

**Appeal by Calor Gas Limited
against refusal of planning permission –
*development to provide a combined
liquefied natural gas and liquefied petroleum gas
importation facility and associated works*
– Canvey Island, Essex**

**Appeal ref. APP/M1520/A/07/2040136
(and linked cases)**

**Submission on behalf of
People Against Methane**

by

**Paul Mobbs,
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September 2007

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Contents

1. Introduction.....	1
2. Energy Consumption and Natural Gas in the UK.....	3
A. Energy Consumption in the UK.....	3
B. Gas Storage and Supply.....	7
C. Total Energy Supply.....	9
3. The Peaking of Global Energy Resources.....	10
A. Peak Oil.....	10
B. Peak Gas.....	13
C. Supply-Side Problems.....	14
4. Planning and Energy Policy Appraisal.....	17
A. The Need for Development.....	17
B. Prematurity.....	21
C. Balancing Interests and Site Selection.....	22
5. Summary/Conclusions.....	24
References.....	27

1. Introduction

- 1.1. On behalf of People Against Methane (PAM), I am presenting this proof of evidence on energy issues and the need for the facility proposed by Calor Gas Limited. This proof addresses the issues at the heart of the main application for the *development to provide a combined liquefied natural gas (LNG) and liquefied petroleum gas (LPG) importation facility and associated works* (appeal ref. APP/M1520/A/07/2040136). However, by virtue of the fact that the issues within the main application act as justification for other planning applications, this proof can also be read as material to the determination of the linked cases being determined at this inquiry (appeal refs. APP/HSC/07/10 and APP/M1520/A/07/2040137).
- 1.2. Mobbs Environmental Investigations is an environmental consultancy specialising in the needs of small community groups, and has been operating for the last fifteen years. After leaving the engineering industry in 1991, I set up a consultancy business to provide assistance in the fields of planning, pollution, risk assessment and community-based campaigning. I also work on community-based information and communications technology projects, utilising my engineering skills to teach the recycling of discarded electrical goods for projects that benefit the community. Since early 1992 I have worked around the UK and abroad.
- 1.3. Over the last four years I have been specifically researching the field of energy, energy futures, and the implications for the public of current global energy and environmental trends. This research has generated interest amongst many academic and environmental organisations, and some of my work has been publishing by organisations such as the Oxford Institute for Energy Studies and the Royal Institute for International Affairs (Chatham House). In 2005, I published a book, *Energy Beyond Oil*. I have also given lectures at universities and academic institutions around the UK, and for international groups such as the British Council and the Association for Progressive Communications.
- 1.4. My representations to this inquiry concern:
 - ◆ The value of this project, viewed in terms of current trends in UK energy consumption (*outlined in section 2*);
 - ◆ The implications for future energy consumption of the peaking of UK, European and global energy resources (*outlined in section 3*); and
 - ◆ The relationship between European and UK energy policy as material planning considerations at this inquiry, and how the over-riding planning principle of sustainable development and the prudent use of natural resources affect the interpretation of energy policy (*outlined in section 4*).

- 1.5. Finally, I make recommendation in relation to the determination by the Secretary of State of this appeal.
- 1.6. In terms of a general outline of the case that I am putting to this inquiry I would say this:
- 1.7. There is an assumption, within UK energy policy and within society as a whole, that we can continue to consume energy, and that the level of this consumption can continue in the future. Even in relation to the problem of climate change, the underlying assumption within national policy is that we can continue to grow our economy and consume energy through a combination on new technology and new low carbon energy sources. This approach is clearly at odds with the physical reality of our world, as expressed through the *Laws of Thermodynamics* – there are “limits to growth”, and we are rapidly approaching them.
- 1.8. The peaking of global oil production, at some point over the next decade, will be the first shock to the conventional view that there are “no limits” to growth. Shortly after, the peak in global natural gas production will, for the UK and other European states that have become structurally reliant on the plentiful availability of natural gas, come as a severe shock. The development proposed at Canvey Island is symptomatic of an approach which does not accept that there are sustainable limits to human development. In reality, building gas importation facilities to off-set the decline in UK continental shelf (UKCS) natural gas production is an extremely short-term and ultimately futile approach to our energy problems; if the problem we face today is an excess of consumption, providing the capability to increase consumption for a few more years before an inevitable collapse in supply will not produce a beneficial outcome for the UK economy.
- 1.9. The Government has, to date, chosen to ignore the issue of the peaking of global energy production. However, the purpose of this facility goes to the heart of thie issue. We therefore consider it essential that the issue of global energy supply, and the validity of building importation facilities which cannot hope to operate in the same way over the longer term, is considered in the determination of these appeals.

2. Energy Consumption and Natural Gas in the UK

- 2.1. In order to understand the reasons why this facility has been proposed it is necessary to examine the trends in energy use within the UK over the last few decades. Broadly speaking, the presence of a large oil and gas reservoir off our coast has skewed our energy policy. We have, for at least the last two decades, considered energy to be easily available, at low cost, and without the significant investment in energy infrastructure – such as storage – that is found in other states. As will be examined in the next section, this era of “cheap energy” is now coming to an end. This section examines the trends which have led us into our current position.
- 2.2. Each year the Department of Business, Enterprise and Regulatory Reform (BERR – until very recently titled The Department for Trade and Industry, or DTI) and the National Statistical Office produce the *Digest of UK Energy Statistics* (or DUKES) and other annual publications. This statistical digest provides tabulated and graphical data which describe energy trends in the UK. Using this data it is possible to understand the scale of the energy problem.

A. Energy Consumption in the UK

- 2.3. Over the past thirty-six years energy consumption in the UK has risen by around ten percent. However, due to the collapse in energy consumption during the early 1980s recession, our primary energy supply has grown around 20% from its lowest point in 1982 (8,210 peta-Joules, or PJ) to its highest point in 2001 (9,893PJ). The change in primary (that is, the source of fuel) energy consumption between 1970 and 2006 is shown in the graph below –

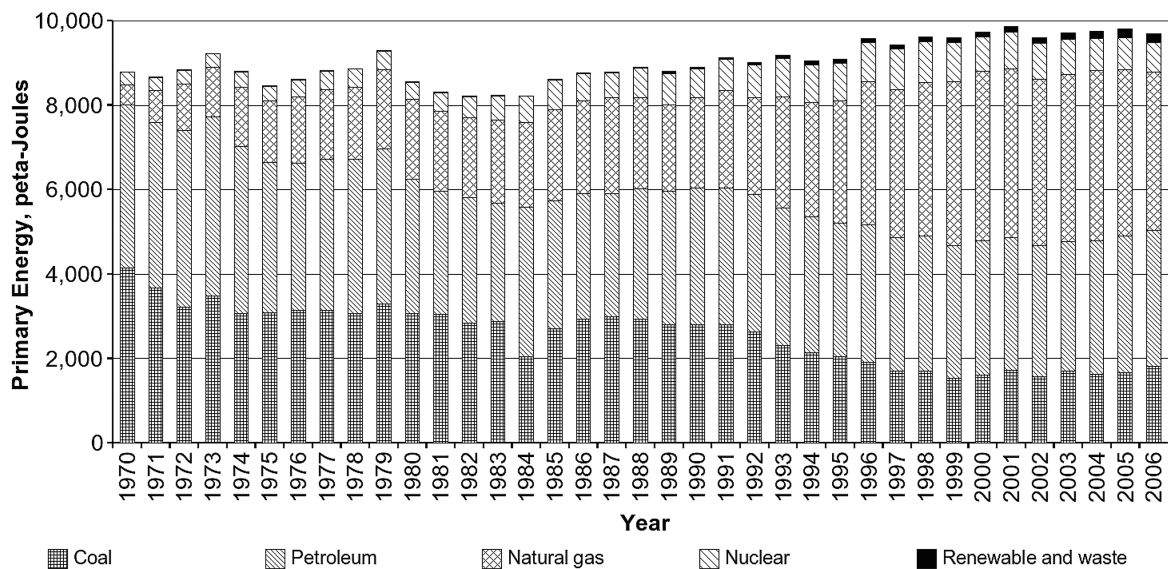


Figure 1. UK Primary Energy Supply, 1970 to 2006

[source, DUKES 2007a]

