of the International Energy Forum, which featured a contribution from Bassam Fattouh of the OIES.

John Elkins, Research Fellow, was, until four 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 OIES in January 2008 and, in addition to editing many of its Gas Programme working papers, has written the paper 'Natural Gas in the UK: An Industry in Search of a Policy?', which was published in 2010.

**Bassam Fattouh**, Director of the Oil and the Middle East Programme and Deputy Director at the OIES is also a 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*. 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 OIES 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, which included 22 years 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 OIES in October 2008. He is an experienced consultant in the field of power and gas market analysis, scenario development, and sustainability. Earlier in his career he held various roles in multinational companies. Floris is a Research Fellow of the OIES Natural Gas Research Programme whose research is focused on the role of gas in the energy transition. He studied Business Administration and Political Science at the University of Groningen and Amsterdam.

**Fan Gao**, Research Fellow, joined the OIES in January 2011. She works for Statoil in Global Strategy and Business Development. Her research currently focuses on unconventional gas development (particularly shale gas) in China and its impacts on China’s future energy plan and global energy landscape. She is a graduate of China Foreign Affairs University with a BA in English and International Studies. She worked in Statoil’s offices in China, Norway, and the UK before this assignment with OIES. Her main areas of expertise are upstream business development and Chinese government and political affairs.

**Patrick Heather**, Senior Research Fellow, joined the Institute in June 2006. His paper 'The Evolution and Functioning of the Traded Gas Market in Britain' was published in August 2010. He co-authored a Comment 'Lessons from the February 2012 European gas crisis' with Jim Henderson and, in June 2012, published his paper on the 'Continental European Gas Hubs: Are they fit for purpose?'. He is currently continuing his research on the development of European gas...
hubs, with particular focus on the increasing traded volumes, and on developments in eastern Europe. Since 2004, Patrick has been an independent consultant advising and giving presentations to many different organizations, including the APX and ICE futures exchanges and various producer and end-user companies, financial institutions, regulators and governments in Austria, Brazil, Britain, France, Greece, Holland, Italy, Norway, the Philippines, Poland, Russia, Sweden, and Turkey. In 2006, he was appointed Commercial Advisor to South Hook Gas to assist them through the long commissioning phase of their world-leading LNG import facility in south Wales; this was successfully achieved in Q4-2009. Prior to that he was Trading Manager at BG Group from 2002 to 2004 and before that he worked at PowerGen plc, where he set up their trading capability and managed the gas and power trading desks. Patrick has over 30 years’ experience of broking, trading, and risk management in the natural gas, power, oil, and oil products markets.

James Henderson, Senior Research Fellow, 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 their 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.

Anouk Honoré, Senior Research Fellow, joined the OIES in 2004. She works in the Natural Gas Research Programme. She is an expert on the European region, focusing on natural gas issues, power generation, energy policies, market fundamentals (with an emphasis on natural gas demand), Liquefied Natural Gas (LNG), and security of gas supplies. She also studies the natural gas markets in Latin America. She published the book European Natural Gas Demand, Supply and Pricing: cycles, seasons and the impact of LNG arbitrage (Oxford University Press) in December 2010. Additional publications can be found on the OIES website. Before joining the Institute, Anouk worked at the International Energy Agency in Paris. Her work focused mainly on natural gas policies in the IEA member countries, but also included China and Latin America. Dr Honoré holds a PhD in Economics, a MA in Environmental and Natural Resources Economics, and a LLM in International Administration (public law).

Laura El-Katiri, Research Fellow, joined the OIES in October 2009. She is a Teaching Fellow in the Department of Financial and Management Studies at the School of Oriental African Studies, University of London. Her research focuses on energy and economic policy in the Middle East, with particular focus on the Gulf economies (the GCC countries, Iraq, Iran, and Yemen). She has published for the UNDP, the IEA, and AFED, including on the management of natural resource wealth; energy sustainability oil-led development strategies; energy pricing policies in the Arab world and resource-rich economies; MENA oil and natural gas market development; and energy poverty in the MENA region and developing economies. She is also occasional co-editor of the Oxford Energy Forum.

Malcolm Keay, Senior Research Fellow, joined the OIES 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, particularly in relation to 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.) published in 2011 by Oxford University Press for the OIES. This 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 has contributed chapters to some of the Institute’s books: Natural Gas in Asia published in June 2008, Natural Gas in the Middle East and North Africa published in May 2011, and the Pricing of Internationally Traded Gas published in November 2012. In July 2009 he published a paper ‘The Changing Relationship between NOCs and IOCs in the LNG Chain’ and in March 2013 the paper ‘East Africa Gas – Potential for Export’. David also contributed the chapter ‘Project Financing LNG Projects’ to The Principles of Project Finance, a book on project financing which was published by Gower Publishing in April 2012. 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. 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 OIES 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.

Lavan Mahadeva, Senior Research Fellow, joined the Institute in August 2011. He heads up macroeconomic research at the Oxford Institute for Energy Studies. He is concerned with the interaction of energy markets with the macroeconomy and international finance. He is working on what constitutes good macroeconomic policy in energy exporting countries and whether global financial market conditions affect energy prices. Prior to joining the Institute, Lavan Mahadeva was a Bank of England economist for 16 years. He began by modelling and forecasting the UK economy. He then joined the Bank’s Centre for Central Banking Studies and worked with other central banks in Africa, central
and eastern Europe and Latin America in constructing their monetary policy strategies. His remit was to develop models to guide policy in challenging environments. He was an adviser to the Bank of England Monetary Policy Committee 2005–6 and he spent 2007–9 with the Central Bank of Colombia as Adviser to the Governor. Just before coming to the Institute, he worked on cross-sectional systemic risk and international finance. Lavan has published on the transmission mechanism of monetary policy, monetary policy frameworks, and interbank contagion. He co-produced an award winning book on Monetary Policy Frameworks in a Global Context. Lavan has a BA from Trinity College, Cambridge, an MSc from the University of Warwick, and a PhD from the European University Institute.

Benito Müller, Director, Energy and Climate Change, joined the OIES in 1996. He 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 of Oxford’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).


