GREEN GROWTH: INNOVATING FOR THE GREEN ECONOMY

A presentation to the Monitor Sustainable Netherlands Symposium

Paul Ekins
Professor of Resources and Environmental Policy
Director, UCL Institute for Sustainable Resources
Chair, UCL Green Economy Policy Commission
University College London

The Hague

February 5th, 2015

The nature and purpose of a green economy

- Climate stability: the challenge of limiting global temperature increases
- Resource security: 9 billion people, 3 billion new middle class consumers, the ‘nexus’ of food, water, energy (and biodiversity), plus ‘critical’ raw materials
- Environmental quality: air, water, landscape, ecosystems
- Green economy requires greening of the whole economy, not focusing only on core ‘green’ sectors
- Economic growth resulting from this process – ‘green growth’ – will be sustainable, unlike ‘brown growth’, which will be increasingly undermined by climate and resource disruptions and instabilities

Where does (per capita) economic growth come from?

- Capital accumulation through investment
- Applied knowledge and innovation
  - Turning non-resources into resources (e.g. fossil fuels)
  - Finding better ways of doing things
- Investment in knowledge and innovation (R&D) is at an all-time high globally
- There is no shortage of renewable energy if we knew how to harness it (cost-) effectively
- There is no shortage of materials if we knew how to manipulate and use them
- It is not clear how we would 'stop' economic growth even if we wanted to
- BUT economic growth must be consistent with biophysical reality – imperative of environmental sustainability
- Back to need for a green economy

Foundations and pillars of a green economy

Source: Greening the Recovery, Report of the UCL Green Economy Policy Commission

Core areas and recommendations (1)

- **Macro-economic strategy**:

  Headline conclusion: *core ingredients are environmental taxes, public investment and policy credibility*

  – Environmental taxation and fiscal reform, to reduce labour and capital taxes
  – Green stimulus spending for investment, not consumption
  – Credibility and direction: index-linked carbon bonds
  – Reform of accounting for capital and infrastructure spending in the national accounts

Core areas and recommendations (2)

- **Infrastructure**:

  Headline conclusion: *appropriate infrastructure is crucially important in building green competitiveness and facilitating green consumption and behaviour change*

  - Prioritisation of infrastructure, need for choices (not all infrastructure is green, traffic light categorisation)
  - **Investment:** Establish new financial institutions: Green Investment Bank (specialist green investment); National Infrastructure Bank (wider infrastructure investment according to green criteria)
  - Right balance between central and local infrastructure and land-use planning

Core areas and recommendations (3)

- **Information**: make the physical/material and energetic basis of the economy as transparent as its monetary basis

  Headline conclusion: *a new knowledge infrastructure is required*

  - National accounts and natural capital accounting
  - Material flow analysis to determine who owns what, and where (cf Biffaward programme)
  - Corporate reporting (for investors and consumers)
  - Consumer information and labelling, backed up by regulation

Core areas and recommendations (4)

- **Innovation**: direct innovation processes in the economy towards green innovation, or eco-innovation

  Headline conclusion: *government can and should play a more active role in driving eco-innovation through a new kind of industrial policy*