2.4. The graph illustrates a number of important trends over the last thirty-six years:

- ◆ Coal, as a constituent of the UK economy, has shrunk in significance, but although the period from 1970 to 1999 saw a continual decline in coal use, since 2000 the use of coal has increased slightly – due mainly to the higher price of gas for power generation causing a return to coal burning for power generation;
- ◆ The use of petroleum products in the UK has been roughly constant for the past thirty-six years, and as a result the significance of oil in the economy has fallen – this is due to the significant reduction of oil use in industry (as they switched to natural gas) being balanced out by the growth of consumption in the transport sector;
- ◆ Nuclear power grew during the 1970s and 1980s, reaching a peak of production in 1998, but ever since it has shrunk as old nuclear plants have been closed (note that as primary energy this graph over-estimates the significance of nuclear power – because the plants are around 38% efficient, and because nuclear represents only 18% (in 2006) of electricity supply which is in turn only 19% (2006) of final energy consumption [derived from BERR, 2007a], nuclear electricity only represents 3.5% of energy consumption in the UK);
- ◆ Hydro-power, renewable energy and waste (which together constitute “renewable” energy in the BERR's statistics) make up around 2% of primary energy, having increased from a negligible value over the last decade – however in terms of final consumption renewable energy, because of the losses from combustion of renewable “primary” fuels, represents just 1.2% of consumed energy (again, because renewable energy is often expressed as a fraction of electricity supply, this exaggerates its significance); and
- ◆ Natural gas has grown from 5.4% of primary energy supplied to the UK economy in 1970, to 38% in 2006, and due to fuel switching in power generation and in our homes the UK has become structurally reliant on natural gas – gas is more significant because it supplies 69% of the energy to our homes and 52% of the energy for heat and power generation [derived from DUKES, 2007b].

2.5. What has driven the use of natural gas is the shift from oil and coal to gas for space heating, but more importantly the use of gas for power generation. Before the mid-80s there was a prohibition on the burning of natural gas to produce electricity. This was because if gas is burnt in the home it can be utilised at about 70% efficiency (modern condensing boilers can achieve 80% and higher). However, if burnt in a power station, it produces less than 45% as usable energy (and even modern combined-cycle gas plants struggle to get above 45%, if we factor in the losses in distribution). As part of the early liberalisation of the energy industry this prohibition was removed in the mid-80s and, following a five to seven year lead time for the construction of a gas power station, we can see the explosion in gas consumption during the 1990s.

2.6. The graph below shows the changes that fuel-switching, as well as the structural changes to UK industry as a result of globalisation, has brought about over the last three and a half decades –

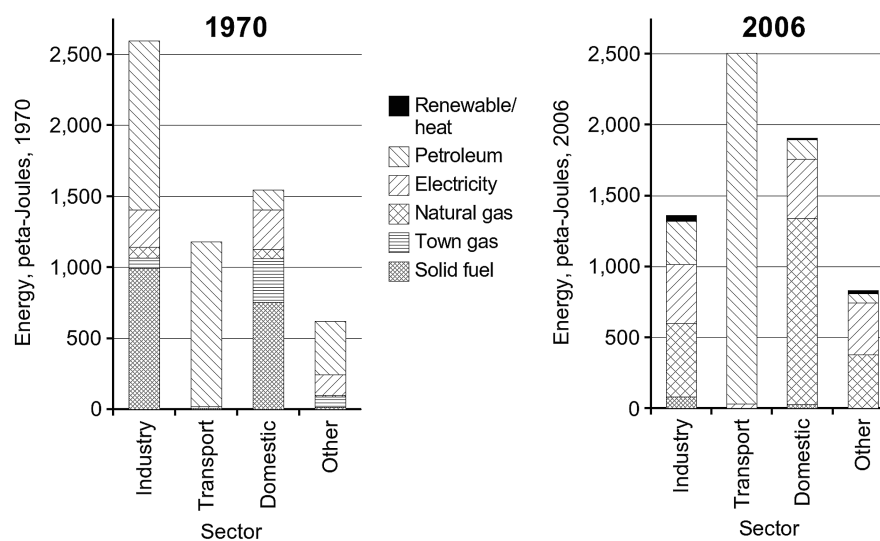


Figure 2. UK Energy Consumption by Sector, 1970 and 2006

[source, derived from DUKES 2007c/DUKES 2007d]

- 2.7. The widespread use of natural gas has changed the way we use energy, but equally significant has been the change in the structure of the UK economy. We have “out-sourced” many of our energy-intensive heavy industries to other nations around the globe. Although this has reduced our use of energy and the emission of greenhouse gases in the UK this is just a statistical decline – in reality we have just exported our consumption and greenhouse gas emissions to those developing nations who manufacture our consumer goods – and who our media often blame for using more energy and causing climate change.
- 2.8. As noted in figure 2, in 1970 Britain still used a large volume of “town gas” – a mixture of hydrogen, methane and carbon monoxide produced from the carbonisation (heating in the absence of oxygen) of coal. The UK had led the world in the development of town gas works since the early Nineteenth Century, but during the 1970s we phased-out town gas and brought in natural gas from the North Sea (along with smaller quantities of liquefied natural gas from Algeria). Led by large industrial users, nationally natural gas exceeded the volume of town gas used in 1971, and the last town gas works closed in 1988.
- 2.9. Apart from a short period in the late 1990s, the UK has not been self-sufficient in natural gas (see figure 3). Although the UK possessed large gas reserves in the North Sea, the strong growth in consumption has eroded the significance of our own reserves. Now that UK natural gas production has peaked and gone into decline it is not simply a matter of finding another source of gas. We used six times the energy value of natural gas in 2006 compared to town gas and natural gas in 1970 (453PJ of town gas and 164PJ of natural gas in 1970, versus 3,726PJ of natural gas in 2006 [derived from DUKES 2007d]). This makes finding another source of gas very difficult – not so much because of building a new gas infrastructure, but rather because natural gas globally is

starting to become scarce. The shift to liquefied natural gas (LNG) globally represents the last phase of global natural gas consumption; we have worked the regional deposits of gas in Western Europe and North America to the point of depletion, and so now we must import the remaining global reserves by sea using the only viable means – liquefying it.

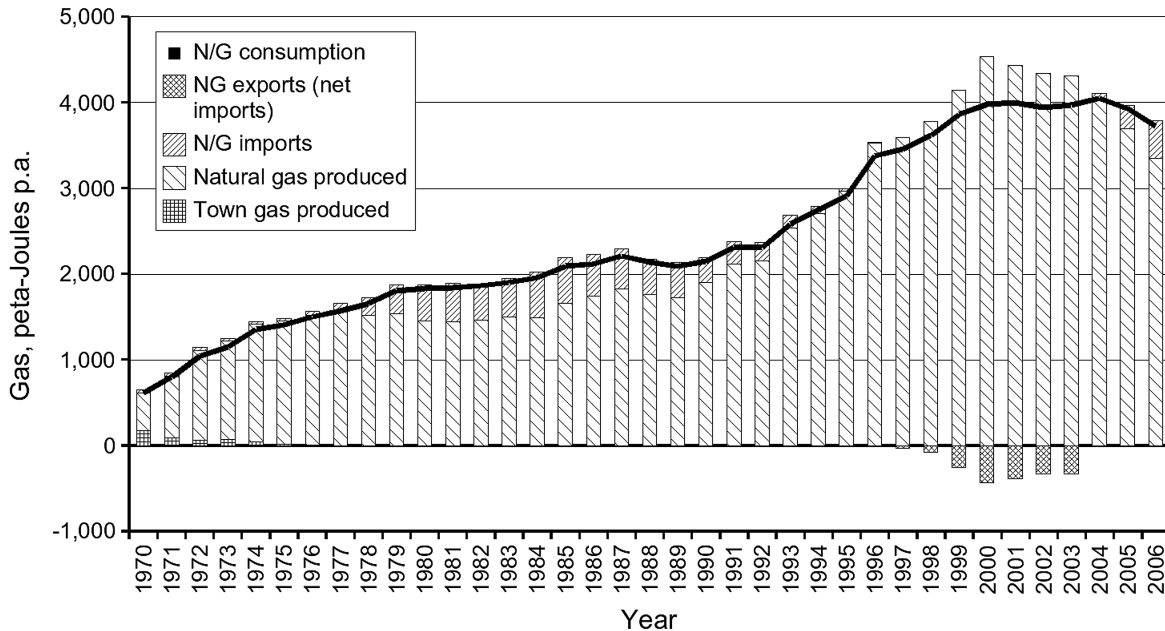


Figure 3. UK Gas Production and Consumption, 1970 to 2006

[source, DUKES 2007d]

