What is this?

POLFREE Project 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

POLFREE project is a European Union Collaborative FP7 Project October 2012 - March 2016

The logic of the Vision

The info-mural "Vision for a Resource-Efficient Europe in 2050" (shown on the right) presents on a single page a narrative for the POLFREE project: what Europe aspires to; what urgent constraints it (and the world) faces; what targets for its air, water, land, and materials use it must have; what these targets represent in targets for Europe's economy; and, what types of policies and practices will need to be implemented by the European Union to achieve these targets.

Scenario creation

Part of the POLFREE (POLicy options For a Resource Efficient Economy) project involved intensive work on creating, modeling and visualizing scenarios for the emergence of resource-efficient economies. This involved linking quantitative economic and ecological models, and simulating the policies and policy mixes derived in the earlier work, supplemented with appropriate Life-Cycle Assessment (LCA) analysis for selected products and sectors, to ensure that the policies and business models in the scenarios lead to absolute decoupling of economic activity from resource use and environmental degradation. The scenarios and associated policy analysis considered economic, environmental and social dimensions.

The project was be explicitly geared to support policy efforts and initiatives on resource efficiency in the European Commission, and involved a wide range of stakeholders from business, the policy world, and NGOs.

Four scenarios

The project created four scenarios.

- Global Cooperation
- Europe Goes Ahead
- Civil Society Leads
- Business as Usual (Reference Scenario)

The first three scenarios listed above are shown in detail on separate info-murals in this series and are available for viewing.

Outcomes of the modeling

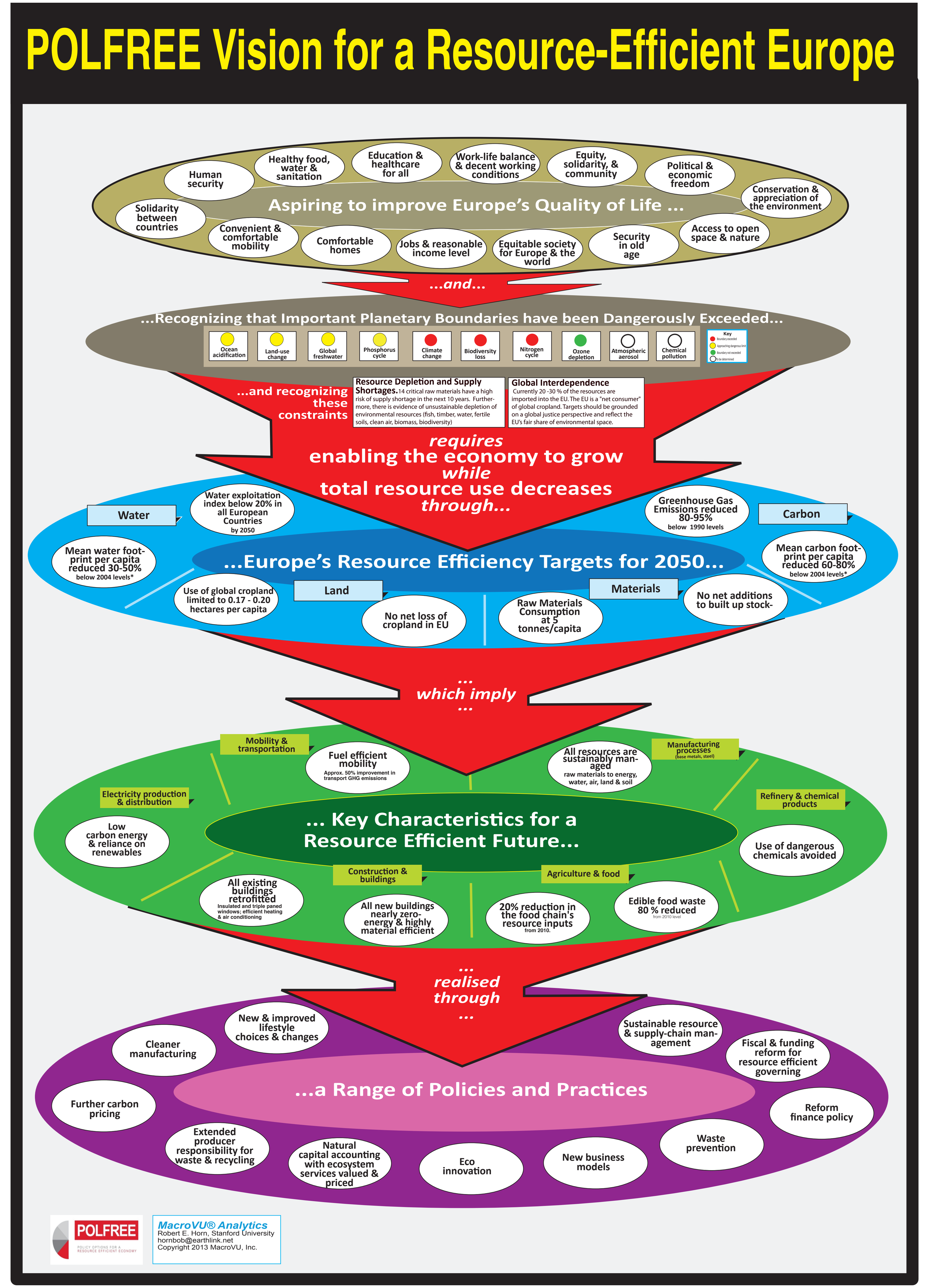
The quantitative outcomes of the modeling process for the four scenarios are show to the right. More detail is available from the reports of the project on its website http://www.polfree.eu.