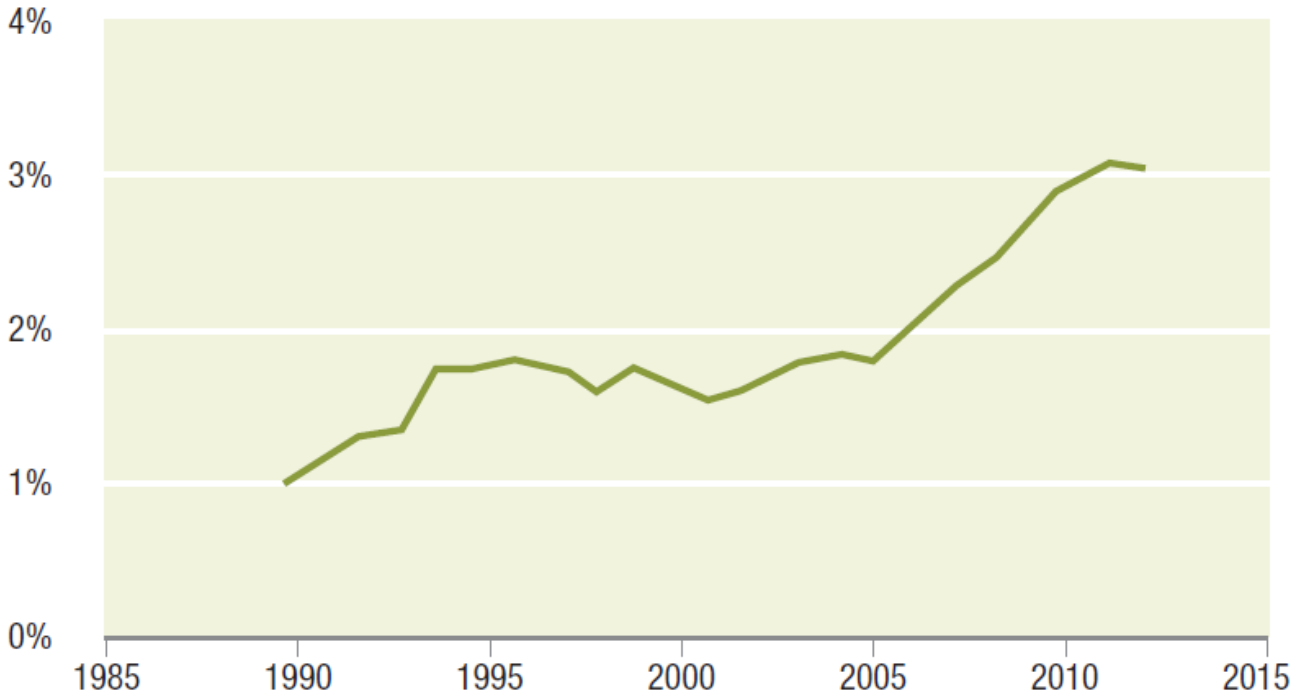
  - Greening the national innovation system ('horizontal'): embed incentives for green innovation across innovation system
  - Green industrial strategy ('vertical'), targeting core sectors and areas of green technology. (cf Government sectoral industrial strategies)

Case for eco-innovation strategy

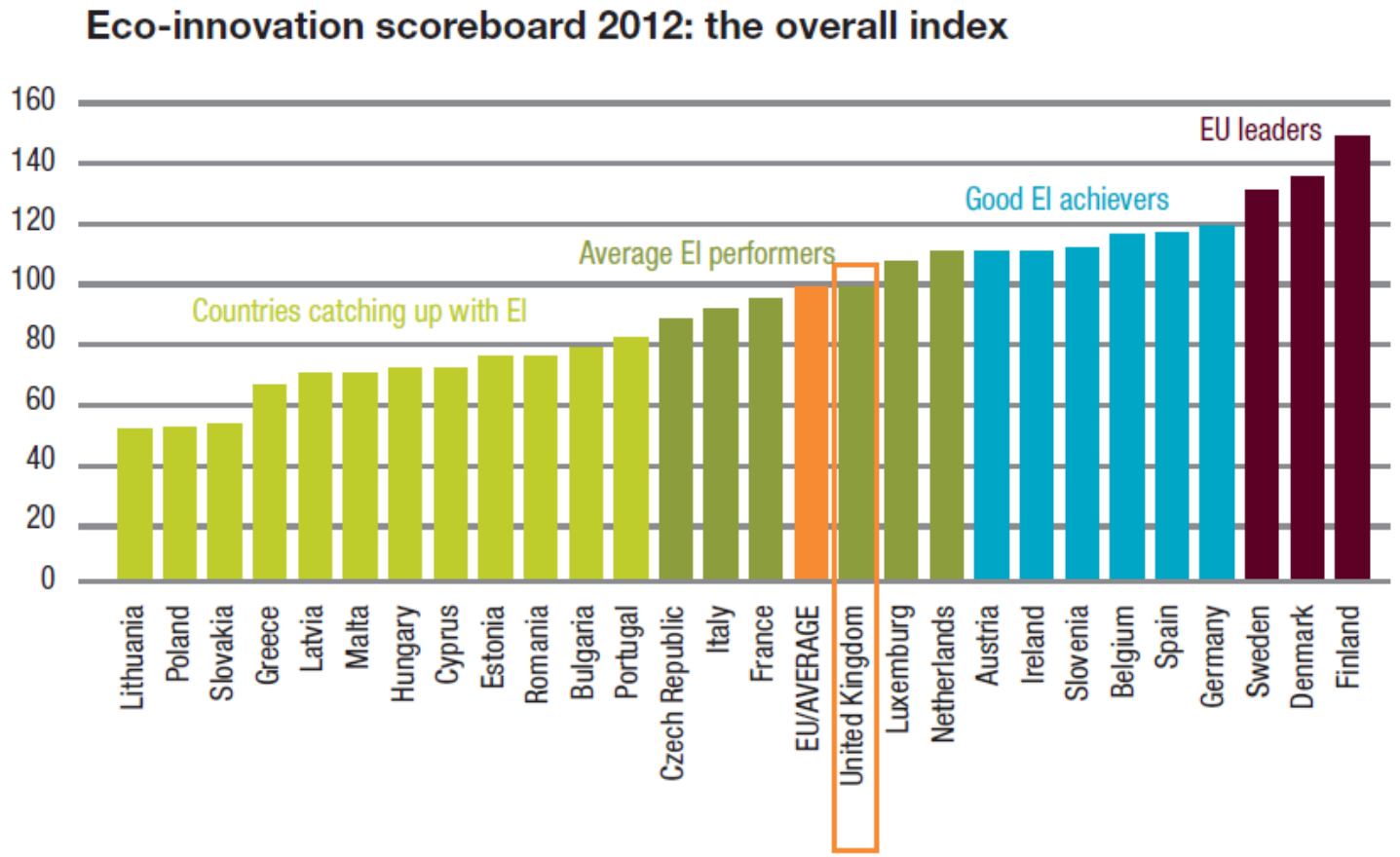
- Environmental goods are largely public goods (reducing incentives for firms unless public policy is in place)
- Lock-in and path dependence: early action important to avoid lock-in to high cost, high pollution systems
- Strong global trends towards increasing energy and resource efficiency – threats and opportunities for UK

