Essay for the Second Brexit Submission

to the

Institute of Economic Affairs

A BREXIT BLUEPRINT :

BRITAIN REVITALISED AND INDEPENDENCE REGAINED

by

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APPENDICES

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SUMMARY

The vote to leave the European Union is seen, not only as escaping from legal interference and constraints by the EU, but as a unique, never to be repeated opportunity, to revitalise Britain and escape also from our persistent failure to produce enough things and thereby generate enough skilled jobs, to pay for our way of life, and a respected place in the world.

The paper advocates a clean break from the EU, rejoining the European Free Trade Association and resuming active membership of the WTO. A new UK-EU Treaty would incorporate a Free Trade Agreement with the present zero tariffs and product standards regimes maintained. As the EU's biggest market and second biggest supplier, Britain's negotiating position is shown to be a strong one. Britain's major economic weaknesses are its £100 billion goods trading deficit and its £100 billion government budget deficit. New forms of manufacturing organisation called Leopard Clusters will focus both on our existing markets and the emerging large overseas markets where we supply less than 1% of imports. Leaving the EU and not joining the European Economic Area will allow Britain to operate immigration and work permit controls over all incoming people streams.

Shortages of both indigenous fuels and electricity generating capacity are an imminent threat, both to industry and the consumer. A long-term Secure Energy Strategy is proposed, based on a five-fold expansion of new British-owned nuclear power stations with fast-breeder reactors to utilise the waste fuels from the past.

Farming support, shorn of its CAP shackles, will prioritise food production. Fishing rights will be regained from the EU as a first step towards an expanded fishing industry and a new shipbuilding industry. Three Brexit 'Dividends' are proposed from the money not spent on the EU: a Training and Education Voucher for all British citizens at 18; a Long-term Project (LTP) for comprehensive rivers and coast protection; a system of scholarships for citizens of one Commonwealth country to work and study in another.

In constitutional terms, the European Communities Act 1972, the Human Rights Act 1998; the Extradition Act 2003; and the Climate Change Act 2008 would all be repealed. A new Act of Supremacy and a British Rights and Duties Act would be passed to buttress both Parliament's and the individual's freedoms. The British blue passport would be reintroduced without the EU designation

PROLOGUE

The vote by the British people to leave the European Union will, when it is formally incorporated into British Law, represent the biggest change in Britain's constitutional position and foreign relationships since Henry VIII's break with the Papacy and the English Parliament's passing the "Act of Supremacy" in 1534 almost 500 years ago.[1] More than anything this vote provides a unique opportunity for the nation to renew its faith in itself

This paper sets out a blueprint for Britain's future in the light of this monumental change not only in terms of its changed external relationships (with other countries and organisations), but just as importantly, the opportunities Britain now has to overcome its internal problems, notably its persistent failure to produce enough tradable things to pay for its chosen way of life.

Literature of Decline

There is a whole literature about Britain's decline from its victor's status alongside the USA and the Soviet Union at the end of the Second World War to one where today it is widely seen at home and abroad as a medium rank power with a great past, but an uncertain future and role in the world. Dean Acheson, US Secretary of State in the post-war Truman administration in 1962 at West Point, Virginia, made the widely quoted quip that "Britain had lost an Empire, but not found a role" (Brinkley, 1990). While this stray remark has been given wildly exaggerated emphasis, there is no doubt that events after the War, and especially the outcome of the Suez crisis of 1956, created a deep sense of pessimism about Britain, especially among its senior government ministers and officials, who with few exceptions had no clear understanding of a modern industrial economy.

In The Collapse of British Power (1972), The Audit of War (1986) and The Lost Victory (1995), Corelli Barnett sets out in a series of unique analyses the all-pervading pre and post-war inability of the British official classes to understand the connection between

[1] HenryVIII's break was actually made for the Church in England, not in Scotland, which did however rapidly adopt the Protestant position. The Church in Ireland did not.

the influence which Britain might try to exert externally, i.e. Britain's world role in the Acheson sense, and the inability of the British economy, particularly its industrial economy, to generate the financial strength and military muscle to actually deliver more than just words[2]. Wiener (2004) attributes this inability to an all-persuasive "decline in the industrial spirit" with its origins stretching back to the 1880s.

After the travails of the 1970s, Britain's great victory in the Falklands War, paid for without a tremor on the international financial markets, some foreign commentators began a welcome reappraisal of Britain's prospects. But the central economic problem has remained: an inability to make and sell enough products which the rest of the world wants to buy. While huge strides have been made in improving the productivity of British industry[3], its range of products is simply too limited to bear the consumer and government demands placed on it. For every three products bought from foreigners, only two are sold to them[4].

Failure during the World Wars to produce a sufficient *range* of electrical and mechanical components to build weapons and vehicles in sufficient numbers of the requisite quality and performance has been documented in excoriating detail by Barnett (1972,1988), while Pollard (1982) has documented the whole period (1914 to 1980).

The problem of the "range" of goods is clearly not a new problem, but the huge expansion of world trade has exposed the problem in the form of the goods trade deficit, now running at over £100 billion per annum (roughly the same as the government's own fiscal deficit in the years 2009-15).

Our future ability to produce a wide variety of products, of sufficient quality at competitive prices will be of decisive importance in our goal of obtaining a secure and prosperous future, including the maintenance of viable defence, aerospace, and health industries.

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2 E.g. John Maynard Keynes's note to Hugh Dalton, first Chancellor of the Exchequer in the post-war Attlee government, on the very day Japan surrendered (14th August 1945) when he asked, "Do departments and Ministers realise that the fashion in which we gaily slop money out to the importunate will have to come to an end quite suddenly *(land lease ended on 21st August 1945)*. We are incurring very large liabilities for relief out of money we have not got

3 Productivity defined as "Gross Added Value" per worker engaged.

4 In value terms that is.

We must have enough things to make and sell

Taking advantage of our post-Brexit ability to create new or expand existing trading channels with non-EU countries, as well as nourishing those within the EU, will depend more than anything on this point. Without goods and services to sell, trading agreements will merely provide enhanced channels for imports into Britain[5, 6].

By "things" we mean goods, software, and services which increasingly depend on each other. Especially is this interdependence true of complex manufactured products like aero-engines which are sold on the basis of long-term service contracts provided by the vendor for hardware and software to minimise unpredicted times out of service. Together with its rated design performance, in the aero-engine business this is what quality comes down to.

In fact the vast majority of traded products will have similar definitions of quality. Striving to improve quality will be a constant thread running throughout this blueprint. Higher quality relative to your competitors' cements your reputation and secures long-term sales.

"Improvement" is not a theme to be seen only in the context of manufactured goods and related services. All our systems – education, central and local government, health, welfare – will need constant ongoing improvement as the loads placed on them change in magnitude and character. Education is of particular salience for our ability to deliver quality and range in our products, and is above all dependent on an individual's striving for improvement.

The Temper of the British People: impatient for change

Besides all this must be reckoned the temper of the British people. There is an unprecedented mood to embrace change, a will to win again. Not only must our negotiating team be picked to reflect this (Chapter 1), but we must also reflect the will to

[5] Chinese commentators have repeatedly cited this as the reason why China buys 6 times as much from Germany as it does from Britain.
[6] World trade sectors by value in 2012 were: manufactures 52%, other goods, chiefly oil & ores 29%, travel and tourism 9%, services 10% (WTO 2013).

change by making an immediate start on negotiating our membership of the European Free Trade Area (Chapter 7). To keep up the momentum an immediate start must also be made on planning internal changes including Leopard (Chapter 3.2 below), effective immigration control (Chapter 8.1), future work permits for EU nationals (Chapter 8.1), defence planning for disaster relief (Chapter 8.3), the Commonwealth scholarships (Chapter 8.4), the Citizen's Education Voucher (Chapter 10), and an immediately visible change – replacement of the burgundy EU type passport by our traditional blue British one (Chapter 10). People will expect to see real, determined progress on all these fronts in the first few months from now on.

A New Spirit Abroad

No people has a single or even a predominant characteristic. Nevertheless on occasions, events can bring out a dominant sentiment – as was evident in the general, but not universal determination to stand up to the Axis powers during 1940-41 and (somehow) then win the war. Today (2017) we can sense an extraordinary change of attitude from the end of the 1970s, arguably revolutionary in its implications for both our economy and society.

With only rare exceptions in the private sector[7], there is a widespread recognition among all "conditions and classes of people" that businesses have to serve their customers with dedication and enterprise, or otherwise they will go under.

Post-Brexit we must now do two things in particular to harness these innovative and productive impulses – first to remove unnecessary burdens of regulation and an over-complex company taxation code, and secondly to build incentives into the public sector so that improving its own systems in terms of benefit to cost ratio[8] becomes second nature for it too (Chapter 9).

[7] In November 2013 the Unite union in a throw-back to the 1970s almost succeeded in shutting down the giant naphtha/ethane cracker at Grangemouth – Scotland's only remaining world-scale industrial complex. Happily reality came through and from 2016 the plant will be able to operate profitably on imported ethane from US fracking wells, which will nearly halve the cost of ethylene, the main building block of the chemical and polymer industries.

[8] Often defined as "Utility" in the economics and engineering literature.

Besides these specific policies, there is a need to inculcate a spirit of self-improvement in all sections of the population. In the words of John Bright (1847), addressing a huge meeting of working men in Rochdale, heart of the world's textile manufacturing industry,

> *"There is only one way that any man, or number of men, can raise themselves up. It is by the practice of the virtues of industry, frugality, moderation and honesty"*[9].

It would be difficult in 30 words to give a better definition of what Britain needs from all people, of all ranks in society in order to achieve a prosperous and well-run nation.

Britain as a Strategic Enterprise[10]

"Strategic" is often used nowadays without it being clear as to what is meant beyond sounding important. In this paper, the word "strategic" attached to a national undertaking, policy or objective means two things: lasting a generation at least in time (say 33 years), and seriously embracing long-term national goals.

The fundamental challenge of Brexit, addressed in this paper, is thus to define the internal and external goals we should realistically aim for and the means of moving towards them over the next 30 years.

Basic Assumption of this Blueprint

The basic assumption in this post-Brexit blueprint is that while leaving the EU gives Britain a unique opportunity to chart a new course, in itself that change will not be sufficient to replace the corrosive defeatism and "make do and mend" philosophy so characteristic of British governments and their officials in all but 10 of the last 70 years from the end of the Second World War[11].

[9] Quoted in "Self-Help" by Samual Smiles, 1859, republished in the Library of Management Classics imprint by Sidgwick and Jackson, London, 1986.
[10] Repudiation of the "*laissez-faire, leisured, self-praising chant of the 20th Century up to 1980*" (Wiener, 2004).
[11] The period 1979-89 for the Thatcher government being the ten year exception.

From now on, even while negotiations with the EU are about to get underway, the Blueprint for Brexit has to embrace internal changes as well as interlocking external changes, if Britain's desired path to prosperity and security is actually to be achieved. How we can make these changes will be, in major respects, powerfully affected in the positive sense by our freedom from the EU, as we shall show.

The plan of this essay is shown by the Chapters and Sections in the Contents List above. Tables and Figures are numbered with reference to the Chapter or Appendix they appear in. Appendices are numbered with reference to the Chapter they relate to. Thus Table 2.2.3 means the third table in Appendix 2.2; Figure 4.1 means the first figure in Chapter 4.

CHAPTER 1: CONDUCT OF THE BREXIT NEGOTIATION

The purpose of the negotiations is to conclude a new Treaty between the UK and the EU, herein called the Brexit Treaty. As a fundamental principle any changes thereafter would have to be agreed case by case between the EU and the UK. The practical working of the Brexit Treaty itself will be monitored by a new body, the UK-EU Council, with a formal constitutional status in the UK and the EU (Chapter 9).

Britain starts from a position of strength, not weakness. At £202 billion per annum in 2011, the UK was the largest goods market for the EU26[12], ahead of the USA at £190 billion. The UK is also a market for EU26 services of about £59 billion. At £159 billion the UK was co-equal with the US as the second largest supplier of goods to the EU26 after China[13].

Status of Treaties

While the Brexit negotiation has been triggered under Article 50 of the Lisbon Treaty on European Union (TEU) and Article 218 of the Treaty for the Functioning of the EU (TFEU), in international law the TEU and TFEU are Treaties between 28 countries. That being so, they are subject to the Vienna Convention on the Law of Treaties [VCLT], which came into force on 27th January 1980. Articles 65-68 of the Convention set out the procedures for withdrawal, which in many respects are simpler than those of Articles 50 and 218 [Appendix 1.1]. This has significance in the case of failure to complete negotiations under Article 50 within the two-year time-scale set by the Lisbon Treaty itself (see below).

Britain's Objectives

The first basic objective for our negotiators should be no adverse change in the conditions attaching to the flows of goods and services between the UK and the EU and between the UK and the countries with which the EU has, or is likely to have, bilateral agreements. These bilaterals include the European Free Trade Association (EFTA),

[12] Croatia joined the EU on July 1st 2013, as its 28th member. All the EU data in the paper relates to 2012 or earlier. EU26 is the EU27 without the UK.
[13] Calculations in this paper are from World Trade Organisation (2012) and Pink Book 2012.

Korea, Canada, some Mediterranean countries, Switzerland, and the pending agreement with the United States[14] referred to as the Transatlantic Trade and Investment Partnership (TTIP).

A second basic UK objective must be to minimise the direct costs of the Treaty under the taper principle (see below).

Clearly, Britain's primary negotiation with the EU cannot of itself commit the bilaterals to apply the arrangements they made with the EU to the UK outside the EU, but it must be a third British objective that they should.

1.1 FUTURE UK-EU TRADE AGREEMENT

Given the size of the UK-US, UK-EU and EU-US trade flows[15], the pending EU-USA agreement (TTIP), and the commitment of the three parties to freeing up trade[16], it is likely that the tariff free trade principle will be agreed to at the outset of the negotiations subject to detailed negotiations round particular points[17]. Since the UK has no plan to abandon the Value-Added Tax system, there would then be no change to the basic customs declaration forms. Just as each EU-bilateral agreement (e.g. Korea-EU) has provision for complaints by the parties to be adjudicated, so each UK-bilateral trading agreement will have to provide the same, as clearly the EU trade offices will no longer apply to the UK agreements with third parties.

Rules of Origin

As the UK will be in its own customs system, rules of origin, currently managed entirely by the EU on our behalf, will be of prime importance to all parties after Brexit. Even though tariffs outside the EU and EFTA have been substantially lowered by the successive Kennedy and Uruguay rounds, they are still above 10-

[14] It is appreciated that the EU-US agreement may be completed by 2017, but the principle of no adverse change in the UK-US trading conditions will apply to this as well.
[15] Imports plus Exports: UK-US: £206 bn; UK-EU: £495 bn; EU-US: £403 bn (goods only).
[16] The EU Trade Commissioner inveighed recently (2nd Sept. 2013) against Brazil, India and Russia raising tariffs.
[17] The EU has long had a tariff-free goods trade agreement with EFTA which under this blueprint the UK will seek to rejoin (see below).

15% on agriculture and some textile products. The practical way forward for the UK negotiators is to employ the Swiss-EU criteria on origins of goods. These are aimed at ensuring that imports into one partner from a third partner cannot be traded on to the second partner at a lower tariff than would apply if imported directly to the second partner. Where a product has more than one country of origin, the Swiss-EU 1972 agreement provides a minimum Swiss plus EU content to be allowed into the EU on a zero tariff basis[18].

EU-Korea FTA Precedent

The EU-Korea FTA, the only FTA the EU has signed and brought into operation so far, is a precedent for the Brexit Treaty in terms of scope, though not an exact model since some mutual tariffs have been retained while others are on a reducing schedule over 5 years.

As remarked above, since the EU has publicly committed itself to advancing free trade by tariff reductions at the concluding session of the WTO Doha Round in 2012 and is also committed to developing "special relationships with neighbouring countries" (Article 1-57 of the Lisbon Treaty), we should expect the principle of a UK-EU zero tariff FTA to be agreed at the outset of negotiations.

Britain's Withdrawal from the EU Customs Union

This is an absolutely central requirement even though tariffs between the EU and the ROW are now quite low. The basic reason for UK withdrawal from the customs union is that it will enable Britain to make its own trade agreements once again, particularly with the individual countries grouped in Appendix 2.2, Table 2.2.1 under the headings AICANZ[19], BRIC and GHSS as well as some important Spanish speaking countries in Latin America such as Mexico.

[18] Typically 65%.

[19] In Table 2.5 the Republic of Ireland is grouped with the other Anglophone countries because of its common law and language which makes it much more familiar to British exporters than say Denmark. AICANZ – America (USA), Ireland (Republic), Canada, Australia, New Zealand; BRIC – Brazil, Russia, India, China; GHSS – Gulf Cooperation Treaty States, Hong Kong, Singapore, South Africa; ABCANZ – with Britain replacing Ireland is the Anglophone grouping outside the EU.

The importance of this freedom can hardly be overstated. The EU has been extremely slow to conclude FTAs (only one in operation up to 2013) compared with 19 concluded by EFTA. Trading Agreements and FTAs will give Britain scope for tuning its exports to the particular countries concerned, as well as offering them in exchange knowledge of and facilities in the UK market.

However any trade agreement (TA), especially free trade agreements (FTA) between countries and groups of countries like the EU and EFTA take time to achieve, resulting in lengthy legal documents. The EU-Korea FTA with 15 chapters, some with 50 plus sections, and 19 annexes, including the schedule for the elimination of the tariffs on around 500 items in equal steps of 20%, is a massive document, comparable with the EU's Lisbon Treaty itself.

How Far can Britain Adapt EU Bilaterals to its Own Objectives?

The general question therefore arises as to how many, if any, of the 26 EU bilateral agreements with third parties such as Korea-EU would apply to Britain as a set of UK-bilateral agreements, without extensive negotiation, and how many would Britain wish to carry over (Chapter 7.2).

Farming and Fisheries

Our negotiating objectives are closely bound up with major changes in both these fields. They are given in Chapter 6.

1.2 BRITAIN'S FUTURE RELATIONSHIP WITH THE EUROPEAN FREE TRADE ASSOCIATION (EFTA)

(See also Chapter 7.3 and Appendix 1.2.)

Britain was a founding member of the EFTA in 1961, along with Austria, Denmark, Norway, Portugal, Sweden and Switzerland. Finland, Iceland and Lichtenstein joined subsequently. Britain and Denmark left to join the EU in 1972, Portugal in 1985, and Austria, Finland and Sweden in 1995, leaving only Norway, Lichtenstein, Iceland and Switzerland.

The Convention establishing EFTA amended slightly on 1st July 2013 is 30 A4 pages long, containing 59 Articles[20]. Appendix 1.2 reproduces the 7 objectives of the Association. On the assumption that objective (c) – to " progressively liberalise the free movement of persons" refers to citizens of the signatory states only, Britain could sign up to all 59 articles, virtually without reservation tomorrow.

The question of our rejoining EFTA is separate of course from our Brexit negotiations with the EU. However it will need to be born in mind since three of the four EFTA states are connected to the EU as members of the European Economic Area, while the fourth member, Switzerland, has 16 separate bilateral agreements with the EU, the most important being the free trade agreement (1972) which eliminated tariffs on industrial goods.

As discussed in Chapter 7.3, EFTA makes bilateral trade agreements (TAs) on behalf of its 4 member countries. Unlike EU agreements, EFTA members are not obliged to accept every provision of a TA and in any case with such a small number of members, each can, within broad limits, see that an EFTA TA is tailored to their requirements. At present there are 26 EFTA TAs, notably with Canada, Mexico, Korea and the GHSS group, with all of whom this paper sets targets for trade expansion (Table 2.2.3).

With the reservation on people movement entered above and in Chapter 7.1 below, EFTA will be close to ideal for Britain to join and she should apply to negotiate this *in parallel* with the EU negotiations.

1.3 BRITAIN AND THE EUROPEAN ECONOMIC AREA (EEA)

Britain is currently a member of the EEA through its membership of the EU (Article 128 of the EEA agreement which entered into force on 1st January 1994). The EEA agreement with the three EFTA members (Norway, Liechtenstein and Iceland) provides for their acceptance of the EU's "acquis communautaire[21] and the Single Market's four freedoms – of movement of people, capital, goods and services, subject to the

[20] Not surprising really since Britain was the prime mover in establishing the Association in 1960.
[21] The whole body of EU law stretching back to the original European Economic Community (EEC) founded in 1957. The number of pages of articles and chapters covering the "acquis communautaire" which all new EU members have to sign up to now runs to thousands of pages, *excluding Regulations and Directives*. There are probably over 20,000 regulations which have direct application to the UK.

exclusion of agriculture, fisheries, coal and steel in the case of the EFTA three. These four freedoms are seen by the EU as quite fundamental to the whole EEC/EC/EU project ever since the signing of the Treaty of Rome in 1957.

Unfettered movement of people to settle is completely unacceptable to the British people, most of whom will have voted for Brexit in the referendum on the assumption that unfettered movement of EU nationals into Britain would cease thereby once and for all (Chapter 8.1).

Furthermore, the character of the EEA runs directly contrary to a basic principle of the UK-EU Brexit Treaty we are about to negotiate, namely that like any other bilateral international treaty, it will only be altered by the agreement of both parties (possibly after arbitration (Chapter 7.1).

The EFTA members of the EEA, Norway, Iceland and Lichtenstein, are per contra subject to a constantly increasing "acquis communautaire" as more regulations are promulgated with only minimal consultation and prior notice[22].

As a result of the two parallel negotiations, UK-EU and UK-EFTA, Britain will stand in the same bilateral relationship to the EU as Switzerland, and like her will be completely separate politically from the EU and a partner with her in the European Free Trade Association. No membership of the EEA is wanted or needed: only complete political separation from the EU will do.

1.4 FINANCIAL CONSEQUENCES OF BREXIT

Here finance is to do with our present and future financial arrangements with the European Commission. This is quite distinct from money flows arising from Trade & Investment as described in Chapters 2 and 3.

In conformity with the principle of putting Britain in a long-term position not less favourable than the other ABCANZ countries, the USA and Korea, our negotiating

[22] Norwegian commentators refer to this as "government by email" as they are informed of the latest changes in the Single Market.

starting point has to be that our contributions to the EU budget through Treasury transfers and customs duties levied on UK non-EU imports[23] will cease, as will EU expenditures in Britain, chiefly on agricultural subsidies and growth funds (Table 1.1).

Table 1.1: Average UK Contributions to and Receipts from EU in 2011 and 2012[24]

Gross contribution to EU account no. 1	Special rebate from EU 27	Receipts from EU budget	Net flow from UK
£1 millions			
15,200	3,150	4,500	7,550

In addition to HM Treasury's contribution there are approximately £2 billion of customs duties and special agricultural levies (including sugar). The receipts from the EU are almost entirely in two categories: farm subsidies (£3 bn) and growth funds (£1.5 bn).

If the EU maintained its 2012 spending on the other 27 member states and on itself, it would have to levy these 27 states with an extra £7,550 million or about 8% of their current contributions[25]. At the other extreme the EU could cut its budget by 8% which would provoke strong resistance from the largest net recipients, namely Poland (£8,700 million 2011), Greece and Hungary (about £3,500 million each). There would be threats not to sign the EU-UK Treaty unless Britain continues to make a major contribution to the EU budget.

It is likely that future contributions to the EU budget and over what period of time will be the single most contentious issues in all the EU-UK negotiations, so it will be necessary for UK negotiators to have some room to manoeuvre away from the starting point of no contributions at all.