Simon Pirani, Senior Research Fellow on the Natural Gas Programme, joined the Institute in September 2007. His research focuses on the development
of natural gas markets, and changing consumption patterns, in the former Soviet Union. He was editor of *Russian and CIS Gas Markets and their Impact on Europe* (OUP, 2009), author or co-author of OIES publications on the Ukrainian gas sector and Russo-Ukrainian gas relationships, and author of OIES working papers including ‘Elusive Potential: Natural Gas Consumption in the CIS and the Quest for Efficiency’ (2011) and ‘Central Asian and Caspian Gas Production and the Constraints on Export’ (2012). He studied Russian at the University of London, wrote a doctoral dissertation at the University of Essex, and is the author of *The Russian Revolution in Retreat* (Routledge, 2008) and *Change in Putin’s Russia: Power, Money and People* (Pluto, 2009). Prior to joining the Institute he worked as a journalist, writing about the Russian and Ukrainian economies for financial and industry publications. Since 2012 he has been teaching Russian and Soviet history at Canterbury Christ Church University.

**John Rhys**, Senior Research Fellow, joined the OIES 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 an Academic 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**, Director, Natural Gas Research Programme, 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 co-authored a paper on the transition to hub-based gas pricing in continental Europe in 2011. He published a paper ‘The Impact of Import Dependency and Wind generation on UK Gas Demand and Security of Supply to 2025’ in 2011 and in early 2012 a paper ‘The Impact of a Globalizing Market on Future European Gas Supply and Pricing: The Importance of Asian Demand and North American Supply’. His contribution to the book *The Pricing of Internationally Traded Gas* was as co-author of Chapter four and author of Chapter 12.

**Anupama Sen**, Senior Research Fellow, joined the Institute in October 2009 to work on the economics of energy in India. She holds a BA (Hons) in Economics from the University of Mumbai, an MSc in Economic Development from the London School
of Economics, and a PhD from the University of Cambridge where she was a Cambridge Nehru Scholar. Her areas of expertise include policy on pricing, taxation, and regulation of oil, gas, and electricity in India, with extensions to other developing economies, and she has carried out extensive publication and fieldwork in India in relation to her research. Her current work focuses on gas pricing, electricity market reform, auctions for the allocation of energy resources in India, and the fiscal regime for exploration. Anupama is a Fellow of the Cambridge Commonwealth Society and a Visiting Fellow at Wolfson College, Cambridge. She is also a Region Head on the Asia Pacific desk at Oxford Analytica.

Jonathan Stern, Chairman of the Natural Gas Programme and Senior Research Fellow, is also Honorary Professor at the Centre for Energy, Petroleum & Mineral Law & Policy, University of Dundee; Visiting Professor at Imperial College’s Centre for Environmental Policy in London; part time BP Professor at the Moscow School of Management’s Energy Centre at Skolkovo; Fellow of the Energy Delta Institute; and 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 and editor of several books, including: Natural Gas in Asia: the challenges of growth in China, India, Japan and Korea, the second edition of which was published by Oxford University Press in 2008; and co-editor with Bassam Fattouh of Natural Gas Markets in the Middle East and North Africa, published in 2011. During 2012, Jonathan Stern’s major research focused on gas pricing and resulted in the publication of his edited book on: The Pricing of Internationally Traded Gas, published by Oxford University Press in November 2012. Following publication he organized launches of the book in London, Milan, Moscow, Houston, and Tokyo. During the year he continued to work on European gas pricing developments, and general Russian and CIS gas issues in connection with his work as EU Speaker for the EU–Russia Gas Advisory Council, a body set up by EU Energy Commissioner Oettinger and Russian Energy Minister Shmatko to assess future trends in the gas sector in order to reduce risks and to exploit opportunities in EU–Russia gas cooperation.

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’. Her book The Transit Dimension of EU Energy Security: Russian Gas Transit Across Ukraine, Belarus, and Moldova was published by OUP in 2011. She has co-authored a chapter on CIS gas pricing for The Pricing of Internationally Traded Gas edited by Jonathan Stern and published by OUP in 2012. She authored a chapter on the Belarusian gas market and 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, University of Oxford. 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. Among the latest of these is a book chapter ‘Oil and the Corporate Re-Integration of Russia: The Role of Federal Oil Companies in Russia’s Center–Periphery Relations’ in Douglas Chalmers and Scott Mainwaring, (eds.), Problems Confronting Contemporary Democracies, University of Notre Dame Press, 2012 as well as a working paper ‘Governors, Oligarchs, and Siloviki: Oil and Power in Russia’ (co-authored with Ahmed Mehdi) published in English, French, and Russian by Institut français des relations internationales.


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 2013.

Renfeng Zhao, Research Fellow, joined the OIES 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 2012. 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.
- Jo Ilott provides administrative support for the Natural Gas Programme.
- Margaret Ko is responsible for the Institute’s accounts.
- Kate Teasdale is the Institute’s administrator.
Ali Aissaoui, Senior Research Adviser, is senior consultant at the Arab Petroleum Investments Corporation (APICORP) where he previously held the position of Head of Economics & Research. Before joining APICORP he worked as senior research fellow at the OIES. Prior to that, he served as energy policy advisor to the Algerian government, while acting as that country’s representative on the OPEC Board of Governors. At APICORP he has focused on scrutinizing the corporation’s business environment, and on framing its strategy. Ali Aissaoui is author and co-author of books, chapters of books, and numerous analyses and critical reviews. Topics addressed include energy markets and prices, investments and funding, as well as the political economy of the major petroleum-exporting countries. His current thoughts and views are reflected in APICORP’s monthly Economic Commentary, which he authors and edits. Ali Aissaoui is a member of several professional associations, including the Oxford Energy Policy Club, the Paris Energy Club, and the Arab Energy Club.

Sofya Alterman, Contributing Author, is a Vice President with a private equity firm in New York where she has worked since 2003. Sofya’s contact with the Oxford Institute for Energy Studies began as part of her research for a study on the Trends and Pricing Dynamics in LNG which she undertook as part of her MBA at Harvard Business School in 2010.

Robert Arnott, Senior Research Adviser, is currently a Director on the boards of Petroceltic International plc and Global Petroleum Ltd, having spent four years with Spring Energy where he advised the company on corporate strategy – which ultimately led to the sale of the company to Tullow Oil in January 2013. Up to June 2012 he was 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 OIES 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.

