UKpia

United Kingdom Petroleum Industry Association

Newsletter

SUMMER 2013

A question of balance

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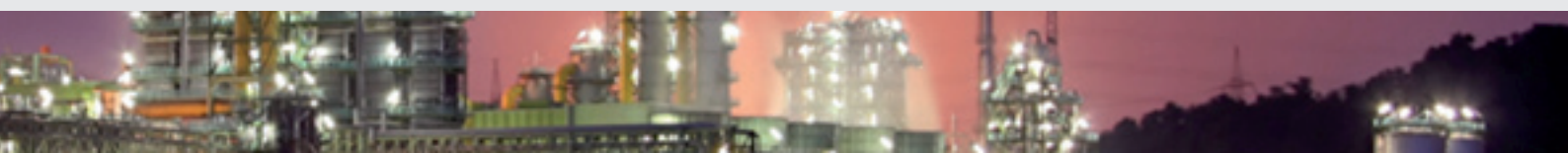
SUMMER EDITION 2013
Feature article on 'A Question of Balance: how do we maintain a competitive and growing economy, and have sound policy that meets environmental objectives?'.
UKPIA and the RAC Foundation launch independent study on the future of low-carbon cars and fuels.
An independent report by IHS Purvin & Gertz highlights the serious threat to the survival of UK oil refining which has implications for the economy nationally and regionally and potential impacts upon energy security of supply.



Powering ahead: the future of low-carbon cars and fuels

UKPIA and the RAC Foundation commissioned Ricardo-AEA to undertake a study of the relative merits of the major fuels and powertrains in delivering the UK's greenhouse gas reduction targets over the coming decades, whilst also examining technologies' market potential.

The report Powering Ahead: The future of low-carbon cars and fuels, published on 22nd April, examines how the challenge of achieving the UK's legally binding commitment of an 80% reduction in greenhouse gas (GHG) emissions by 2050, relative to a baseline of 1990, is likely to affect the cars and fuels we will use over the next 20 years.

The key conclusions of the publication are:

- Conventional petrol and diesel cars are expected to remain the dominant technology in the overall vehicle fleet until at least 2030.
- Advances in fuel economy will be achieved by means of continuing improvements in existing engine technology and greater focus on vehicle efficiency through reduced weight and drag.
- In the longer term, the likely mix of technologies is extremely difficult to predict: the speed with which plug-in hybrid electric vehicles (PHEVs) and pure hybrid electric vehicles (EVs, both battery and fuel cell) will achieve significant market share is highly dependent on technology development and their total cost of ownership in comparison to that of more conventional alternatives.
- Government policies should be technology neutral.

Government policies should be technology neutral

Global vehicle fleet and predicted future market share of fuels

At present, the global passenger vehicle fleet is about 1 billion. The International Energy Agency's (IEA) World Energy Outlook 2012 estimates that the number will rise to almost 1.7 billion by 2035. The International Monetary Fund (IMF) has estimated that 3 billion cars will be on the world's roads by 2050 (IMF, 2008). The report suggests that while the strongest growth in future car sales is likely to be outside Europe - BRIC countries are expected to account for 83% of future market growth - many consider it unlikely that markets such as China and India will see the strongest take-up of future low-carbon car technologies and fuels. Instead, the growth in these markets is expected to be primarily in low-cost conventional technologies. At present, the global passenger vehicle fleet is about 1 billion.