[23] Such as US and Canadian cereals for instance, currently 10.65% - for which the UK and the Republic of Ireland are the only EU markets.
[24] These exclude customs duties and are scheduled to rise through the EU seven-year budget period to 2020.
[25] Its budget, though, is due to rise, and as a result of the Blair/Brown governments' agreement, the UK's net contribution will rise at least in proportion, taking it to about £12 billion net in 2017/18.

Transition Arrangements: The Taper Principle

Apart from agriculture, the EU budget is largely spent on infrastructure (roads, railways, airports, sewerage, etc.) in a host of individual projects employing perhaps 4-5 million people. In Britain the agricultural subsidies account for about 25% on average farm incomes, but possibly 50% for the marginal upland sheep farms. Likewise the structural funds are concentrated on relatively few (class I) areas (e.g. West Cornwall, Liverpool Central) plus a number of class II areas in our major conurbations (Manchester, Glasgow, etc.) Minimising disturbance to trade and people in the first few years after Brexit is likely to be a basic objective for both parties.

Our negotiation principle on finance should therefore be that our EU budget contribution and the EU support of UK agriculture and class I and II growth areas should be tapered off over a period in line with the average time period needed to complete current contracts in the EU or in the case of UK farm support, to substitute a purely British system of farm support (Chapter 6.1). This period should be set to last for a maximum of 3 years from the signing of the UK-EU Treaty.

1.5 RANGE OF OUTCOMES: SUCCESS AND FAILURE

Given goodwill and a lively sense of economic reality, the agreed framework for the Brexit Treaty, including the non-trade issues (below) should be attainable within twelve months. Some more detailed issues may need to be parked with the new UK-EU Council (Chapter 9). Much will depend on the skill and preparation of the British negotiators and here a significant limitation has to be recognised and addressed.

The British officials with the best knowledge of the EU Council (which ultimately, without Britain, will have to approve the draft Brexit Treaty prior to its going to the 27 EU member states for their approval) will have served in COREPER – the Committee of the Permanent Representatives whose members are the ambassadors of the member states and their deputies. In Britain's case these are appointees of the Foreign and Commonwealth Office (FCO). Besides the FCO staff, there are many in the

Departments of Agriculture, Business, Work and Pensions, and Energy and Climate Change who have been continuously engaged on EU Council business.

There has however been a long-term view in the FCO that any agreement with the EU is better than none, and that conciliating opposing viewpoints is all important. *This must not be the guiding view of our negotiators.* There are a number of red lines: immigration, regulations, fishing rights, emissions targets, budget contributions, chief among them, which will at most allow only negotiation around the length of a taper period (see above). Besides this, the negotiators must recognise that their mandate is essentially a democratic one, unlike that of their EU counterparts, and the direct interests of the British nation must be foremost in their minds.

This being so, it is proposed that the chief British negotiators should be appointed by a Parliamentary Committee from an open list of applicants – which could of course include members of the Civil Service, as well as those from business for instance[26]. The negotiating team will need to be supported on specific issues by officials and others with expert knowledge of the issue at hand. The team will report directly to the Prime Minister, although the Parliamentary European Scrutiny Committee should maintain a confidential watching brief.

What will Constitute Failure of the Negotiations?

There can be no imposition by either the EU or the UK of tariffs on goods which would be tantamount to being illegal under WTO rules (Chapter 7.1) and which are, in any case, against the declared views of both parties[27].

The difficult points are likely to be over continued EU (particularly Spanish) access to UK fishing waters (Chapter 6), Britain's future payments to the EU, which, were these to cease altogether and immediately, would reduce the overall

[26] For such key roles of enormous interest to the general public, there is much to be said for the final two or three candidates to be examined in public as in the US Senate.

[27] E.g. for the EU – Trade Commission Karel de Gucht, at the G20 meeting in St Petersburg, 3.4th September, inveighed against the temporary raising of tariffs by Brazil, India and Russia. In his concluding statement to the WTO Conference in Doha (2012), de Gucht confirmed the EU's commitment to Free Trade, including the elimination of tariffs. E.g. for the UK – It is after all the founder of EFTA which operates a tariff-free area with the EU.

EU budget by about 12%. This would cause major ructions in the Eastern European countries, especially Poland and Hungary, which are the largest Structural Fund recipients, and in France of course through the Agricultural budget.

Rules of origin could also present a difficulty, though here the Swiss and Korean precedents will be helpful. These set the maximum allowable non-Swiss or Korean content at about 35% for them to enter the EU Single Market as Swiss or Korean goods (and therefore tariff free). Continued access to public procurement in the UK would be of major interest to Germany (e.g. Siemen's bid for Cross Rail)

Britain would of course adhere to the common EU standard for British goods sold in the EU, but might wish to tighten standards imposed on goods originating outside the EU sold in Britain[28].

Sanctions in the event of looming failure

The chief sanction which can be brought from the EU side is delay, through a refusal by one or more member states to ratify the Brexit Treaty. This is at worst likely to be a delaying tactic to extract a better deal from the reduced EU Growth Funds or a much longer taper than 3 years on say, fishing rights. It could though hold up agreement beyond the 2 years which the EU's own rules stipulate.

The British counter sanctions would be to invoke the Vienna Convention to remove itself from the EU (Appendix 1.1) after three months' notice, to stop its £16-18 billion gross payment to the EU budget[29], carry on completing the negotiations to rejoin EFTA, and carry on trading with the EU like any other country of the world with which the EU does not have a specific trade agreement, under WTO rules, with zero tariffs and quotas in both directions.

[28] Of particular significance would be a move to include labelling goods for *performance*, not just with a CE mark, but also wear tests for textiles and furniture.
[29] Out of which non-payment, it would compensate UK farmers (£3 billion) and the existing UK Growth Fund beneficiaries (about £1.5 billion).

It is difficult to imagine that negotiations would fail to the extent of either side invoking their sanctions. The WTO's arbitration facilities (Chapter 7.1) can always be invoked, as they were in the EU-US steel tariffs and the EU-Norwegian anti-dumping disputes (Chapter (7.1).

The Brexit Dividend

When this tapering is achieved, the British government finances will be better off by about £12 billion net per annum in 2017/18. This could be devoted to reducing the deficit (see below) or reducing taxes, or a bit of both. The view of this paper however is that it should be devoted to specific long-term objectives, visible and of benefit to all – the raising of manufacturing production and manufacturing jobs in as many parts of the country as possible (see Chapter 3.2 Leopard Clusters); the long-term construction of a comprehensive national system of sea and inland river defences (Chapter 9); the post-school Education & Training Voucher for all (Chapter 10), and the new Commonwealth Scholarships (Chapter 8.4).

Maintaining on-going relations with some European-wide Institutions

There are a number of EU institutions that we would wish to continue membership of including the European Space Agency and the European Medicines Agency, which is headquartered in London. The functions of these and others as they affect Britain are discussed in Appendix 1.3

CHAPTER 2: BRITAIN'S ECONOMY

"I wish to dissipate, if I can, the idle dreams of those who are always telling you the strength of England depends, sometimes upon its prestige, sometimes they say upon extending its Empire, sometimes upon what it possesses beyond these shores.

Rely upon it, the strength of Great Britain and Ireland is here within the United Kingdom".[30]

The fundamental view of this essay is that virtually all of the things we will wish to do as a nation – dealing with the multiple crises in our health, employment, social care systems, as well as our desire to play a respected part in the world, depend absolutely on the success of our economy here in the United Kingdom.

2.1 KEY FACTS ABOUT THE BRITISH ECONOMY

These are summarised in Tables 2.1 and 2.2.

Britain's economic position is dire: a goods trade deficit of £100 billion (about one third of goods exports) and an internal government deficit of £120 billion (about 22% of receipts).

[30] W. E. Gladstone in his Midlothian Campaign of 1879 (N. Mansergh 1969). Ireland in the United Kingdom is now Northern Ireland.

Table 2.1: Government Expenditure by Categories [31]

		Government Spending (% of GDP)					Government Income	Government Deficit	
Year	GDP £ billion	Total	Social Security	National Health	Education	Government Debt Interest	% GDP	% GDP	% Expenditure
2011/12	1530	**43.4**	11.5	8.2	6.1	3.0	35.6	7.8	17.2
2000/01	987	**36.0**	10.9	5.3	4.6	2.0	36.8	(0.8)	(2.2)[32]
1990/91	580	**39.4**	10.7	4.6	4.7	2.4	36.6	2.8	7.1
1980/81	239	**47.0**	106	4.6	5.5	4.3	41.9	5.1	11.2
1971/72	59.3	**38.9**	7.8	3.7	5.1	3.3	35.6	3.3	8.5
1959/60	20.5	**30.5**	6.0	3.1	3.5	3.8	33.4	(2.9)	(9.5)

[31] Sources: HM Central Government Accounts (pre 1980), NSO/CSO HM Treasury Statistical Analysis, B. R. Mitchell & Phyllis Deane: Abstract of British Historical Statistics, CUP 1982; Public Expenditure 2011, 2012.

[32] A negative deficit is a surplus.

Table 2.2: UK Current Account with Rest of World

Category	Year 2006			Year 2011		
	Credit	**Debit**	**Net**	**Credit**	**Debit**	**Net**
(1) Trade of which						
(i) Goods	244	320	-76	299	399	-100
(ii) Services	144	103	+41	194	118	+76
Total	388	423	-35	493	517	-24
(2) Income from						
(i) Non financial[33] companies	84	52	32	100	43	57
(ii) From Financial companies:						
a) Portfolio	55	58	-3	51	72	-21
b) Banks	98	119	-21	39	53	-14
Total	237	229	8	190	168	22
(3) Transfers of which						
(i) EU[34]	8.1	13.0	-4.9	6.5	16.1	-9.6
(ii) UK Foreign Aid	-	2.7	-2.7	-	5.8	-5.8
(iii) Other[35]	15.2	19.6	-4.4	10.8	17.6	-6.8
Total	23.3	35.3	-12.0	17.3	39.5	-22.2
Total (1) + (2) + (3)	648	687	-39	700	725	-24

[33] These are earnings by UK private companies on direct investments, e.g. oil and gas income remitted to the UK.
[34] These are due to rise to around a net £15 billion by 2016 as a result of reductions in the UK abatement.
[35] Includes insurance claims and social security payments.

Comments on Table 2.2

Although the data are less certain, the current account deficit for 2012 at £50 billion and the goods deficit at 107 billion indicate a worsening trend, which calls for special measures in manufacturing (Chapter 3), the decline of which is chiefly responsible for both figures.

However it should be noted that the Income section (Table 2.2) is only a positive contributor to the current account because of the returns to non-financial companies. Both the main financial sectors – portfolio investment and bank deposit income are actually negative contributors, though (Chapter 5) Financial Services per se are positive contributors (£39 billion). However the claims of special expertise residing in the financial investing sector may be judged by comparing the returns on investment (ROI) from the financial sector for the two reference years: 3.6% and 2.5%, with those from the non-financial sector: 11.5% and 8.9% respectively. This is not altogether surprising: major international companies would never accept ROIs in the range 2.5-3.6%[36]. This phenomenon is also shown by the fact that non-financial company income dropped by £20 billion in 2012 due to asset disposals by UK companies sending the income account in Table 2.2 into deficit.

The trading and budget deficits are both the result of deep-seated failure in our industrial and government systems which will not be reversed merely by our exit from the European Union, even on the most favourable terms. Exit from the EU will relieve some, but not all, the economic handicaps we face as a nation, but above all give us a unique opportunity to fix our problems.

In this paper we set out only the most salient of our problems and outline the ways we should seek as a country to solve them now that we are free of control by the EU. Although we start now, it is recognised that fundamental changes in both industrial and governmental systems will take some years to come to fruition. This is all the more

[36] This huge difference has been noted before by Bush (2000) in an analysis of returns from 1994. Rates of return are obtained by dividing incomes in Table 2.2 by the capital invested as recorded in the Pink Books (Tables 8.1-8.9) for each year, e.g. 2011 portfolio: £2.1 trillion; direct investment: £1.1 trillion.

reason for drawing up a blueprint for change and above all explain it to the British people.

It is clear from Table 2.1 that to have any hope of fixing the deficit more or less permanently below 3% and getting government expenditure below, say 35% of GDP where it stood in the late1960s, only major shifts out of the three major areas of expenditure – Social Security, the National Health Service and Education will do. Big changes in any of these will take years, which is why it is so vital that a map and a blue-print be formulated and published to the British people.

Of the three, Social Security is the biggest and it is also where change is already under way. Of the £171 billion expenditure in 2011/12, £92 billion is accounted for by the standard old age state pension This paper (Chapter 9) proposes a total change in pension provision which would have the role of the state reduced to one of guarantor, rather than provider. This, as can be seen from Table 2.1, would, over time, remove around 6% from the present 43% of GDP taken by government expenditure and provide a massive income stream to finance much needed infrastructures (Chapter 9).

The Primacy of Earning Our Living in the World

While we must address the two deficits with a cool eye, we must not be overwhelmed by them. Our ability to follow a path from here to solving them is greatly helped by seeing where we have come from. That we have been psychologically overwhelmed by the loss of Empire, Corelli Barnett (1972), and by our apparent loss of economic dominance, Pollard (1982), is clear enough to those born during the second world war and the years following, Suez (1956) being a watershed for many. However over 60 years, the things we need to do have in a number of key ways (Chapter 2.4), become easier to do, though not enough yet to solve our persistent balance of trade and government deficits, the latter increasing our public debt 7% every year, i.e. *doubling* every ten years[37].

[37] Some commentators have maintained that a trading deficit doesn't matter because the money deficit is automatically balanced by capital balances in our creditors' accounts. But creditors abroad require interest to be paid on their balances, just as they do on our own internal debts.

2.2 THE FOUR MOST IMPORTANT PINCH POINTS FOR THE UK POST-BREXIT GOVERNMENT.

These are:

(1) Eliminate our internal public deficit.

(2) Really control of the flow of people into our country and their ability to work and rights to settle.

(3) Markedly increase *the range* of our manufacturing industries.

(4) Ensure production and distribution of the electrical and thermal energy needed by our people and industries.

Each of these four interact with one or more of the other three and has been powerfully affected by our membership of the EU, mainly through the operation of the Single European Act 1986 (SEA) and the free movement of people principle in the Treaty of Rome (1957). But our own actions or inaction on these fronts now is equal in importance to Brexit itself. To see where we can go, we need to see where we start from in the manufacturing and services sectors in particular.

2.3 UK ECONOMIC PERFORMANCE

Table 2.3 sets out how we have deployed our labour force in recent years. Table 2.4 sets out how we have deployed the capital from our savings.

Table 2.3: Distribution of Employees, Added Value Per Person, GDP and Exports in 1994 and 2008

Macro Sector	Numbers employed[38] in millions	% of total employment	Added value in £1 bn	Added value per employee in £	Exports[39] in £1 bn	Exports per employee in £	Labour productivity relative to economy average
1994							
Industry[40]	5.7	22.6	201	35,300	135	23,700	1.50
Private Services	14.2	55.2	292	20,600	43	3,030	0.87
Public Services	5.8	22.2	111	19,100	-1	-	0.81
Totals (average)	25.7[41]	100.0	604[42]	23,500	177	6887	1.0
2008							
Industry	4.4	15.5	295	67,050	299	67,950	1.35
Private Services	15.2	53.5	895	58,880	194	12,760	1.16
Public Services	8.8	31.0	243	27,610	2	227	0.55
Totals (average)	28.4	100	1,434	50,490	595	23,052	1.0

2008 is the last year before the recession of 2009-12 and as such covers the public sector boom years of 2001-2006.

The latest figures for 2012 after the depth of the recession show a small 0.5% growth in GDP, sharp increases in private services employment, a drop in public sector employment overall, giving a fall in productivity in the service sector and a small rise in industrial productivity. The average added value in manufacturing at £57,500 compares

[38] Includes the self-employed.
[39] National Statistical Office Pink Books 1999 and 2012.
[40] Includes Agriculture, Extraction, Manufacture and Utilities
[41] Full Time Equivalent (FTE)
[42] Added value for whole economy equals GDP.

favourably with that of Germany (£56,400). The industry figure in Table 2.3 includes oil extraction and utilities as well as manufacturing.

Appendix 2.1 gives a comparison with Germany, which shows UK exports *per head in manufacture* at £119,000 were actually greater than Germany's (£105,000) in 2011. Table 2.4 sets out how the Gross Domestic Product generated by the UK labour force in 1994 and 2011 was used, in comparison with contemporary Germany in 2011, both economies struggling to emerge from recession.

Table 2.4: Disposal (Use) of GDP in the UK and Germany

Sector	**UK % GDP**		**Germany % GDP**
	1994	2011	2011
Investment	17.5	14.5	23.5
Domestic consumption	65.1	70.0	60.0
Public consumption	18.2	18.8	20.1
Net trade (exports – imports)	-0.6	-3.3	+3.4

2.4 WHAT THINGS HAVE IMPROVED IN THE LAST 30 YEARS WHICH AFFECT OUR ABILITY TO EARN OUR LIVING?

The single most important change in Britain's ability to earn its living is the veritable transformation in industrial relations of private industry during the 1980s as this writer can personally testify to. For the first time in a hundred years, managers can manage with the willing cooperation of their staffs *who are being seen, and see themselves,* as partners in the enterprise along the admirable lines of the John Lewis Partnership. In a very real sense British industry since the 1990s has caught up with long established practice in our North European neighbours and competitors, expressed for example in the long established Belgian phrase "partenaires sociales".

The second most important change is, by contrast with the period up to 1980 an extraordinary expansion of the spirit of enterprise – keenness to set up a business – among all age groups. Of course there are many failures: about a fifth of the 400,000 new businesses fail within a year. But this will improve as legal, management, and accounting knowledge is more widely gained and diffused.

2.5 UK SHARE OF WORLD EXPORTS

Exports are in a sense judgements passed by foreigners on our products, on us in effect. Each buying judgement is made relative to those goods and services offered by our competitors in other countries. It is therefore the best single measure of our economic capacity, as displayed here in the foregoing tables 2.2 to 2.4, which can itself be disaggregated into the performance of industries. Table 2.5 compares our overall goods export performance with that of Germany and the USA as our largest trading partners inside the EU and in the rest of the world (ROW) respectively.

Table 2.5: Shares of World Goods[43] exports for Britain, Germany and the USA

Item	1994	2000	2006	2011
World $ bn				
Goods	3,962	6,785	11,842	17,816
Manufactures	3,800	6,080	8,500	11,511
UK				
% world goods	5.3	4.2	3.8	2.4
% world manufactures	5.5	4.5	4.7	3.6
Germany				
% of world goods	10.3	9.1	7.6	6.9
% of world manufactures	11.2	10.2	8.3	9.4
USA				
% of world exports	13.0	12.8	9.1	8.3
% of world manufactures	12.1	10.7	8.1	8.4

[43] Goods includes oil, ores, foodstuffs as well as manufactures. The growing disparity between world goods and manufactures is largely due to the huge increase in coal and ore imports by China.

While there is a tendency for government spokesmen and report writers to say that all industrialised countries have lost market share due to the rise of China and the other BRIC economies, none has lost market share so much as Britain, in the last 5 years dramatically so[44]. Germany actually maintained its goods market share over the last 5 years of recession, due essentially to increasing its share of world manufactures exports, putting it level with China as the world's number one manufacturing exporter with about 9% each in 2011.

UK Economy is Massively Out of Line with its Competitors

Taken together Tables 2.2-2.5 show that the British economy isn't just a bit out of line with its major competitors, its whole distribution of labour is hugely wrong[45]. Only 8.2% of the UK labour force was working in manufacturing in 2011 compared with 19% of a labour force which is 30% bigger in Germany (Appendix 2.1). Table 2.3 shows how extraordinary this distribution of labour in the UK actually is, given the huge disparity between productivity in the industrial sector and those in the services sectors, the public sector in particular.

2.6 UK TRADE PERFORMANCE OVER TIME AND WITH DIFFERENT AREAS OF THE WORLD

To benefit fully from a Free Trade agreement, a country has to have a sufficient range of goods and services, otherwise it simply provides an easy conduit for imports from its trade partners.

Table 2.6 gives the UK goods exports to, and imports from, the 3 big economies of the EEC (Germany, France, Italy), which Britain joined in 1973. Data runs from the last years outside the (then) EEC over the 40 years 1967-2007 up to the financial crisis. As can be seen, even with the free trade provisions, the percentage for UK exports to Germany rose slowly to just above the UK average to the rest of the world (ROW) (Table 2.5). This rise coincides with substantial UK exports of crude oil from the mid 1980s onward. For France the percentage has barely changed; for Italy it has actually

[44] The sharp drop in North Sea crude oil production has been a contributor to this fall so manufactures do not show the same percentage drop.
[45] See also Pollard (1982), Tables 7.44, 7.45 in particular and Bacon and Eltis (1996).

reduced. These figures demonstrate as nothing else does, that low or non-existent tariffs are but one factor in the UK's ability to export.

Table 2.6: EU/EEC-UK Goods flows 1967-2007[46]

		£ Million to 3 or 4 significant figures			
Year	**Country**	**Total Imports**	**UK Exports to**	**UK Imports from**	**UK Exports as % of country's imports**
	Germany				
1967		7,370	267	351	3.62
1977		65,400	2,501	3,574	3.80
2007		663,000	24,390	44,040	3.68
	France				
1967		5,150	197	212	3.83
1977		36,400	2,147	2,660	5.89
2007		411,300	17,900	21,600	4.35
	Italy				
1967		3,110	140	195	4.50
1977		23,710	781	1,533	4.13
2007		345,000	9,110	13,100	2.63

[46] Sources are UK National Statistical Office Abstract; German Federal Ministry of Economics & Technology; Whittaker's Almanac 1969-2011. Years chosen are 5 years either side of UK joining on 1st January 1973 and 40 years on.

Comments on Table 2.6

1 Most striking perhaps is the fact that Britain's share of German goods imports has barely changed in 40 years from 1967, before we joined in EEC in 1973. In 2007 they were only 3.8%, a mere 0.2% greater than Britain's share of world manufacturing exports in 2006 (Table 2.5). In 2012 this proportion has dropped to 3.4%, actually below UK's pre-EEC days, and below its present day share of world manufactures[47]. Britain's share of France's imports has gone up by 0.55%, while our share of Italy's imports has actually gone down significantly.

2 Conversely, Switzerland, not in either the EU or the Customs Union[48], but highly tuned to the German market with its manufacturing industries almost entirely German-speaking, supplied 4.1% of Germany's imports overall and took 4.4% of its exports, more or less in balance.

3 Overall Table 2.6 must make it clear that the actual trade gains from Britain's membership of the EEC/EC/EU, with all the administrative and subscription costs, and political aggravation which membership has entailed, are negligible at best. Britain's corporate leaders should therefore refrain from making speeches about Britain's now being in a sort of trading limbo and concentrate on making sure that their own companies have the right products at the right prices to seize the opportunities which Table 2.2.3 in Appendix 2.2 below spells out. They need to help our negotiators achieve the best possible result for Britain in the forthcoming negotiations and position their companies for exports to both EU and non-EU markets (Chapter 7).

