http://www.polfree.eu or http://www.ucl.ac.uk/polfree

A Presentation to the DYNAMIX/POLFREE Policy Platform
‘An ambitious Circular Economy Package for Europe’

13-14 April 2015, Brussels
POLFREE and DYNAMIX: Why?

Increased population, growing middle class consumption, increased extraction

Global extraction of used materials
Source: [www.materialflows.net](http://www.materialflows.net)
POLFREE and DYNAMIX: Why?

Increased prices
Source: McKinsey Global Institute 2011 *Resource Revolution*

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**Exhibit E1**

*Commodity prices have increased sharply since 2000, erasing all the declines of the 20th century*

MGI Commodity Price Index (years 1999–2001 = 100)

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1. See the methodology appendix for details of the MGI Commodity Price Index.
2. 2011 prices are based on average of the first eight months of 2011.

SOURCE: Grilli and Yang; Stephan Pfaffenzeller; World Bank; International Monetary Fund (IMF); Organisation for Economic Co-operation and Development (OECD); UN Food and Agriculture Organization (FAO); UN Comtrade; McKinsey analysis
POLFREE and DYNAMIX: Why?

EU 27 imports: physical trade balance (PTB) and raw material trade balance (RTB)

Source: UNEP IRP 2015 (forthcoming) International Trade in Resources: A biophysical assessment
POLFREE and DYNAMIX: Why?

Increasingly risky environmental impacts

inner green shading = proposed safe operating space for nine planetary systems
red wedges = estimate of the current position for each variable

Beyond the boundary; Rockström et al. 2009
POLFREE and DYNAMIX: Why?

The imperative of double decoupling

Source: UNEP IRP 2011 Decoupling Natural Resource Use and Environmental Impacts from Economic Growth
POLFREE: An Introduction

• European Union Collaborative FP7 Project
• October 2012 until end of March 2016
• 5 work packages:
  – WP1: why have resources been used inefficiently?
  – WP2: new concepts and paradigms for resource efficiency
  – WP3: scenarios and modeling of policy implementation
  – WP4: synthesis, conclusions and engagement
  – WP5: project management
POLFREE: People

- UCL ISR (UK): Paul Ekins, Raimund Bleischwitz
- Wuppertal Institute (Germany): Henning Wilts
- TNO (Netherlands): Ton Bastein
- ICIS, Maastricht University (Netherlands): Rene Kemp
- GWS (Germany): Bernd Meyer
- SERI (Austria): Jill Jaeger
- PIK (Germany): Wolfgang Lucht
- International Synergies (UK): Peter Laybourn
POLFREE: Concepts

• Resources:
The production and use of goods and services is associated with the use of natural resources: water, land and a range of minerals or materials. A common distinction of resources is between fossil fuels (and associated carbon emissions), construction minerals, metallic minerals, biomass, water and land.

• Resource efficiency:
Increasing resource efficiency involves using a reduced quantity of resources to achieve the same or improved service or output (output/resource input), where both input and output are measured in some physical unit, e.g. km/litres of fuel. It is therefore an output/input measure of technical ability to produce “more from less” (cf resource productivity, about adding value to resources, GDP/RMC).

• Web of constraints:
Not individual ‘barriers’: need a policy mix response
POLFREE: The need for policy

• Societal goals for a RE economy
  – World vision and values influencing policy goals
  – Aligning policy goals of competitiveness, resource security and environmental quality
  – Environmental and resource boundaries and constraints

• These goals cannot be adequately pursued only through markets

• Policy needs to guide markets towards a more resource-efficient economy
POLFREE: Aims

• Understand the web of constraints and barriers to resource efficiency
• Identify the concepts, policies and business models that could overcome the barriers, untangle the web of constraints
• Create a vision for and pathways to a resource-efficient Europe
• Identify policy mixes that can promote a resource-efficient economy
• Model scenarios simulating the proposed pathways and policy mixes
• Synthesise and draw policy conclusions from the results
Structure of the project
WP1: Why resources have been used inefficiently

• Analytical framework
• Lessons from EU policy experiences
• Comparing trends and policies of key countries
• Resource-efficient cost curves for material consumption
• Business barriers to resource efficiency
• Behavioural barriers to resource efficiency
WP2: New concepts and paradigms for policies for RE

• Synthesis of new concepts
• A vision for a resource-efficient Europe
• A new policy mix for resource-efficient economy in Europe
• New business models
• Global governance for resource-efficient economies
A plethora of new concepts

- Industrial ecology, industrial symbiosis
- Waste prevention, priority waste streams, extended producer responsibility
- Eco-innovation
- Transition management, transition towns
- Green growth, green economy, inclusive sustainable growth, Beyond GDP, degrowth
- Ecosystem goods and services, natural capital approach, resilience & safe operating space, ecological economics, weak, strong and sensible sustainability
- Multi-level (micro/meso/macro) governance
- Cleaner production, eco-efficiency, resource-efficiency, ‘pollution prevention pays’
- Sustainable Consumption and Production, leapfrogging, slow food,
- Product-service systems, supply chain management, lease society, Natural Step,
- Circular economy, 3R (repair, re-use, recycle), cradle-to-cradle
- Hannover Principles (sustainable design), appropriate technology
WP3: Scenarios and modelling of policy implementation

• Linking economic (EXIOMOD, CGE model; GINFORS, macro-econometric E3 model) and ecological (PIK land use) models

• Scenario formulation

• Running scenarios and generating results

• LCA of selected products and sectors

• Integrated scenario interpretation
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