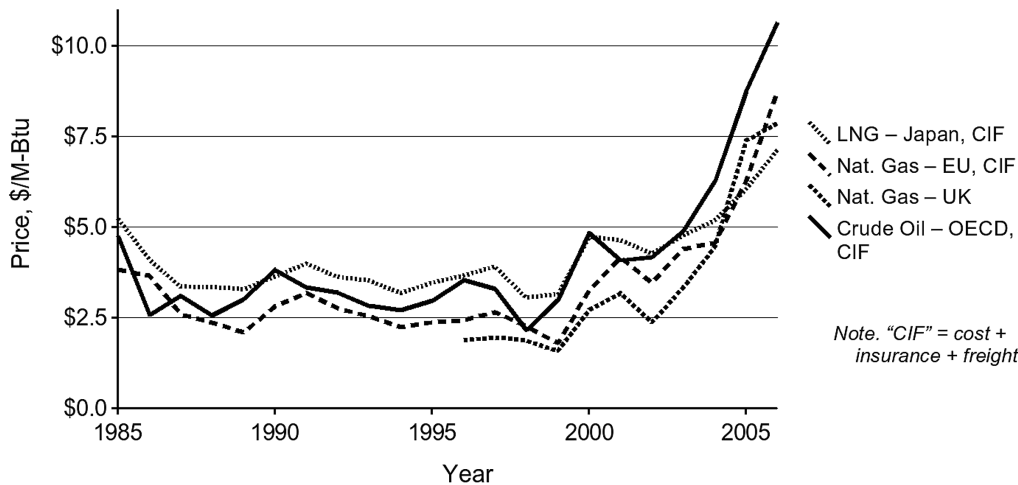


Figure 4. Global Oil and Gas Prices, 1985 to 2006

[sources, BP 2007a/BP 2007b]

2.10. It's worth noting that in figure 3, from 2004 to the present, the consumption of natural gas has fallen. This is an effect of higher prices generating “demand destruction” – the higher prices of natural gas, driven by shortages, is causing gas users to cut their consumption (see figure 4). Although most sectors have changed roughly consistently, showing a fall of two to five percent in gas consumption between 2000 and 2006, the industrial sector has contracted its consumption by

around a fifth. What's driving the rise in gas prices is not just the recent shortages within the UK (which tend to affect mainly the short-term wholesale price), but rather the global rise in oil prices brought about by the depletion of some of the world's major oil provinces. BP's annual statistical digest contains a comparison of oil, gas and LNG prices illustrate this (see figure 4).

B. Gas Storage and Supply

- 2.11. It is foolish to believe that merely expanding the capacity to import gas will, of its own accord, lower our gas bills. At the global level, the age of “cheap energy” is over, and we will have to adapt to this change economically. It also brings with it political change; in particular we are seeing the re-emergence of geo-political tensions as those who have energy reserves contest their national and economic strength against those who do not.
- 2.12. Higher oil prices drive natural gas prices. Unlike natural gas shortages, which are a regional issue, the current oil market is experiencing a global shortage of oil as major producing areas such as the North Sea, the USA, Mexico, Australia and Asia reach their peak of production. It may not be that building more gas importation capacity will cause a significant reduction of natural gas prices (this issue will be covered further in the following section).
- 2.13. The solution to a shortage of natural gas, especially during periods of intense energy use such as the Winter months, is to store more gas within the UK. This allows the peaks in demand on the coldest Winter days, or if the supply infrastructure is interrupted, to be met from a floating level of reserves. The proximity of the North Sea has meant that the UK has not, unlike other European states, build gas storage facilities [POST, 2004]. There are a number of ways that gas can be stored, each with its own problems, benefits and financial costs. As will be examined in detail in section 4, the Government has not expressed a detailed vision as to how we should develop storage capacity. If we look at their recent consultation exercises LNG storage on land may not be their preferred option – storage of gas inside underground reservoirs, or the off-loading of LNG at sea-based terminals may be the preferred option, if only because these options can be developed more quickly, and cheaply, than land-based LNG storage.
- 2.14. As a result of the concerns about future fuel supplies the Government set up a body – the Joint Energy Security of Supply, or JESS, Committee – to investigate the status of Britain's energy infrastructure, and make recommendations as to how it could be developed in future to preserve the reliability of our energy supply. They have produced a number of reports and projections of how our gas infrastructure will change in the future. The reports make it very clear that in a very short period of time, perhaps as little as fifteen years, Britain could be completely reliant on gas imports – which of course could leave us open to economic catastrophes should those supplies be limited or interrupted.
- 2.15. Figure 5 takes data from JESS' recent annual report to show the effect that these changes could

have on our gas supply in the future. The graph shows peak supply during a 1 in 50 winter (this is the extreme condition they model to test the assumptions in the development of future supply infrastructure). Along the top of the graph the small pie charts show how the source of gas supply changes. These show how the decline in UK gas production forces us to rely more on imported gas, but also how storage becomes an ever greater component of supply in order to insure against extremes of demand. This is also the problem with gas storage – it is necessary in order to meet unexpected demand, but the development of storage imposes costs on the industry which, under ordinary supply scenarios, are not necessary (or, as is said by industry commentators, “no one wants to build storage whilst there's lots of gas around, but when there's a shortage no one can afford to build it”).

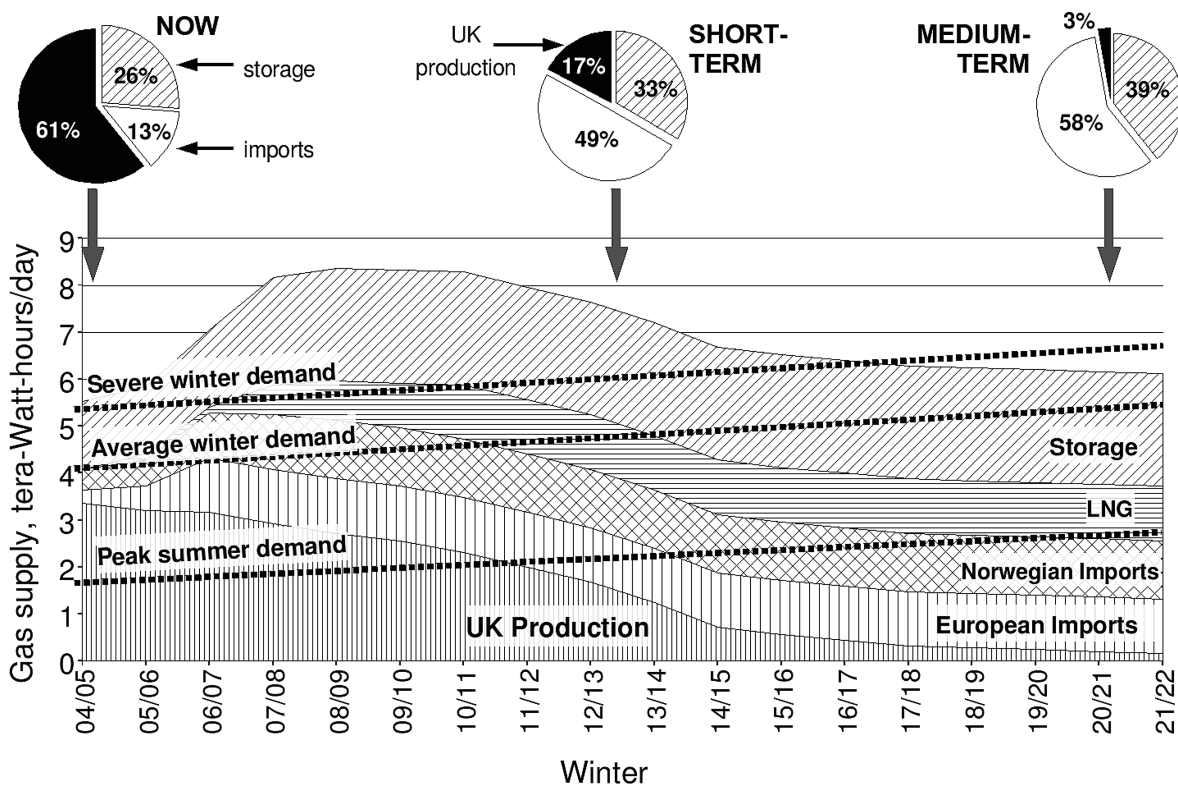


Figure 5. JESS Extreme Winter Gas Supply Scenario [source, JESS 2006a/b/c]

2.16. Here we see the underlying contradiction: In the attempt to maintain a reliable and secure gas supply we require ever greater levels of imports, but also ever greater levels of storage to guard against the likelihood that supplies will be interrupted or demand exceeds the capacity of the import infrastructure. Also, the greater reliance on imports and storage makes the supply system less secure. This is because a long-period of supply interruption, or technical problems with storage system, could curtail the availability of gas at any time (we saw this in early 2006 when a fire in the Rough gas storage field prevented gas being extracted, resulting in shortages of supply that forced up gas prices).