4 The trends over the last 20 years in Table 2.5 - not to speak of the last 100 years [e.g. Pollard (1982) especially Tables 7.4.3 and 7.7] – show that the UK economy is not self-correcting. Changes in the variables like exchange and interest rates under the control of the Bank of England and the Treasury do not affect the long-term issue very much. Only structural changes, for which our

[47] In 1967 there was very little trade in services between the UK and Germany, so exports were virtually all manufactures.
[48] Switzerland is a member of EFTA, and as such has had tariff-free entry into the EU for industrial goods since 1972.

freedom from the EU is a necessary, but very far from sufficient requirement, will do. In Chapter 3 we discuss how we can, over a period of time, switch 0.5 million people into manufacturing, which would add around £100 billion to sales of manufactures, create in manufacturing and services together a million jobs, put our current account into positive territory by about £20 billion and halve our deficit on world goods trade. This is a prize really worth striving for.

Appendix 2.2 sets out how Britain has performed in its main established markets and in the new emerging markets, for goods (Table 2.2.1) and services (Table 2.2.2), and proposes export targets (Table 2.2.3) for six different area of the world[49]: EU, AICANZ, EFTA, BRIC, GHSS, ROW. These Britain really must tackle to sustain her place in the world and pay her future import bills for energy and food. Chapters 3, 4, and 5 outline the changes in manufacturing, energy, and services which we need to set in train to achieve this.

[49] EU 26 (European Union minus Republic of Ireland); AICANZ: the Anglo-sphere – America (US), Ireland (Republic), Canada, Australia, New Zealand; EFTA European Free Trade Association; GHSS: Gulf, Hong Kong, Singapore, South Africa; ROW Rest of world including the TIM group: Turkey, Indonesia & Mexico.

CHAPTER 3: MANUFACTURING

Manufacture is of vital importance to Britain for two main economic reasons. The first reason is that manufacture is the principal way in which a nation can derive *economic* benefit from scientific knowledge[50].

That Britain has not, as a nation, derived full economic benefit from its huge past and continuing investment in scientific knowledge is a truism which deserves close examination if a remedy is to be found and implemented.

The second reason is the sheer size of the world market for manufactures which, as evidenced by Table 2.5, Britain needs urgently to systematically address if it is going to achieve long-term stability in its external finances and count again as a major player in the world. The world market for manufactures in traded exports in 2011 was $11,500 Billion or 52% of all traded exports. Oil and ores accounted for 30%, services 10%, travel, tourism and transport 8% (WTO, 2012).

Manufacture is also very important for a non-economic reason. It enables the non-academic part of the population to acquire skills[51] to make tangible things which not only give great satisfaction to many people, but feed directly into exports. Moreover much of the expansion will most naturally take place in the Midlands, North of England and Scotland.

Britain has not for a long time been able to sell to the rest of the world and its own domestic customers enough manufactures to pay for the goods appetites of its government and consumers. Chapter 3.1 shows that this is now due principally to a lack of *range* of British goods on offer by comparison with our competitors, especially Germany. Most of what British industry makes is fully competitive: there is just not enough of it. Extending its range, while maintaining quality will ensure Britain's economic and cultural place in the world ahead.

[50] By scientific knowledge I mean the physical and biological sciences, engineering, systems and mathematics.

[51] This is not in any way demeaning to half the population. As Alfred the Great reflected (890) in his commentary (Article 17) on Boethius's De Consolatione Philosphiae, "A skill without brains cannot be reckoned a skill".

3.1 IMPROVEMENT BY "LEARNING"

There is a well-attested linkage between production of a product and its cost of manufacture: the so-called "learning curve". In round terms, doubling of accumulated production enables manufacturing costs to reduce by about 15%, given determined improvement of the process and product. The importance of scale and variety of goods made for sale is shown by Appendix 2.1 where the main features of the German and UK manufacturing economies are compared. In the absolutely key sector of manufacture, capital goods (machinery and machines principally), Germany exported £400 billion's worth in 2012 (greater than the whole of UK goods exports [Table 2.5]).

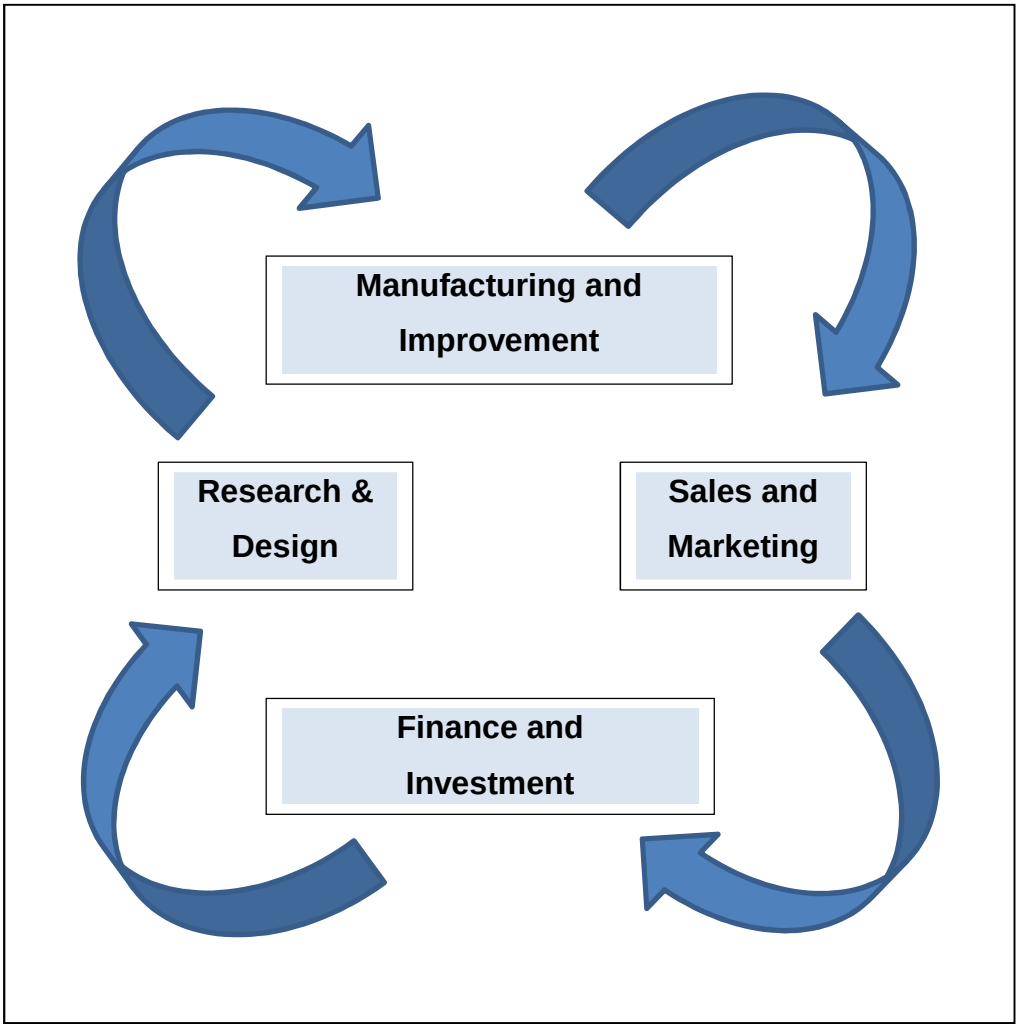
If the UK allows that linkage to fall below a certain minimum level of economic output , it will die completely and a huge expanse of science and engineering in the UK with it. While they are an important part of the production cycle (see Figure 3.1) nobody makes much money out of laboratories and libraries per se, or even design[52]. Only actual production for sale will do that.

At around 10% of national GDP and only 8% of the labour force, British manufacturing is close to that minimum now. No amount of initiatives in universities and other back office centres can replace the loss of the essential teeth arms in markets at home and abroad. Replacing that loss over the next 30 years is the purpose of the Leopard Clusters which are described in Chapter 3.2 below.

To actually realise a new or improved product or process, certain basic sequences have to be gone through. Figure 3.1 shows these sequences which are usually cyclic. Ideas for improvement or innovation can be introduced at any part of the cycle. Many good manufacturers lay particular stress on the sales and marketing aspects as a prime source of feedback on what the market actually needs or wants.

[52] Britain generates substantial exports in patents licensing of about £9 billion (Table 5.1), but these depend on domestic production.

Figure 3.1: Management of the Production Cycle



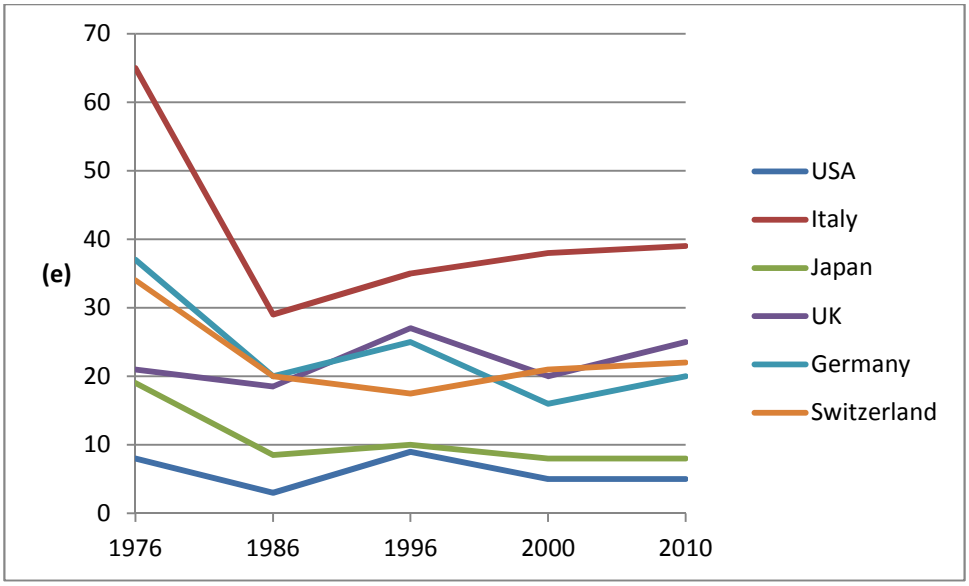
By a changed or innovative product and/or process for making it, we mean something which requires investment in a new manufacturing plant. Changes may be protected by patents or registered designs from competitors selling essentially the same products, or operating the same processes in the territories for which the patents and design registrations have been obtained. For this reason, protecting UK intellectual property in EU markets (and reciprocally) has to be emphasised in the negotiations (Chapter 1) not just in terms of patents and design, but critically in the cost of securing this protection in each of the 27 EU countries. In terms of bilateral agreements with non-EU countries the same emphasis is needed – as in the EU-Korea Free Trade Agreement.

By improvement we mean beneficial changes to an existing product or process. While much "improvement" of processes has been of the trial and error variety: nowadays it is preferably based on a mathematical model of the mechanisms involved in turning one material into another.

The single most important reason why Britain has not derived full benefit from its science base is the assumption among politicians and academia that most if not all scientific brains should be applied predominantly to the research and design function in Figure 3.1, and that given an innovative idea, its embodiment, development and commercialisation can be safely left to someone else (often in the USA).

For most OECD countries, export sales of manufactured goods are a reliable proxy for the added value contained within the goods[53]. Figure 3.2 plots export sales for a number of Britain's competitors divided by the money spent on R&D *within* a business, what the OECD refers to as Business Enterprise Research and Development (BERD).

Figure 3.2: Annual Export Sales of Manufactured Goods per annual unit of Business R&D Expenditure (e) (BERD) 1976-2010[54]



[53] For the main OECD countries, except the US and Japan, export sales from a country are about twice the added value generated in the country.
[54] OECD Main Science and Technology Indicators 2000/12; Research and Development in Industry 1976-1997, Paris; German Federal Office of Industry and Technology; Whittaker's Almanac for Italy and Japan 1976-2012; UK National Statistical Office 1976-2012.

Over 24 years from 1986-2010, the figures show a remarkable consistency in three groups given the factor of 8 difference of export sales across the six countries: Britain, Germany and Switzerland, Japan, the USA, and Italy. It is important to realise that the R&D included is expenditure *only* within the production cycle (Figure 3.1), i.e. it is specifically targeted at the commercial enterprise. If you take total national R&D, i.e. including universities and the Research Councils in the various countries, you get a very different picture with Britain, uniquely spending only 47% of its national total on BERD (Germany 65%, Switzerland 68%).

As the export-driven expansion of manufacture gets underway (Chapter 3.2) in order to move towards the targets suggested in Appendix 2.2, Table 2.2.3, it will be crucial for there to be a reassignment of Britain's research priorities and personnel from the universities to where it is most needed, that is BERD actually in businesses where it delivers value comparable with Germany's and Switzerland's. But as Figure 3.2 shows, there is no point in doing this in a major way until increased export sales are underway. When this reassignment take place, it will mainly need to be devoted to scientifically-based improvement in the sense described above.

Lessons from Italy

Why does Italy derive such benefit from its BERD? In this writer's experience in a wide range of overseas factories, Italy's figures derive from a unique devotion to improvement by production and product design staff which simply is unreported as BERD. The people in the Italian version of the three operational parts of the production cycle (Figure 3.1) are very closely connected: especially is this true of textiles which is why Italy, with wage rates as high as Germany's and the UK's, continues to make and export high quality textiles to mass markets in Britain and elsewhere.

Such systematic improvement also shows up in a whole range of German goods. The ethos of "immer besser" and the prevalence of engineering PhDs in the production function are two hallmarks of this success which British industry needs to emulate. In fact with the partial exception of pharmaceuticals, probably the most important sources of innovation are existing products and processes,

for which the new idea is an alternative. Having a fundamental understanding of the existing is the best possible preparation for something new[55], and is also the best way of protecting market shares once patent protection has run out.

British Industry is Internationally Competitive – there is just not enough of it

Industry is by far the greatest exporter of the three sectors of the economy, having the highest productivity, but (in 2008 and 2013) had by far the lowest number of employees (Table 2.3)[56]. Output per manufacturing person compares very favourably with that of Germany: the average added value in manufacturing being £57,500 in 2012 compared with that of Germany (£56,400) (Appendix 2.1).

Figure 3.2 shows that Britain's manufacturing industry is as efficient at gaining value from the Business R&D as Germany's, but the UK's *total* manufacturing is only about 40% of Germany's (Appendix 2.1)[57]

Scale and Range of Industry and Investment of Vital Importance

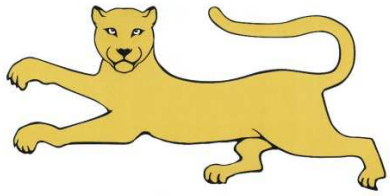
Scale in industry is arguably the most important factor in terms of cost of production and new product development, while product range is the most important factor in sales volume. Both of these translate directly into export sales. If instead of £3,700, Britain's manufacturing exports per head of the population were £5,500 (i.e. two thirds of Germany's), the goods deficit in Table 2.2 would be eliminated and a million jobs would have been created.

[55] "Chance favours prepared minds", Pasteur 1854.
[56] Manufacturing employment has reduced by another 0.5 million since 2008.
[57] The shrinkage of the range of British manufactures took place markedly in the 1970s when German manufacturing labour productivity was 40% greater than Britain's. As a result, an unusually large proportion of British manufacturing was put out of business by foreign competition. This German productivity lead was sharply reduced in the 1980s, but was still, on average, 17% greater than Britain's in 1989 (O'Mahoney and Wagner, 1994)

Britain Spends Too Much and Invests Too Little

Britain has lost world market share fundamentally because, while what industry it has is good on average, and some in aero-engines and pharmaceuticals is very good, there has simply not been enough investment in new productive assets across the board. Table 2.4 shows how the UK uses its GDP compared with Germany's use of its GDP, which is in any case about 45% bigger (Appendix 2.1). The next section (3.2) sets out a proposal for a new form of manufacturing organisation (Leopard Clusters) designed to rectify this crucial problem.

3.2 NEW FORMS OF MANUFACTURING ORGANISATION: LEOPARD CLUSTERS



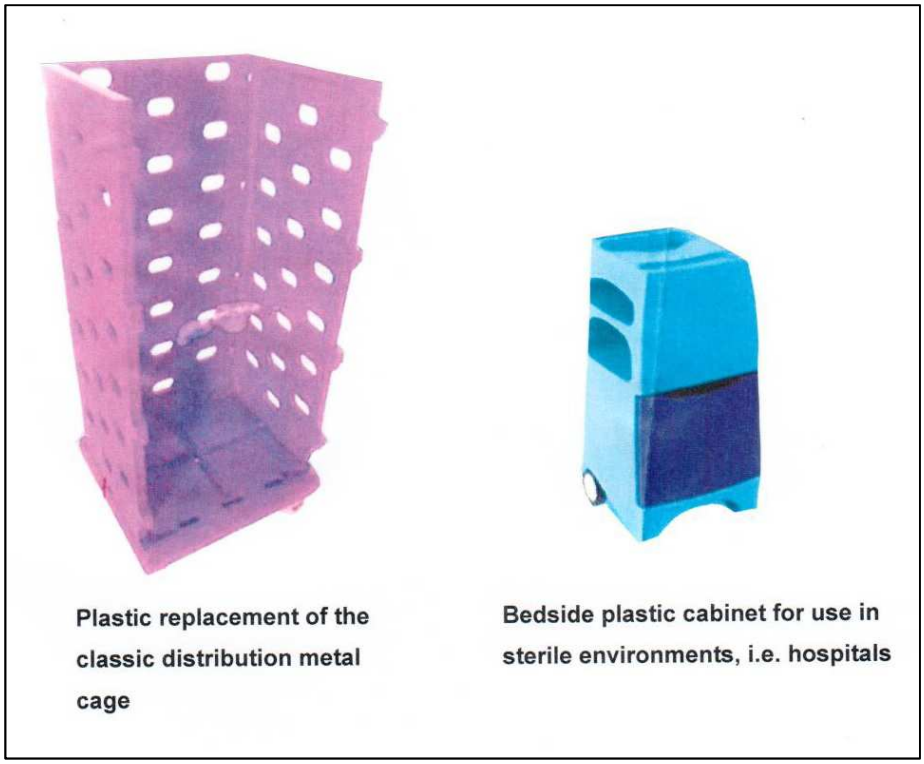
To actually obtain a switch of 0.5 million people into manufacturing with another 0.5 million in supporting services[58], cannot happen under the present multiplicity of schemes of help for SMEs, Innovation and R&D allowances (now 1.5 times HMRC approved R&D) for all firms. The £89 billion per annum target for additional export (Appendix 2.2, Table 2.2.3) or import-replacing sales over a ten-year period, cannot be achieved organically from existing forms of enterprise, which have had well over 100 years of being prodded into arresting the decline of UK export shares (Pollard, 1982, Table 7.46; Table 2.5 above), but only by the creation of new structures consisting of both new and existing firms. This conclusion recognises the fact that innovating entirely new products and processes has only about a third the return of investment as "improving" what already exists[59] [Davidson, 2004]. Here "improvement" covers not just the manufacturing processes and products, but the product *range*. This means much more market research in overseas markets in which the commercial sections of the British embassies must play an increasing part.

[58] Usually one new job in manufacturing itself, will generate another job in services – finance, maintenance, utilities, raw materials supply, advertising.
[59] The German phrase is "immer besser".

Exploiting the opportunities which Trade Agreements (see Chapter 7.2) with other countries will now offer, will require a major effort of national will in which product and process development with existing firms (and some new ones), in-depth marketing abroad, and training of a wide range of skills at home (not least language skills for the target markets) will need to be brought to bear industry by industry with the single-minded objective of producing more *things*[60] for sale at home and abroad.

This concept finds practical expression in the idea of "Leopard" clusters of companies, an acronym for **Le**aping on **O**pportunities **P**resented by **A**pplied **R**esearch and **D**esign opened up by new Trade Agreements with non-EU countries. Companies in some Leopards will be based on a common technology for different markets (so-called horizontal type); other Leopards will be built around a common market (vertical type). Example products from a "common technology" embryonic Leopard Cluster, designed and produced in the 2000-2005 period (Davidson, 2004) are shown (Figure 3.3) for two different markets requiring anti-infection properties. All walls, doors, shelves are *hollow* for weight reduction purposes.

Figure 3.3: Rollet and Biokab



[60] This is not to exclude soft-ware packages as long as they have repeat sales.

Leopard Clusters: How Would They Work? (See Appendix 3.1)

Leopard clusters would be established as initiators and propagators for each section of industry trading in or potentially trading in the target territories listed in Appendix 2.2 (Table 2.2.3). This covers more than half of all goods traded (Appendix 2.2, Table 2.2.1) and about three quarters of traded manufactures in the whole world.

Leopard Clusters would be incorporated as limited liability companies, permanently staffed, focussed on a particular industrial segment[61] and financed in the initiation phase by the abolition of the R&D Corporation Tax allowance (with a saving of around £1 billion) which largely benefits £ multi-billion companies. The initiation phase, which may last up to 5 years, will comply with the WTO state aid rules by treating it as R&D. In the propagation phase, the Leopards will be financed principally by commissions on sales by participating companies.

The Leopard Clusters' objective will be to achieve a one-third real terms expansion of British manufacturing, corresponding to increases of 40% in manufactured goods exports, one million additional jobs in manufacturing and services split 50 : 50 (Appendix 3.1). To this end, the Leopards will employ staff with appropriate language capabilities and understanding of the legal systems [e.g. planning law] of each target country (Appendix 2.2, Table 2.2.3).

Banks will be encouraged to play a full part in financing new production facilities in Britain – in so doing they will develop the industry-specific knowledge so important in prudent lending. Ultimately over a thirty year programme, 100-200 Leopard Clusters will be needed to achieve the above objectives.

[61] As defined for instance by the internationally accepted Standard Industrial Classifications (SIC): SIC 10 – Food Products; 13 – Textiles; 20 – Chemicals; 22 Rubber & Plastic Products; 25 Fabricated Metal Products; 27 – Electrical Products; 28 – Machinery; 31 – Furniture, and so on. SICs are used in customs declarations.

CHAPTER 4: ENERGY & ENVIRONMENT

While Energy and Environment are really separate issues, they are taken here into the same chapter because most of the existing Acts of Parliament and EU directives still in force treat the two as one issue. This if reflected in the Government's mind by their combination in one Department of State.

It is a basic standpoint of this paper that while recognising their interaction, the security of our energy supplies must be given priority where there is any conflict between the two – though we shall show that long-term both energy security and fundamental environmental protection can be secured together.

While some of the other changes proposed in this paper could be achieved after a fashion while Britain remained in the EU, a strategy to secure our energy supplies cannot. This is because the previous Labour government has signed Britain up to emissions reduction targets which are crippling in terms of both energy cost and energy availability (Appendices 4.1 and 4.3). These targets themselves derive from the EU's attachment to the Anthroprogenic Global Warming (AGW) ideology which identifies carbon dioxide as the prime cause of global warming (Appendix 4.4).

4.1 THE UK ENERGY CRISIS

Along with salary costs and raw material costs, energy costs are the chief factors which determine whether there will be any large-scale process industry – oil refining, chemicals, steel, cement, etc. – left in the UK. Successive government policies over the last 20 years, culminating in the Climate Change Act 2008, where subsidies for so-called green energy sources are embedded at the expense of industry, the consumer and the taxpayer, have been a fatal mistake.

Uniquely to any First World country, the UK has two energy crises: one is paying for its future imports of fossil fuels as the inevitable decline of North Sea oil occurs, the other is actually generating enough electricity for industry (factories), business (offices, housing, and the public sector (hospitals, transport, etc.)

Table 4.1 shows the split of energy deployed by category of final user in millions of tonnes of oil equivalent (Mtoes)[62].