Aysegul Ates, Visiting Research Fellow, visited the OIES from September to December 2012. She is Associate Professor, Akdeniz University, Department of Economics. Her research focused on the futures market.

Michael Bradshaw, Visiting Senior Research Fellow, joined the OIES in August 2008. He is currently Professor of Human Geography in the Department of Geography at the University of Leicester, UK. In January 2014 he will take up the post of Professor of Global Energy at Warwick Business School at the University of Warwick. His PhD is from the University of British Columbia, Canada. His research is on resource geography, with a particular focus on the economic geography of Russia and global energy security. In 2007 he was awarded the Royal Geographical Society’s Back Award for his applied research on economic
change in post-socialist economies. Most recently his research has focused on energy-related issues. For more than a decade he has studied the development of the Sakhalin oil and gas projects in Russia’s Far East. This has led to research on energy security in north-east Asia. From 2008 to 2011 he was engaged in a programme of research on Global Energy Dilemmas, funded by a Leverhulme Trust Major Research Fellowship, that examined the relationship between energy security, globalization, and climate change. In October 2013 Polity Press will publish his book entitled Global Energy Dilemmas. In January 2011 he started a two-year research project on global gas security funded by the UK Energy Research Centre. He is Editor-in-Chief of Wiley-Blackwell’s Geography Compass, Co-Editor of European Urban and Regional Studies and Contributing Editor of Eurasian Geography and Economics. In addition to his involvement in OIES, he is an Honorary Senior Research Fellow in the Centre for Russian and East European Studies at the University of Birmingham.

Michael Xiaobao Chen, Visiting Research Fellow, is a Principal Analyst at Statoil where he works with global strategy and business development. Michael started his career at the OECD as an economist, focusing his research on economic development in China, and its global impacts. He then joined the International Energy Agency, where he worked in the World Energy Outlook’s long-term global energy forecast team. Michael’s main areas of expertise are: the Chinese energy economy and regulations, the ASEAN energy market, global fossil fuel subsidies, and upstream industry trends. Michael holds a BA in Economics from Lancaster University, an MSc in Economics from University College London, and an MSc in Development from the London School of Economics.

Andrew Cleary, Visiting Research Fellow, is a founding director of Integrity Research and Consultancy and is its representative in the Middle East. He is an experienced manager and researcher with a specialization in natural resources and conflict. He has worked on community engagement and stabilization initiatives in conflict zones in the Middle East, South Asia, and East Africa. As a manager, Andrew has coordinated teams of researchers and analysis of primary data in Afghanistan, South Sudan, Egypt, Kenya, Somaliland, Lebanon, and Syria. As a researcher, Andrew is experienced in conducting primary research in Middle Eastern countries, having published on natural gas markets in the Mashreq (Levant) region with the Oxford Institute for Energy Studies.


John Enos, Visiting Research Fellow, is Emeritus Fellow in Economics at Magdalen College, Oxford. He joined the OIES in 1994 to carry out a study of improvements to oil refinery processing units in the previous 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.

Chris Le Fevre, Senior Visiting Research Fellow, joined the Institute in September 2012 and published a working paper on gas storage in Great Britain in January 2013. He is presently working on a study of the potential for natural gas as a transportation fuel in Europe. He has worked as an independent energy consultant since 2002, specializing in commercial, strategic, and regulatory issues in the natural gas sector with particular focus on European and former Soviet Union markets. Chris has worked in the oil and gas industry for over 30 years. He has held a variety of positions to executive director level in Transco plc (now National Grid Gas plc) and British Gas. In Transco he was the director responsible for implementing the Network Code and the introduction of domestic competition. His roles in British Gas include establishing operations in a number of European countries including Spain, the former GDR, Hungary, and the Czech Republic. Before British Gas he worked for Shell in exploration and production companies in the Netherlands and Malaysia. He is also a Region Head at Oxford Analytica and was, until 2011, on the Boards of the Northern Ireland Utility Regulator and the South Central Strategic Health Authority.

Florence Gény, Visiting Research Fellow, works in business development and strategy in international exploration and production for Statoil. 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 Etudes Commerciales (HEC) with a Master in Science of Management and from Université Paris XI with a Master in Business Law.

Anastasios Giamouridis, Senior Visiting Research Fellow, has a background in commercial oil and gas and politics. He has recently published his third paper with the Gas Programme, having previously published on security of gas supply in South Eastern Europe (2011) and on gas supply and demand prospects in Greece and Albania (2009).

Agnia Grigas (née Baranauskaite), Contributing Author, has a decade of experience in business and academia working as a development and political risk consultant for corporations and governments. She is the author of The Politics of Energy and Memory between the Baltic States and Russia (Ashgate Publishing, forthcoming) and holds a PhD in international relations from the University of Oxford.

Ieda Gomes, Senior Visiting Research Fellow, is the director of Energix Strategy Ltd, a consultancy specializing in energy strategy, natural gas/LNG supply, pricing, and contracts, and market fundamentals. With a career spanning 30 years in the gas and energy industry Ieda has spent more than 13 years with BP plc, where she had senior positions, such as Vice President of New Ventures for South Asia and Middle East, President of BP Brasil, and Vice President of Regulatory Affairs for Gas & Power. Prior to BP Ieda was the CEO of the S. Paulo Gas Company (Comgas), the largest gas distribution company in Brazil. Ieda is currently a councillor at the Brazilian Chamber of Commerce in Great Britain, a director at the Department of Infrastructure of the S. Paulo Federation of Industries, and a member of the Advisory Board of Comgas. Ieda is an active member of International Gas Union (IGU) having served in the Executive Committee and as the Chair of the Task Force on Building Strategic Human Talent. She has presented in several energy conferences and training courses, more recently at the World Gas Conference, and she is a
member of the Programme Committee of LNG 17. She is a regular columnist at the specialized magazine Brasil Energia. Ieda has a degree in Chemical Engineering and an MSc in Energy and Environmental Engineering.

David Harbord, Contributing Author, is Director of Market Analysis Ltd.