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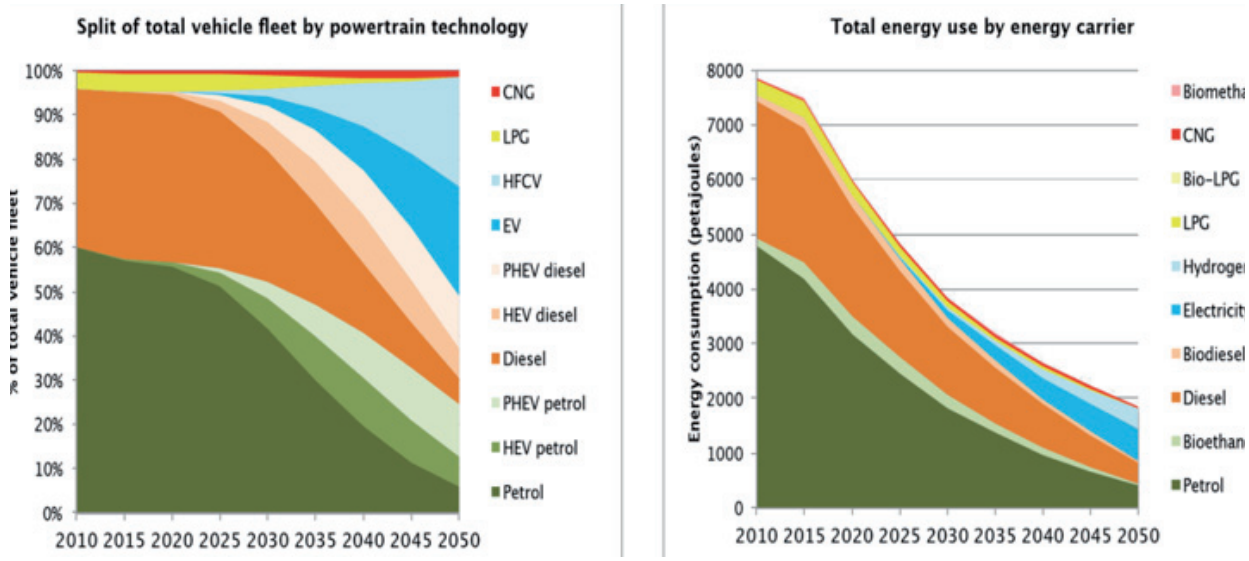
In addition, emissions reductions, in the short to medium term, will come from vehicles improvement through, for example, engine downsizing with turbocharging.

Predicted future market share of fuels

The expected changes in terms of the fuels which are likely to be used in future vehicles are shown below. These figures show Ricardo-AEA's assessment of the most likely scenario for meeting EU 2050 carbon reduction targets, based on known measures identified in the European Commission's 2011 Transport White Paper.

Figure 1. Petrol and diesel cars will continue to be the dominant form of powertrain until at least 2030



Source: Ricardo-AEA 2012. Assessment of the most likely scenario for meeting EU 2050 carbon reduction targets, based on known measures identified in the European Commission's 2011 Transport White Paper and recent concerns about the availability and sustainability of biofuels.

The graphs shows that petrol and diesel vehicles are expected to remain the dominant technology in the overall vehicle fleet until at least 2030. In terms of total energy use by carrier, continuing improvements in internal-combustion engines (ICE) vehicle efficiency will result in a reduction of actual quantities of petrol and diesel used.

In summary

In the near future, the expectation is that conventional petrol and diesel vehicles will continue to dominate the personal transport scene. According to the average market projections, about 60% of vehicles in 2030 are likely to be powered, either in part or in full, by internal combustion engines. Even in the 2050 scenarios the report anticipates that a high percentage of cars will still feature an internal-combustion engine. The World Energy Council has also published scenarios for the make-up of the overall vehicle fleet in 2050, on the basis of two alternative policy options: the 'Freeway' and the 'Tallway' scenarios. In the 'Freeway' scenario pure free market forces are allowed to prevail and, in Western Europe, as much as 61% of the light duty vehicle fleet remains conventional petrol and diesel vehicles. In the alternative 'Tollway' scenario - a more regulated world where governments decide to intervene in markets to promote technology solutions and infrastructure development that puts common interests at the forefront - this figure is estimated at 19%, but with a further 44% still featuring an ICE, albeit 22% being plug-in hybrids (World Energy Council, 2011).

Finally, the factors which appear to have the strongest influence over the predictions are, firstly, future government policy and, secondly, the likely speed with which breakthroughs in technology - particularly with respect to batteries and fuel cells - will be achieved.

For a copy of the publication, visit www.ukpia.com/publications

A Question of Balance

Against a backdrop of tough market conditions, cost pressures, supply vs. demand challenges, a burdensome legislative background and growing competition from the USA and new players in the Middle East and Asia, our downstream oil industry is at a key juncture. Most crucially, refineries are impacted by multiple UK and EU legislation which places on them taxing incremental costs demands in terms of operational and other requirements, whilst severely disadvantaging them against EU and global competitors. Sustaining and maximising domestic production to ensure a reliable and secure source of energy supply, particularly in light of the cumulative burden of existing and planned legislation both from the UK and EU, is a key concern.

The industry is not seeking special treatment or protection, nor indeed the rolling back of environmental measures, merely a legislative level playing field.

The cost impact of legislation is extremely high. This is why UKPIA is urging Government to continue urgent representation to the European Commission on the 'Fitness Checks' process: 'Fitness Checks' must be completed in 2013, not in 2014, before key legislation that is likely to impact refining competitiveness is implemented and include IED Refinery BREF and FQD article 7a.