Table 4.1: UK Energy Use by Sector

End-user	Mtoes (2010)	% of total	% of energy used as electricity
Transport	55	29	2.1
Industry	52	28	21
Housing	49	26	23
Business	19	10	26
Public Sector	13	7	28
Total/average	188	100	17%

Thus we see that electricity is a relatively small part (17%) of final energy usage, the other 83% being delivered as heat (gas, oil and coal burning).

Compared with our competitor nations, UK electricity usage is in fact relatively low (see Table 4.2).

[62] Energy delivered to the consumer as heat or as electricity is now quoted in MegaWatt hours (MWh) or KiloWatt hours (KWh) as found on invoices from the Energy Supply Companies. One tonne of oil equates to 11.8 MWh as heat.

Table 4.2: International Comparisons of Electricity Generation & CO_2 emissions 2004

Country	Installed Electricity generation capacity kW per capita	Electricity delivered % by fuel source			Electricity delivered per capita kWh p.a.	CO_2 emissions per capita tonnes p.a.
		Nuclear	Fossil	Other [mainly hydro]		
Britain	1.1	22	75	3	6420	11.1
Germany	1.4	19	77	4	6850	9.7
France	1.8	74	11	15	7900	6.1
Switzerland	2.3	35	4	61	8380	5.7

Note on Table 4.2:

It is no accident that the countries with the highest electricity usage per person have:

(a) the least dependence on fossil fuels for electricity generation;

(b) the lowest CO_2 emissions per head of population.

Since renewables and nuclear *can only deliver energy as electricity*[63], this makes any realistic attempt to reach the emissions reduction targets of 50% by 2027 or the 80% by 2050 in the 2008 Climate Change Act (CCA), entirely fanciful. Meeting such targets would mean replacing something like 75% of all fossil fuel burning equipment (gas, oil and coal boilers) in domestic, industrial, and commercial premises by electrical equipment, as well as constructing new electricity-generating capacity about equal to the (2013-17) existing capacity (Prosyma Research Ltd, 2010) In the meantime, as a direct result of the CCA, green taxes are already imposing £5 per MWh (about 10% of

[63] The late Malcolm Wicks, Energy Minister, who accompanied Prime Minister Blair to Strasburg where the 2020 emission targets were agreed (30% below 1990, 15% of electricity to be zero emissions) had difficulty in comprehending this.

the wholesale cost of UK electricity) on British process industries (where margins are already very tight) compared with about 50 pence in Germany, none in the US Gulf.

The actual balance of payments costs of the decline in UK production of oil and gas is rapidly rising and adds straight on to the goods deficit, already over £100 billion per annum. From peak production of 220 Mtoes of hydrocarbon in 2002 (when net imports were about zero) the estimated costs at the two $: £ rates cited are shown in Table 4.3 if no additional nuclear capacity comes on stream *and* no existing capacity is shut down.

Table 4.3: Production and Exports/Imports of Fossil Fuels 2004-2020
If no additional nuclear capacity

2004-2008 average	Production Mtoes	Consumption Mtoes	Exports (Imports) Mtoes	Balance of payments cost $Bn at $80 per barrel
Oil and Gas	**207**	**186**	**21**	
Coal	**16**	**40**	**(24)**	
Totals	**223**	**226**	**(3)**	**$1.6Bn**
2015-2020 average				**Import cost at $110 per barrel**
Oil and Gas (60% reduction)	**83**	**186**	**(103)**	
Coal	**16**	**40**	**(24)**	
Totals	**99**	**226**	**(127)**	**$88.9Bn**

At $1.60 : £, $88.9 Billion is £55 Billion. Added to the present (2012-2014) goods trading deficit of £100-110 Billion, this looks dangerously insupportable.

The British government response to the decline in North Sea oil and gas production (which has been known about for many years) has been to encourage the building of wind farms, and until about 2012 discourage the idea of a new nuclear reactor programme. As with oil and gas production, nuclear power generated electricity is in rapid decline from a peak of around 15 GW capacity in 2002 to 9 GW in 2012, until under present closure plans all but Sizewell B (1.1 GW) will have closed by 2023[64].

4.2 ELECTRICITY GENERATION: THE SECURE ENERGY STRATEGY (SES) ALTERNATIVE (See Appendix 4.1)

In the energy debates of the last few years, as the realities of Tables 4.1-4.3 have dawned on the UK government, most of the attention has been focussed on electricity generation. As shown in Table 4.1, electricity is only 17% of end-user demand for energy. In particular, it has not been generally appreciated that nuclear, wind and solar can only deliver energy as *electricity*.

Any significant move away from fossil-fuel based *heating* must therefore involve the large-scale replacement of existing boilers and furnaces in domestic, industrial and public sectors (Table 4.1). Between them these account for around 50% of all UK energy usage[65]. In the transport sector which accounts for 29% in the forms of octane and diesel fuels, a start has been made with Lithium-battery powered cars, but because of energy storage limitations (not giving adequate range between battery charging) take-up is likely to be slow. To have brought Britain's electricity supply to the brink of a catastrophe on the scale of Dunkirk (Figure 4.1.1), is entirely the fault of successive governments pursuing the wind and solar energy chimeras[66].

This catastrophe can only be averted in the short term by stopping any further closures of coal plant[67], extending the life of the existing 7 nuclear stations due for closure before 2023, and by adopting a long-term Secure Energy Strategy (SES) (Appendix 4.1) to

[64] Originally all, except Sizewell B were to have been closed by 2023, but recent life extensions offer the prospect of Torness and Heysham B extending to 2028.
[65] By contrast, in one or two countries, like Norway and Canada, electricity is already widely used for heating.
[66] With 21,000 wind turbines installed (UK about 4,000), Germany has not closed a single fossil fuelled power station for emissions reasons – keeping them to use when the wind doesn't blow.
[67] Which will shortly be legal by disapplying the EU's Large Combustion Plant Directive.

give both gas and nuclear operators the confidence to build more power stations. Under SES, new long-term indigenous sources of energy must be developed as soon as ever possible. There are only two in prospect:

Figure 4.1: Sizewell B

(1) Nuclear Power, where new plant can now only come on line by about 2023 at the earliest;

(2) Gas from fracking, which has the enormous advantage that it uses existing non-electricity gas-burning installations (Table 4.1) and could be supplying the gas grid by 2020.

Interestingly as shown below, Figure 4.2, abandonment of specific emissions targets under the SES, because of its emphasis on nuclear power, will actually reduce emissions further than the official “Gone Green” strategy. Above all, what the SES will do, is remove the present uncertainty, currently the biggest obstacle to investment.

4.3 ENVIRONMENTAL STRATEGY

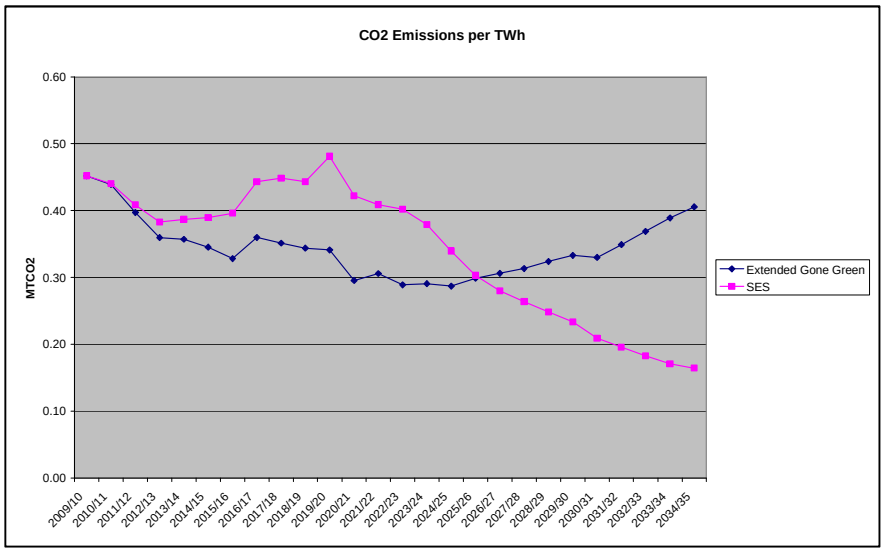
In a strategic approach to the environment, the three biggest concerns in their implication for our national future, should be conserving hydrocarbon resources, preventing inland flooding and our inhabited coastline from erosion, and protecting our unique farming countryside from unnecessary development (see Chapter 6 also).

In any energy strategy, carbon dioxide emissions are a marker for hydrocarbon consumption.

Carbon Dioxide Emissions

In Appendix 4.1 the Secure Energy Strategy is compared with the National Grid's "Gone Green" scenario for projected CO_2 emissions over the period to 2035. The results are given for emissions per TWh produced[68] for both the "Gone Green" and SES scenarios to 2035 in Figure 4.2.

Figure 4.2: total CO_2 Emissions Compared[69]



[68] One TWh would supply electricity to about 200,000 average 3-bed homes, or the heating and electricity to 40,000 for a year.
[69] Gridman©, 2013

Sizewell B nuclear power station (Figure 4.1) delivers about 9 TWh per year, enough electricity for 1.8 million average three-bed houses or about 360,000 for heating and electricity.

These figures are computed at fixed total energy demand of around 2,800 TWh (all uses see Table 4.1) of which electricity is 410 TWh. If the population increases significantly (Section 8.1) then all emissions figures will be worse.

The continued fall in CO_2 emissions for the SES after its peak is due to the steady replacement of fossil fuel systems by nuclear from the mid 20s on. The Gone Green emissions start to go up because as wind capacity increases, so does gas – as back-up for half the time in the winter months (Figure 4.1.2).

The Importance of Using Hydrocarbons for Materials

The huge focus by EU governments on CO_2 as a major product of burning hydrocarbons (fossil fuels) in power stations has obscured the fact that hydrocarbons are a unique source of the synthetic materials on which the modern economies and their consumers depend. In large measure these materials are polymers (for textiles, plastics, resins, elastomers, foams), chemical preparations, pharmaceuticals, detergents, adhesives and transport fuels (octane and diesel). Even if, as is likely, so-called Anthroprogenic Global Warming (APW) (see Appendix 4.4) turns out *not* to be the main source of the temperature rise of 0.6 ^{o}C in the 20th century[70], it will still be necessary for economic and supply reasons to reduce the burning of hydrocarbons (HC) in power-stations, by increasing their thermal efficiency.

Special problems for the EU and UK

While the US is heading towards hydrocarbon (HC) self-sufficiency, the UK and EU nations are already in growing HC deficit with only the Netherlands' natural gas and Poland's coal as substantial reserves in the EU 27 itself.

[70] While not accepting the APW theory and the over complex climate models which attempt to match this reality, self-evidently if you burn 24,000 million tonnes of oil per annum, there will be *some* heating of the sea and atmosphere as a result. The question is how much? (See Appendix 4.4.)

Hopefully the EU will follow the UK and encourage the fracking extraction of methane, instead of legislating against it.

Currently (2013-15) the UK exports 30 million tonnes per annum of crude oil to the EU and about 7 million to the rest of the world, principally the USA. As crude oil these tonnes have a value of about £18 Billion, but as a broad range of chemicals and polymers their value would be about £50 Billion to be further enhanced in UK factories as medicines, cosmetics, textiles, mechanical and electrical components of all kinds, adding perhaps another £50 Billion. The latter two classes are exactly the things which car assemblers and earth moving equipment makers among many others, complain they can't source in Britain.

Promoting Downstream Products

Such "downstream" processing is exactly what the UK-based international oil majors, BP and Shell, did in the early days of North Sea oil extraction in the 1980s. Now this strategy has been all but abandoned with one striking exception in the news recently. The crisis at Grangemouth, which surfaced in December 2013, involved the oil refinery *and* the downstream chemical plant originally built under BP and ICI ownership. The present owner, Ineos, has given the availability from 2016 of cheap ethane from the USA as the reason for keeping the plant open, qualified by the uncompetitive price of energy in the UK. Ethane is a fracked gas and the shortest chain hydrocarbon. As such it is the best feedstock for ethylene, the basic building block for chemicals and polymer manufacture.

The Grangemouth example could be multiplied several times: a million tonnes of oil not converted into 3 million tonnes of CO_2 but converted into £3 Billion of saleable product in the UK. Conservation and economic wisdom go together.

Long-term Strategy for our Countryside

The two biggest threats to our physical environment are flooding and major house construction claimed to be a response to population growth (Chapter 8.1). Contrary to much "green" opinion, the English landscape is not "natural" but man-made – the product of 1,400 years of English settlement, cultivation, husbandry, drainage[71]. In the eyes of many foreign visitors, the English countryside with its farms, villages, castles and great houses is the most memorable physical feature of Britain, after London. Without constant attention, large parts of the countryside in all parts of Britain would revert to bracken, swamps and salt-marsh.

The two (overlapping) public bodies concerned with the countryside in England[72] are the Environment Agency and Natural England, both responsible to the UK Secretary of State for Environment, Food and Rural Affairs (DEFRA). Their overlapping roles have been recognised, but the last triennial review (June 27th 2013) decided to keep both organisations as Non-Departmental Public Bodies with budgets of £1.2 Billion and 0.6 Billion respectively. Both agencies are equipped with the full panoply of area offices and area committees to *"contribute to corporate strategy*". Nowhere in either body's objectives however, does there appear to be a budgeted programme for the greatest countryside need in England – a long-term (30 year) project for comprehensive coastal protection and river flooding protection. If reports and consultations could do the trick, Britain would be the best protected country in the world.

Flood and Coastal Protection

While the winters of 1952/53 and 2013/14 have been described variously as "the worst in living memory", "the worst on record", the fact is that all parts of Britain have over the years been quite unnecessarily flooded in wet and stormy weather. The fundamental reason in all cases has been too little run-off capacity

[71] W.G Hoskins's book, 1977, "The Making of the English Landscape" is one of the most informative books in the English language, inspiring thousands to follow in its writer's footsteps.
[72] "Countryside" is a devolved matter so that there are bodies with broadly similar responsibilities in Scotland, Wales and Northern Ireland.

in rivers. The required river cross-sections can be calculated by competent hydraulic engineers. That this has either not been done, or has been done and then ignored, results from two factors:

1 The Environment Agency's declared policy of stopping dredging and pumping in parts (unbelievably) of major rivers[73] - the Thames, Severn, Parrett, etc., all of which have periodically flooded adjacent houses and farmland.

2 Building houses in known flood-plains.

The Environment Agency's website describes many "patching" exercises, "soft engineering" as it is called, but nowhere is there evidence of a systematic, determined, "hard" engineering budgeted programme, such as so many miles of banks built up and/or rivers dredged, areas protected for years ahead.

With a multitude of other objectives, it is very unlikely, given the senior staff's lack of water-engineering expertise, that the Environment Agency will ever grip this problem with the determination and energy it deserves for the economy, the countryside and the security of people in their homes. Chapter 9 outlines the way in which this and other long-term strategies can be organised, financed and pushed ahead with determination.

[73] A previous head of the Environment Agency has reportedly been quoted as wishing "to attach a limpet mine to every pumping Station", (Sunday Telegraph, 13th January 2014).

CHAPTER 5: SERVICES

In Appendix 2.2 Table2.2.2 shows UK services exports and imports just before (2006) and just past the worst of the recent bank-triggered recession (2011), by areas of the world. All but one entry for Credits, Debits and Balances shows an increase right through the recession and all balances are positive. At the depth of the recession in 2009 (not shown) UK balances were below those of the preceding year like the rest of the world.

5.1 UK Services Trade by Type

Services consist of a wide variety of activities[74], of which financial services and professional services are by far the biggest in terms of both exports and net balances. Professional services and royalties and licences originate all over the United Kingdom. Table 5.1 shows exports and imports by type of service supplied.

Table 5.1: UK Services Exports and Imports in £ billion by Type of Service

Type of Service	2006				2011		
	Credit	Debit	Balance		Credit	Debit	Balance
Transportation	17	19	-2		23	20	+3
Travel	19	34	-15		22	32	-10
Insurance	13	4	+9		10	2	+8
Financial services	34	10	+24		51	12	+39
Professional services	45	22	+23		66	34	+32
Royalties & licences	8	5	+3		9	7	+2
Other services	8	9	-1		13	11	+2
Totals (all types)	144	103	+41		194	118	+76

[74] NSO Pink Book , tables 3.1 to 3.11.

Notes on Table 5.1

1 The “Professional services” category is composed of Engineering, Architecture, Construction, Information Technology, Contract Research & Development, and trade related services such as merchanting. Frequently these services will be performed in the overseas territories themselves, especially for the GHSS and BRIC areas, but credited to their UK base. Especially is this true of Engineering, Construction and Architecture. Our ability to continue to expand in these markets depends however to a considerable degree on an active domestic market.

2 The “Professional services” category has shown an extraordinarily steady increase right through the recession (2008 to the present), in fact since records of these activities began in 1991. Its export value overtook “Financial services” and Insurance categories in 2010. In 2011 it accounted for 34% of all services exports and 42% of the net services trading balance. As can be inferred from Appendix 2.2, Table 2.2.2, this category is even more strongly linked to the Anglophone world than are goods exports. As professional services are mostly technical, it would be logical to add credits from royalties and licences with the other professional services.

3 In 2011 Financial Services[75] accounted for 26% of Services Exports. Financial services exports includes commissions and fees earned by fund managers and dealers, financial intermediation on loans and deposits by foreigners. The insurance category[76] covers life assurance, auto, marine, aviation, and also transport insurance which has latterly shown the most export growth as world trade has recovered its growth.

[75] NSO Pink Book, Table 3.6
[76] NSO Pink Book, Table 3.5

5.2 Future Prospects and Opportunities

Excluding travel and transport, which are very dependent on mass movements of populations, rather than on individual company initiatives, the world's services exports expanded by a factor of 3 in the decade 2001 to 2011. In the period 2006 to 2011 across the recession, the UK's non-travel and transport services expanded from £90 billion in 2006 to £151 billion in 2011, corresponding to a relatively small drop in its share of world exports of these services from 8.0% to 7.5%.

In Appendix 2.2, Table 2.2.2, we can see that UK exports, averaged over the areas listed, increased over the period by around 35%, EFTA and the BRICs being out-performers at 50%. However, absolute numbers are what appear in the nation's accounts. Considering the combined services imports of the BRIC economies of £346 billion in 2011, Britain's $9 billion or 2.6% is very small and way below its world average. Given the very large construction and engineering programmes China and Brazil have underway, a concerted effort, possibly in parallel with the proposed Leopard goods programmes (Chapter 3.2) is clearly warranted. Given that non-transport and travel services are fundamentally word-based, *language ability* in non-Anglophone countries is the key for service exports as well as for goods.

In its overseas trading activities, the UK services sector will be protected from unfair competition and quotas by the UK-EU Treaty (Chapter 1), by the WTO's General Agreements on Trade in Services (GATS) and by the Trade-Related Aspects of Intellectual Property (TRAIP) which includes trade in and patents on goods. The World Intellectual Property Organisation (WIPO) also headquartered in Switzerland, is the usual starting point for obtaining world-wide patent protection.

Given Britain's prominence in world services trade (second after the USA), after Brexit she will have a prominent role in improving both GATS and TRAIP, and in upholding patent protection through WIPO.

Overseas Investment

Though often conflated with “financial services”, overseas investments are treated quite separately in every country’s current accounts. Appendix 2.2 Table 2.2.2 sets out the UK’s services exports for two years either side of the recession in 2006 and 2011. As noted in the comments on Table 2.2, both the main financial investment sectors – Portfolio investment and bank deposit income – showed negative balances in both years.

What have given investment income overall positive balances are *non-financial* investment returns from subsidiaries of UK businesses such as oil and mining. These latter show returns on investment of 8.9% to 11.5% compared with 2.5 to 3.6% on portfolio investment in the quoted years. Given that UK financial companies at £2,000 billion account for around twice the invested assets of non-financial companies (£1,100 billion) there is an urgent need to improve the returns of the financial companies. A 1% average rise on portfolio returns would add £20 billion to the current account and redress portfolio investment’s negative balance (see Comments on Table 2.2).

CHAPTER 6: FARMING AND FISHERIES

6.1 FARMING: REDIRECTION OF SUPPPRT

Britain grows about 62% of the food it consumes (down from 72% in 1990) plus its exports (grain). The vast majority of the fish we eat is imported. Under the EU's Common Agriculture Policy (CAP), farming has been supported by direct payments to British farmers of around £3 billion per annum in the form of grants for land management. This payment has amounted to about 35% of farm incomes on average. The biggest payments per acre go to the best (grain producing) land on average, the owners of which are already well off through the sales of their crops. The farm industry generates about £10 billion of agricultural output and employs about 240,000 full and part-time workers.

The world will need increasing amounts of food. The objectives of our Brexit blueprint must be to redirect the £3 billion to the objective of taking British farming up to at least the 1990 figure.

The outstanding unmet opportunity in UK food production is in horticultural products. The Dutch should be the model for this. Clearly capital and training grants will be needed upfront as the industry has insufficient financial resources of its own to effect a major change. Leopard clusters could be suitable for this objective. Fifty to sixty percent of the £3 billion p.a. redirected from grain to horticulture and to rescue dairy and sheep farmers from dire poverty (incomes below £10,000 pa. in parts) will make possible a veritable transformation of British agriculture.

In our EU negotiations (Chapter 1), we should aim for individual farmers to receive farming subsidy payments on the taper principle over a maximum of 3 years, the balance to farmers being made up by the Treasury out of the sums it will *not* be paying to Brussels. When the taper period is over, the total amount paid to farmers from the Treasury should continue at for another 3 years to ensure continuity of farm incomes, during which transition a long-term system can be gradually introduced to achieve food production objectives at minimum costs to the Exchequer.

6.2 FISHERIES: RECOVERY OF INTERNATIONAL RIGHTS

The objective of the Brexit blueprint will be to re-establish British fishing as a major industry again. The Merchant Shipping Act 1988 will need to be reinstated immediately in law as part of a new British Fisheries Act to be deposited at the UN. This Act will reassert Britain's international right to fishing out to the 200 miles limit or, up to the boundary claims of other countries bordering the North Sea as we have done for oil and mineral rights.

In our negotiations Britain should offer the EU, whose North Sea and Irish Sea border states are the Republic of Ireland, France, Belgium, Holland and Germany, fishing licences broadly consistent with their current catches, and subject to UK-EU conservation measures, for a period of 3 years. After this all licences will be reviewed in the light of the prior claims of British-owned and crewed vessels. The custom of selling unused quotas to the highest bidder will cease. Unused quotas will be returned to a British fisheries authority to be redistributed to British fishermen[77] on a first refusal basis.

Spanish fishing presents a special case. Spain has no actual right to fish in British waters as defined internationally. It is proposed that three-year licences be offered to Spanish fishermen after which time they should receive licences from the EU to fish in the French-Belgian-Irish-Dutch-German section of the English Channel and the North and Irish Seas in accordance with their EU Common Fisheries Policy.

A New Fishing Industry

In GDP terms UK fishing has been seen as a small industry with total landings by UK vessels valued at about £1.2 billion by 6,477 vessels (2010), employing 12,703 fishermen. All of these figures are substantially less than in 1995, a peak year, after which the impact of EU quotas designed to accommodate Spanish fishermen and enact conservation measures, markedly reduced British catches. In 2012 Norway and Iceland between them landed 5% of the world total compared with the UK's 1%, Spain's 1.4% and the EU's total landings of 8%.

[77] I.e. to individual British citizens or businesses with a majority of active British employees.