"Green" share of innovation appears to be increasing globally

Estimate of share of global Patent Cooperation Treaty (PCT) patents that are related to eco-innovation
Source: UCL analysis of WIPO data



UK and Dutch eco-innovation performance 'average' in Europe



Horizontal: Greening across the innovation system

- Embedding environmental objectives alongside social and economic objectives in R&D prioritisation processes
- Strengthening existing environmental policies (particularly through environmental tax reform)
- Enhancing green public procurement
- Reviewing existing industrial strategies

Vertical: developing core green sectors/technologies

- Clearer approach to selection of technology priority areas (c.f. Low Carbon Innovation Coordination Group, 8 great technologies, etc.)
- Enhancement of existing 'mission-driven' R&D agencies & catapults
- Long-term patient finance (potentially green innovation arm of British Business Bank)
- Better alignment of innovation policy with deployment or regulatory policies

Core areas and recommendations (5)

- **Resource efficiency (RE):**

  Headline conclusion: *slow down/prevent the process whereby resources/materials become wastes that need to be managed*

  - European RE Roadmap: Recycling and efficiency targets
  - European Resource Efficiency Platform: extended producer responsibility ('product passports'); eco-design (product durability and life-cycle performance); industrial symbiosis
- Negative cost opportunities for resource efficiency:
  - Globally USD 2.9 trillion in 2030 (70% at 10% internal rate of return) (McKinsey 2011)
  - EU net benefits of €603 billion (AMEC and BIO IS for European Commission 2013)
  - UK economy £23 billion (Oakdene Hollins 2011)

More recommendations on resource efficiency

The policy mix should comprise:

- **Economic instruments**, including maintenance of the landfill tax, year-on-year increase in the aggregates tax, introduction of other resource taxes, incentives for energy efficiency in buildings (e.g. Council Tax or stamp Duty rebates), variable waste charging for households, and deposit-refund schemes
- **Regulations** for resource efficiency in a number of areas, including the incineration only of non-recyclable wastes, and improvements in whole-house energy efficiency in buildings subject to extension or renovation.
- **Public facilitation of industrial symbiosis**, the process by which industries collaborate to increase resource efficiencies and minimise wastes, by identifying where one industry's by-product materials or unused resources can be used as an input for another industry.
- **Continuing review of waste definitions and product specification** through the Waste Resource and Action Programme and the Environment Agency
- Intensification of **green public procurement.**

Conclusions

Successful policy for a green economy will therefore:

- Strengthen the national economy by renewing infrastructure, stimulating innovation, increasing resource productivity and generating new technology and economic activity;
- Build comparative advantage, capability and exports in growing global markets;
- Increase resource security (reduce vulnerability): food, water, energy, rare materials
- Improve the daily environmental experience and quality of life of citizens, and reduce GHG emissions and local air pollution, waste to landfill, extraction of virgin materials
- Facilitate the playing of a leading role in global political discourse on increasingly important resource and environment issues.
- None of these benefits can be achieved without government intervention to provide massively increased information through a new knowledge infrastructure, and incentives and regulation to guide innovation in the direction of greater resource productivity

Thank you

p.ekins@ucl.ac.uk; www.bartlett.ucl.ac.uk/sustainable

www.ucl.ac.uk/public-policy