C. Total Energy Supply

2.17. So far we've only looked at gas importation. However, the UK's oil production has also peaked, and, contrary to popular belief, the UK does not have large coal stocks and as we have run down our coal industry we have become reliant upon imported coal. The JESS committee also produces forecasts for oil and electricity supply, and some minimal data on coal. I we put this data together with data from other sources we can begin to see the extent of the problem that the UK energy economy faces –

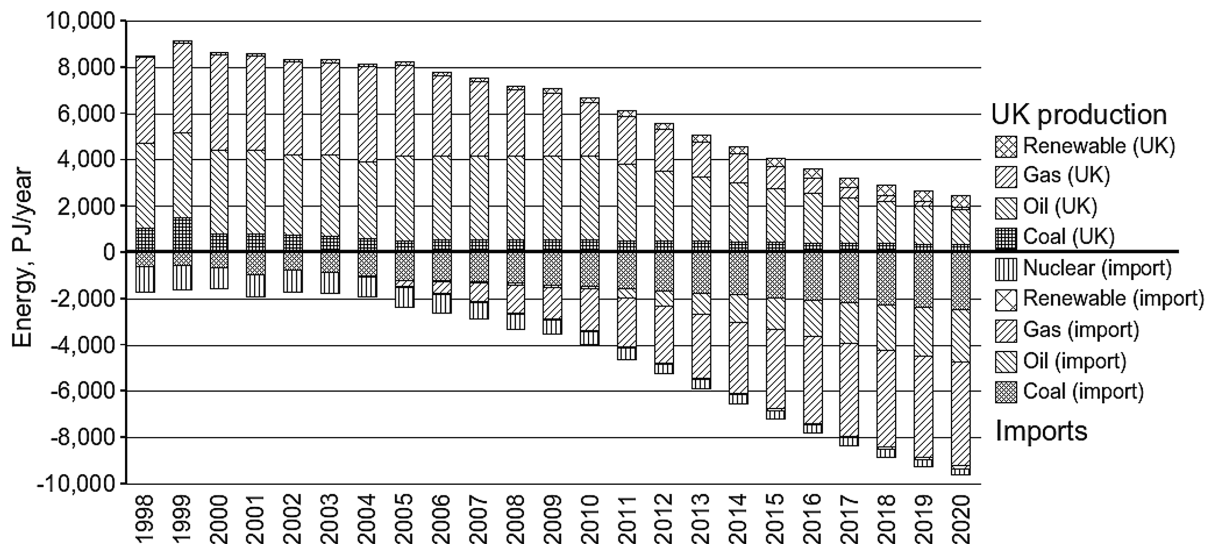


Figure 6. A Future UK Energy Import Scenario [Mobbs, 2007]

2.18. As this graph shows, the UK will import larger quantities of all our energy needs. This does not just raise the practical issue of how this will take place; it raises the more pressing issue of how precisely we will pay for it. The financial effects of North Sea oil and gas are as significant as their material effect. The financial problems that the UK had in the 1970s were in part relieved by the arrival of our own indigenous oil and gas. And in fact the Chancellor (now Prime Minister) Gordon Brown commented in his last budget speech that the lower output and higher costs in the North Sea were reducing revenues to the UK by £4 billion per year [HMT, 2007].

2.19. If we look forward just a decade, the UK will have both practical problems meeting its energy needs, and financial problems. We will have less revenue from oil and gas production flowing to the Treasury, and we will have more money leaving UK economy in order to pay for our imported energy – worsening our trade balance (which is already dominated by our increasing imports of ever-more expensive energy resources). This situation will have consequences for the well-being of the UK. **In short, our large demand for energy, in the absence of our own indigenous supplies, and with global competition increasing for the remaining resources, is no longer tenable. We have to find an alternate strategy.**

3. The Peaking of Global Energy Resources

- 3.1. The *Laws of Thermodynamics* dictate that everything is constant – you cannot create or destroy energy, but merely change its form. This is a problem within an economic paradigm that contends that “maintenance of high and stable levels of economic growth” is not only possible, but is also sustainable. There must be “limits to growth”, and a number of academic studies [MA 2005/ Meadows 2004/POST 2007] have been produced to assess where those limits to human development are, and how we will have to modify our behaviour in order to reconcile our needs with the physical reality of living within a finite environment.

A. Peak Oil

- 3.2. In the very near future we will have little choice but to reconcile ourselves with one of the most pressing of these environmental limits – *Peak Oil*. All minerals, as they are mined, undergo changes in the level of output that are influenced by the amount of available mineral resources, and their quality – not just by the level of effort we put into getting them out of the ground. The process by which this happens was not understood clearly until the last Century. In 1947 the geologist M. King Hubbert went to work for Royal Dutch Shell in the USA. He studied the production records of oilfields across the “lower 48” (the continental US excluding Alaska) states and discovered that oil production always exhibited a 'bell curve'. He wrote a number of papers, but his most well know was his 1956 paper where he predicted that US oil production would peak in 1970.

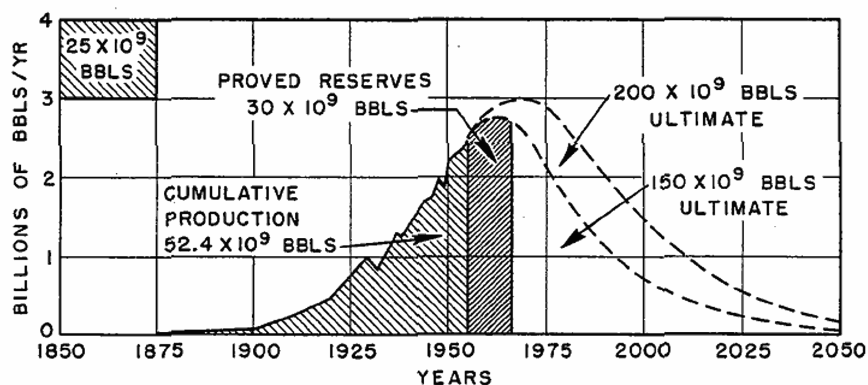


Figure 21 – Ultimate United States crude-oil production based on assumed initial reserves of 150 and 200 billion barrels.

Figure 7. “Hubbert's Peak” [Hubbert 1956]

- 3.3. US oil production in the “lower 48” states did peak in late '70/early '71, although this was not known until a few years later when the statistics demonstrated it. However, once the Alaskan oil field began producing oil in the late 70s, and when the crises in the Middle East abated and the early 80s economic recession reduced global demand, interest in the issue subsided.

3.4. The more recent interest in the Peak Oil issue was rekindled by two ex-oil industry geologists, Colin Campbell and Jean Laherrère, in a 1998 article in the journal *Science* [Campbell 1998]. This gave rise to a new debate about the peaking of oil production globally, and has led to many different studies on the issue being published over recent years. At the same time some researchers have widened the issue to look at the peak dates for other important energy minerals, such as uranium and coal. Here are extracts from just a few of the leading reports:

- ◆ “Two major discontinuities that would dramatically change the urgency and direction of energy RD&D and the prospects for new technology implementation are the arrival of a global peak in oil production and the failure of global climate change policies. The first event would undoubtedly lead to sharply rising and permanently volatile oil prices... It would first lead to increasing pressure on expanding gas supply and ultimately enforce early and increasing reliance on either biomass-based or coal-based fuels. A peak in global oil production could arise because of a combination of surprises of a political or economic nature on either the demand or supply side or both in the decade 2010-2020.”
Energy Research Centre of the Netherlands, May 2005 [Bruggink 2005];
- ◆ “The world is consuming more oil than it is finding, and at some point within the next decade or two, world production of conventional oil will likely peak. In addition to peaking, there are widespread concerns about the growing U.S. dependence on oil imports from both an energy security and a balance of payments standpoint.”; and “If the peaking of world conventional oil production occurs before 2025, the U.S. may not have a choice in terms of a massive national physical mitigation program. Even with the most optimistic assumptions and assuming crash program implementation, physical mitigation will require decades and trillions of dollars of investment to make substantial contributions.”
Robert L. Hirsch for The (US) National Energy Tech. Lab., Feb. 2006 [Hirsch 2006];
- ◆ “The currently known recoverable uranium resources will be depleted in about 50 years, if the world nuclear capacity remains at the current level. The easily discoverable and easily mineable uranium resources are already known and in production. The mines with relatively rich uranium ores currently in production will get depleted in about 28 years... after 2034, under the same conditions, the net energy production of the nuclear system will decline and fall off the energy cliff by the year the currently known resources will get depleted.”
Jan Willem Storm van Leeuwen, Oxford Research Group, July 2006 [ORG 2006];
- ◆ “This analysis reveals that global coal production may still increase over the next 10 to 15 years by about 30 percent... Production will then reach a plateau and will eventually decline thereafter... The IEA reference scenario assumes further increasing coal consumption until at least 2030. According to our analysis, this will not be possible due to limited reserves.”
The European Energy Watch Group, March 2007 [EWG 2007];
- ◆ “Federal agency efforts that could reduce uncertainty about the timing of peak oil production or mitigate its consequences are spread across multiple agencies and are generally not focused explicitly

on peak oil. Federally sponsored studies have expressed concern over the potential for a peak, and agency officials have identified actions that could be taken to address this issue... However, there is no coordinated federal strategy for reducing uncertainty about the peak's timing or mitigating its consequences.”