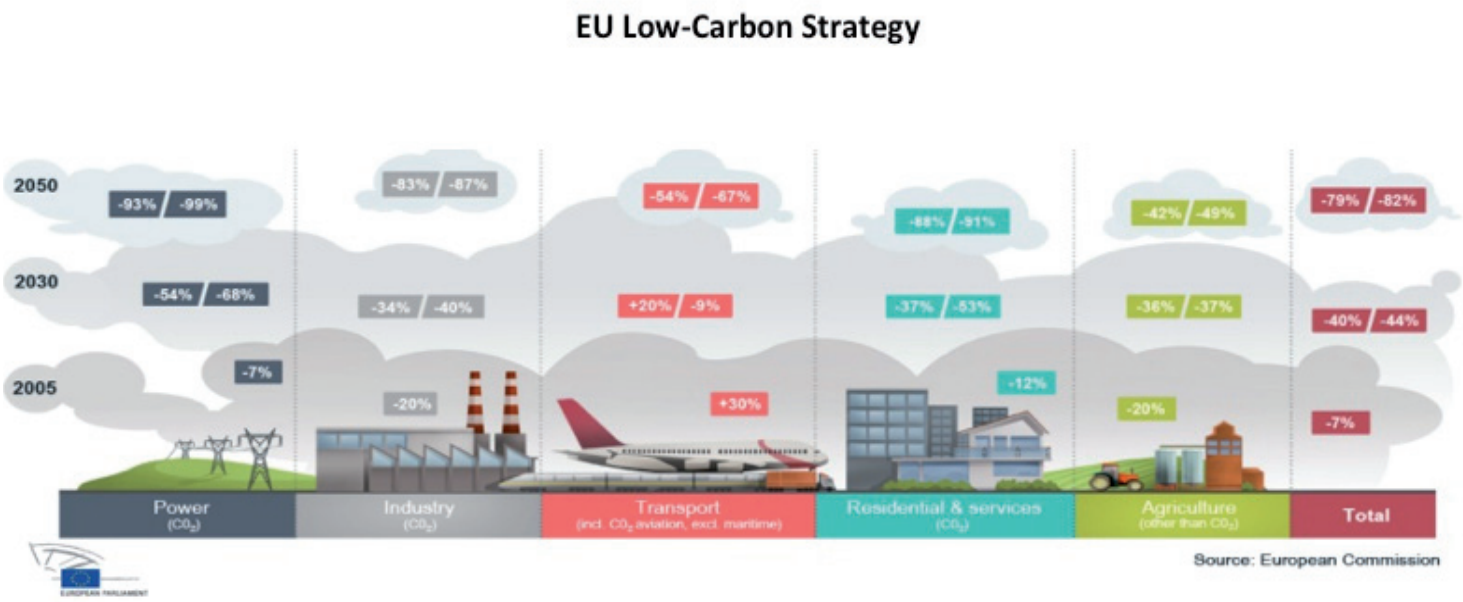
UKPIA and its members strongly believe that a balance between environmental ambitions and energy resilience can be achieved and in order to highlight key issues, challenges and solutions it has produced a short report titled **'A question of balance: how do we maintain a competitive and growing economy, and have sound policy that meets environmental objectives?'**.

Europe has high environmental aspirations

The Europe 2020 strategy, adopted by the European Council in 2010, aims at achieving the following climate and energy targets:

- To reduce greenhouse gas emissions by 20% compared with 1990
- To increase the share of renewable energy sources in final consumption to 20%
- To improve energy efficiency by 20%

EU Member States have committed to reach national targets, as defined in the National Reform Programmes. Furthermore, 2012 saw the launch of the European Commission's non-legislative report 'Roadmap for moving to a competitive low-carbon economy in 2050'. The roadmap includes plans and targets for the following sectors: power generation, industry, transport, buildings, construction and agriculture, aiming to achieve a minimum of 80% reduction target by 2050.