Marianne Haug, Senior Research Adviser, teaches Energy Policy and Sustainable Development at the University of Hohenheim in Stuttgart, Germany and serves as Chair of the Advisory Group on Energy for the European Commission in Brussels. Following a career at the World Bank in Washington, DC, inter alia as Director and Senior Advisor to the President, she served as Director at the International Energy Agency (IEA) in Paris, 2001–5, and as Chairman of the Board of the Forum für Zukunftsenergien in Berlin, 2006–9. Her present research and advisory interests focus on the innovation dynamics and growth of clean energy within a rapidly changing global economy.

Elham Hassanzadeh, Student, is a PhD student at CEPMLP, University of Dundee. Her multidisciplinary research focuses on the export of Iranian natural gas to regional and international markets. Elham holds an LLM degree from the University of Cambridge where she was a Shell Centenary Scholar. She is a qualified barrister at the Iranian Central Bar and a consultant to the World Bank and the International Institute for Sustainable Development.

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 a former Chairman of TOTAL Oil’s business in the UK and a member of the Monopolies and Mergers Commission.

Anna Herranz, Visiting Research Fellow, joined the OIES in February 2012. She is a Juan de la Cierva Researcher (Ministry of Science and Innovation of Spain), Institut Barcelona d’Estudis Internacionals (IEBI), and holds a PhD in International Relations, with European Mention, (Autonomous University of Barcelona, 2009). Her research at the OIES focused on the European Union and Global Energy Governance. She returned to Barcelona in May 2012.

Paul Hornsoll, Senior 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 Hornsoll 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 OIES 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.

Chikako Ishiguro, Contributing Author, has experiences in broad energy research and analysis activities. She is currently a member of the Planning and Research Group within the Energy Resources & International Business Unit of Osaka Gas.

Alex Jacottet, Intern, joined the OIES in early 2012 for two months to work on research covering EU initiatives to promote competition in its internal energy markets. He holds an MA in European Economic Studies at the College of Europe in Bruges, Belgium. Part of his research
was published as an OIES Energy Comment ‘Cross-border electricity interconnections for a well functioning EU Internal Electricity Market’.

**Anil Jain**, Senior Visiting 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 25 years 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 & Natural Gas. In separate assignments, he has been exposed to the differing development-related issues faced by villages and by 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 the petroleum exploration and international cooperation activities. He has been closely associated with the development of the natural gas sector (including award of acreages, development of discoveries, pricing, and distribution) and its deregulation. 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.

**Najeeb Jung**, Senior Research Adviser, is Vice Chancellor, Jamia Millia Islamia University, New Delhi. He joined the Indian Administrative Services (IAS) in 1973 and has worked in different capacities in Madhya Pradesh and with the Government of India. He subsequently worked with the Asian Development Bank (ADB). He is an expert on governance and energy, having worked in these areas with different governments, the public sector, and the private sector. He is a member of several Committees/Special Task Forces set up by the Government of India to deal with education and governance. He is also a regular columnist writing for several national newspapers.

**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 economy of Kazakhstan. She is involved in collaborations 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 to the All-Party Parliamentary Group on Kazakhstan, House of Commons, UK Parliament.

**Lutz Kilian**, Contributing Author, is Professor of Economics in the Department of Economics, University of Michigan.

**Sandu-Daniel Kopp**, Intern, visited the Institute in September 2012. He is a PhD Student, Researcher, Berlin Centre for Caspian Region Studies (BC CARE), Otto-Suhr-Institut für Politikwissenschaft. He carried out research for his PhD, ‘The Emerging Global Gas Market and its Geopolitical Implications for the European Security of Gas Supply’, during his time in Oxford.

**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 Tagarnog 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.

Nicholas Lancaster, Intern, visited the Institute in September 2012 for three months. He is studying for a master’s degree in International Economic Policy at Sciences Po Paris. He worked extensively with David Robinson on research related to US energy and climate policy.

Chris Llewellyn Smith, Senior Research Adviser, is a theoretical physicist. He is currently Director of Energy Research, Oxford University, and President of the Council of SESAME (Synchrotron-light for Experimental Science and its Applications in the Middle East). He has served as Chairman of the Council of ITER (2007–9) and of the Consultative Committee for Euratom on Fusion (2004–9), and was Director of UKAEA Culham (2003–8), with responsibility for the UK’s fusion programme and for operation of the Joint European Torus (JET). While at Culham he developed and promoted the ‘Fast Track’ development of fusion energy. He was Provost and President of University College London (1999–2002), Director General of CERN (1994–8), and Chairman of Oxford Physics (1987–92). During his mandate as DG of CERN the Large Hadron Collider (LHC) was approved and construction started.

After completing his Doctorate in Oxford in 1967, he worked briefly in the Physical Institute of the Academy of Sciences in Moscow, before spending periods at CERN and the Stanford Linear Accelerator Center, after which he returned to Oxford in 1984. Chris Llewellyn Smith has written and spoken widely on science funding, international scientific collaboration, and energy issues. He has served on many advisory bodies nationally and internationally, including the UK Prime Minister’s Advisory Council on Science and Technology (1989–92). His scientific contributions and leadership have been recognized by awards and honours in seven countries on three continents.

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 a 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.

Edwin R. Lim, Senior Research Adviser, was educated at Princeton University (BA) and Harvard University (PhD in Economics). He joined the World Bank in 1970 and in the following 30 years, was responsible for the Bank’s work in a number of developing countries, including Ghana, Nigeria, Indonesia, Thailand, Vietnam, India, and China. In 1980, Dr Lim was a member of the management team of the World Bank that conceived and directed the Bank’s programme in China. He established the World Bank’s office in China and served as the first Chief of Mission from 1985 to 1990. He returned to headquarters in 1990 when he was appointed a Director, with responsibility for Western Africa. In 1994, Dr Lim took two years external leave from the World Bank to set up China International Capital Corporation (CICC), China’s first international
investment bank, and served as CICC’s first CEO. He returned to the World Bank in 1996 and was appointed the first Country Director to be stationed in New Delhi, India. Since 2003, Dr Lim has been directing the China Economic Research and Advisory Programme which provides policy advice, pro bono, to the Chinese authorities.