US General Accounting Office, February 2007 [USGAO 2007].

- 3.5. The one noted absence from the list of world governments who are investigating this issue is our own – to date the UK government has made no official comment on the validity or otherwise of “peak oil theory”, although some civil servants will acknowledge the problems that we face in private. But in the UK context, Peak Oil is not a “theory”, it's a fact – as the Government's own energy statistics show –

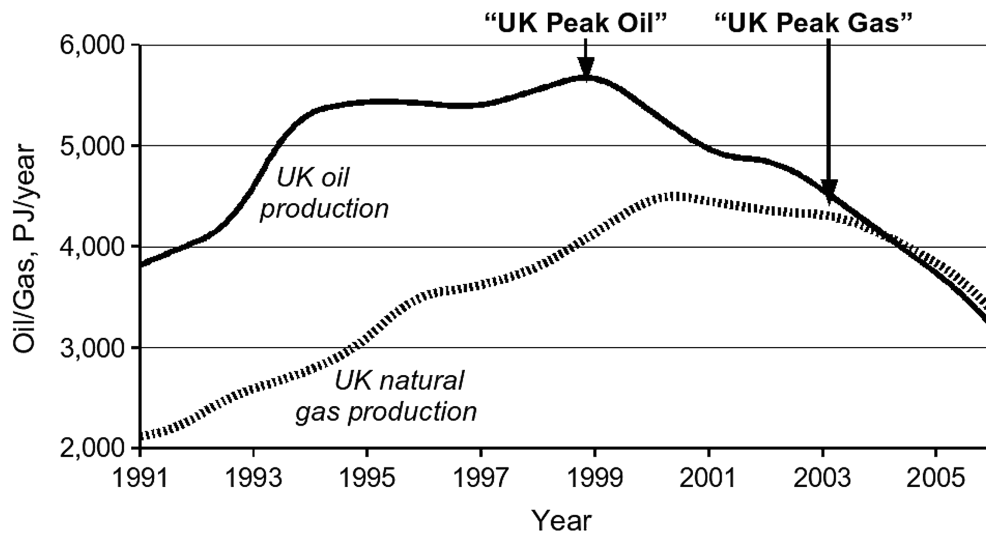


Figure 8. The Peak in UK Oil and Gas Production [source, DUKES 2007d/e]

- 3.6. Despite various initiatives by the Government to encourage the development of new production in the North Sea, as was the case in other states, oil and gas production have gone into a stubborn decline. In fact, the decline in the North Sea has been very steep, perhaps because enhanced extraction techniques (which the Government and the oil industry claim increase production) like those used in the North Sea appear to cause a steeper decline after the peak is reached.
- 3.7. There are various dates for the global peak in oil production, depending upon the source data used (see the point about data in the following section). It also depends upon whether you are looking at “conventional oil” (liquids that come out of the ground) or “all oil” (which includes non-conventional sources such as gas condensate and heavy oil/tar sands). **Currently many researchers on Peak Oil are predicting a peak in “conventional oil” around 2005 to 2008 (i.e., now, but it will take a few years of production data to confirm it) and a peak in “all oil” by 2012 to 2014 – however if high oil prices in the interim destroy demand, or cause a global recession, the dates may drift a few years into the future.**

B. Peak Gas

- 3.8. So far I have concentrated on oil. This is because most of the work and much of the debate to date on the “peaking” issue has been focussed on oil. However, from the European point of view, Peak Gas is far more problematic. Whilst a shortage of oil, much of which goes to the transport sector, can be mitigated with some discomfort. A shortage of gas, in a temperate climate such as Western Europe, is far more problematic as it provides our heat and light.
- 3.9. One of the main contributors to the Peak Gas debate is Jean Laherrère. He has produced figures for the global natural gas peak of around 2025 to 2030 [Laherrère 2003]. But, as he makes clear in his presentation –
- “There are several ways to model oil and gas supply, the main problem is not from the model, but from the data which are flawed by bad reporting (for confidential, financial or political reasons). The shock of 1979 was caused by bad data, as the collapse down to 10\$/barrel of 1998 was caused by the IEA missing barrels. Good supply forecasting will be achieved when good data will be delivered and openly published.” [Laherrère 2003]
- 3.10. The validity of data on oil and gas resources is a significant issue in the prediction of the peak in production. The exaggeration of oil reserves, which goes largely un-investigated since around four-fifths of the world's oil reserves are owned by states who keep their official reserves figures a closely guarded secret, make predicting a reliable date problematic. But for gas the problems are two-fold: firstly, the problem with the data; and secondly, the fact that natural gas is more fluid gives less warning that a peak is imminent (and production tends to drop off quickly). This is why the UK is experiencing such problems with gas at the moment.
- 3.11. The “experts” advising the Government and the UK energy industry predicted a peak in UK gas production around 2008, but in actuality it peaked in 2003 – which is why the importation facilities being built today have completion dates around 2008. The arrival of the peak five years early meant that we have had diminishing volumes of gas arriving ashore and no back-up facilities with which to import more. Consequently the date for the global peak in gas supply could also be an over-estimate, given that it relies on the same kinds of “*confidential, financial or political*” data that Laherrère describes.
- 3.12. In addition to Laherrère, the Parliamentary Office of Science and Technology also point out in their 2004 study of the “Future of UK Gas Supplies” –
- “The UK is not alone in facing diminishing gas reserves and production. According to industry analysts, many gas-producing nations are already past their peak gas production and are now in decline, including the US, Canada and the Netherlands, one of the countries upon which the UK is relying for future gas imports. **Analysts predict the global gas production ‘peak’ will occur by 2020-2030.** (my emphasis) Production will continue after this time, but at lower rates. As global gas supplies decline it may become economically viable to switch to other forms of energy.” [POST 2004]

C. Supply-Side Problems

- 3.13. As significant as the problems of predicting the peak of supply are the problems of getting the gas out of the ground. This is especially significant in terms of the market for liquefied gas because the development of liquefaction facilities is an extremely expensive undertaking, and so investment decisions are subject to many conservative assumptions.
- 3.14. To begin with, it's important that we understand precisely who has the world's gas reserves, and where our imported gas currently comes from.
- 3.15. The world's gas resources are very concentrated, with just three states – Russia, Iran and Qatar – hold just over half of all the “proven” resources (“proven”, in the sense that they state they exist, but these states do not allow independent verification of their reserves):

Table 1. Natural Gas – Proved reserves at end 2006

<i>State</i>	<i>Proven reserves, T-m³</i>	<i>Share of world proven reserves</i>
Russian Federation	47.7	26.3%
Iran	28.1	15.5%
Qatar	25.4	14.0%
Saudi Arabia	7.1	3.9%
United Arab Emirates	6.1	3.3%
USA	5.9	3.3%
Nigeria	5.2	2.9%
Algeria	4.5	2.5%
Venezuela	4.3	2.4%
Iraq	3.2	1.7%
Kazakhstan	3.0	1.7%
Norway	2.9	1.6%
Turkmenistan	2.9	1.6%
Indonesia	2.6	1.5%
Australia	2.6	1.4%
Malaysia	2.5	1.4%

Source, BP 2007b

- 3.16. Of the top 16 states (Britain comes 34th on the list) not all are “friendly” to the west, or politically stable, which is why geopolitical issues are so important to the future of our energy supplies. Russia has shown recently that it is willing to use energy as a political tool with its neighbours. Iran is currently the subject of international pressure (some have speculated that, like Iraq, the USA's foreign policy towards Iran is dominated by the fact that they have the worlds second largest oil and gas reserves). Qatar, although a stable state, is in a region beset with instability. Consequently, any minor conflict near these states is likely to push up gas prices.

3.17. Next there is the issue of actually developing the infrastructure to deliver gas. Here there are problems too. The low oil prices of the 1990s led to reduced investment by the oil companies. Today, even with high oil prices, there are not the trained staff to undertake new projects because they were not trained in the 1990s. The high cost of materials, and the fact that depleting oil fields require much more investment, is also slowing the pace of development.