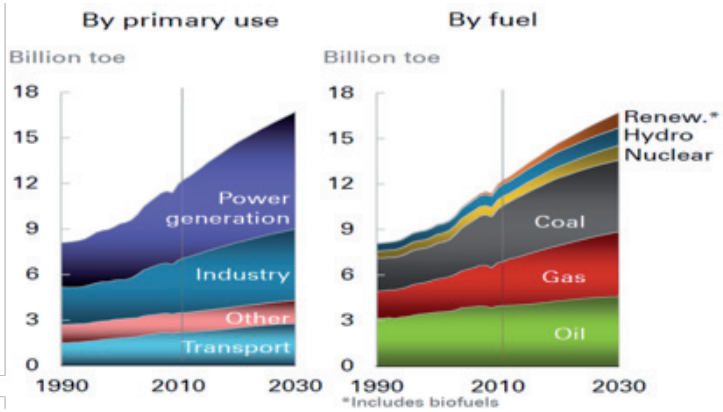


...but society needs oil to function

The International Energy Agency forecasts global primary energy demand rising by about 35% through to 2035, almost comparable to adding another United States to the global demand balance. For several decades to come, oil is still likely to be the most important fuel in the energy mix. In Europe, oil is set to account for 85% of total transport fuels in 2030 (IEA World Energy Outlook 2011). In the UK, oil is projected to account for over 32% of total primary energy demand, with transport accounting for 41% of final energy consumption (DECC Updated Energy & Emissions Projections 2012 - Central Scenario). The projected global increase in demand for primary energy creates a tremendous challenge.

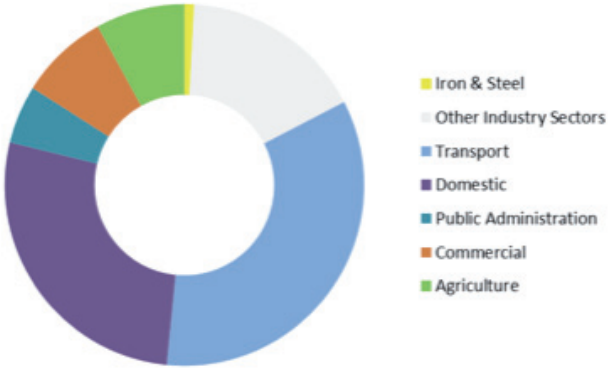
The right infrastructure, policy and regulatory framework, are a prerequisite to ensure that oil products can be supplied to consumers at affordable prices, meeting the UK's current and future energy needs in a way that is consistent with sustainable environmental policy and to facilitate economic growth.

World Energy Consumption 2030



BP Energy Outlook 2030 = IEA's Outlook very similar

UK Final Energy consumption 2030 (ktoe)

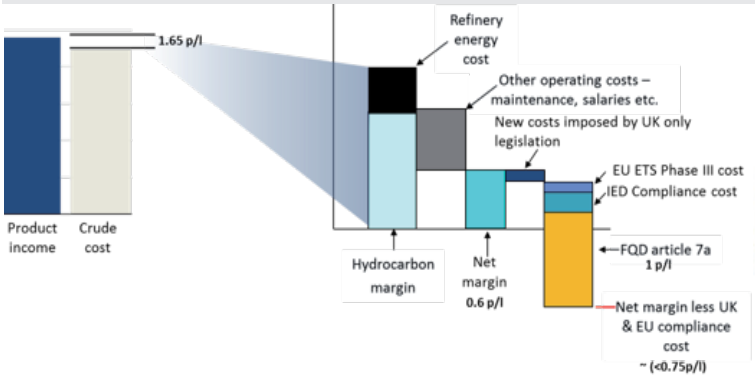


DECC Epdated Energy & Emissions Projections 2012 - Central Scenario

Cost impact of legislation

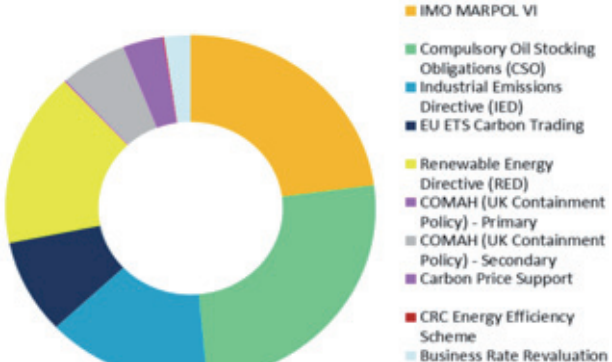
Refineries are impacted by multiple UK and EU legislation which places on them challenging incremental cost demands in terms of operational and other requirements whilst severely disadvantaging them against EU and global competitors.

Crude cost/income from products Refinery operating cost



Indicative graph - potential impact of legislation assuming no cost pass-through. Margins shown are indicative, obtained under favourable market conditions. Source: UKPIA, Wood Mackenzie

Estimated cost impact of lefislative requirements on UK refineries (2013-2030) £11.4 billion



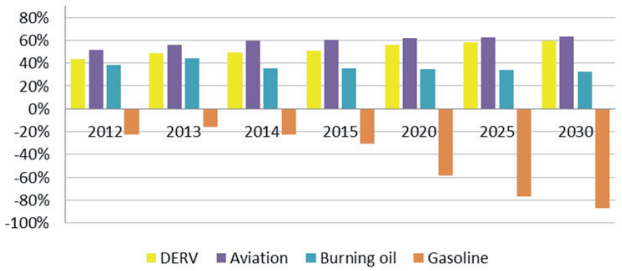
Not including: Fuels Quality Directive (FQD) Article 7a and Product Quality. FQD 7a cost estimated in the indicative graph on the left. Most capital and operational costs are non recoverable. Source: IHS Purvin & Gertz 2013