Joan MacNaughton, Senior Research Adviser, joined the OIES in September 2006. She is an Honorary Fellow and President of the Energy Institute, a Senior Research Adviser at the Oxford Institute for Energy Studies, a member of the International Advisory Board of the Energy Institute of University College London; of the GCCSI’s Board Selection Panel; and of the Board of Governors, Argonne Laboratory at the University of Chicago where she chairs the Budget Committee. She is a Companion of the Order of the Bath. From 2002, as Director General of Energy, Joan played a key role in shaping UK energy policy. In that role she led a major change programme and made a significant contribution to international energy policy, including overseeing the energy agenda during the UK Presidency of the EU and leading the work on the energy part of the climate change proposals agreed at the G8 Gleneagles Summit. From 2004 to 2006, she was elected Chair of the Governing Board of the International Energy Agency, leading a review of the IEA’s strategy and leading the emergency response to the supply disruption caused by Hurricane Katrina. From 2007 to 2011, Joan led Alstom’s policy department and spearheaded Alstom’s clean power advocacy: to advance clean, sustainable energy and reduce power generation carbon dioxide emissions. Until December 2012 she acted as Global Adviser on Sustainable Policies for the company.

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 Third OPEC Summit in Riyadh. He retired in 1993 from British Petroleum, where his posts had 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).

Akira Miyamoto, Contributing Author, has been engaged in research and analysis activities on natural gas for over 20 years. He is Executive Researcher assigned at the Energy Resources & International Business Unit of Osaka Gas.

Mitsuhiro Nakamura, Contributing Author is a member of the LNG Trading Department of Osaka Gas and is engaged in negotiations with LNG suppliers.

Shirin Narwani, Visiting Research Fellow, and Senior Member at St. Antony’s College, Oxford, joined the OIES in November 2011. She has previously worked at OIES, the Centre for Global Energy Studies (CGES), and the Petroleum Economist. She has a BA in Economics and an MPhil in Modern Middle East Studies from the University of Oxford. She has published on varied topics from oil markets to energy-related environmental issues, with a particular concentration on energy in the Middle East. Her professional activities also focus on working with NGOs on projects in the Middle East. She has produced an Iranian film Ra’ye Makhfi (The Secret Ballot) which won
ten international awards including several at the 2001 Venice film festival. Her research at OIES focuses on energy sector issues in Iran; she has recently written a paper on Iran’s energy subsidy reform programme for the Oxford Energy Forum.

Eduardo Pereira, Contributing Author, has been active in the oil and gas industry for over five years; he is an expert in Joint Operating Agreements. His experience in this area is extensive, both academic and practical. Dr Pereira is Corporate Director of Petra Energia and chief legal officer and vice-president of Petra BV and has played a key role in assisting Petra Energia in becoming the leading onshore oil & gas company in Brazil. He concluded his doctoral thesis on oil and gas joint ventures at the University of Aberdeen and received his PhD in 2011.

Beatrice Petrovich, Visiting Research Fellow, joined the Institute in November 2012, after she conducted research with the Oxford Institute for Energy Studies in August 2012 focusing on European gas hubs. Beatrice is presently working on a study on European gas hub price correlation that is due to be published in 2013. Beatrice is currently based in Milan where she works as researcher and consultant at REF-E, a leading energy consultancy in Italy. Among other activities, she works for the REF-E Energy Observatory, specializing in the analysis of the natural gas market and energy regulation, and contributes to the editing and writing of the Energy Observatory monthly Newsletter. She holds an M.Sc. in Economics from the University of Milan Bicocca and did a one-year exchange at the University of Glasgow. While at university, she collaborated on a research project in the field of experimental economics.

Alvaro Riascos, Contributing Author, works for Quantil SAS.

Ivan Sandrea, Senior Research Adviser, Ivan recently worked as a senior advisor to the president of Brazil’s leading unconventional gas company and served as president at Energy Intelligence (EI) in London. Past positions include President of Energy Intelligence in London, VP Global Strategy and Business Development and VP of Strategy International Exploration & Production (E&P) at Statoil, head of oil supply at the Organization of Petroleum Exporting Countries (Vienna), associate vice president of oil and gas equity research at Merrill Lynch (London) and exploration and operational geologist at BP (Venezuela, Norway, and Egypt). He is currently active as a Senior Research Advisor at the Oxford Institute for Energy Studies and as a member of the Oxford Energy Policy Club; co-founder, Board Member, and lecturer of strategy at the Executive Energy MBA program at Vienna’s Wirtschaftsuniversität (WU) in Austria; member of the UNECE Expert Group on Resource Classification (Geneva); and he was recently appointed as a trustee to the Energy Policy Research Foundation, Inc. (Washington, D.C.). EPRINC is a non-profit think tank, established in 1944, which provides research and analysis of contemporary petroleum issues. Ivan holds a BSc in geology from Baylor University, an MSc and MBA from Edinburgh University, and attended the Berkley Executive Leadership Program.

Paul Segal, Senior Visiting Research Fellow, is also a Lecturer in Economics at the University of Sussex. 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.

Adnan Shihab-Eldin, Senior Research Adviser, currently serves as a 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.

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

Robert Skinner, Senior Research Adviser. Robert Skinner PhD is a Former Director of OIES and previously VP Oil Sands Total E&P Canada Ltd, Director of the International Energy Agency’s Policy office, Assistant Deputy Minister Energy (Canadian Government), former Sr VP Strategy, Commercial and Government Affairs for Statoil Canada, and has associations with numerous energy and economic think tanks and institutions around the world. He is an associate fellow of the Institute for Research in Public Policy in Montreal Canada, energy research strategy advisor to the University of Calgary, and through his private consultancy, Kimacal Energy Strategies based in Calgary Canada consults for industry, governments, and academic institutions in Canada and abroad.

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 he was a lecturer and senior lecturer in economics at the University of Surrey. 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.

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 Montpellier1 and at the University of Cartagena de Indias, Colombia. He currently works as an independent consultant and writer.

Ian Wybrew-Bond, Company Secretary and a Senior Research Adviser to the OIES. After a career in Shell, principally in its international natural gas business, he became a gas adviser to the OIES and co-edited and co-authored the publications *Gas to Europe* and *Natural Gas in Asia*. He was a non-executive director of Saipem and a Senior Associate with CERA for many years.
Accounts

AUDITORS’ STATEMENT ON SUMMARISED FINANCIAL STATEMENTS YEAR ENDED 31 DECEMBER 2012

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 2012.