Under International Law the UK has rights to around 70% of the Continental Shelf according to the 200 mile/median line division between countries bordering it. Despite this, in 1972 the EU was allowed by Prime Minister Heath to claim, in an act of pure brigandage, the whole Continental Shelf fisheries for itself, when Britain joined the EU (EEC) on 1st January 1973.

As proposed above, Britain will now resume control of its waters. This should permit over, say, a 10 year period, the fishing industry to at least triple its catches and landings to 3% of the world total, which will have a hugely vitalising effect on its traditional fishing towns all along the English Channel and British North Sea coasts. This will represent a major offset to both the past loss of fishing, and associated processing employment, plus the sharp decline in tourist numbers over the last 25 years. Overall 20,000 people and £1.5-2 billion should be added to employment and net output.

Restart of Boat and Shipbuilding

Besides the gains in the fishing towns themselves, there will be a fine opportunity to kick-start shipbuilding with one or more shipbuilding Leopards (Chapter 3.2). There will be a guaranteed market for the boats, associated training for the extra shipbuilders needed by the growing fishing industry, and with Britain outside the EU, these can all be British citizens, in places where new, skilled employment is urgently needed, often around boatyards already there, but in need of investment.

CHAPTER 7: UK TRADE RELATIONS WITH NON EU COUNTRIES

7.1 WORLD TRADE ORGANISATION (WTO) AND INTERNATIONAL TRADE LAWS

Britain can now look forward to taking its place as a full negotiating member in the World Trade Organisation (WTO) and the World Intellectual Property Organisation (WIPO) alongside, not only the USA and our sister countries in ABCANZ, but also alongside emerging economies (Appendix 2.2)[78].

The WTO was set up in 1995 as the successor organisation to GATT – the General Agreement on Tariffs and Trade, formed in 1947. The GATT articles are still in force, particularly Article 1 (the Most Favoured Nation clause). This outlaws a country or a trade bloc from granting to one country or bloc better trade terms than it grants to others. This disposes of the scare-mongering by some commentators that the EU can impose unilaterally on Britain tariffs which it doesn't apply to some others outside itself[79]. There are six other EU Free Trade Agreements in the course of negotiation. In essence every time a country or bloc lowers a trade barrier (e.g. on standards) or opens up a market (e.g. in public procurement), it has to do so for *all* its trading partners. With the possible exception of agriculture, there is a general expectation that trade barriers, and tariffs in particular which are already very low, will be eliminated altogether over the next 5-10 years.

WTO Covers Services as well as Goods

As discussed in Chapter 5, the General Agreements on Trade in Services (GATS) and on Trade-related Aspects of Intellectual Property (TRAIP) are now in full force. In this latter area, the Commonwealth countries (CW) with Britain in the van (see below 7.5) and the USA, are likely to act together on many issues, including the extension of protection for patents and trademarks where customs and practice in the US and CW are very similar (Chapter 5).

[78] WTO: Principles of the Trading System, 2014.
[79] The WTO still allows trade blocs like the EU, EFTA, NAFTA, ASEAN to grant lower or zero tariff treatment to countries within the bloc.

United Nations Commission on International Trade Law (UNCITRAL)

This is the core body of the United Nations system of international trade law. Members of the commission are elected by the UN General Assembly for terms of six years at a time. There are currently 61 members. The UK, USA, Australia, France, Nigeria, Norway, Uruguay have been members for almost the whole period since 1968. It is devoted to building a body of laws, arguably more comprehensive than the EU's for its internal trade, across all international trade matters with a particular emphasis on sales of goods, insurance, international payments, commercial arbitration, trade financing contracts, e-commerce, public procurement, cross-border insolvency. It is the legal complement of the WTO and as such is of vital importance to the United Kingdom, which will henceforth be able to play its full part.

Dispute Resolution by the WTO: Norway vs EU

Dispute resolution is of great importance to the UK as an ultimate safeguard against possible future disputes with trading partners which cannot be resolved between us and them alone. As an example of a dispute resolved by the WTO, Norway objected to an anti-dumping measure taken by the EU in 2006 against Norwegian farmed salmon. Norway's objection to this measure was rejected by the EU and the matter was remitted to the WTO's Dispute Settlement Body (DSB). This delivered a verdict on 15th January 2008, which upheld Norway's objection and the EU agreed to "pay close attention to the DSB's findings", i.e. to withdraw the measure.

7.2 UK BILATERAL TRADE AGREEMENTS

At present the EU has 27 bilateral trade agreements (TAs) which apply to Britain as part of the EU. EFTA has 25 including Canada, Mexico, Hong Kong, China, Gulf Co-operation Council, South Africa, Korea, Singapore, Turkey.

As noted in Chapter 1, Britain's withdrawal from the EU will enable it once again to make its own trade agreements, particularly with the individual countries grouped under

the headings ACANZ, BRIC and GHSS (see Appendix 2.2), TIM[80], Japan, Korea and the USA. Of these, Canada, Turkey and Korea already have TAs with the EU and a comprehensive TA with the USA called the Transatlantic Trade and Investment Partnership (TTIP) has been in negotiation since 2011. At £86 billion (2011) the USA is the biggest single national market for British exports of goods and services. Clearly Britain would wish to negotiate a similar TA if possible, seeing how much of TTIP could be sensibly carried over into a UK-USA TA, bearing in mind the existence of the North American Free Trade Agreement which embraces Canada and Mexico (see below).

7.3 BRITAIN'S FUTURE RELATIONSHIP WITH THE EUROPEAN FREE TRADE ASSOCIATION

In Chapter 1.3 it is proposed that Britain should apply to join EFTA, which she co-founded in 1961, but like Switzerland, not join the European Economic Area (EEA) which the three other present members have joined.

Free movement of people [Lisbon Treaty, Article 14] is something the British people are strongly opposed to, but it remains a fundamental principle of the EU and the EEC before it. The EEA requires that EU and EEA nationals should be free to move and settle in any part of the EEA under the EU's four freedoms (Chapter 1.2).

After a referendum in 1992 the Swiss people rejected joining the EEA. Between1999 and 2004 Switzerland negotiated a sequence of 16 economic agreements as well as six others related to Europol, Eurojust, the European Defence Agency, and the EU competition authorities. These were added to the EC-Switzerland Free Trade Agreement (1972) which abolished duties on industrial goods, to the Insurance Agreement (1989) and to the Customs Security Agreement of 1990.

At present, EFTA has 26 agreements with third parties which all four of its members have signed up to. These parties include Canada, Mexico, Korea and the GHSS group (Appendix 2.2, Table 2.2.1), which Britain has major interest in increasing its exports to. Hopefully she can simply opt in to these without there needing to be detailed negotiations with the 26 third parties.

[80] Turkey, Indonesia, Mexico, whose combined imports total £500 billion, about the same as Japan's.

7.4 RELATIONS WITH THE NORTH AMERICAN FREE TRADE AGREEMENT (NAFTA)

Joining NAFTA has a lot of appeal to many British people because of ties of law and language with Canada and the USA. For some business people an additional attraction is the preferential access this would give to Mexico. With 115 million people, Mexico is by far the largest Spanish-speaking country in the world, to which we send a derisory 0.6% of its $385 billion annual imports and take a similar proportion of Mexico's exports [WTO 2012]. As with the 4 BRICs (Table 2.2.1), the vast bulk of its imports are of goods: 93% in fact. Through EFTA, Britain would be party to trade agreements with Canada and Mexico anyway, and we have a major interest in joining the Transatlantic Trade and Investment Partnership (TTRIP). There is clearly scope for an eventual rationalisation of Transatlantic Trade with separate NAFTA, EFTA, UK agreements with the EU dissolving into TTRIP.

7.5 COMMONWEALTH TRADE

Many people return from time to time to the notion of some sort of Commonwealth Trade Agreement[81]. Like the British Empire it once was, the Commonwealth is a highly disparate group of 54 countries, still with its common law and language (mostly), but without the Empire's central authority. The last time this authority was brought to bear on trade matters resulted in the Ottawa agreements of 1932, "Imperial Preference". The prospect under the World Trade Organisation of a completed Doha negotiation giving virtual abolition of agricultural tariffs as well as goods, makes imperial/commonwealth preference type agreements unnecessary and probably now illegal under the Most Favoured Nation provisions of the WTO (Chapter 7.1).

However, non-tariff barriers to trade are still substantial and it is clear that the imperial inheritance of common law, language, and long-standing relationships, can be of real value in trade matters. This is particularly true of services. Appendix 2.2 tables show UK trade with the two groups of former Empire countries, AICANZ and GHSS having

[81] Even talking of a Free Trade Agreement.

positive and increasing balances in both goods and services individually, despite the geographical separations involved.

The Commonwealth Business Council[82] (CBC) was established in 1997, with the objective of making practical connections between businesses thereby increasing trade between Commonwealth nations. While its initial focus has inevitably been on large companies with established trade pathways, the concept of the CBC as a facilitator for the Leopard companies is very attractive, given the stress being laid on the UK Foreign and Commonwealth Office, to help smaller companies into overseas markets (Chapter 3.2).

7.6 RELATIONS WITH OTHER TRADE ASSOCIATIONS

Appendix 2.2 shows the feeble penetration of British exports to two great areas of the world – South America and South-East Asia. Both these areas have major trade associations: Mercosur[83] and ASEAN[84] respectively, in the process of developing further. As a member it would be worthwhile for the UK to encourage EFTA to reach cooperation agreements with both these associations.

[82] Director-General (2012-) is Sir Alan Collins, former UK Director-General for Trade & Investment in the USA and High Commissioner to Singapore.
[83] www.mercosur.int. Mercosur is a customs union of 5 countries and 5 associate members, including Brazil.
[84] www.asean.org. Based in Singapore, its documentation is all in English.

CHAPTER 8: CHANGES IN UK'S NON-TRADE RELATIONS POST- BREXIT

Chapters 2 and 7 discussed Britain's past and future trade relations with the world post-Brexit. This chapter outlines proposals for five categories of non-EU non-trade relations with the world post-Brexit:

8.1 Immigration into the UK;
8.2 Defence
8.3 Foreign Aid
8.4 Commonwealth Relations
8.5 Britain's UN Role

8.1 IMMIGRATION INTO THE UK

Immigration is arguably the gravest matter facing Britain, along with jobs and the economy. Leaving the EU will make it hugely easier to deal with. Certainly it is clear that the single most important factor in the minds of the electorate casting their votes to leave the EU was the expectation that uncontrolled immigration from EU countries would cease after Britain leaves, greatly reducing population growth (Appendix 8.1). The issue breaks down into three main considerations:

(i) Control and monitoring of people flows into and out of the UK.

(ii) The numbers allowed to work and settle in the UK.

(iii) The extension to EU nationals of the system of work and residency permits already in place for non-EU citizens, with special transitional arrangements for those already working in the UK.

A basic principle is that future EU arrivals would not be in a more advantageous position than citizens of those countries with which the UK already has visa-waivers in

place, i.e. the other ABCANZ countries plus Japan. The most practical arrangement is to extend this visa-waiver system to all EU Nationals[85] (Appendix 8.2).

Policy for Immigration

Given that average incomes in the UK are anywhere between ten and a hundred times greater than in Eastern Europe and Asia-Africa, to all intents and purposes there is permanent pressure to move from these regions to Northern Europe and their offshoots in North America and Australasia. This pressure is likely to intensify even while standards of living for some in China, India and Pakistan rise. At 1050 per square mile, England is now the most densely populated country in the industrial world: only Bangladesh, Taiwan and Korea are significantly greater in the whole world. There is also in Britain a large illegal population variously guessed at between 500,000 and one million people.

As every single person in the land is affected by the settlement of newcomers among them, the British people *as a whole* must be given the right to decide how many, if any, newcomers can be allowed to settle here in future. Rather than leave this an on-going political issue, the least nationally divisive way to settle it is, like EU membership, to hold a referendum to choose from among three (say) levels (including zero). In any event, in the light of the great increase in the numbers subject to immigration control as a consequence of Brexit, a better system of border controls is needed. This is outlined in Appendix 8.2 including means of distinguishing those with bona fide courses of study or business secondments extending more than one year[86].

Jobs and Access to Social Benefits

This issue has long been the subject of public concern and it is now time to settle the issue. Public concern has been understandably focussed on the visible matters such as Child Benefit being paid under EU rules in respect of dependent

[85] After some reluctance, the USA agreed to extend their visa-waiver system to all EU nationals, not just to the pre-2004 EU countries, which was their first inclination.
[86] For reasons which are not entirely clear, the National Statistical Office and the International Passenger Survey counts anyone coming to a country for more than a year in the immigration statistics.

children who have never been in the UK, overcrowded schools, many having majorities of pupils not even speaking English, and pressure on doctors' surgeries.

Besides reducing or eliminating primary immigration altogether, a gradual transition to a contributory system for both benefits and education is going to be needed and will help reduce pressure anyway if we aim to reduce personal and corporate taxes to internationally competitive levels as proposed in Chapter 9. A start can be made on the transition by requiring all newcomers to pay for health and benefits by means of an entitlement (HBE) card (Appendix 8.3).

8.2 DEFENCE AND FOREIGN AFFAIRS

"We have no eternal allies and we have no perpetual enemies. Our interests are eternal and perpetual, and those interests it is our duty to follow".[87]

From the peak of its economic and naval power, in the 50 years following that declaration Britain's Army engaged in no fewer than 22 major campaigns from the Second Sikh War to the second Boer War (1899-1902) all in the defence of the Empire, while the Royal Navy maintained its worldwide naval dominance and its 100 year anti-slavery patrols in the Atlantic and Indian oceans.

The commitment of the Royal Navy to the suppression of the Slave Trade over the 107 years from the passing of the 1807 Anti-Slave Trading Act to the outbreak of the First World War in 1914[88], when the Navy became otherwise engaged, reminds us that since the Victorian age, mixed in with "interest" in the Palmerstonian sense, there has been an important moral strain in British foreign policy[89] supported by quite large sections of the British public[90].

[87] Lord Palmerston as Foreign Secretary in the House of Commons 1st March 1848.
[88] Arguably the suppression of the oceanic slave trades is the greatest sustained effort in history for the relief of human suffering by one country on behalf of all.
[89] E.g. Gladstone's public agonising in his 1879 Midlothian campaign over whether Britain should do something to stop the Ottoman massacres of its Bulgarian subjects.
[90] This has never been a question solely or even principally for politicians. The Lancashire mill workers who refused in 1863 to spin cotton from the slave states in the American Civil War is an outstanding example of direct action and sacrifice by members of the general public.

British Intervention in Other Countries' Affairs

While Britain's power to affect matters remote from its shores is hugely reduced from its peak in the 1850s, in today's world it still has a powerful military reach. The dilemma of interference in other countries' affairs to protect sections of their people from slaughter or ill-treatment, while respecting their governments, is exactly the same one that Gladstone attempted to resolve.

One of the main lessons of Anglo-American intervention in Iraq and Afghanistan, countries with more than 20 million people each, is to see how long and how many boots on the ground it takes to make a real difference. The jury is still out on operations in these two countries where the USA committed nearly half a million and the UK 40,000 troops at their peak in Iraq, and 130,000 and 10,000 over a ten year period in Afghanistan[91].

The outstandingly successful British intervention in the last 20 years has been the 'policing' action by British troops in 2000 in Sierra Leone (population 8 million) which had fallen into gangster-type hands over a period of 10 years, ultimately causing about 50,000 deaths. Since then a semi-stable form of multiparty democracy seem to have taken root. As with the action in East Africa in 1964, this action was successful in a former colony and Commonwealth member because it was actively wanted by the people and their legal government.

Besides these interventions over the last 30 years, Britain has fought Argentina, at a distance of 8,000 miles, to liberate the Falklands (1982) and repulsed the Iraq invasion of Kuwait (1990). As the second largest contributor, it has maintained its commitment to NATO and the out-of-area actions referred to above. On a thirty year plus perspective to 2050 both NATO and the UK need to agree what threats there will be to counter outside NATO's north Atlantic bailiwick. The UK defence review (2011) seems to reflect the view that British forces should be equipped to act, with the USA, out of NATO's area. The

[91] For comparison, at the peak of its effort, there were 20,000 military and 30,000 armed police fighting perhaps 500 active terrorists within a sympathetic population of perhaps 100,000 in Northern Ireland during the 30 year period 1969-1998.

objective seems primarily to design and commission the most up-to-date weapons, weapons guidance systems and weapons platforms (ships, planes, mobile gun platforms) including the four submarine ballistic missile system[92] within an equipment budget of around £20 billion per annum. The bigger our manufacturing industry is, the more likely we shall be able to do this, while making an important contribution to the credit side of our goods trade (Appendix 2.2, Table 2.2.1).

Although the EU's Common Foreign and Security Policy (CFSP), set up as an EU competence under the Lisbon Treaty, has not affected the British public, it has affected the British army. The Policy dates from the 1997 Amsterdam Treaty, whence it has migrated in the usual EU fashion from being a separate "pillar" of intra-EU collaboration, to being an EU competence, where it comes under qualified majority voting rules.

Britain needs to withdraw from the CFSP and its battle groups. UK international defence collaboration should be grounded in the NATO Treaty and the Echelon[93] intelligence gathering system.

8.3 A NEW REALISM IN THE FOREIGN AID PROGRAMME

The centrepiece of post-Brexit changes in our defence arrangements and foreign affairs policies which they support should be to abolish the Department for International Development (DfID)[94] and transfer most of its budget and possibly some personnel to the Ministry of Defence (MOD) and the Foreign and Commonwealth Office – along with major changes in their objectives, as follows.

[92] Those who query the point of maintaining the Nuclear Deterrent should recognise that this guarantees Britain's place as a permanent veto-wielding member of the UN Security Council as a position of immense influence in critical tunes, e.g. during the Falklands War.
[93] This is a joint endeavour by the ABCANZ countries and is probably, in today's world, the most important international alliance for all its members.
[94] As seen on DfID's website, two thirds of its budget have been spent on the EU and UN programmes.

Disaster Relief

Besides its war-fighting role, which would always take priority, the MOD would be specifically tasked with disaster relief in any part of the world. Around £5 billion of the DfID £10 billion budget would be added to the MOD annual budget to enable it to do this: reversing the planned 30,000 cuts in military manpower[95], equipping the two new carriers with aircraft and helicopters, and building up reserves of stores – specifically rapid-assembly housing units, sanitation and water supply systems, manufactured in the UK, and personnel to install these. There is no better means of doing good in the world, and projecting our nation at the same time, which can come close to this practical scheme of disaster relief. All the evidence is that the Armed Forces enjoy these sort of operations, the Navy in particular, which could station one of the new carriers nearer to the Pacific/Indian Ocean part of the world, along with its attendant frigates. If the Australians were to agree, the BAe systems dockyard at Williamstown, Victoria suggests itself: indeed a joint UK-Australia-New Zealand force would be even better, giving real substance to the desire among many for a revitalising of old relationships.

8.4 COMMONWEALTH RELATIONS

The Commonwealth, of which Her Majesty the Queen is Head, is an association of 53 independent countries, all but two of which (Mozambique and Cameroon) were members of the British Empire, and whose official languages always include English, while English-based common and commercial law mostly applies. As remarked in Chapter 7.4, this helps trading relationships. As explained there, in today's world, with its plethora of international trade agreements, there is no need for a specifically Commonwealth-wide trade agreement.

Helping the poor countries of the Commonwealth to develop, under the new realism in the foreign aid programme, would become a specific Foreign and Commonwealth Office (FCO) responsibility. This would sit comfortably alongside the other new responsibility envisaged for it, namely to provide commercial services, specifically to

[95] Restoring the Army's 2020 numbers to 102,000, the Navy's to around 60,000 and the RAF to 50,000.

help SMEs in Leopards into foreign markets. In both new areas of responsibility types of staff new to the FCO will need to be engaged – principally civil, mechanical and electrical engineers, agronomists, marketing, medical and finance professionals[96]. Dependent on performance, an additional budget of £2 billion is eventually envisaged for these new responsibilities, taken from the present £10 billion DfID budget. After the £5 billion reassigned to the Defence budget (8.2) this would still leave £3-£4 billion from the DfID budget to be returned to the Treasury, more than enough to fund redundancies from DfID staff.

Besides trade and defence, there are important Crown Commonwealth ties of family and ancestry which could do with some nourishing. It shouldn't all be left to the Royal Family.

Brexit Dividend (1): Commonwealth Scholarships

To help these objectives along, it is proposed that new awards – "Commonwealth Scholarships" be established. These would be generously funded at £25,000-£30,000 per annum for a maximum of 3 years, tenable in any other Commonwealth country for degree level study as a "thick sandwich" course in both an commercial business and a university. Given the funds available from *not* paying the EU subscription of £12 billion per annum, it is envisaged that over time the number of scholars would build up to about 1,000, an average of 20 per Commonwealth country ranging from one from the smallest to (say) 100 for the largest.

If Her Majesty were willing to let her name be attached to the scholarship, the establishment of this award would constitute a lasting memorial in the 65th year of her reign[97], to the Monarch who has done more than any other individual in the aftermath of Empire to keep the Commonwealth ideal alive[98].

[96] I.e. precisely the categories *not* engaged by DfID.
[97] 2017, (62nd in 2014)
[98] Ben Pimlott (1996) "The Queen". In her broadcast from Cape Town on her 21st birthday, the Queen, as Princess Elizabeth declared, "Through the inventions of science, I can make my solemn act of dedication with a whole Empire listening. It is very simple. I declare before you all that my whole life, whether it be long or short, shall be devoted to your service and the service of our great Imperial family to which we all belong". Who could deny that the Queen has fulfilled her vow.

8.5 BRITAIN AND THE UNITED NATIONS

As a founder member of the United Nations Organisation and prime author of the UN Charter at Dumbarton Oaks (Washington, USA) in August 1944, the UK is one of five permanent members of the UN Security Council (i.e. the three victors in the Second World War, plus China[99] and France, which was added in September 1945 at San Francisco).

While the UN has irritated Britain from time to time, with its inevitable Third World bias against Western countries in the General Assembly, this aspect is diminishing as Third World countries have concentrated more and more on their domestic economies, which the Commonwealth policy above is designed to reinforce.

In the Falklands conflict, the UN Security Council was the major diplomatic cockpit. The passing of resolution 502 calling on Argentina to withdraw, was a major coup by Britain's diplomats[100].

If Britain had not been a member of the Security Council, it seems very unlikely that Resolution 502 would ever have been passed, or even tabled, and American opinion become at best neutral or even hostile to Britain over the Falklands. As now only the sixth or seventh largest economy and likely through growth of population in emerging economies to slip to tenth or lower in the next 15 years, even with the expansion of manufacturing, what will keep Britain as a permanent member of the Security Council with the all important veto?

The answer is that Britain is still one of the five powers with strategic nuclear ballistic weapons (submarines). This is the major justification for maintenance of the nuclear deterrent costing on average about £2 billion per annum[101].

[99] China was present at Dumbarton Oaks as Nationalist China, while the war against the Mao Tse-Tung communists was raging. In 1972 the People's Republic of China took Nationalist China's place in the UN Assembly and Security Council.
[100] Sir Anthony Parsons, our permanent representative, in particular.
[101] Allowing for re-equipment at 30 year intervals.

Over time, Britain may emerge as the de facto representative of the Commonwealth on some United Nations issues[102] (as France may emerge as the EU's) – while the Disaster Relief Role would further solidify her long-term position.

[102] Guyana and Uganda played important roles in getting Resolution 502 through.