The recently published independent report by IHS Purvin & Gertz for the UK Petroleum Industry Association, to help inform DECC's study on the sector, indicates that, with a level playing field with other refiners across the EU and world, UK refineries would be considered to be competitive. Indeed, they represent what is termed a core refining capacity - refining capacity expected to survive and needed in order to keep the European market adequately supplied (IHS Purvin & Gertz). However circa £11.4 billion is estimated to be required to comply with UK and EU legislation to 2030. The legislative cost impact is likely to increase further once the impacts from legislation which has yet to be fully defined, such as the Fuels Quality Directive (FQD), are factored in. The report concludes that *"no industry would bear such an investment burden for no return. It would be highly likely that, when faced with such a large mandatory capital expenditure requirement that provides no return on investment, UK refiners could be forced to close more UK refineries"*.
This would leave the UK even more exposed to the international refined product market for those products already at high risk, based on IEA measures developed to evaluate national energy security risks and resilience capacities.

Is energy supply at risk?

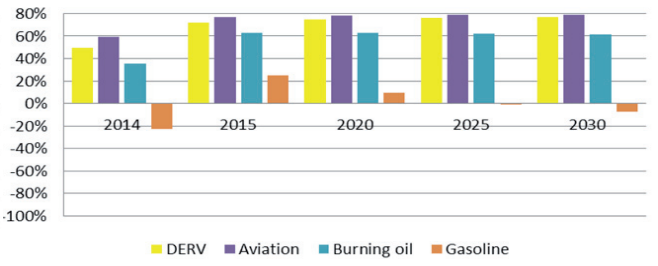
Using the IEA MOSES (Model of Short Term Energy Security) 'net import' indicator - 45% import dependence benchmark - and applying the benchmark to individual products, the UK is already above the 45%, importing 56% jet fuel and 48% diesel. In the event of further refinery closures, jet fuel imports could rise to 78% and diesel to 77% by 2030. In the UK, the Government is working with the refining sector to develop a strategic policy framework - Refining Strategy - due for completion in autumn 2013 and a call for evidence on the role of UK refining and fuel import sector was published on 20th May. At EU level, a permanent EU Refining Forum has been established and competitiveness checks - Fitness Checks - to address EU refining's international competitiveness, are due for completion in 2014. However, as proposed, Fitness Checks will not examine planned legislation or that being implemented (i.e. Industrial Emissions Directive (IED) and Fuel Quality Directive).

Refined Product Balance: Deficit in % 'As is'



Refined Product Balance: Deficit in % 'Refinery Clusure' Scenario

Source: IHS Purvin & Gerz 2013



In summary

On one side

- The UK refining industry makes a substantial contribution to the UK supporting over 88,000 jobs in the extended supply chain and wider economy. UK refining contributes, in a normal year, over £2.3 billion to the economy (Source: IHS Purvin & Gertz 2013) and each large refinery is estimated to inject ~£60m+ into the local economy where it is located (UKPIA estimate).
- Even up to 2030 and beyond, oil is forecast by the IEA to be a major source of world energy.
- The refining industry will continue to play a vital role in maintaining the country's fuel supplies, given the right conditions.
- To 2030, over £11.4 billion is estimated to be required to comply with a number of UK and EU policies. This figure does not include the Fuel Quality Directive and will rise further once this is factored in. Most capital and operational costs are non-recoverable.
- With a level playing field, the UK's refining industry is competitively placed against EU and Global competitors.

On the other

- The UK's refining industry recognises the importance of sustainable environment policy that meets objectives but does not jeopardise competitiveness, employment prospects and mobility.
- In order to continue keep the wheels turning, the planes flying and the economy growing, as well as meeting environmental targets, a clear and balanced policy, based on sound science, is needed. Also, an approach that considers the impact on key manufacturing industries, such as refining, is paramount.
- Environmental ambitions can still be reached by amending policy, underpinned by practical and achievable measures, without disadvantaging industry.