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 2012 and complies with the applicable requirements of section 427 of the Companies Act 2006, and the regulations made thereunder.

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

9th May 2013
## Unrestricted Funds

<table>
<thead>
<tr>
<th></th>
<th>31.12.12</th>
<th>31.12.11 as restated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incoming Resources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incoming resources from generated funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary income</td>
<td>473,366</td>
<td>583,937</td>
</tr>
<tr>
<td>Incoming resources from charitable activities</td>
<td>835,680</td>
<td>631,123</td>
</tr>
<tr>
<td><strong>Incoming resources from investments</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government Stocks</td>
<td>-</td>
<td>1,374</td>
</tr>
<tr>
<td>International Bonds</td>
<td>4,314</td>
<td>4,012</td>
</tr>
<tr>
<td>Corporate Bonds</td>
<td>56,616</td>
<td>48,350</td>
</tr>
<tr>
<td>Quoted Securities</td>
<td>117,988</td>
<td>85,353</td>
</tr>
<tr>
<td>Deposit account interest</td>
<td>127</td>
<td>148</td>
</tr>
<tr>
<td>Other incoming resources</td>
<td>5,500</td>
<td>5,500</td>
</tr>
<tr>
<td>Total incoming resources</td>
<td>1,493,591</td>
<td>1,359,797</td>
</tr>
<tr>
<td><strong>Resources Expended</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs of generating funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs of generating voluntary income</td>
<td>26,557</td>
<td>23,214</td>
</tr>
<tr>
<td>Charitable activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projects and publications</td>
<td>1,602,609</td>
<td>1,443,398</td>
</tr>
<tr>
<td>Governance costs</td>
<td>55,500</td>
<td>53,129</td>
</tr>
<tr>
<td>Total resources expended</td>
<td>1,684,666</td>
<td>1,519,741</td>
</tr>
<tr>
<td><strong>NET INCOMING/ (OUTGOING) RESOURCES</strong></td>
<td>(191,075)</td>
<td>(159,944)</td>
</tr>
<tr>
<td>Realised gain/(losses) on investment assets</td>
<td>221,783</td>
<td>65,898</td>
</tr>
<tr>
<td>Net income/(expenditure)</td>
<td>30,708</td>
<td>(94,046)</td>
</tr>
<tr>
<td>Unrealised gains/losses on investment assets</td>
<td>130,150</td>
<td>(481,890)</td>
</tr>
<tr>
<td>Net movement in funds</td>
<td>160,858</td>
<td>(575,936)</td>
</tr>
</tbody>
</table>

### RECONCILIATION OF FUNDS

<table>
<thead>
<tr>
<th></th>
<th>2,328,889</th>
<th>3,149,994</th>
<th>5,478,883</th>
<th>6,054,819</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL FUNDS CARRIED FORWARD</strong></td>
<td>2,489,747</td>
<td>3,282,324</td>
<td>5,772,071</td>
<td>5,478,883</td>
</tr>
</tbody>
</table>

All incoming resources and resources expended arise from continuing activities.
## BALANCE SHEET AT 31 DECEMBER 2011

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted funds</th>
<th>Endowment funds</th>
<th>Total funds</th>
<th>Total funds as restated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIXED ASSETS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangible assets</td>
<td>28,429</td>
<td>-</td>
<td>28,429</td>
<td>48,085</td>
</tr>
<tr>
<td>Investments</td>
<td>2,224,666</td>
<td>3,282,324</td>
<td>5,506,990</td>
<td>5,106,079</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2,253,095</td>
<td>3,282,324</td>
<td>5,535,419</td>
<td>5,154,164</td>
</tr>
<tr>
<td><strong>CURRENT ASSETS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debtors</td>
<td>6,106</td>
<td>-</td>
<td>6,106</td>
<td>6,393</td>
</tr>
<tr>
<td>Prepayments and accrued income</td>
<td>201,549</td>
<td>-</td>
<td>201,549</td>
<td>186,639</td>
</tr>
<tr>
<td>Cash at bank and in hand</td>
<td>228,117</td>
<td>-</td>
<td>228,117</td>
<td>258,058</td>
</tr>
<tr>
<td><strong>NET CURRENT ASSETS</strong></td>
<td>311,652</td>
<td>-</td>
<td>311,652</td>
<td>324,719</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS LESS CURRENT LIABILITIES</strong></td>
<td>2,564,747</td>
<td>3,282,324</td>
<td>5,847,071</td>
<td>5,478,883</td>
</tr>
<tr>
<td><strong>NET ASSETS</strong></td>
<td>2,489,747</td>
<td>3,282,324</td>
<td>5,772,071</td>
<td>5,478,883</td>
</tr>
<tr>
<td><strong>FUNDS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrestricted funds</td>
<td>2,489,747</td>
<td></td>
<td>2,489,747</td>
<td>2,328,889</td>
</tr>
<tr>
<td>Endowment funds</td>
<td>3,282,324</td>
<td></td>
<td>3,282,324</td>
<td>3,149,994</td>
</tr>
<tr>
<td><strong>TOTAL FUNDS</strong></td>
<td></td>
<td></td>
<td>5,772,071</td>
<td>5,478,883</td>
</tr>
</tbody>
</table>

The financial statements were approved by the Board of Trustees on 9th May 2013 and were signed on its behalf by:

A. Lajous – Trustee
Prof. R. Ainsworth – Trustee
Members

The University of Oxford
St Antony’s College, Oxford
St Catherine’s College, Oxford
Nuffield College, Oxford
Organization of Arab Petroleum Exporting Countries (OAPEC)
Swedish Energy Agency
Institut Français du Pétrole
Secretary of State for Trade and Industry (UK)
Arab Banking Corporation
Arab Petroleum Investments Corporation
The Institute of Energy Economics, Japan
Instituto Mexicano del Petróleo
Rogalandsforskning, Norway
Ministry of Petroleum and Mineral Resources, Saudi Arabia
Canadian Petroleum Studies Inc.
The State of Kuwait

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

• to appoint one or several representatives on the Board of Governors. This gives the Member an active part in the management and supervision of the Institute since the Board is the body empowered with all executive functions;

• to attend the Annual General Meeting of the Institute;