CHAPTER 9: GOVERNANCE

9.1 LEGAL & CONSTITUTIONAL ISSUES ARISING FROM BREXIT

There are probably around 20,000 EU regulations which are currently effective over the full range of EU "competences". These cover practically everything that the British state does, including, in particular, the Internal (i.e. Single) Market, economic policy, employment (e.g. Working-Time Directive), social policy, agriculture and fisheries, consumer protection, energy and environment. In addition there are areas of cooperation (e.g. police and humanitarian aid) which do not need unpicking at this stage.

Regulations[103] can be disapplied by Parliament. It is proposed that trade and professional bodies be invited to propose lists of those they wish to see disapplied. Clearly there will be overlap: a *small* section of the Business, Innovation and Skills Department should be tasked to assemble a priority list. However there are three issues of supreme importance which Government and Parliament must proceed with immediately (i.e. before the conclusion of the UK-EU Treaty negotiations): repeal of the European Communities Act (ECA)1972 and repudiation of subsequent[104] Treaties, repeal of the Human Rights Act 1998 and repeal of the Climate Change Act 2008.

Repeal of the European Communities Act 1972

The announcement that Britain wishes to withdraw from the European Union has activated Chapter I, Articles 50 of the Lisbon Treaty and Chapter V, Article 218 of the Treaty on the Functioning of the European Union (TFEU). To give effect to this in Britain it is necessary for the UK parliament to repeal the European Communities Act 1972. This is the legal source of the overriding of British laws enacted by Parliament where these conflict with EU law (as stated by Lord

[103] The EU legislates in two ways – Directives and Regulations. Both are legally promulgated by their being adopted by the European Council. Directives are requirements placed on member states to embody the principles in National Law, enforceable in National Courts. Regulations are precise instructions which act immediately on individuals in member states. Some regulations will have to remain in place pro tem for practical reasons until UK statutes can be formulated and passed into UK Law.
[104] Which include the Single European Act (SEA) 1986. Despite its name, the SEA is in fact a Treaty, which, like other Treaties (except the UK Accession Treaty in 1972), has been signed into British law by the Queen acting on the advice of the Prime Minister.

Bridge in a judgement in the Factortame case 1991. This has been accepted as the legal position by the UK Supreme Court ever since). Repealing the ECA would enable the British Parliament to disapply as many Regulations emanating from past Treaties and Directives as it wished.

Repeal of the Human Rights Act (HRA)1998

This 1998 Act of the Blair government incorporates the 15 main rights of the 1951 European Convention on Human Rights which Britain ratified in 1957. These rights are included in the Charter of Fundamental Rights of the EU which Britain is subject to through signing the Lisbon Treaty. Although the HRA was claimed to enable UK human rights cases to be judged exclusively in the British courts according to the HR Act, it has not prevented a succession of appeals against British parliamentary decisions being heard in the European Court of Human Rights in Strasbourg.

It is clear that Britain will only be truly independent when it is free of the judgements, not only of the European Court of Justice in Luxembourg (which adjudicates on EU matters), but also the European Court of Human Rights and its extraterritorial claims. One authority, Foster (2009) notes that there has been an “explosion” of human rights courses in British universities since 1998 as students and lecturers exploit the employment opportunities HR provides.

In due course the Extradition Act 2003, which is the legal basis for the European Arrest Warrant and the US-UK extradition treaty will need to be replaced by a new statute (or drastic amendment of the Act) so that the extradition of British citizens will require authorization on specific prima facia evidence of crime, by a British High Court Judge.

Ratification of Treaties Act

Even though Britain will soon be free of the ECA and subsequent Treaties, it should be observed how incredibly undemocratic the whole European construct has been (Gaesner, 1986).

One specific remedy can be enacted right away and that is to remove the Royal Prerogative in treaty-making and replace it with a requirement that all treaties be subject to ratification by Act of Parliament. Never again must the British people be subjected to an unknown set of future regulations, whose only legal authority in the United Kingdom rests on the signatures of two government ministers on a treaty document.

New Act of Supremacy

Repeal of the Human Rights Act will not of itself prevent the courts from treating the European Court of Human Rights and case law pertaining as if it still applies in British law. There must therefore be a corresponding "Act of Supremacy" making it clear to the courts that the ECHR has no authority in Britain, its dependent territories, the Isle of Man and the Channel Islands, and the UK bases in Cyprus. Nor can future cases be appealed from past judgements of the ECHR.

This repeal/Act of Supremacy needs to be *soon* to prevent a flood of cases. However, there is a case for a British Rights and Duties Act, similar to the Canadian Charter of Rights and Freedoms which is entrenched in the Canada Constitution Act. This Act removed the last vestige of British legislative authority in Canada and was signed into Canadian law by the Queen on 17th April 1982. By repeal of the 1998 Human Rights Act and the passing of a new Act of Supremacy, Britain as mother country will have caught up with her daughters.

UK-EU Council

The Brexit Treaty, like any other needs to have a built-in mechanism for making agreed changes in the light of experience and for dispute resolution in cases where things cannot be agreed.

It is proposed that a UK-EU Council should be that mechanism and set up under the Act of Parliament giving legal force to the terms agreed with the EU.

9.2 MAJOR PROJECTS

All countries have problems with carrying our major government-financed projects. Defence projects over-runs in time and money have been as common in the USA and France as in Britain.

However, Britain has been signally less successful than France or Switzerland in executing non-defence projects. The reason for this is that the British Civil Service is an administration machine[105], staffed largely by people who are regarded by some with approval as "generalists"[106]. While this makes for difficulties in handling technical matters, such as IT procurement, Cabinet Ministers have however testified to the excellence of individuals in their administrative role[107].

France, by contrast, has benefitted from an elite caste of graduates of the École Nationale d'Adminstration[108] (énarques for short) which produces people of a wide range of complementary competences: analysis, engineering, finance, systems, management. Every international company management – oil, gas, nuclear, chemicals, aerospace, etc. – recognises the different qualities and expertises needed for running an existing plant and designing, building and commissioning (DBC) something new. To carry out the DBC is the job of project managers and engineers.

Repeated failure to build and maintain adequate infrastructure is unnecessary and demeaning. There is an urgent necessity for the creation of a specific Project Management Group (PMG), separate from the Civil Service. This Group would undertake long-term multi-billion pound projects and report annually, through a relevant Cabinet Minister, directly to Parliament. Over time it would create a cadre of qualified people with a career structure and ready interchange with the private sector. There is a

[105] The top rank of the Civil Service used to be called the "Administrative Class".
[106] Some would say that the Treasury employs many qualified economists; others would say that this is not enough in a world where what is desired constantly clashes with what is possible.
[107] The diplomatic service is a significant exception to the "generalist" character. Most have to learn the languages of the countries in which they serve.
[108] In this context "administration" translates more like "direction" as in Conseil d'Administration – Board of Directors.

precedent for this in the Royal Corps of Naval Constructors, formed in 1888, specifically to ensure we had a new fleet of battleships needed to take on the Kaiser's[109].

Two Urgent Cases: Nuclear Energy and Flood Protection

Both these are of critical importance for the country's being able to function properly. Chapter 4 outlines the nuclear need. Protection against river flooding and coastal protection[110] are as critical: both have suffered from a confusion of motives and objectives (Chapter 4.3).

As well as the managing of major projects like this, long-term financing is the major problem in Britain with its short-term politics. Appendix 9.1 outlines how to apply the Brexit Dividend (2) to the second, and pensions to the first of these.

[109] The first test of the Corps's expertise was in the building of the battleship HMS Dreadnought, first of its class, with a wide range of technological innovations. The keel was laid on October 2nd, 1905 and the sea trials of the completed 20,000 ton ship started on October 3rd 1906, one year and one day later.
[110] This passage was drafted *before* the current floods.

CHAPTER 10: BRITISH IDENTITY

Over the last 40 years or so, British identity, particularly among young people, has been systematically undermined by constant propaganda in favour of a European identity, and by multi-cultural bias in our schools education system, which has laid too much stress on meeting the presumed needs of ethnic minority children, whether born in Britain or brought from abroad. Even the reformed socialist former Home Secretary, David Blunkett, was heard commenting[111] that it had been overdone and Britain needed a new "civic nationalism".

10.1 ENGAGEMENT OF THE BRITISH PEOPLE

The regaining of British legislative independence after 44 years of unwilling participation in the European project will represent the biggest permanent change in Britain's constitutional position and foreign relationships since Henry VIII's break with the Papacy and Parliament's passing of the "Act of Supremacy" in 1534, nearly 500 years ago. The continuity of the English nation and the British nation, of which it is today the major part, is unique in history – at over 1100 years[112] nearly twice as long as Rome. No king or queen from King Alfred to Queen Elizabeth II ever doubted until the passing of the European Communities Act of 1972 that they and their parliaments were the sole deciders of law in this country or of treaties with foreign powers. Our children must be taught the history of our country in *school* as part of their birth-right and identity.

Figure 10.1: British Passport

[111] On ITV Channel 5,14th May 2007.
[112] Dated from the accession of Alfred the Great in 872 whose thirty-four times great grand-daughter is our present Queen.

While the practical effects of Brexit will reveal themselves over time, there will be no more potent symbol of this resumption of national independence than the restoration of the traditional dark blue British passport, in line once again with the other ABCANZ nations. People should be allowed to replace their EU type burgundy passport (which all British citizens have been forced to carry abroad since 1990) free of charge[113].

But beyond this symbolic change, all British people should be engaged consciously in the improvement: to our industries, to their own educational attainments, and to the protection of our landscape while carrying out the designs of the foregoing nine Chapters.

10.2 THE BREXIT DIVIDEND (3): CITIZENS' VOUCHERS

To give tangible expression to the new path Britain is set on, it is proposed that *all* British young people on reaching full citizenship at age 18 should be awarded a "Citizens' Voucher" in a specific school ceremony for post-school 18+ academic and vocational education, valid for three years *at any time of a person's life* and a key part of their British identity. The vouchers would be redeemable by the Treasury at four values, dependent on the course or training a student is accepted on to. Controlled at an average value of £5,000, this would amount to £4 billion if fully taken up straight away by the present 18+ cohort (which is doubtful). This dividend will be ring-fenced in the Treasury from the net £12 billion not spent on the EU. Such a voucher will do more for closing the divide now opening up between the half of the cohort going on to Higher Education and those who do not, than any other single measure. Beside this social advantage, by bringing apprenticeships of all kinds fully into the funding network, it will tackle directly the most urgent of all Britain's supply side economic problems: the poor educational standards of the lowest 25% of the ability range; Neets[114] will be abolished. "Self-improvement" in the John Bright sense (1847) [Prologue above] should be seen as an imperative for everybody. The expansion of production due to the Leopard clusters (Chapter 3.2) will provide over time around one million new job opportunities to match the educational opportunities which Brexit Dividend (3) will provide.

[113] We shall probably have to accept an A6 sized soft cover version to maintain machine readability.
[114] "Not in employment, education or training"

EPILOGUE

For all the hard-headed negotiation, projects and legislation underpinning our Brexit Blueprint, the supreme issue is the heartfelt wish of a majority of our people to regain the freedom to govern ourselves again, so lightly cast away bit by bit over the last 44 years[115].

As the late Major F. A. Tilston VC, Essex Scottish Regiment of Canada put it[116]:

> *"Free government is not lightly come by, nor is it lightly held. Freedom is not to be bought, received as a gift or hit upon by accident. Nor can it be maintained by compromise with its enemies, nor by the determined efforts of just a few of its citizens.*
>
> *It must be earned by a whole people and fought for by everyone who shares in its glorious benefits".*

Major Tilston was awarded the Victoria Cross for the utmost valour and devotion in the bitter battles in the Reichswald of March 1945, where he lost both legs barely two months before the end of the war in Europe.

The objective of this Blueprint is to set Britain on a course that will, as he says, engage our whole people in the battles of the future, not military one devoutly hopes – though we are a martial people - but economic, social and cultural. Especially must we imbue the rising generation with the hope and determination which Major Tilston showed so movingly in the 47 years of his life after he lost his legs.

As another warrior put it[117], no longer young, but with his greatest days ahead of him:

> *"Come on now all you young people all over the world. You have not an hour to lose. You must take your places in life's fighting line. Raise the glorious flags*

[115] 1973-2017
[116] 1906-1992) in his introduction to "Courage Remembered" by Kingsley Ward and Edwin Gibson (1988).
[117] Winston S Churchill (1930) in "My Early Life".

again, advance them upon the new enemies who constantly gather upon the front of the human army. Don't take no for an answer. Never submit to failure. Do not be fobbed off with mere personal success or acceptance. You will make all kinds of mistakes, but as long as you are generous and true, you cannot hurt the world, or even seriously distress her. She was made to be wooed and won by the young".

-oo000oo-

Appendix 1.1

Vienna Convention

The Vienna Convention on the Law of Treaties [VCLT] was adopted by the United Nations on May 22nd 1969, and came into force on 27th January 1980.

Article 62 of the VCLT provides for withdrawal from a treaty if there has been a 'fundamental change of the circumstances which constitute *an essential basis for the consent of the parties to be bound by the treaty'.* Clearly a national referendum which repudiates Britain's membership of the EU and the obligations attaching to membership is just such a 'fundamental change'.

Articles 65-68 of the Convention set out the procedures for withdrawal. Of particular note is Article 65 which specifies a minimum of only three months' notice of withdrawal.

The VCLT makes clear that the negotiations are to be concluded between the *signatory states*, not derivative bodies set up or endorsed by the treaty like the EU Commission and the European Parliament.

The preamble to the EU Lisbon Treaty clearly states that it *is* a treaty between states and *not* a constitution as asserted by some. Under the VCLT there is an implied provision for the case where some signatories won't agree. This provision could be of great significance should some EU member states refuse to sign a new UK-EU Treaty or cause delay by referring it to the European Court of Justice under Article 218 (11) of the TFEU.

Appendix 1.2

The EFTA Convention as at 1st July 2013

There are 30 A4 pages containing 59 Articles with 34 Annexes. In addition there are 28 Trade Agreements with third parties, including the EU. The two leading members of EFTA – Norway and Switzerland – have individual agreements with the EU, including their individual financial contributions to the EU budget. Article 2 below gives the Associations Objectives.

CHAPTER I: OBJECTIVES

ARTICLE 1

The Association

An international organisation to be known as the European Free Trade Association, hereinafter referred to as ”the Association”, is hereby established.

ARTICLE 2

Objectives

The objectives of the Association shall be

(a) to promote a continued and balanced strengthening of trade and economic relations between the Member States with fair conditions of competition, and the respect of equivalent rules, within the area of the Association;

(b) the free trade in goods;

(c) to progressively liberalise the free movement of persons;

(d) the progressive liberalisation of trade in services and of investment;

(e) to provide fair conditions of competition affecting trade between the Member States;

(f) to open the public procurement markets of the Member States;

(g) to provide appropriate protection of intellectual property rights, in accordance with the highest international standards.

Appendix 1.3:

UK-EU Non-Trade Relations

While there was a huge sigh of relief across the nation when the referendum result came in, it is important that this does not descend into hubris. We wish to maintain good will. Much of our cultural inheritance of science, history, art, literature, music is closely interwoven with that of Western and Central Europe, all of which, with the exceptions of Switzerland and Norway, is in the EU.

As such we would wish to maintain our membership of a number of European institutions and programmes[118]. The chief among these are the following:

(1) European Space Agency (ESA)

This has its HQ in Paris and includes 18 EU member states, plus Switzerland and the UK, with Canada participating in specific programmes. The UK Space Agency with a budget of £233 million, much of which goes to ESA, does not seem to have developed much of a programme of its own yet.

(2) Centre Européen pour la Recherche Nucléaire (CERN)

This has its HQ in Geneva and is not an EU institution, but an organisation paid for by 20 member countries, with major assets underneath the Swiss-French border. Some 6,500 particle physicists from around the world have used its facilities so far, giving some at least the opportunity of winning a Nobel Prize for Physics.

(3) European Bank for Reconstruction and Development (EBRD)

This has its HQ in London since 1993 and has 61 subscribing countries, plus the EU and the European Investment Bank. Set up to help Eastern Europe after the Soviet collapse, it is doubtful if Britain derives much benefit from it.

[118] Some are controversial however, the most controversial being the European Convention on Human Rights (ECHR) covered in Chapter 9.1.

(4) European Medicines Agency (EMA)

This is an EU agency with its HQ in London since 1995 and whose prime function is to issue marketing approval (MA) certificates to companies wishing to sell medicines in the EEA and EFTA. The MAs are based on clinical tests carried out across Europe. In the UK they are complementary to the certificates issued by the NHS agency NICE[119] which decides whether or not a medicine should be paid for by the NHS. Doubtless the EU will expect that the UK pays a contribution to running EMA, especially as its HQ is in London. We should remain a member of EMA and pay a (reasonable) subscription.

[119] National Institute of Health and Care Excellence.

Appendix 2.1:

UK and German Economies Compared 2011

	UK	Germany
	Millions	Millions
Population	63.2[120]	80.5[121]
Labour Force[122]	30.6	41.1
Of which manufacturing & Extraction industry	2.5	7.9
	$ Billions	$ Billions
GDP	2,420	3,570
Exports	790[123]	1,730[124]
Of which goods	478	1,329
Imports	827	1,550
Of which goods	638	1,273
Goods Exports per Manufacturing person	191,000 (£119,000)	168,000 (£108,000)

[120] NSO Annual Abstract of Statistics, 2012 (for 2011).
[121] IMF (2011)
[122] In 1967 32% of the UK labour force was employed in manufacturing, Germany 46% at a productivity of about 10% greater. By 1979, Germany's productivity was 40% greater, an advantage which had reduced to 16% in 1989, but with a reduced range and employment (O'Mahoney and Wagner 1994, Bacon and Eltis, 1996)
[123] Averaged for 2011, $: £ at 1.60; $: € at 1.33.
[124] German Statistical Office (2011)

Appendix 2.2:

UK Trade Performance by Areas of the World and Targets for Improvement

Table 2.2.1: UK Trade in Goods by areas of the world in £ Billion

Area	2006			2011		
	Credits	Debits	Balance	Credits	Debits	Balance
Whole world	244	320	-76	299	399	-100
EU 26	153	184	-31	159	202	-43
EU-RoI[125]	136	173	-37	141	189	-48
AICANZ[126]	56	44	+12	68	51	+17
EFTA[127]	7	19	-12	9	33	-24
BRIC[128]	9	26	-17	22	47	-25
GHSS[129]	12	17	-5	19	24	-5
Rest of world	24	41	-17	40	55	-15

Comments on Table 2.2.1

1 In terms of the outcome of the UK-EU referendum, it is very unlikely that the UK/Republic of Ireland trade is going to be significantly disturbed, given common

[125] Republic of Ireland.
[9] USA, Republic of Ireland, Canada, Australia, New Zealand.
[127] European Free Trade Association – the remainder of the organisation founded by Britain in 1961 now consists of Norway, Switzerland, Iceland, Lichtenstein.
[128] Brazil, Russia, India, China – fast developing large countries (population 2.7 billion).
[129] Other countries where the law and language of business is mainly English – Gulf States, Hong Kong, Singapore, Republic of South Africa.

geography, language and law. For that reason Ireland is grouped with the other Anglophone countries as AICANZ.

2 The huge growth in the deficit recorded with EFTA is entirely due to the massive increase in imports of Norwegian oil and gas.

3 The proportion of UK goods going to the 25 countries of the EU minus the Republic of Ireland reached 47% in 2011; 23% to AICANZ and 7.4% to the BRIC countries, which have a combined population of 2.7 billion, which is almost nine times the USA's and six times the EU's. Oil exports, now in rapid decline, accounted for £14 billion in 2011.

4 Nothing much will change in the BRIC figures until (a) the UK seriously addresses the language issue, specifically training salesmen and executives to speak Portuguese (for Brazil and Uruguay), Spanish (for the rest of Latin America), German, Russian and Chinese, (b) concentrates more effort on capital goods exports, and (c) gets the retail chains to work directly with British designers and factories to improve the consumer goods export/import ratio.

5 There are 42 countries in the 5 identified areas in Table 2.6, representing 87% of UK goods exports and imports, the other 152 countries representing the remaining 13%. Any seriously run business would be bound to concentrate on the 42 when resources are limited.

6 AICANZ is the only area showing a rising positive balance and also a significant increase in goods exports (21% over the 5 year period). The EU 26 showed a 4% increase in exports, the remaining areas reading down Table 2.6 were 21%, 28%, 144% (from a small base), 58% and 67%. These trends are more pronounced with the trade in Services shown in Appendix 2.2, Table 2.2.1.

7 British goods accounted for 1.2% of the BRIC imports in 2011 and 4.1% of the USA's.

Table 2.2.2: UK Services Exports by areas of the world in £ billion[130]

Area	2006			2011		
	Credits	Debits	Balance	Credits	Debits	Balance
World	144	103	+41	194	118	+76
EU 26	58	54	+4	75	59	+16
EU 25[131]	51	51	0	65	54	+11
AICANZ	44	25	+19	59	28	+31
EFTA	8	4	+4	12[132]	4	+8
BRIC	6	4	+2	9	5	+4
GHSS	9	4	+5	12	6	+6
Rest of world	26	15	+11	37	21	+16

Notes on Table 2.2.2

1 Services consist mainly of Transportation, Travel, Insurance, Financial Services, Professional Services, Royalties and Licences (see Table 5.1). The Professional Services category is composed of Engineering, Architecture, Construction, Information Technology, Contract R&D, and trade related services such as merchanting. Physically, with the possible exception of merchanting, these services are performed all over the United Kingdom, while a good portion (not all) of financial services are connected with the City of London.

[130] Up to now the World Trade Organisation (WTO) has included the UK inside the EU figures, but the National Statistical Office follows the same classifications in Chapter 3 of its Pink Book (see Chapter 5 here).
[131] EU without the Republic of Ireland.
[132] Predominantly Switzerland (£9.4 billion).

2 In 2011 Financial Services accounted for 26%^ of Services Exports. The growing importance of non-Financial Services (74%) and Professional Services in particular (30%) runs counter to the view that Financial Services are of overwhelming importance. This is because Finance Services foreign income, which is mainly to do with the City of London, is conflated with investment income which is largely to do with investment by large international companies such as Shell. Finance Services *are* of great importance to UK balance of payments, of course, but the Professional Services sector, dependent on technical expertise, is now larger and growing faster.

3 In fact Professional Services show an extraordinarily steady increase right through the recession (2008 to the present in fact) since records of these activities began in 1991. Their export value overtook financial services plus insurance in 2010, and in 2011 accounted for 34% of all services exports and 42% of the net services trading balance. As can be seen in Table 2.2.1, these services are strongly linked to the Anglophone world of AICANZ and GHSS.

2.2.1 OVERVIEW OF BRITAIN'S OVERSEAS TRADE

1 The massive increase in Britain's goods deficit from a just manageable £12 billion in 1997 to an unmanageable £107 billion (7% of GDP) in 2012, reflects a twelve times increase in deficit with the EU 25 (from £4 billion to £48 billion) and a 16 times increase in deficit with China (from £1.4 billion to £22 billion). The single biggest cause of these vast deficits has been the *profligate importation of consumer goods*, electronics and IT above all, as evidenced by this being the category with the lowest export/import ratio (0.42) (see Chapter 3). The huge expansion of unfunded state benefits and public sector pay under the Labour governments of Blair and Brown in the years 2000 to 2010 translate *directly* into the huge rises in imports in the period, along with, of course, the corresponding huge rises in government deficits.