3.18. Figure 9 shows where gas imports to the European Union came from in 2006 (based on BP's gas trade movements dataset). This graph excludes the transfers of gas within European states, and instead the value of European production is expressed as a 'net' value across the area. At the moment the EU is clearly reliant on Russia and Algeria, but as the value of European production, primarily from the North Sea, over the next decade or so we'll have to seek more gas from nearby states who have as resources. The problem is that this leaves us reliant on one state – Russia – or on long pipe networks that fan out across the Middle East and Central Asia – which are vulnerable to disruption.

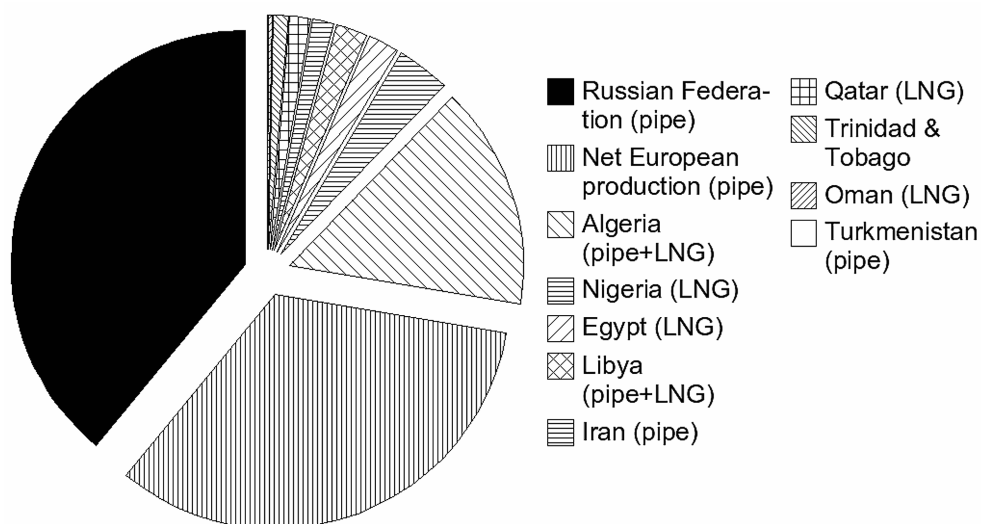


Figure 9. The Source of European Gas Supply, 2006 [source, BP 2007b]

3.19. LNG is of course the other significant importation option, but, contrary to the very upbeat view given by the DTI [DTI 2005a], LNG is not being developed at a rate sufficient to meet demand.

3.20. Chris Skrebowski, editor of the UK-based *Petroleum Review*, regularly produces a digest of world oil and gas “mega-projects” – large extraction projects that are either planned or under construction. His oil mega-projects directory [Skrebowski 2007a] has shown recently that global peak oil is not just a matter of the total amount of oil produced reaching a certain value – an ongoing problem is that higher costs and delays are reducing the ability of production to keep pace with the existing level of decline, which brings the date of the peak closer. Likewise, his LNG mega-projects directory [Skrebowski, 2007b] highlights that delays and cancellations to projects could be storing up capacity problems in the near future –

“The reluctance of companies to commit to building new capacity appears to stem from two prime

influences. The first is the rapid inflation in construction costs, which is reported to have reversed all unit costs reductions in the last 20 years. This means new liquefaction trains will have markedly higher unit costs than recently built ones. The second uncertainty is the market reaction to high prices. There has been a tendency to believe gas demand is unresponsive to price. This belief in the low price elasticity of gas demand has been undermined by the gas demand falls seen in 2006 in the US, Chile, Austria, France, Hungary, the Netherlands, Portugal, Romania, Slovakia, Russia, Switzerland, the Ukraine, the UK and the Philippines. Although special circumstances may account for some of these declines, the general view is that gas prices may have reached the point where demand is impacted. As a result of these two concerns, virtually all LNG projects not under way are currently being reassessed.” [Skrebowski 2007b]

- 3.21. We face a very real problem: Britain is building LNG facilities to solve the two main problems created by North Sea gas depletion – the need to import gas and the need to develop storage facilities – within the same development. However, it is likely that there will be insufficient capacity to deliver the global demand for LNG, and consequently the price will be higher. Importation by pipeline is more secure because it is a “fixed” asset – the vendor either supplies gas to you or not, but if they choose not to they will make a loss themselves because they will be unable to supply anyone else. Conversely LNG ships can be redirected at will, and so the purchaser must compete on price for each cargo because the vendor will not face a severe penalty if they do not sell.
- 3.22. **To sum up, LNG is not a means to guarantee “security of supply”, because ships can be redirected. In any case, the global peak in gas production within the next fifteen to twenty years, and the current problems developing liquefaction capacity, mean that LNG may not represent a secure option in either the long or short term.**

4. Planning and Energy Policy Appraisal

- 4.1. In determining this application regard must be given to planning legislation and any other “material considerations”. This is problematic for two reasons:
- ◆ firstly, there is minimal guidance in planning law/guidance that deals specifically with liquefied natural gas – we have to deal with this as both an “energy” development and a “hazardous” development; and
 - ◆ secondly, energy policy is itself in a state of flux – the energy review is still incomplete since the nuclear power issues were overturned in the High Court, and whilst the general policy on gas exists through the Energy White Paper, the detail is still being considered by industry and the government through a series of consultations.
- 4.2. From our point of view, the major deficiency within the Government's current approach to energy policy is that it fails to address the issue of Peak Oil and Peak Gas. There is a clear difference in approach between planning to import a resource from outside the UK, and planning to import a resource that will be in short supply, and more expensive, within perhaps just a decade or so. However, as the Secretary of State has 'recovered' the decision in this case, it is our view that the materiality of Peak Oil and Gas should, and can, be tested as part of the decision on this development – it is a matter of “national importance” for which the Secretary of State is ideally suited to determine. We request that a clear ruling is made as to whether or not the global short-fall in oil and gas, and at a later date coal and uranium, have a bearing on the determination of applications in relation to the importation of energy.

A. The Need for Development

- 4.3. *Britain does not need any additional gas storage since we have an adequate diversity of measures to ensure security of supply* – this is the case if we take recent Government statements literally.
- 4.4. Articles 3 and 4(6) of European Council Directive 2004/67/EC [EC 2004] on the security of gas supplies require that –
- “Member States... specify adequate minimum security of supply standards that must be complied with by the players on the gas market of the Member State in question”*
- and –
- “Member States may set or require the industry to set indicative minimum targets for a possible future contribution of storage, either located within or outside the Member State, to security of supply. These targets shall be published.”*

- 4.5. The Government's response to the consultation on the implementation of Article 3 states –
“It was generally accepted that Great Britain complies with this Article for the reasons set out in the consultation document. However, one of the Energy Review recommendations was to consider the effectiveness of the current gas security of supply arrangements in the UK, and a consultation has been launched with this purpose. Any changes to the arrangements will, of course, still need to comply with the Directive.”
– and for Article 4 –
“It was also suggested that gas storage obligations should be reviewed. However, once again, such changes are being considered as part of the current domestic consultation. We will ensure those conducting that review are aware of these views.”
– and it concluded –
“With the exception of the requirement to report long-term gas supply contracts under Article 5.1(c), we therefore believe that Great Britain complies with the terms of Directive 2004/67/EC concerning measures to safeguard security of natural gas supply.” [DTI, 2007a].
- 4.6. Only seven months earlier, as part of a Ministerial Statement to the House of Commons, it was stated that –
“Ultimately, as my Hon. Friend the Minister for Energy noted to the House last year, failure to help facilitate such infrastructure will, immediately or over time, create difficulties in balancing supply and demand, reducing the reliability of our energy supply arrangements, with potentially disastrous consequences for the local, regional and national communities and economies.” [DTI 2006a].
- 4.7. The contradiction is clearly a matter of emphasis. Although the perceived need for energy storage at one point in time – *May 2006* – is negated by a statement that existing arrangements are sufficient to meet European security of supply at a later date – *January 2007* – it is clear that, as outlined in section 2, to maintain gas supplies at the current level, should that be the judged the best option in the longer-term, we will have to import more gas. The Department of Trade and Industry did consult on gas storage in November 2006 as part of the Energy Review [DTI 2006b] and it published its findings in May 2007 [DTI 2007b]. The primary concern of this consultation was to review the procedures to permit the storage of gas off-shore, not on-shore, and so once again there is no clear definition of the “need” for storage. However, explicit guidelines on the level of gas storage were not advanced as a result of the consultation. Perhaps the reason behind this can be seen in the National Grid Company's response to the consultation on Directive 2004/67/EC –
“If it is concluded that the market is unlikely to deliver the required levels of storage within the present market framework, changes to the framework should be considered in order to adjust the obligations or incentives on market participants.” [NGC, 2006]
- 4.8. In other words, as noted earlier in section 3, the industry doesn't want to pay for storage when high construction and wholesale prices are reducing their margins.