• to enter into any form of cooperation with the Institute that is approved by the Board of Governors, such as the organization of joint seminars, joint research projects, or exchange visits between scholars of the Institute and scholars from the member countries.
Governors and Trustees

Mr Adrián Lajous Chairman of the Board
Dr Christopher Adam Fellow, St Cross College, Oxford
Professor Roger Ainsworth Master, St Catherine’s College, Oxford, Vice Chairman of the Board
Mr Daniel Champlon Director, International Relations, IFP Energies Nouvelles, France (appointed January 2012)
Dr Steven Fries Chief Economist, Dept. of Energy & Climate Change, London (appointed February 2012)
Mr Haitham Al Ghais Manager, Kuwait Petroleum Corporation, London
Dr Ian Goldin Director, Oxford Martin School, Oxford
Professor Roger Goodman Head, Social Sciences Divisional Office, Oxford
Dr Abdullah Al-Kuwaiz Vice Chairman of the Board, OAPEC
Mr Rolf Magne Larsen Senior Vice President, Statoil, Norway
Professor Margaret Macmillan Warden, St Antony’s College, Oxford
Mr Rasheed Mohammed Al-Maraj Governor, Central Bank of Bahrain
Dr Anwar Ali Al-Mudhaf CEO, Al Razzi Holding KSCC
Dr Masahisa Naitoh Former Chairman and CEO, The Institute of Energy Economics, Japan (resigned April 2012)
Mr Abbas Ali Naqi Secretary General, OAPEC
HRH Prince Abdulaziz bin Salman Al Saud Assistant Minister for Petroleum Affairs, Ministry of Petroleum and Mineral Resources, Saudi Arabia
Dr Juan Jose Suarez Coppel Director General, PEMEX, Mexico
Mr Nader Sultan Director, the Oxford Energy Seminar
Mr Jay Thornton Executive Vice President – Energy Supply, Trading and Development, Suncor Energy, Canada (resigned January 2012)
Mr Masakazu Toyoda Chairman & CEO, The Institute of Energy Economics, Japan (appointed April 2012)
Mr Christopher Smith Senior Vice President – Supply, Trading and Corporate Development, Suncor Energy, Canada (appointed January 2012)
Mr Paul Westin Energy Analysis Dept., Swedish Energy Agency
Mr Laurence Whitehead Fellow, Nuffield College, Oxford
The Honorary President is Robert Mabro
The Company Secretary is Ian Wybrew-Bond
The auditors are Messrs Everett & Son, of 35 Paul Street, London EC2
Contributors

Membership Contributions

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

Inauguration Gifts 1983

Ashland Oil
Atlantic Richfield
Barclays
Britoil
Chemical Bank
Citicorp
Conoco
Elf Aquitaine
ENI/AGIP
Foster Wheeler
Fuji Oil
Gelsenberg
General Electric (USA)
International Energy Development Corporation
INA Universal
Petroleum Corporation of Jamaica
Japan National Oil Corporation
Kernforschungsanlage Julich
Marathon
Maraven
Mobil
Morgan Stanley
Nomura Research Institute
Olayan Group
Petrobras
Petróleos de Venezuela
Petronas
Phillips
Qatar General Petroleum Corporation
Ruhrgas
Shell International
Shell Oil (USA)
Sohio
Sumitomo Metal Industries
Texaco
Texas Eastern
Tonen Corporation

Current Benefactors
Al Njoo Foundation
Bahrain Petroleum
BP plc
Cairn Energy India
Cheniere
Chevron Corporation
ConocoPhilips Co.
Deloitte LLP
ENI
ExxonMobil Corporation
Japan Oil, Gas and Metals National Corporation (JOGMEC)
Marathon Petroleum LLC
Mitsubishi Corporation International (Europe)
Mitsui & Company
Olayan Europe Ltd
Petrobras
PDV Europa BV
Reliance Europe Ltd
Repsol YPF
Shell International
Schlumberger
Organizacion Techint
Oxford Economics
TOTAL S.A.

Past Benefactors
Amerada Hess
ARCO (Atlantic Richfield)
Arthur Andersen
Ashland Oil
British Gas
Cosmo Oil
Dubai Aluminium
EnCana Corporation
Energy Intelligence
ENI
Enterprise Oil
Foster Wheeler Int’l Corp
Gulf International Bank
Halliburton Company
HSBC Investment Bank plc
JP Morgan Chase
Kansai Electric Power Co, Inc.
Marathon Ashland
McKinsey & Co, Inc.
Morgan Stanley
Murphy Oil Corporation
Neste Oil OYJ
Osaka Gas
Phillips Petroleum
Royal Ministry of Petroleum and Energy, Norway
Schroder Salomon Smith Barney (Citigroup)
Sun Company
Talisman Energy Inc.
Tokyo Electric Power Company
Tonen Corporation
TNK–BP
Tyumen Oil

Ministry of Petroleum, Norway
National Grid Transco
Petro
Shell
StatoilHydro
TOTAL
Vattenfall

Past Sponsors of the Natural Gas Research Programme
Egyptian Natural Gas Holding Co.
JXK Oil & Gas
Nigerian National Petroleum Corporation
Marathon Oil
Qatar Petroleum
RWE Supply & Trading

Sponsor of the Colombia Project (2011–2012)
Foreign & Commonwealth Office, UK

Sponsors of the China Project (2008)
Climate Strategies/DFID
Swedish Energy Administration

Sponsor of the Synergy Project (2003)
European Union

CPB Netherlands Bureau for Economic Policy Analysis

Saudi Petroleum Overseas, Ltd

Sponsors of the Natural Gas Research Programme
BG Group
BP Gas Marketing
Centrica
Cheniere Energy
Chevron Products
Dong Energy
E.ON Ruhrgas
Electricité de France
Energy Delta Institute
ENI
GDF Suez
Gazprom Marketing and Trading
Iberdrola
Swiss Agency for the Environment, Forests and Landscape

Additional Sponsors of the US Gulf Oil Market Study (2000)
Ashland International Ltd
Equiva Trading Co.
Koch Industries
Kuwait Petroleum Corporation
McKinsey
Morgan Stanley
PMI Comercio Internacional (Pemex)
Saudi Aramco
Taurus Petroleum Services Ltd
TotalFinaElf