The balance can be achieved. For these reason, UKPIA calls for:

- The DECC Refining Strategy to provide proposals to inform a future policy framework.
- At EU level, the Refining Forum's 'Fitness Checks' must address past and current legislation's effects on industry - e.g. Fuels Quality Directive (FQD) and Industrial Emission Directive (IED).
- For the FQD Article 7a, UKPIA advocates a linear and simple proposal: the GHG content of every fossil fuel sold at the pump to be characterised as a fixed default value calculated as an EU average. Likewise, the country of origin of the fossil fuel feedstocks can be calculated as an EU average, using publicly available data (i.e. EUROSTAT).
- Under the IED, UKPIA proposes:
    - The bubble concept must be recognised as a valid 'Best Available Technique' (BAT) as defined under IED Article 1(10).
    - BAT Conclusions and associated emission limit ranges must be based on robust evidence obtained from existing refinery operations using the BATs.
    - Robust cost-effectiveness and cost-benefit assessment methodologies must be agreed, recognising investments already made in emissions abatement.
    - It must be acknowledged, following revision of BREF documents, that the four year period for permit review and achievement of compliance is unmanageable where investment in new abatement technology is required to meet the revised emissions limits.

For a copy of the publication, visit www.ukpia.com/publications

The role and future of the UK refining sector in the supply of petroleum products and its value to the UK economy

UKPIA sponsored and an independent report by IHS Purvin & Gertz to inform the Department for Energy & Climate Change (DECC) review into the Refining Sector in the UK. The report, published on 10th May 2013, was to assess the role and future of the oil refining industry and its value to the UK economy.

The key findings of the report are:

- UK refining makes a substantial contribution; 8,500 jobs in refining support 54,000 jobs in the extended supply chain industries; expenditure by these employees supports a further 25,500 jobs in the wider economy, making an overall total of 88,100 jobs. The monetary input of refining to the UK economy in a normal year is estimated at £2.3 billion.
- UK refining plays a vital role in maintaining the country's fuel supplies but the UK is already at a high risk level for supply of diesel and jet fuel and close to high risk for kerosene heating oil (based on the International Energy Agency's 'MOSES' methodology). Further refinery closures could increase this exposure.
- Given a legislative level playing field with other refineries across the EU and globally, UK refineries would be considered competitive.
- Although long-term net refining margins are projected to average around $2.6 per barrel of oil, this masks the huge potential cash impact of additional required capital and operating expenditure in the period 2013-2030 of £11.4 billion just to meet UK and EU legislative measures, most of which would generate no return and would not be recoverable from consumers. In addition there are other legislative impacts such as Fuels Quality Directive and Energy Efficiency Directive as yet not fully defined and thus uncosted.
- To keep pace with changing product demand trends, refineries would also need to invest some £1.5 to £2.3 billion over the same time frame which is unlikely in view of the impact of legislative compliance costs.
- The report concludes that no industry would bear such a mandatory investment burden for no return and a consequence could be the closure of more UK refineries and greater reliance upon imports for key products such as diesel and jet fuel.

Alternative fuels infrastructure

The European Commission announced on 24th January 2013 an ambitious package of measures aimed at setting out common standards - design and use - for the build-up of alternative fuel stations across Europe by 2020. The Proposal for an 'Alternative Fuels Infrastructure' Directive proposes binding targets on Member States for a minimum level of infrastructure for clean fuels such as electricity, hydrogen and natural gas, as well as EU wide standards for equipment needed. In brief, the measures proposed are for mandatory targets for electric charging stations and refuelling stations for hydrogen, liquefied natural gas (LNG) and compressed natural gas (CNG), as follows:

- In the UK, 1.2 million charging points for electric vehicles to be put in place by 31st December 2020, of which 122,000 shall be publically accessible.
- Hydrogen refuelling points to be available points at distances not exceeding 300km to allow the circulation of hydrogen vehicles within the entire national territory by 31st December 2020.
- CNG refuelling to be available every 150km by 2020, while LNG should be available every 400km along Trans-European Core Network priority routes. LNG should also be available for ships in all 144 main maritime and inland ports of the EU by 2025.