2 The major retail chains bear a large responsibility for the rise in consumer goods deficit. With a buoyant home market John Lewis and Curry's in particular seem to have made no moves to encourage new UK suppliers, preferring instead to go

for immediately available Far East goods (see Table 2.2.1). A proposal for remedying this is made in Chapter 3.2 (Leopard Clusters).

3 A second major factor in the goods deficit has been the decline, indeed the virtual halving of North Sea oil production, which has pushed up the replacement oil and gas import bill from Norway by eleven times (from £2 billion in 1997 to £22 billion) and 17 times from Russia (from about £400 million in 1997 to £7 billion in 2011).

4 While there is not much that the UK government can do about the North Sea oil decline, it can surely take much more active steps beyond trade delegations to improve Britain's miserable export performance in the BRIC countries. Devaluation of the pound sterling, so beloved of economists like those at the National Institute of Economic and Social Research, is no remedy. All it does is increase the cost of imports, when all the evidence is that it is the *range* of goods which is the problem, not the price (Chapter 3). One senior Chinese businessman commented that compared with Germany, France and Italy, Britain didn't have much to sell. Export targets by area are proposed below.

5 This means providing the means to (a) enlarge the range of British products by new factories and products established for the purpose (see the Leopard principle below in 3.2); (b) create new schools of *commercial* Chinese, Russian, Spanish, Portuguese and German. As one German businessman famously said: "I buy in German and sell in English".

6 The extraordinary success of British exported professional services (linked in many cases to physical exports) in starting from near zero in 1991 to the position 20 years later where at £66 billion in 2011 it has overtaken financial services (£51 billion in 2011) as the largest category of services exports (Table 5.1), should be broadcast as a corrective to the false equation of services equals financial services equals City of London.

Emerging Markets

Seventeen Emerging Markets (EMs) were identified by the Department for Business, Innovation & Skills (BIS 2011), including Brazil, Russia, India and China (so-called BRICs) and the GHSS group which have had very high proportional growth rates over the 25 year period from very low bases. The BRICs now have combined imports of around £1,800 billion (USA is about £1,500 billion for comparison) which is a measure of opportunity for UK exporters.

Targets

There is bound to be a good deal of guesswork as to what may be realistically possible in different markets. In any case, achieving targets will be strongly dependent on the evolution of world trade. Manufacture rather than services per se is the weak performer on a balance of payments basis (Table 2.2), so Table 2.2.3 refers only to goods exports. In the emerging markets trade is overwhelmingly concentrated on goods[133]. The groups of countries in Table 2.2.3 correspond to those in Table 2.2.1. Market values of constant 2011 prices are shown.

[133] International Trade Statistics 2012.

Table 2.2.3: UK Existing and Target Shares in Key Goods Markets (2011 prices)

Area	Market $ bn p.a.	UK Share %	Target Share %	Value of Increase $ bn p.a.
EU 26-ROI	2040[134]	10.7	12	26
AICANZ	2340	4.4	5.5	24
EFTA	305	4.6	8	10
BRIC	2770	1.3	3	4.7
GHSS	956	3.7	5	12
TIM[135]	779	0.8	3	19
Totals	9190	4.5	6.0	$138 = £89 bn

Comments on Table 2.2.3

The target of £89 billion increase in goods exports corresponds to about £46 billion of manufacturing added value[136]. In practice the increase in goods to non-EU markets will be almost entirely manufactures.

The sum of £46 billion is in line with the target 50% increase in manufactured goods (Chapter 3) needed to transform our industrial landscape, given that over the remaining years to 2020 we can expect a 10-15% increase in world trade. Even so reaching this target will be demanding. It is likely however that Professional Services (Chapter 5 and Table 2.2.2) and Insurance Services will see a substantial increase on the back of the manufactures increase of at least one third, say £15 billion, a substantial prize itself.

[134] This is the EU goods market with the non-EU world after the UK has left, minus the Republic of Ireland.
[135] TIM: Turkey, Indonesia, Mexico.
[136] Using the 2011/12 multiplier of added value divided by the UK export value of 0.52.

Appendix 3.1:

Construction of Leopard Clusters

Individual Leopard Clusters will be hosted mainly by a particular firm with an established manufacturing presence in the domestic and/or export markets of the Cluster's designated SIC[137], *and* with well-articulated ambition to "propagate" that presence horizontally into a wider product range, or vertically into its supply chain. A condition for the participants is that the products designed and produced by the Leopard in the UK shall be *new* in the target territory (Appendix 2.2, Table 2.2.3), though selling into the UK domestic market of import replacements will be pushed as well. Leopard Clusters will be incorporated as limited liability companies with shares held by member companies in the cluster and loan capital by banks.

Referring to the Production Cycle (Figure 3.1), the staff in respect of a new product and/or process will be paid at market competitive salaries by the Leopard Cluster from the budget of the Business, Innovation and Skills (BIS) Department, financing in effect the major switch of people into the business enterprise from outside as called for above (Chapter 3.1)[138].

How many firms could be involved in a single Leopard?

In the past a well-known retailer, Marks and Spencer Ltd, in effect ran a "vertical" Leopard Cluster of textile suppliers and their suppliers, to which it offered expert guidance in all parts of the production cycle (Figure 3.1). Of key importance were the 3 year purchasing contracts which it used to offer its first tier suppliers, which in effect allowed them to offer 3 year contracts to *their* suppliers, and so on. Perhaps 20-30 non-competing firms were involved in a substantial way.

[137] As defined for instance by the internationally accepted Standard Industrial Classifications (SIC): SIC 10 – Food Products; 13 – Textiles; 20 – Chemicals; 22 – Rubber & Plastic Products; 25 – Fabricated Metal Products; 27 – Electrical Products; 28 – Machinery; 31 – Furniture, and so on. SICs are used in customs declarations.

[138] The Treasury may wish to compensate the BIS from its savings on the Corporation Tax R&D relief – or by rationalising its existing funding in favour of the Leopards.

To achieve a Leopard Cluster, in the sense we mean here, some at least of the 20-30 firms would have to engage in the export business directly, drawing on new marketing units set up with the Foreign and Commonwealth Office in the target territories (Table 2.2.3, Appendix 2.2). The number one candidate for a "vertical" Leopard is a reactivated nuclear industry (Appendix 3.2).

The horizontal-type cluster in which a similar manufacturing technology (e.g. plastics) can be propagated across several overseas and domestic markets and maybe 50-100 firms, will probably need to be based in an institution which is not itself involved directly in selling into these markets. Such a restriction allows individual firms to feel confident that their innovations and commercial secrets will not accidentally leak to their parteners in the cluster.

An embryonic example of the "horizontal" (common technology) type cluster at Manchester's Centre for Manufacture/NEPPCO[139], though without the banking and overseas marketing dimensions, is described by Davidson, 2004. Two products (Rollet and Biokab) from two different firms in the Cluster of about 50 firms are illustrated in Figure 3.3. The products have the same basic technology (rotomoulding), but very different markets – retail and health respectively.

Individual university staff and laboratories will be encouraged to apply to join a cluster so long as they see their commitment to increasing production of saleable goods. Each British embassy would commit staff to the cluster in their territory, expressly to identify opportunities. Existing banks would be encouraged to join the cluster to ensure that there was sufficient cash to build production facilities in the UK in order to 'leap' on the identified opportunities. In time such branches could morph into an industrial bank, but only if it made financial sense.

Of complementary importance to the *production* of things, Leopard clusters will offset what could be seen from the new graduate's or apprentice's point of view, as a factor inhibiting recruitment, namely the limiting horizons of a single small firm.

[139] Centre for Manufacture set up in 1999; NEPPCO – North of England Plastics Processing Consortium established in 1990.

By handling the whole production cycle of factories, marketing and sales organisation, finance (Figure 3.1) under one roof so to speak, for many firms Leopards will offer the individual employee the same sort of diversity of employment experience which the international multi-product companies like ICI and GEC used to provide.

Appendix 3.2:

New Nuclear Power will Spearhead Britain's Manufacturing Renaissance

As described in Chapter 4, a nuclear power station building programme on a much larger scale than the present government appears to contemplate, must be at the heart of a Secure Energy Strategy (SES), secure that is in both physical and financial terms to improve the competitive position of British industry as well as providing the consumer with long-term supply at minimum cost. The scale of construction envisaged in the SES is in the range 50-70 GW capacity[140] over a period of 35 years to 2052. This scale of provision would allow over time possibly a 20% shift away from fossil fuel derived energy, particularly in transport (see Table 4.1) where fuel demand is largely independent of season and with battery recharging at night, independent of time of day as well[141].

A capacity of 50-70 GW, using repeat designs with companies able to plan 35 years ahead, would represent a total programme cost of £110-150 Billion at 2009 prices over 35 years – say £3 Billion per annum on average. The financing method for this is described in Appendix 9.1 below.

In terms of engineering and manufacture, no more important programme could be envisaged. It represents around 60-80,000 new skilled long-term jobs in the nuclear field itself, so long as steps are taken through mainly supply chain Leopard Clusters (Chapter 3.2) to train the personnel and establish the new firms which will be required. With a 35 year programme in prospect, there should be none of the usual excuses for sourcing abroad[142].

As important, will be manufacture for export outside as well as inside the nuclear industry. The reason is that perhaps 50% of the equipment cost of a nuclear power station is of a general character: in high quality pumps, pipe-work, filters, heat exchangers, steam turbines, and so on. All of these items are basic to other process

[140] France today has 75 GW of nuclear capacity, some quite old (40 years) though.
[141] This represents "base-load" demand which nuclears are particularly suited for.
[142] Several Leopards suggest themselves with at least a two-fold multiplying effect in newly industrialising countries (Appendix 2.2, Tables 2.2.1 and 2.2.3), e.g. pumps, controls, boilers.

plant, especially involving steam and water, precisely those processes – chemicals, food, cement, which emerging markets (Table 2.2.1) will continue to be in need of for at least the 35 years of the proposed UK nuclear programme.

There is absolutely no rival to this in economic scope as a stimulus to our exports and manufacturing industry, amounting to at least £5 Billion per annum outside the nuclear industry when fully underway. The boost which the nuclear programme as envisaged in Chapter 4.2, would add to the all-round capacity of British industry would be comparable with that which the bomber building programme during the Second World War made to British industry in the years beyond.

Appendix 3.3:

The Role of public procurement in offering markets for British firms

There are many goods from the seemingly simple, like pencils, to steam turbines, which Britain doesn't make in quantity any more (but Germany does – e.g. Staedtler, Siemens). Awarding long-term contracts to one or more education Leopards, say, for things regularly bought for a particular market, will allow the required manufacturing investment to be made secure in the knowledge that market will be there in 20 years' time. Likewise the long-term programme for nuclear power in Appendix 3.2 will encourage the needed long-term investment in a new British nuclear construction company and a new British steam turbine company (Appendix 9.1).

Appendix 4.1: Secure Energy Strategy (SES)

Present Renewable Energy Strategy (RES) confounded by reality

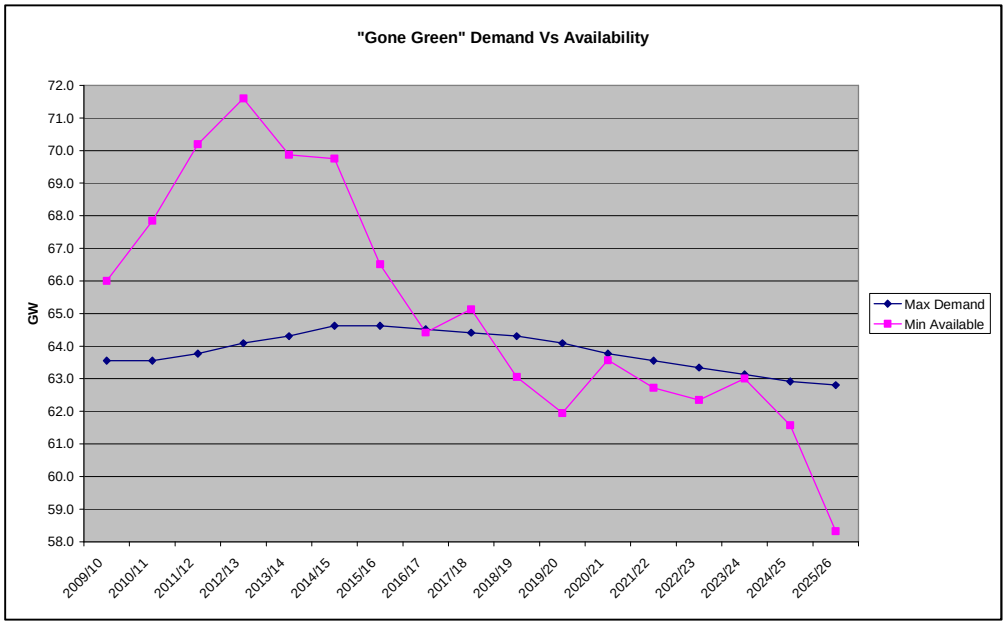
Despite the excitement over the possibilities of UK shale gas (methane mostly), in the quantities needed to make a significant economic impact, its use would only meet the Climate Change Act emissions targets (Appendix 4.3) if it were balanced by wind energy on the scale 30-35 GW nominal capacity assumed in “Gone Green”, and then only if used for electricity generation. In the non-electricity energy sector which is 80% of UK demand for primary energy, shale gas will only make significant effect if it is absolved from the CCA obligations.

The CCA target for 30-35 GW of wind energy by 2020 corresponds to about 15,000 wind turbines (Appendix 4.3) of average nominal output of 2 MW each. This means a total of about 1,600 per annum in the 7 year period from the 4,400 operating at the end of 2013 or 4 per day every day.

Even so the UK would only partly meet its CCA targets, namely for low carbon electricity 33.5% (target 40%) and 24% for renewables (target 30%) on the most dubious assumptions for biofuels (Appendix 4.3).

Electricity Blackouts in prospect with the present Renewable Energy (Gone Green) Strategy

Figure 4.1.1: "Gone Green" Demand vs Availability[143]



The sharp falls in capacity over the years 2012/13 to 2016/17 correspond to closures of the non-conforming[144] coal and oil stations, followed by end-of-life closures of the 7 out of 8 remaining nuclear stations by 2023.

Average wind availability was 24% in 2011/12 which included periods when wind delivered nothing at all. At periods in the summer of 2013 wind delivered so much that the Grid actually paid the electricity companies to shut some of their turbines off. Such has been the desperation of the British government to meet EU renewables and emissions targets that we have the extraordinary situation in which wind operators receive *twice the wholesale price* of electricity (around £100 per MWh for on-shore wind) and *three times* for off-shore generation, a financial guarantee when they oversupply, and no penalty when they don't when it is desperately needed as in mid-winter when nuclear and gas are running flat out (Figures 4.1.2 and 4.1.3). Subsidies for solar, also not producing much in winter were even higher (ten times wholesale electricity price) now reduced to the same as off-shore wind.

[143] Prosyma Research (2010)
[144] Non-conforming, that is to the 2009 EU Large Combustion Plant Directive.

Figure 4.1.2: Nuclear vs Wind, Feb 2010

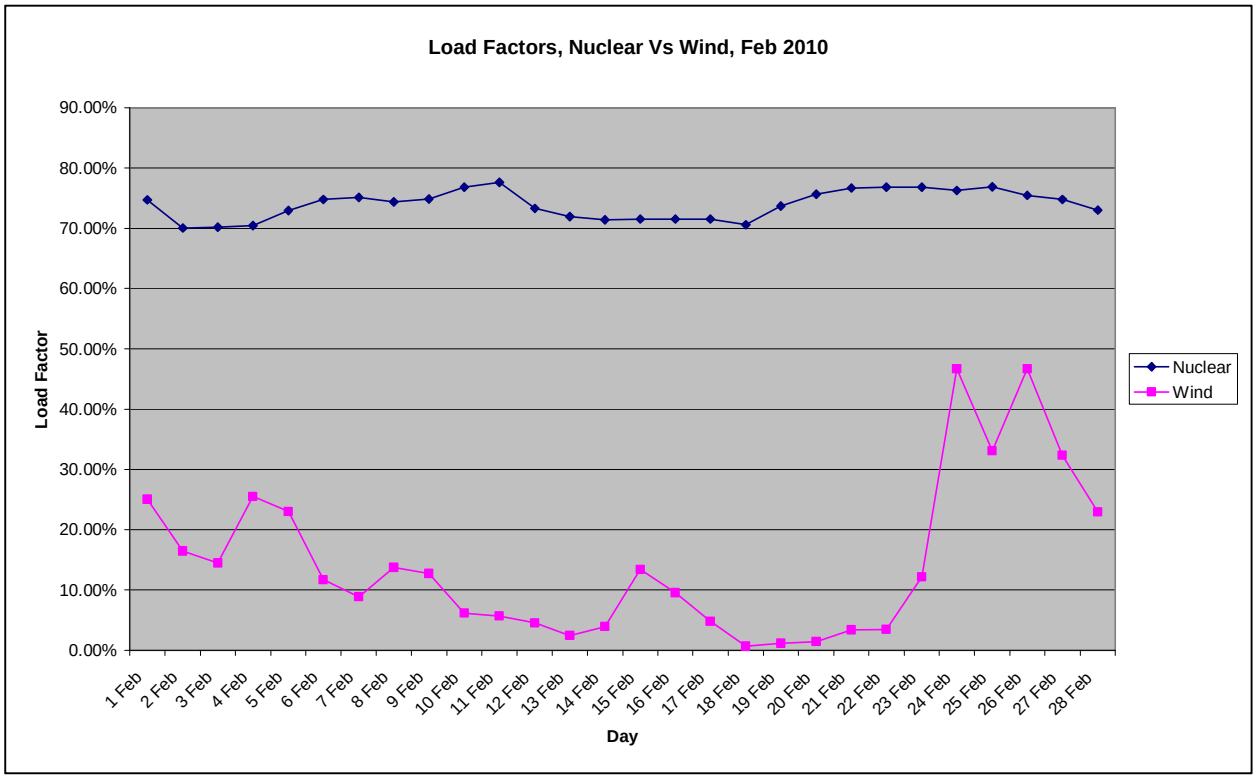
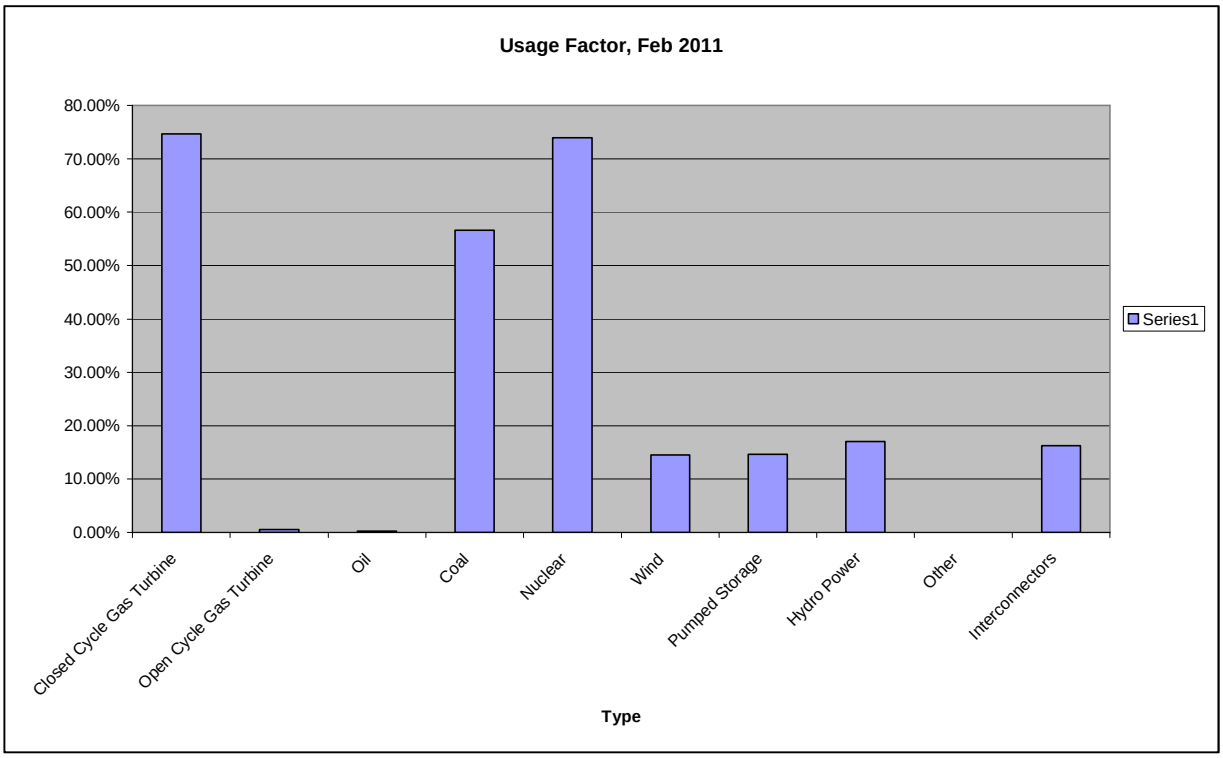


Figure 4.1.3: Usage Factors for different types of process, Feb 2011



And what has all this gigantic market rigging been for? Even on the generous assumptions in "Going Green", the two 2020 electricity targets are still going to be missed by substantial margins: renewables generation (principally wind) will be 25% against 30% target and low carbon generation 36% against 40%. For this we have endangered supply on average in 2017/18, worse still past 2025 (Figure 4.1.1) are paying huge rising subsidies to wind (owing to increased generation by wind), and diverted attention away from the only strategy that can really save us from long-term loss of energy competitiveness.

Freedom to pursue this strategy unhindered by EU targets, fines and directives, will be one of the most valuable of all the freedoms which Brexit will now bring.

Secure Energy Strategy (SES)

The SES envisages a greatly expanded nuclear power 50-70 GW programme over the period out to 2050, a period of time which is actually less than the expected life of new nuclear construction, and indeed the now extended lives of two of the presently operating nuclear power stations[145] (Appendix 3.2).

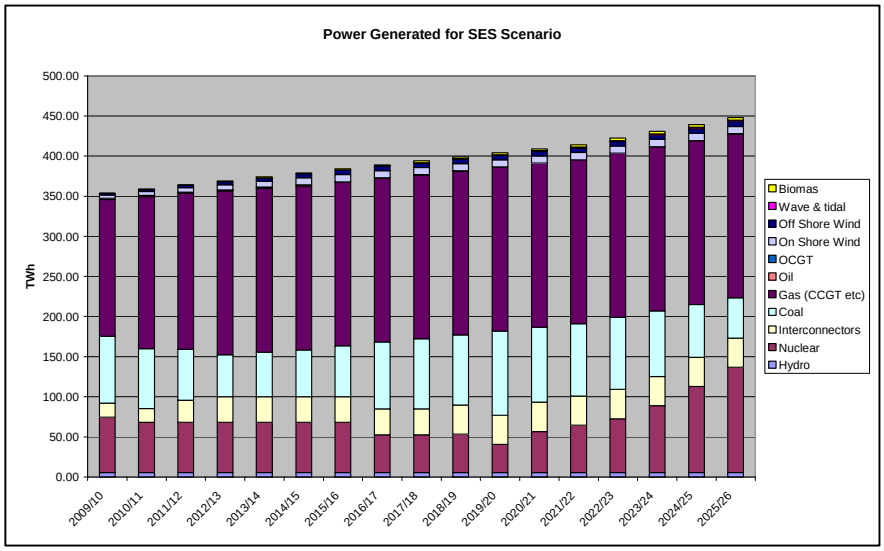
Originally formulated in 2009/10 there is now considerable slippage owing to the long drawn out negotiations with EdF, the French government owner of British Energy (the 8 remaining nuclear stations), and the generally insouciant manner in which successive British governments in thrall to the "green" lobby have approached the whole question of supply of energy in general and electricity in particular. Figure 4.1.4 displays the roles of the different electricity generating processes under the strategy.