Sponsor of the Kyoto Protocol and Oil Markets Study (1999)
Royal Ministry of Petroleum and Energy, Norway

Additional Sponsors of the European Gas Markets Study (1998)
BP Amoco Gas
Iberdrola
In Salah Gas
Nera
Statoil
TOTAL

Additional Sponsors of the Mediterranean Oil Market Study (1997)
Anadarko Petroleum Corporation
Atlantic Richfield
BHP Petroleum

CEPSA
Deminex
Kuwait Petroleum Corporation
Mobil Sales & Supply
Saudi Aramco
Sonatrach
TOTAL
Veba Oel AG

Additional Sponsors of the CFD Project (1995)
CEPSA
Esso Petroleum
IPE
Mobil
OK Petroleum
Veba Oel AG

Additional Sponsors of the Oil in Asia Project (1994)
Apicorp
Bahrain National Oil Company
Exxon
Kuwait Petroleum Corporation
Ministry of Energy and Industry, Qatar
Mobil
Morgan Stanley
Pemex
Petron
Saudi Aramco
Statoil

Additional Sponsors of the Brent Market Study (1991)
European Union
International Energy Agency
Mobil
ÖMV AG
OPEC
Pemex
Petro-Canada
Statoil
UK Department of Trade & Industry
Sponsors of the Oil Product Prices Study (1988)
Britoil
European Union
Exxon
Kuwait Petroleum International
Mobil
Ruhrgas
Statoil
Texaco
Veba Oel AG

Sponsors of the Gas Development in LDCs Study (1986)
Arab Banking Corporation
British Gas/UK Department of Energy
British Petroleum
Dubai Aluminium
Elf Aquitaine
ENI/AGIP
European Union
Exxon
Foster Wheeler
Gaz de France
OPEC Fund
Petro-Canada
Ruhrgas
Shell International
Statoil
US Department of Energy
World Bank

Sponsors of the North Sea Study (1984)
Amerada Hess
Apicorp
British Petroleum
Britoil
Elf Aquitaine
Esso Europe
European Union
Mobil
OPEC Secretariat
Pemex
Petromin
Qatar General Petroleum Corporation
Royal Ministry of Petroleum and Energy, Norway
Shell Oil (USA)
Shell UK
Statoil
Sun
Svenska Petroleum
UK Department of Energy
Veba Oel AG

Grants
Arab Fund for Economic and Social Development
Barrows
Bahrain Monetary Agency
Burmah Petroleum Fuels Ltd
European Union
ESRC
GCC
Institute of Energy Economics, Japan
Mr Ali Jaidah
Kuwait Petroleum International
Ministry of Finance, Saudi Arabia
Morgan Stanley
OAPEC
OPEC Fund for International Development
Oxford Energy Seminar
Mr Abdul Mohsen Qattan
The State of Qatar
Shell Foundation for Sustainable Development
The United Nations
The World Bank
Recent Publications

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

Books: Published by Oxford University Press for the Oxford Institute for Energy Studies

The Pricing of Internationally Traded Gas
by Jonathan Stern (ed.), 2012

Sino-Russian Oil and Gas Cooperation – The Reality and Implications
by Keun-Wook Paik, 2012

Natural Gas in India: Liberalisation and Policy
by Anil K Jain, 2012

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

Private Investment in Wind Power in Colombia
by David Robinson, David Harbord, Alvaro Riascos, 2012

The Energiewende – Germany’s gamble
by David Buchan, 2012

Optimal fiscal policy in the face of oil windfalls and other known unknowns
by Lavan Mahadeva, 2012

How to Spend It: Resource Wealth and the Distribution of Resource Rents
by Paul Segal, 2012

Assessing the Financialization Hypothesis
by Bassam Fattouh and Lavan Mahadeva, 2012

The Impact of Russia's Refinery Upgrade Plans on Global Fuel Oil Markets
by Bassam Fattouh and James Henderson, 2012

Protection against Default in Long Term Petroleum Joint Ventures
by Eduardo Pereira, 2012

Fiscal Policy and Natural Resource Entitlements: Who Benefits from Mexican Oil?
by Paul Segal, 2012

The Role of Speculation in Oil Markets: What Have We Learned So Far?
by Bassam Fattouh, Lutz Kilian and Lavan Mahadeva, 2012

Rosneft – On the Road to Global NOC Status?
by James Henderson, 2012

Decarbonization of the electricity industry – is there still a place for markets?
by Malcolm Keay, John Rhys, and David Robinson, 2012

East Mediterranean Gas – what kind of a game-changer?
by Hakim Darbouche, Bassam Fattouh, and Laura El-Katiri, 2012

Perspectives for Biogas in Europe
by Floris van Foreest, 2012

Central Asian and Caspian Gas Production and the Constraints on Export
by Simon Pirani, 2012

The Potential Impact of North American LNG Exports
by James Henderson, 2012

The Gas Relationship between the Baltic States and Russia – politics and commercial realities
by Agnia Grigas, 2012
Gas with CCS in the UK – Waiting for Godot?
*by Howard Rogers*, 2012

The Offshore Discovery in the Republic of Cyprus – Monetisation Prospects and Challenges
*by Anastasios Giamouridis*, 2012

Issues in the pricing of domestic and internationally-traded gas in MENA and sub-Saharan Africa
*by Hakim Darbouche*, 2012

Continental European Gas Hubs: Are They Fit for Purpose?
*by Patrick Heather*, 2012

A realistic perspective on Japan’s LNG Demand after Fukushima
*by Akira Miyamoto, Misuhiro Nakamura, and Chikako Ishiguro*, 2012

Will There be a Shale Gas Revolution in China by 2020?
*by Fan Gao*, 2012

Natural Gas Price Volatility in the UK and North America
*by Sofya Alterman*, 2012

*by Howard Rogers*, 2012

**Other published journal articles, books and book chapters**


Müller, Benito; Sharma, Anju and Observers and the Green Climate Fund: OIES Submission in response to the initial consultation by the Interim Secretariat of the GCF on observer participation in the proceedings of the Board of the GCF. March 2012.

Müller, Benito: ‘From Confrontation to Collaboration?: CBDR and the EU ETS aviation dispute with developing countries’, OIES Brief February 2012. Also published in *Environmental Liability*; www.lawtext.com: from Vol 19, no.6.


