

PLAN A: A SHORT GUIDE TO A SECURE FUTURE – EXECUTIVE SUMMARY¹

The Triple Crisis

- There are serious global problems related to our economy, our future energy supply, and our environment. Realistic solutions to these problems exist (see below). Well-designed policy changes can mitigate these problems and create long-term benefits; but we need to consider solutions that take into account the interests and behaviour of individuals, corporations and nation-states, both as *economic* and *political* agents. This book sets out a set of policies for an integrated approach to our economic, energy and environmental (E3) problems (Chapter 1).

Energy and the Environment

- The global temperature responds (with delay) to atmospheric concentrations of Carbon Dioxide (CO₂) and other greenhouse gases (GHGs). These concentrations are already much higher than they were before the industrial revolution; every year mankind adds more greenhouse gases to the atmosphere through the burning of fossil fuels and other activities. To avoid a *high risk* of irreversible or catastrophic global warming, *concentrations* of GHGs in the atmosphere must be stabilized at close to or below current levels (Chapter 2).
- To stabilize GHG concentrations requires that emissions be reduced to near zero. We need an economic and technological model with total emissions of less than 1 tonne of CO₂ equivalent per person per year, a ninety percent reduction in UK greenhouse gas emissions. Adopting such a model over 10-25 years would provide a positive example towards which the developing world can converge, stabilising GHG concentrations (Chapter 3).
- The focus of this book is the energy sector, which represents approximately 85% of UK GHG emissions and two thirds of global emissions. A largely carbon-free energy system is therefore necessary but not sufficient for climate stability. The new energy economy is *likely* to be based primarily on *electricity* generated using power sources such as renewable energy, nuclear fission, and carbon capture and storage. Carbon-free electricity can provide not only our *existing* electricity needs, also our *other energy requirements*, including *transport* (trains; electric cars) and *heating* (heat pumps) (www.withouthotair.com). Such an energy system can be achieved in 10-25 years with appropriate finance and market incentives. (Chapter 4-7)

Principles of a Solution

I will argue for two overarching design principles for solutions to these interlinked problems:

- Do enough, to solve the problems, in particular, do enough to stabilize the climate
- Do it in a way that is positive to individuals, companies and nation states.

What would be enough to protect the climate? Three major principles follow from the physics:

- Reducing carbon emissions is not enough; we need a zero carbon economy asap. (Chapter 3)
- 'Say yes' to the low carbon technologies available to us, including energy efficiency, renewable, nuclear and carbon capture electricity. (Chapters 4-7)
- Such changes need to be enforced by a price of carbon an order of magnitude higher than the current European emissions trading (ETS) price. That price should be upstream, cover all the sectors and include the carbon embodied in *imports* to any countries not covered by strong climate policy. (Chapters 8-9)

What would be positive for all actors? We need an approach that takes account not only of the

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interests of individuals, companies and nation-states as *economic agents* but also as *political agents* (Chapter 11). We need a *political realism* not concerning *how much* or *how fast* we reduce emissions (we need to do what is *necessary for a secure future*) but instead concerning *how we achieve those reductions*. This means that we should have a 'no-worse off principle'. This has implications for international negotiations (Chapter 12-13), and the policies proposed.

“An Energy Refund for a Climate Club” (Chapter 14-15)

- I propose that a country, or a group of countries, impose a tax on the carbon content of fossil fuels of around \$100 - \$200/tCO₂. The revenues would be refunded to companies, individuals and resource owners within the club. In the short term, the revenue should be given back to individuals based on historical usage, in the long term, it should be used to eliminate VAT and corporation taxes.
- The tax could be coordinated internationally within a 'climate club' of nations interested in keeping the oil price low and preventing global warming.
- It is argued that this policy would have the following benefits:
 - A global environmental benefit from reduction in emissions & efficient use fuel.
 - A national benefit from the revenue raised from carbon tax can eliminate other taxes promoting equity and efficiency.
 - A benefit to oil importers since a reduction in oil consumption would reduce the global pre-tax price of fossil fuels, reducing import costs².

Government Carbon Price Guarantees (Chapters 16-18)

- Governments should encourage large-scale investment in low carbon energy and energy efficiency. This can be done by auction contracts guaranteeing the post tax electricity and carbon (tax + permit) prices, promoting sufficient investment to completely decarbonize the energy system. These guarantee that carbon prices will not in future fall, so providing certainty for investors.³ Price guarantees may be useful too to implement international agreements to guarantee minimum carbon and post-tax fuel prices.

A Good Investment Bank (Chapter 19)

- International government should back a new bank, funded by bonds to finance investment in low-carbon technologies and finance a massive programme of infrastructure investment. This would have the following benefits:
 - Improving our ability to generate energy domestically will reduce our future consumption of imported fossil fuels. This will improve our balance of trade and enhance energy security.
 - The investment needed to build the new infrastructure assets can be financed by national savings bonds which can also help fund the retirement of an ageing population.
 - Investing in infrastructure employs resources, reducing unemployment.

2 A reduced fossil fuel price (relative to a scenario without the proposed policy) provides a benefit for countries that are net importers of fossil fuels. By keeping the oil price low (e.g. below about \$40/bbl), the extraction of even more highly polluting fossil fuel alternatives, such as coal-to-liquids and tar sands, is prevented. It should be noted that a reduced world price for fossil fuels will *increase* demand for fossil fuels in areas not covered by a carbon price. This is an example of 'carbon leakage' and would take place with either carbon taxes and cap-and-trade schemes. If *all* countries are covered by carbon taxes or cap-and-trade schemes, however, there would be no leakage.

3 These guarantees attempt to be what might be termed 'universal positive incentives' – financial means of encouraging a desired course of action that provide only benefits to agents relative to the *status quo* but which are complete and economically efficient.