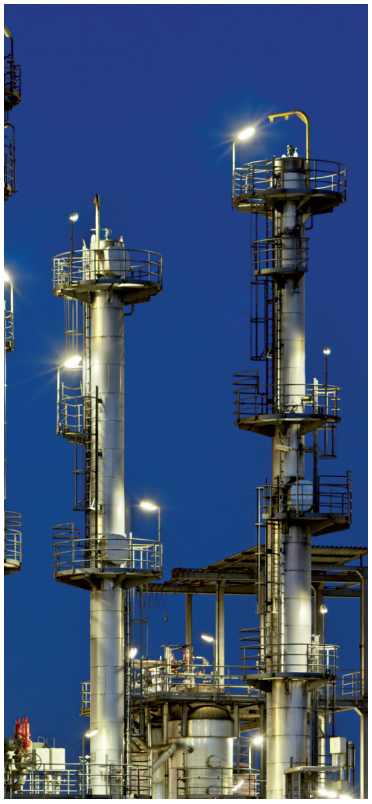
The proposal also specifies in Annex III that Petrol and Diesel shall meet the EN228 and EN 590 respectively. The Commission's estimated investment costs under the policy options provided by the impact assessment accompanying the Proposal range from €5.1 billion to €10.6 billion. The preferred policy option for the adoption of the proposal would result in an estimated investment cost of €10.1 billion. This states that 'the EU will set out requirements for alternative fuels infrastructure for Member States. It will also set out basic criteria for minimum infrastructure coverage, together with binding targets for the most mature fuel technologies (electricity, and LNG for waterborne transport). For hydrogen and natural gas (LNG and CNG) for road transport, the targets would be indicative'. The Proposal does not clearly set out how Member States may implement the policy in practice or the cost impact on both industry and consumers for each EU Member State and the EU as a whole. Ideally, the proposal envisages Member States to mandate a particular sector - within each of their supply chains - to deliver the policy.

Impact

UK fuels' marketing is a high volume/low margin business. Tough market conditions, coupled with a difficult economic climate, high competition and ever more stringent legislation, have already hastened the closure of many filling stations around the UK. Over the last sixteen years, the number of filling stations in the UK has reduced dramatically from over 17,000 in 1992 to 8,608 at the end of 2012. Recently, around 420 filling stations on average have been closing each year and several oil majors have exited the retail market altogether. Indeed, 59% of all retail outlets in the UK are owned by independent retailers. Furthermore, the distribution of road transport fuels has been part of recent structural changes in the UK's downstream sector, with delivery of fuel to service stations and commercial customers moving from oil company fleets to provision by specialist logistics companies, such as DHL, Hoyer, Suckling, Suttons, TDG, Turners and Wincanton. The fragmentation of the supply and retail sector would add a great level of complexity in the identification the 'correct' sector to mandate. Indeed, no suggestion is given to the working practicalities of coordinating obligations across an extremely fragmented supply chain - petrol filling stations offer the only likely location for LNG, CNG and Hydrogen refuelling points - and costly investment obligations.

Given the diverse ownership of the service station and fuel supply network, an adequate approach that would ensure geographical representation of refuelling points would also be particularly problematic. An infrastructure cost burden imposed on the transport fuel supply chain, with no guarantee of suitably adapted or new technology vehicles providing demand pull nor returns on investment, would prove extremely burdensome in an already squeezed supply and retail market, unless safety nets were to be put in place by Government. The proposal may inadvertently lead to increased market exit and reconsideration of viability of fuel retailing, particularly for those filling stations already facing increasing challenges of a tough economic climate, high overheads and low volumes of fuels sold. Previous artificially imposed infrastructure projects do not have a good track record. The UK's LPG initiative resulted in an estimated £150 million sunk cost for retailers who voluntarily invested in equipment on the assumption that LPG's popularity would grow via Government subsidies. In addition, the Government, on behalf of the taxpayer, invested £150 million in grants and duty incentives, but brought the programme to a close as the environmental benefits of LPG powered vehicles versus traditional road fuels became less apparent, due to fuel and vehicle technology improvements. Thus, the policy resulted in unhappy consumers who had paid for converting their vehicles and service station owners who invested in storage and refuelling equipment.

The Alternative Fuels Infrastructure proposal's impact assessment also fails to take into account the risk undertaken by Member States in creating costly infrastructures that may become obsolete if vehicle technologies do not match infrastructure. The Commission's paper states that the implementation of a chosen policy option can be carried out through a variety of measures, not necessarily involving public spending. This could result in the ~€10 billion investment cost to be inevitably be passed down to industry and the consumer. Also, UKPIA is concerned that the figure does not represent a total investment cost and is in fact misleading. For example, the cost estimate does not take into account indirect costs which would include the upgrading of electricity grids, import and storage facilities for LNG, and production and storage for H2, to name but a few.



Decarbonisation of transport should be based on practicable and achievable targets which will allow alternative fuels to grow progressively and find their own place in the market on a technology neutral basis.

Conslusion

UKPIA urges HMG not to adopt a policy proposal that carries an unknown monetary cost on its industries and consumers during what are already difficult economic circumstances. The downstream industry is already under severe pressure to balance inadequate margins with ever more stringent EU and UK legislative costs. The proposed Directive is particularly alarming especially under today's economic climate, when consumers and fuel retailers are seeking to minimise their costs. Decarbonisation of transport should be based on practicable and achievable targets which will allow alternative fuels to grow progressively and find their own place in the market on a technology neutral basis. Further, the proposal should not make any reference to the fuels standards, EN 228 and EN590, since fuel quality is already clearly defined in the Fuels Quality Directive.