- 4.9. The clear problem we have is that the Government's "light touch" regulation of the energy industry in the UK means that there is no clear guidance on how the energy dimensions of this application should be weighed against the detailed land use planning and public safety/concern issues (in one sense this application is *premature* – see subsection B below). However, from the available information we can draw certain boundaries to the problem (in chronological order):
- ◆ The DTI published a report on LNG in June 2005 [DTI 2005a]. The report concentrates on the detail of the LNG market and supply chain, and gives no clear advice on the location for or scale required for re-gasification plants. Also, in the light of recent information (such as Chris Skrebowski's *LNG Mega-Projects Report* highlighted earlier), the content of this report is also open to criticism).
 - ◆ The Secretary of State for Trade and Industry produces a statement to Parliament [DTI 2005b] on gas security of supply, including a list of importation facilities, but Canvey is not mentioned.
 - ◆ In October 2005, ILEX Consulting produced a report for the UK Offshore Operators Association (UKOOA) on LNG in the UK [ILEX 2005]. This gives (in Chapter 2) some detailed explanations of the operation of LNG facilities, the UK gas market, and the existing sites used for gas storage in the UK (both compressed gas, and LNG). Although the report discusses "a list" of potential storage sites (see JESS reports below) it does not provide any priority or ranking for sites in the UK.
 - ◆ In April 2006, the JESS Committee's Sixth report [JESS 2006] listed Canvey Island as potential import facility "to be confirmed" – however no other statement is made in relation to this project.
 - ◆ There is no "preferred option" for gas storage in the UK. This is outlined in the Ministerial Statement in May 2006 –
"The decline in our indigenous supplies has serious implications for our gas import infrastructure, storage and domestic transportation needs. The Government welcomes all solutions which could help address this need, and favours no particular route." [DTI, 2006a]
However, the emphasis in the rest of the statement is on geological storage, and off-shore storage.
 - ◆ In December 2006, JESS's *Long Term Energy Security of Supply Report* [JESS 2006a/b] once again listed Canvey, but provided no other information or guidance on the need or value of the proposed development.
 - ◆ In May 2007 the DTI issued the new White Paper on Energy, *Meeting the Energy Challenge* [DTI 2007c]. Chapter 4 of the White Paper (the main points of which are summarised on page 124) deals with natural gas and oil. Paragraph 8.10 lists Canvey only as a footnote,

stating that the planning application had been refused by the local authority. There is general encouragement for increasing storage capacity in the UK within the White Paper, but there is no specific direction that Canvey Island fulfils any criteria to be approved as a site for LNG importation and storage.

- 4.10. A policy objective raised in the May 2006 Ministerial Statement is that, “*onshore storage is needed to enable slow-moving gas to be available close to market when consumers require it*”. In this sense the Canvey proposal may appear to be beneficial because it is near to Greater London. The Canvey LNG publicity material for the site states that the “*5.4 billion cubic metres of gas*” represents “*5% of the UK’s annual demand*” [Calor 2005]. This is clearly misleading. The key point is not the size of the storage, but how big a pipe you have to deliver down. The pipe, with the stated capacity of 3 million cubic metres of gas per day, can deliver approximately 0.033TW-h of gas^a per day – that’s only 1.8% of average Summer demand (1.8TW-h/day), 0.9% of Winter demand (3.8TW-h/day), and 0.7% of Severe Winter demand (5.1TW-h/day) [based on JESS 2006c]. Clearly, the ability of this site to deliver gas to address the needs of the gas network in real time has been overstated (unless further pipelines, or ancillary uses of the gas near to the site, are proposed in the future).
- 4.11. On this point, it is worth noting that the UK had a system of localised storage to balance out capacity on the network – *local gasometers*. Many of these sites were sold off following privatisation of the gas industry, but such a low-tech approach, if re-established, would be on way of managing flows on the grid without the need for more complex/less efficient compression or liquefaction plant.
- 4.12. **So, to pull these points together, we have a proposed project at Canvey Island that is listed in lists of potential sites because “it has been announced to the public” (JESS’s criteria for listing a project in their report [JESS 2006d]), but which forms part of no specific target, and which has no specific endorsement from our energy ministry (the Department of Business, Enterprise and Regulatory Reform) other than a foot note on their core policy document that the project has had its planning application turned down.**
- 4.13. **Clearly, there is no direction in policy that, with certainty, this project should be approved. It does not contribute to any identifiable national target for the provision of gas storage or importation capacity. What is more, even if it were approved, given the size of the pipe link it would not deliver a significant quantity of gas when it is most needed – at the time of peak Winter demand.**

a Calculation: (gross calorific value [39,800,000J/m³] x flow rate [3,000,000m³/day]) ÷ (1x10¹² x 3,600 seconds) = 0.033TW-h/day.

B. Prematurity

- 4.14. The Ministerial Statement on *Energy Statement of Need for Additional Gas Supply Infrastructure* states that –
- “Against the background of the clear national need for new gas storage infrastructure, it is important that developers, where they are not already doing so, start an early dialogue with planning authorities to ensure that appropriate policies are included in Regional Spatial Strategies and Local Development Frameworks. Where developments need to come forward ahead of changes to local planning policy, it will be vital for developers to begin an early dialogue with local planning authorities, and the community more generally, about their proposals.” [DTI 2006a]
- 4.15. To my knowledge, there is no allocation for LNG storage at Canvey Island in any local or regional planning policy (although the existing petrochemical facilities are noted, primarily because they require a buffer zone to be imposed for public safety).
- 4.16. Policy ED9 of the adopted Local Plan states –
- “Except for cases where expansion of existing hazardous installations is required in the national interest, the Council will refuse planning permission for the expansion or intensification of such uses at Canvey Island.”*
- 4.17. In relation to the “national interest” clause, as outlined in the previous subsection, at no point has the DTI/BERR, JESS or any ministerial statement clearly identified –
- ◆ that the Canvey LNG project is part of a national strategy for gas importation; and/or
 - ◆ that (even if it is not part of a national strategy) the importation and storage capacity at Canvey would contribute to an identified national target for gas importation.
- 4.18. **On the first of these points, given the absence of this proposal from any development plan, despite the ministerial advice that this is the appropriate course of action, it is clearly a premature application.** Even if we must expedite gas storage, the fact that the Energy White Paper has only been recently published means that regional and local planning authorities have not even had time to consider any interim measures, or issue non-statutory supplementary guidelines.
- 4.19. **On the second point, the fact that no clear, unequivocal target has been produced which defines “the national interest” means that the proposal cannot rely on the “national interest” clause in Policy ED9 of the Local Plan.** If we relate the need for gas importation and storage capacity to a policy definition such as a land bank for minerals, or a target for housing development, or more recently specific national targets for renewable energy development (e.g., illustratively, *TAN-8* in Wales [WAG, 2005]), then clearly this proposal is void because it does not figure in any objective criteria for site selection within national energy policy.

- 4.20. Had the applicant sought permission for geological storage, the special circumstances (as hold with applications for the working of minerals) could have been cited; it is clearly stated in the DTI's advice that underground gas storage is limited to very specialised geological formations. However, given that the only favourable characteristic of this site is that it has a jetty for off-loading, that is clearly not a unique circumstance.
- 4.21. **Given the policies of the local plan, and the lack of any clear link between this proposal and national policy on gas importation and storage (to certify some sort of “national need”), it would be premature to permit this development in advance of any regional or local deliberations on the Energy White Paper, or the publication of the proposed legislation on off-shore gas storage and importation.**

C. Balancing Interests and Site Selection

- 4.22. The planning system does not exist to protect the private interests of one person against the activities of another (although private interests may coincide with the public interest in some cases). The basic question is not whether owners and occupiers of neighbouring properties would experience financial or other loss from a particular development, but whether the proposal would unacceptably affect amenities and the existing use of land and buildings which ought to be protected in the public interest [ODPM 2005a].
- 4.23. This appeal is clearly about resolving competing interests. The local people, who are concerned about the intensification of gas storage at Canvey Island have an equal right to be heard. Even if the pressure from the energy lobby is to develop Canvey for LNG importation, as established in the *Browning Ferris* case[‡] (which significantly extended Mr Justice Glidewell's decision in the *Gateshead* case[§]), public concern, even if objectively unfounded, is a material consideration; public concern does not require objective expert justification – an objectively unfounded, albeit genuine, fear (i.e. public concern) can of itself constitute a valid reason for refusing planning permission.
- 4.24. In this case one of the main arguments against this proposal from the public is that Canvey, with its large population and poor transport access, is not suitable to be a site for LNG storage. In this case, as the project was liable for environmental impact assessment, the evaluation of alternative sites is proscribed. Under Part 1, of Schedule 4 of the *Environmental Impact Assessment Regulations* there is a duty to provide, “An outline of the main alternatives studies by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.” In our view, there has been no meaningful evaluation of the

‡ Newport Borough Council v SoS Wales and Browning Ferris Environmental Services Ltd [1998] JPL 377

§ Gateshead Metropolitan Borough Council v. Secretary of State for the Environment [1995] Env LR 37; JPL 432

alternative development options, and how they might affect the level of the hazard to the local community, or the value of the projects to the demand for energy in the UK. Without any assessment of the alternative sites, or other development options, we would question whether the hazards posed by this development to the local community can be adequately weighed against the presumed benefits to the national economy.