If the time-line is stretched 5 years to 2030, the strategy is clear: gas will continue as a major component of supply (as in the RES (GG) scenario) at around 45% capacity, 50% of supply (Figure 4.1.4) up to 2030. Some new coal will be restarted[146] to take advantage of low prices, likely to be forced lower by reducing oil prices with which it is in competition Existing wind and solar will be retained, but subsidies will be phased out

[145] Hartlepool (1979-2019) and Heysham (1979-2019). Life extensions are only agreed by the Nuclear Inspectorate after thorough inspections and, if necessary, replacement of key components.
[146] E.g. Didcot – closed under the EU LCP Directive in 2013.

over the period and nuclear generation would expand to around 30% of supply, owing to the commissioning of new reactors, a trend set to continue under the SES in the period out to 2050 (not shown) at the expense of both major fossil fuels.

Figure 4.1.4: Total Generation by Type for the "SES" Scenario to 2026[147]



In this connection it should be recalled that as a consequence of an energy strategy dating from the 1960s, France now generates more nuclear electricity alone than the UK does from all sources.

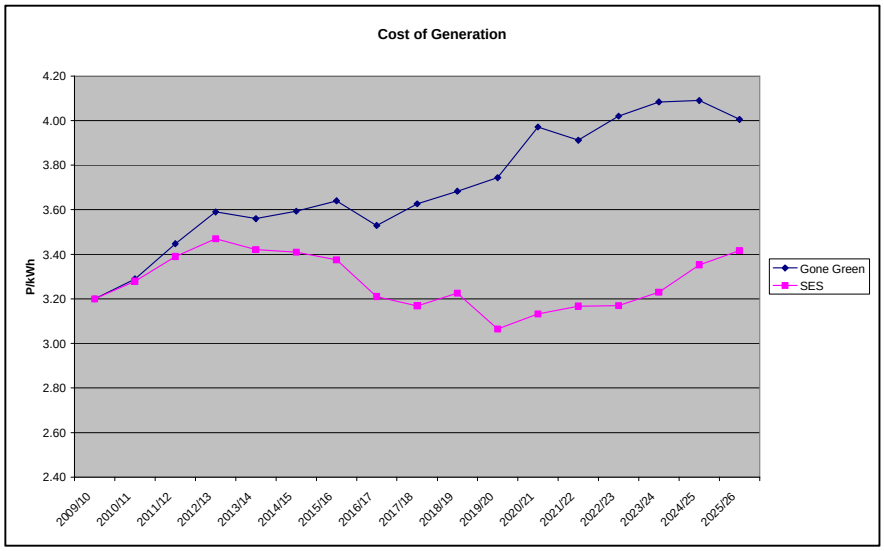
Costs of "Gone Green" and SES Compared

Figure 4.1.5 shows the estimated generation costs for the two strategies over time at 2009 prices. As noted above, because of delays the time-scale needs to be stretched to 2030. The reason why SES is lower than RES in the early years is because SES does not close coal plants and replace them with expensive wind and stand-by gas-fired electricity plant to offset the very low availability factor which wind has in winter (Figure 4.1.3).

The total generation costs from Gridman©[148] are shown (2009 prices) in Figure 4.1.5.

[147] Prosyma Research Ltd.
[148] Generated from Gridman© software, Hill Path Projects Ltd, 2009.

Figure 4.1.5: Cost of Generation in p per kWh, SES vs "Gone Green"

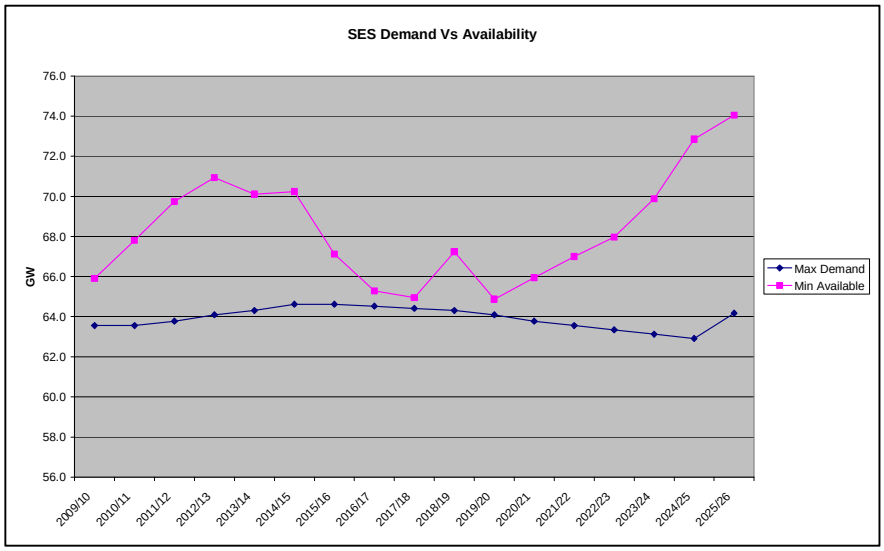


These costs reflect all costs – capital, fuel[149], labour maintenance, except decommissioning costs for all types (see Chapter 9: Financing long-term projects). Nuclear capital costs are based on updated versions of the last nuclear station built in Britain (Sizewell B, 1995)[150]. The GGS costs reflect the very high capital costs of off-shore wind.

Besides its cost advantage, SES removes the risk of blackouts present (Figure 4.1.6) with the Gone Green strategy (Figure 4.1.1) and virtually eliminates the nuclear waste problem.

[149] On present technology nuclear fuel costs are 16-25% of running cost. Future fast breeder systems will reduce this.
[150] The Treasury has agreed guaranteed electricity prices with EdF based on capital costs of £5 million per MegaWatt installed. Updated Sizewell B is about £3 million per MW.

Figure 4.1.6: Maximum Requirement vs Minimum Supply for SES[151]



[151] Prosyma Research Ltd, 2010 National Grid consultation.

Appendix 4.2:

The Long-term Nuclear Waste Problem turned into a Long-term Asset

Arising from 50 years of commercial operation of nuclear reactors for electricity generation[152], the UK has accumulated possibly 120 tonnes of fissile Plutonium at Sellafield and other plants round the country, the largest such stock in the world. It is seen as the major part of a legacy waste disposal problem. But it is also a fuel, potentially to replace the need to import uranium for 100, possibly 200 years. Plutonium has already been successfully used in existing reactors, but for reasons which no longer apply, the British programme has stalled. The key technology for realising the fuel benefits of the stockpile is the Fast Breeder reactor. This plant at Dounreay was shut down in 1994 (because Uranium prices had fallen to $10 per lb, now $110) having successfully operated at 250 MW, then the world's largest at about the size of most gas-fuelled stations[153]. The British technology and some of the people are still around (just) and there is renewed interest being expressed (by foreign companies) in building a new Fast Breeder reactor in Cumbria.

A recent analysis (Bush & MacDonald 2014) includes various alternative fuel and reactor design strategies besides those present processes used to generate electricity (Figure 4.1.4). The analysis demonstrates that over the time to 2050 a substantial proportion of the existing and future wastes can be used as fuel, reducing, if not eliminating, the need for continuing uranium imports and the volume of high level waste. Given the 100 tonnes of plutonium at Sellafield, and some hundred tonnes of uranium/plutonium in spent fuel assemblies at AGR/PWR sites, this would be a glittering prize to be grasped, vastly improving the costs and environmental sustainability of the nuclear system.

[152] As distinct from atomic weapons production.
[153] The French, of course, have persisted with the technology and are reaping the benefit in lower fuel costs and immunity from any supply problems.

Appendix 4.3

Renewable Energy Strategy (RES) and "Going Green" (GG)

Following passage of the Climate Change Act 2008, opposed by only 5 MPs on second reading, the Government published its Renewable Energy Strategy (RES) in 2009, in which there was no mention of replacing the 9 remaining nuclear power stations amounting in all to 11,000 MW or about 14% of total generating capacity.

In response the National Grid drew up its own plan of supply for the period to 2020/2023 when all but the lone PWR at Sizewell B were due to shut, in terms of outputs from the various types of generation being commissioned /closed down over the 15 year period. This plan christened "Going Green" (GG) was published by the National Grid (2009) on its website. GG involved some heroic assumptions regarding possible renewables contributions, the most important being the contributions expected from wind and biofuels. The GG plan was posted for consultation from which 23 responses were received and posted. The following figures updated to 2012 are taken from number 17, Prosyma Research Ltd, a manufacturing and energy consultancy company founded in 1987. Capacities are in nominal GigaWatts, and actually delivered electricity as TeraWatt hours[154] (TWh) equal to the nominal GW multiplied by the recorded hours per annum delivered to the customer. The actual figures for 2011 and the GG planned figures are shown in Table 4.3.1.

[154] One million megawatt hours (MWh). Households consume between 25 and 50 MWh total energy, so one TWh serves about 20-40,000 households if all electric, 100-200,000 households if electric power only.

Table 4.3.1: Green Electricity 2020

	2011 (actual)			%	2020 (GG)			%
Generator type	Nominal capacity GW	Average p.a. hours	TWh delivered[155]		Nominal capacity GW	Assumed hours p.a.	Delivered electricity TWh	Of total TWh
1 Wind	8.8	2,140	19	5	32.0	2,200	70	17.5
2 Hydro[156]	3.8	1,580	6	2	3.8	1,580	6	1.5
3 Bio & wave, etc.	0	0	0	0	15.0	1,600	24	6.0
4 Nuclear	9.9	6,360	63	17	6.9	6,400	44	11.0
5 Gas	34.1	4,912	167	46	37.5	4,912	184	46.0
6 Coal	25.0	4,000	100	27	18.0	4,000	72	18.0
7 Oil	3.0	4,000	12	3	0		0	0
Total	84.6	-	367	100	117.2		400	100
Total Renewables (1-3) %				7				25
Total Low Carbon (1-4) %				24				36

Notes on Table 4.3.1

1 The National Grid's Going Green is their best interpretation of the Government's Green electricity plans.

[155] Maximum hours are 8,760 in a year. These figures allow for maintenance and no demand from the Grid required (especially in summer). Wind is *always* used first.
[156] Includes pumped storage at Ben Cruachan and Dynorwig.

2 Wind at 32 GW nominal (line 1) implies 16,000 2 MW average wind turbines. In 2012 there were 4400 wind turbines.

3 The National Grid operates a “Merit List” in which renewables are always brought on to the grid if available. Figures in line 1 imply that wind has been available only 2140/8760 – 24% of time.

APPENDIX 4.4:

Emissions Limits and the EU

Anthroprogenic Global Warming (AGW) is a doctrine which says that the known increases in carbon dioxide concentration in the atmosphere since the Industrial Revolution are responsible for an increase in a "average" temperature at the Earth's surface[157] of about 1 ^{o}C .

The CO_2 increase referred to is from about 270 parts per million (ppm) – 0.027% in the 1800s – to 390 ppm in 2012. Up to about the mid-1980s, carbon dioxide was referred to completely uncontroversially as a trace gas in the atmosphere – compared with the permanent gases: oxygen (21% v/v), nitrogen (78% v/v), even argon (1%) it clearly is. Water (vapour and droplets) is up to 3% as evidenced by the changeable clouds covering up to 70% of the Earth's surface at any one time. Despite its extreme volumetric insignificance in the atmosphere, carbon dioxide has been identified as the reason why there has been a 0.6 degree ^{o}C increase in a set of 1,000 or so temperature measurements over a period of 90 years or so, and extrapolated measurements showing a smaller increase back to the early 1800s. As is well-known, the CO_2 is a product, along with steam of burning of hydrocarbon fuels – coal, natural gas (methane) and oils. This in turn has led to EU legal limits being placed on so-called "climate warming emissions" of which CO_2 is seen as the chief culprit (Mann, 1998).

Restrictions on UK Energy Conversion

Following its adoption of the Kyoto Protocols in 2006 when Russia signed up[158], the EU moved swiftly to give force of law to its proposed limits. As applied to Britain these are embodied in the Climate Change Act 2008 and the Renewable Energy Strategy (2009). These require by 2020:

(1) Reduction of 30% relative to 1990 in total emissions;

[157] By "average" is meant the average of about 1,000-2,000 measurements of land temperatures around the world. The actual comparison points are not consistent

[158] Initially Russia was vehemently opposed to signing up to Kyoto protocols, but when it was explained that Russia would obtain free emissions certificates, which it could sell, it changed its mind.

(2) 15% of electricity to be generated from renewable sources (wind, wave, sun, biotechnology).

By 2015 the Large Combustion Plant directive applies, whereby any coal-using plant either (a) has to install emissions and particulate cleaning systems on their boiler exhaust chimney to reduce emissions to conform to new very low levels, or (b) close down by 2015, having been allowed 20,000 operating hours from 1st January 2010. Some of the "non-conforming" plant closed in 2012 and 2013 having used up their 20,000 hours; others will follow by 2015 making around 60% of all coal-burning plant (about 15 GW).

Challenges to AGW Theory

There are now very substantial[159], challenges to the AGW orthodoxy, though they are still shunned by the received opinion in the UN Intergovernmental Panel on Climate Change (IPCC) and the UK Department of Energy and Climate Change (DECC).

A 50% reduction in fossil fuel sourced energy consumption (relative to 1990) has been adopted by the UK Climate Change Committee for 2030. An 80% reduction by 2050 has been targeted for the UK, way beyond what even the EU has proposed.

[159] E.g. Fred Singer (2003) "The Revelle-Gore Story: attempted political suppression of science", Hoover Press and on media.hoover .org.

Appendix 8.1:

Population Growth

The population of the UK on census day, March 27th 2011, was recorded as 63.2 million, representing the largest decennial percentage increase [6.9%] for over 100 years, and at 4.1 million the largest *ever*. Around 50% of this was due to immigration of people of child-bearing age. England, where the vast majority of immigrants settle, has a population of over 53 million at 401 people per square kilometre, the most densely populated developed country in the West, greater even than the Netherlands and Japan[160]. It must be clear to everyone now that migration pressure from and within the immense populations in Africa and Asia is not going to reduce any time soon.

The figure of 812,000 births in 2012 [a quarter born to foreign-born mothers] gives a birth rate of 12.6 per thousand; a fertility rate of 2.0 per woman [after France the highest in Europe], and a natural population increase of 3.6 per 1,000. If the government's target of less than 100,000 net immigration per annum is achieved, this gives an England population of 59 million in 2033[161]. With the current Office of National Statistics assumption of a continued flow of 250,000 net immigration p.a., England's population would be 61 million in 2033 with almost all major cities having a minority of native British people. All the polling evidence shows that continued immigration on the scale assumed by the National Statistical Office is totally against the democratic wishes of the British people.

Legislating for and administering a new system of control of immigration to meet their wishes following Britain's leaving the EU is likely to be legally and administratively the most tricky of all the changes we shall have to put in place.

British public opinion on immigration has been very consistent and vocal, highlighting the scale of immigration both from within the EU and from outside, and the adverse effects on social services and on the jobs market.

[160] http://www.publications.parliament.uk/pa on 26th July 2013.
[161] Calculations in this paper are on the basis of current data.

While successive governments have aimed to reduce net immigration, i.e. immigration minus emigration, many British people are opposed to ‘immigration’ per se when it means, as the figures show, that even reducing net immigration has meant a continuing stream of British people out being replaced by foreigners coming in. This is also reflected in the jobs statistics[162] which show that in the 2000s two million jobs were created in the economy, of which less than a quarter went to British people.

[162] National Statistical Office, Migration and Jobs data, June 2012.

Appendix 8.2:

Principles of System for Controlling Immigration and Residency

To control anything you have to be able to measure. British border controls have been variously denounced by successive Home Secretaries as "not fit for purpose". The starting point is to appreciate the scale of the problem. Approximately 140 million people enter Britain each year (72 million through Heathrow Airport). This calls for a comprehensive back-up system to avoid breakdown[163].

(1) Passport checks

People's passport and visa numbers and dates of expiry of work permits must be recorded on entry and exit from the UK. This can be easily done now that machine readable passports are standard in the EU and ABCANZ. By a simple comparison of dates, the Border Agency will then be in a position to know who has overstayed their permission to be here and require them to leave the UK. No appeal to the Courts against removal of overstayers will be allowed from within the UK.

(2) Republic of Ireland "Common Travel Zone"

Provided the Republic of Ireland is prepared to operate the system for EU as well as non-EU travellers[164], then the "common travel area" with the Republic can be retained.

(3) Visas and Work Permits for EU nationals

The basic principle is that EU nationals, not already in work in the UK but applying to work in the UK in the future, must not be in a more advantageous position than citizens of the ACANZ countries, with non-UK ancestry. People with UK ancestry defined on www.ukba.homeoffice.gov.uk are known as patrials. People in this category, are

[163] Contrary to the impression given by the failure of the previous IT contractor, this is not a difficult, or expensive system to implement (Chapter 9).
[164] The Republic of Ireland authorities check UK entry certificates at their borders for non-EU nationals now.

allowed to come to Britain to work and reside for up to 5 years, with their families, if they can show they can support them without resort to public funds[165].

For those EU nationals already working and residing legally in the UK on January 1st 2017, it is proposed that those who have lived and worked here for 5 years or more, would be able to apply for British residency ("indefinite leave to remain") and freedom from a work permit requirement (in line with non-EU nationals). Those with less than 5 years would have to apply for a work permit with employer sponsorship[166] as non-British ancestry AICANZ citizens have to. Clearly there are a number of important details to deal with given the number involved (around 2 million EU nationals of which 1.4 million are from the A8 countries).

(4) General Conditions for Entry and Residence

Those who come on a visitor's or student visa will need in future to present evidence of freedom from infectious diseases, certified by an accepted authority in their own country, along with health insurance from an insurance company registered with the NHS as having adequate finances. International insurance companies should fix on a standard machine readable form as soon as possible.

Transport companies who bring people to UK ports of entry, who are subsequently found to have a known medical condition, including pregnancy, prosthesis replacement, or regular medication needs, without means of payment in the UK, will be heavily fined and required to transport the individuals concerned back to their boarding point. No appeals to the British Courts will be allowed.

(5) Indefinite Leave to Remain

Those claiming admission to obtain "indefinite leave to remain" through marriage or another permitted category, must also fulfil the above medical conditions and speak, write and understand English at the time of entry.

[165] This applies also to Republic of Ireland citizens who have a grandparent born before March 31st 1922. There may be a need to revisit this arrangement to align it with UK patrials.
[166] This could include their own business if it had existed for two years and had verifiably sound accounts.

(6) Entry for Study Purposes

According to the Higher Education Statistics Agency (HESA[167]), in the 2012/13 year there were 70,000[168] EU and 110,000 non-EU overseas students in undergraduate courses at United Kingdom Universities out of 1.15 million full-time undergraduates – in all just over 16%. In addition there were 36,000 EU and 140,000 non-EU overseas students engaged on post-graduate courses (taught and research) making around 63% of the total UK full-time post-grad population.

At current average fee rates for non-EU students, this would generate around £3.5 billion per annum in fee income alone, to which should be added around £2 billion for part-timers. At present EU students pay the UK home rate which is, in any case, lent to them by the Treasury. The repayment arrangements are so loose, it is doubtful whether even half will ever be repaid[169].

How many of the EU students will continue to come when they have to pay the full overseas student rate is difficult to say, given the availability of English language university courses in the Netherlands for about £2,000. The chances are that the numbers (46,000) from Greece, Cyprus, Poland, Spain, Romania and Bulgaria will drop by about three quarters and the other EU students (60,000) by about half.

The Universities will attempt to make up their numbers by recruiting more non-EU students and so will be keen to see UK border controls as friendly as possible: perhaps 0.5 million students will be subject to UK border controls per year.

This number can be distinguished from the broader immigration count[170] if, and only if, the Universities help the Border Agency to ensure that their students leave the country at the end of their studies for which they obtained their visas[171]. Otherwise an individual university will find that visa numbers allocated for its courses will be reduced.

[167] Higher Education Statistics Agency
[168] UK Council for International Student Affairs, 20th December 2013.
[169] The Treasury is in the process of trying to sell its student loan book, for about half its face value – just what the banks have had to do.
[170] Which current government policy wishes to be below 100,000 p.a.
[171] With exit recording in place at UK borders, the Border Agency will have an objective check.

Appendix 8.3:

Health and Benefits Entitlement

British people travelling elsewhere in the EU have long got used to a machine readable European Health Insurance card (EHIC), which entitles them to receive basic medical treatment in hospitals without charge to the patient at the time. The charges for treatment are then sent to the British Department of Health for a refund.

Anecdotal evidence from doctors and patients suggests that neither hospitals nor surgeries in the UK ever ask for an EHIC card from obvious foreigners[172]. It is proposed that each patient, British and foreign, should insert either a new British Health and Benefits Entitlement card (HBE) or an EHIC card into a card reader on a first visit. The reader will log each holder's entitlement: if a British citizen, or accepted long-term resident, the charge will generally be zero; if a foreign national outside the reciprocal EHIC scheme, *either* the reader will generate an invoice, which must be settled at the time, *or* deduction of the amount charged will be made from the visitor's HBE card, which visitors will be required to purchase as a condition of entry to the UK.

[172] As indicated, for instance, by inability to speak English.

Appendix 9.1:

Financing Long-Term Projects

It must be clear that the private sector will *never* on its own deliver a new nuclear programme except in the most extravagantly generous terms that the French state-owned Electricité de France [EDF] enterprise is demanding to develop two reactors at Hinckley Point in Somerset[173]. Such terms which amount to a British state guarantee – in law – of twice the present wholesale price of electricity, would fasten totally uncompetitive electricity prices on the whole of British industry for 40 years ahead, leading to the virtual extinction of large-scale process industry and much more as noted in the main text, as nearly happened in 2013 with Ineos at Grangemouth.

Britain needs therefore to re-establish a British-owned prime contractor [say 'British Nuclear Power plc') for building new nuclear power stations in collaboration with one of the two contenders: Westinghouse-Toshiba and General Electric-Hitachi.

The aim must be to match required returns from the investment to the income generation. The timescales: 8 years for the first reactor to generate income, upfront cash of say £5 billion, 50 years of profitable operation, one new station every two years for 35 years thereafter, points at pension funds as the prime investors, guaranteed by the state in the first (non-earning) years through the sale of gilt-edged energy bonds.

The state would sell any stake it had in the first stations when incomes are guaranteed from electricity sales, while its prime contractor, British Nuclear Power, continued to build new ones.

Brexit Dividend (2): Flood and Coastal Protection

Only a 25 year Long-Term Programme (LTP) of coastal protection and river flood control, costing about £1.5 to £2.0 Billion per annum, systematically designed and executed *as a whole*, will protect the 400 miles of vulnerable coastline and some 1,000 miles of flood-prone rivers. This is a job for engineers, not environmentalists. It can be

[173] EDF own the 8 British Energy nuclear reactors on other sites.

the first duty of the new Project Management Group (Chapter 9.2). It is proposed that this LTP should be financed as a second Brexit Dividend from the £12 billion net saving from not paying the EU.

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