Compulsory Stocking Obligation

On 4th April 2013, a Government consultation was launched to consider the future of the UK's oil stocking system. Industry was invited to present its views on whether the present obligation on suppliers to hold stocks is the most efficient model or if an alternative system, such as centralised stocking agency similar to that of other EU member states, would be more appropriate.

As a member of the European Union and of the International Energy Agency, the UK is required to hold emergency stocks of oil products and to take part in any collective response in the event of oil supply disruptions, known as compulsory stock obligation (CSO). Since 2006, refiners in the UK have been required to hold 67.5 days of stock, whereas non-refiners (including importers and significant traders) are required to hold 58 days of stock, primarily due to different operational models.

UKPIA welcomed the Consultation and would support the establishment of an independent stockholding agency to manage the CSO going forward. UKPIA also welcomed DECC's commitment to examine the case for this approach.

The consultation ended on 7th June 2013.

Fuels round-up

Petrol

A revised standard for Unleaded Petrol, BS EN228:2012, was published by BSI on 6th March 2013. The new standard contains two tables:

- Unleaded petrol with a maximum oxygen content of 2.7% m/m. This is nominally the E5 grade (5% maximum ethanol) which his currently in use on UK forecourts.
- Unleaded petrol with a maximum oxygen content of 3.7% m/m. This is the new nominal E10 grade.

Information about pump marking for each grade is also included.
The standard also contains information on the Super Unleaded (97 RON minimum) grade which was previously contained in BS 7800.
The standard for Leaded Petrol, BS 4040, was withdrawn in November 2012.
It is not yet known when E10 will be marketed, since this is a commercial matter for each supplier.

Fatty acid methyl ester (FAME)

A revised FAME standard, BS EN 14214:2012, was published on 30th April 2013. The new standard provides improved cold flow properties according to the saturated monoglyceride values derived from total monoglycerides and the cloud point.

Renewable Transport Fuels Obligation (RTFO)

The RTFO order was amended on 8th April 2013 to include fuel used for Non Road Mobile Machinery (NRMM) in the obligation. The total volume of biofuels obligated was increased to average 4.75% volume in transport fuels (Petrol, Diesel and NRMM) from 15th April 2013 and beyond.

Energy and Climate Change Committee's first 'UK Oil Refining' evidence session

On 11th June 2013, the Energy and Climate Change Committee has taken evidence on UK Oil Refining. UKPIA and a number of its members highlighted the importance of retaining refinery capacity in the UK in order to address future energy challenges, principally in terms of energy resilience and security of supply.

Events

On Tuesday 11th June, the UK Petroleum Industry Association held its annual Parliamentary Reception, sponsored by **Christopher Pincher MP.** The event marked the launch of UKPIA's eleventh annual Statistical Review. UKPIA's President, **Gary Haywood**, opened the reception by welcoming the launch of UKPIA's Statistical Review and that of another major report from IHS Purvin & Gertz sponsored by UKPIA to inform DECC's review into the Refining Sector in the UK. The report, on the role and future of the UK refining industry, highlights the serious threat to the survival of UK oil refining which has implications for the economy nationally and regionally and potential impacts upon energy security of supply.
Gary highlighted the need for an early response from Government to this study, which should help inform not only the development of a future policy framework for the industry, but also an urgent analysis of the legislative impacts currently being undertaken at the EU level through the 'Fitness Checks' process via the Refining Forum, established by the European Commission. The event was also addressed by sponsoring MP Christopher Pincher, who acknowledged the valuable contribution of the UK downstream oil industry in the UK and the key role played by the industry in meeting the UK's energy needs.
Edmund Hosker, Director of International Energy, EU and Energy Security at the Department of Energy and Climate Change, followed in welcoming the launch of the Statistical Review: a good example of the long running collaborative work between Government, UKPIA and its member companies.

UKPIA thanks both Christopher Pincher MP and Edmund Hosker for their support.

For forthcoming events visit our website's News & Press section, follow us on twitter @uk_pia or download the UKPIA app for android on Google play.

People

UKPIA welcomes our new Council members **Volker Schultz** of Essar and **Jacques Beukelaers** of Total. They succeed the outgoing members Eric Waugh (Essar) and Eric Bozec (Total). The UKPIA team thanks the outgoing members for their support and valuable contribution to the work of UKPIA.

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