- 4.25. If we review the various Government statement's on gas importation and storage noted in this paper, it is clear that off-shore importation, storage and re-gasification of LNG is feasible. Likewise, there is the potential at various site, on-shore and of-shore, for compressed gas storage in geological voids. Such alternative sites could be developed, providing the same or greater level of gas storage, and without the impacts upon local people and the environment that the selection of this site creates. Under existing practice, the assessment of alternatives as part of an environmental assessment is not appropriate in all cases. However, unlike a pig farm or a road, an LNG storage terminal is an irregular, highly specialised and intrusive form of development that should be subject to the requirement to consider the alternative options for development. In determining this appeal we request that consideration is given to the lack of any realistic assessment of alternative development sites or options, as a means of reducing the risk to the general public from the perceived need to import natural gas, as material grounds to dismiss the appeal.
- 4.26. **The fact that the planning system does not protect private interests swings both ways: it does not protect a home-owner just because they live near to a proposed development; likewise it does not protect a land owner, who owns one specific site, but wishes to build a facility that could be built, and operate with a greater safety factor to the public as a whole, elsewhere.**

5. Summary/Conclusions

- 5.1. This development seeks to fulfil a need expressed by the Government to increase our capacity to import and store natural gas. However, this is a need the level of which is not clearly quantified, and the means by which it will be implemented have been expressed without any clear criteria for site selection or prioritisation. The key difficulty in this case is that we see the needs of a fully liberalised, “light touch” regulatory system – the energy industry – coming into conflict with a highly directed, detailed and plan-led system – the local planning authority.
- 5.2. In section 1, I examine the trends in energy consumption in the UK that have brought us to our current precarious situation. One of the key problems in developing more sustainable patterns of development, in planning or in energy, is resistance to change. The problem we have today is that we are using a quantity of energy that is unsustainable to supply for more than one or two more decades. This development is significant insofar as it seeks to perpetuate our current energy trends by bringing gas from around the globe. Officially there is no “Plan B” to importing more gas because, like combating climate change within the 30 to 50 year time frame allotted by the UK's Hadley Centre for Climate Change Research, it means root and branch change to the way we operate society if we do not. However, the impacts of not dealing with our excessive use of oil and gas will hit us hard, and the process has already begun – as explained by the now Prime Minister, Gordon Brown in his last budget speech, we are losing £4 billion per year as a result of Peak Oil and Peak Gas in our own North Sea.
- 5.3. With the exception of economic recessions, the UK has grown its energy supply continually since the beginnings of the beginning of industrialisation. The end of “cheap energy” does not mean the end of industrialisation, but it does mean that we will have to do things very differently. In the 1970s we closed an entire industry – the manufacture of town gas from coal – and replaced it with something else. We are now reaching a period where we will have to also call time on the large-scale use of natural gas. It's partly because energy depletion, and the peak in global gas production at some point in the near future, will preclude our continued use of natural gas.
- 5.4. Another significant factor is that having the majority of our energy economy dependent upon a mineral which must be imported, against global competition, and from a dwindling resource base, will make our energy supply system in the UK less secure. Already, driven by the new geopolitics of energy supply, some politicians are discussing the involvement of NATO in policing the movement of LNG ships globally [NATO, 2007]. In this sense the construction of this terminal will, in the longer-term, worsen, not improve, our security because it locks us into a short-term, unsustainable and conflict inducing system of energy supply.
- 5.5. One of the key principles contained in paragraph 4 of Planning Policy Statement 1 [ODPM 2005b]

– “*the prudent use of natural resources*” has direct relevance here. Paragraph 19 is also relevant to the consideration of Peak Oil and Peak Gas in determining this appeal when it states that decisions should be based upon – “*the potential impacts, positive as well as negative, on the environment of development proposals (whether direct, indirect, cumulative, long-term or short-term); and, recognition of the limits of the environment to accept further development without irreversible damage*”. We have scientific evidence warning of an imminent, and irreversible change in the way that we use energy globally, and yet our own national policy framework seems unable to grasp its true meaning.

- 5.6. Permitting this development will put off an unavoidable decision that must be taken at some moment in the near future because common sense, and the Laws of Thermodynamics, say that we cannot continue the large-scale consumption of a resource that is in decline. On this ground alone, taking into account the principles of sustainable development now written into national planning guidance, this development is clearly unsustainable. Oil and gas prices will continue to rise in the future. This development cannot change this fact. However, we shouldn't exacerbate the problem by permitting such an inappropriate intensification of the storage of petrochemicals on Canvey Island.
- 5.7. In terms of national need, and Policy ED9 of the Local Plan, this site cannot claim the backing of the UK's energy policy. At no point is any endorsement of this project given. Nor is there any clause which states that the capacity this development will contribute to any national target – whatever that may be – for gas importation and storage. Despite the requirement in European law (through Directive 2004/67/EC) that the target for gas storage be clearly defined, a reading the voluminous body of energy policy and research documents will turn up very little hard data. If we literally take the text of JESS's *Fifth Report* as representing the criteria by which any project to import gas, then publicly expressing the intention to import gas at any site (so gaining access to their list of projects) could be construed as meeting “national need”.
- 5.8. We need a clear framework for the development of national and regional gas facilities. That is best done in consultation with the regional planning bodies. As expressed in the Ministerial Guidance of May 2006 [DTI 2006a], sites should be brought forward in co-operation with local and regional planning authorities. For this to happen there must also be a clear expression of the level of provision that is required, as has already been done for other energy sources such as renewable energy. This is seemingly lacking in both the recent Energy White Paper, and the many research reports and consultation documents that preceded it.
- 5.9. The fact that, despite the assurances, the public oppose this development does not mean that their objections should be rejected as immaterial. There are legal precedents where the public's concern over hazardous development has led to permissions being refused. However, in this case, there is a clear reason why it should be refused – it is in the wrong location. It is close to

homes, and other critical energy installations. As outlined in the various DTI publications on the need to import and store gas, other options exist, and many of these options can be carried out without the need to handle large quantities of hazardous substances (such as the gasometers mentioned earlier, which could be brought back as a means of in-system load balancing), and without having to take place in close proximity to population centres (such as the underground and off-shore storage of natural gas and LNG).

- 5.10. The siting issue should have been properly examined as part of the environmental assessment process, and a comparative risk assessment made. However, given that the operator of the site does not have a free hand to choose the location of the site, any site assessment which threw up unfavourable results would clearly be unwelcome – and perhaps for this reason removed or toned down in the final environmental statement. However, just as the planning system does not protect the private rights of the public who may have to live near this site if it is approved, it also holds that the planning system cannot protect the rights of a person to develop land if they seek permission for an inappropriate development on the only large site that they happen to own.
- 5.11. I request that in determining this appeal regard is given to the points advanced in this paper, and that this appeal by Calor Limited is refused. However, I specifically request that note be taken of, and a comment made in the final decision notice upon –
- ◆ the fact that current energy policy does not specifically identify sites such as Canvey Island for the development of LNG importation and storage;
 - ◆ that the growing evidence of an imminent peak in global oil and gas production should be a material consideration in the planning and permitting of energy importation facilities;
 - ◆ that, for any development that imports energy, permission should be refused if such activities would damage our ability to adapt to using less oil and gas in the future; and
 - ◆ the fact that in any sustainability-based assessment of this development proposal, having regard to the current scientific understanding of the issues Peak Oil and Peak Gas, the need to manage non-renewable resources prudently, and the need to take a precautionary approach, seeking to import more gas from a world where such resources will enter a period of global decline is not in the interests of the people of Canvey Island, or of the nation as a whole.

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