Key Findings

- To stay with the usual behavioural patterns of the past in policy, industry and civil society is not an option at all.
- A global cooperation on policy measurements to keep global warming below 2°C and to boost resource efficiency would not only allow staying within planetary boundaries, but would also be beneficiary for green growth and jobs in the EU.
- If a global consensus not only on targets but also on binding policies cannot be achieved in the near future Europe should go ahead. This is from economic perspective even more successful
- If the policy measurements are designed in the right way. Modelling results for the contributions of civil society to a reduction in resource use show the immense potentials of changing values and behaviours in society.

Collaborating Institutions
UCL ISR (UK)
Wuppertal Institute (Germany)
TNO (Netherlands)
ICIS, Maastricht University (Netherlands)
GWS (Germany)
SERI (Austria)
PIK (Germany)
International Synergies (UK)

POLFREE Vision for a Resource-Efficient Europe



POLFREE Scenario Outcomes 2016

Business as Usual (Reference)

Economic Outcomes

The Modeling Process and Outcomes

Targets for Europe - 2050

Required to Prevent Dangerously Exceeding Planetary Boundaries (As developed in the POLFREE Visioning Process)

Target	2010	2030	2050
AIR			
Greenhouse gas emissions reduced by 80 to 95% by 2050 (compared to 1990)	-9.1%	-22.9%	-33.1%
Mean carbon footprint per capita reduced 60-80% (below 2004 levels)	-9.3%	-20.6%	-28.1%
METALS & MATERIALS			
5 tonnes of raw materials consumption per capita	12.5	11.6	11.8
No net additions to built-up stock	N/A		
LAND USE			
Use of global cropland (ha/person)	0.31	0.27	0.27
Average annual loss of cropland for EU27 (2045-2050)	0.17%		
WATER			
Mean water footprint per capita reduced 30-50% (below 2004 levels)	N/A		
Water Exploitation Index below 20% in all EU Countries	10.2%	12.2%	11.9%

Global Cooperation

Economic Outcomes

The Modeling Process and Outcomes

Targets for Europe - 2050

Required to Prevent Dangerously Exceeding Planetary Boundaries (As developed in the POLFREE Visioning Process)

Target	2010	2030	2050
AIR			
Greenhouse gas emissions reduced by 80 to 95% by 2050 (compared to 1990)	-9.1%	-34.8%	-70.9%
Mean carbon footprint per capita reduced 60-80% (below 2004 levels)	-9.3%	-35.4%	-82.0%
METALS & MATERIALS			
5 tonnes of raw materials consumption per capita	12.3	8.4	3.9
No net additions to built-up stock	N/A		
LAND USE			
Use of global cropland (ha/person)	0.31	0.28	0.27
Average annual loss of cropland for EU27 (2045-2050)	-0.03%		
WATER			
Mean water footprint per capita reduced 30-50% (below 2004 levels)	N/A		
Water Exploitation Index below 20% in all EU Countries	10.2%	9.9%	9.6%

Europe Goes Ahead

Economic Outcomes

The Modeling Process and Outcomes

Targets for Europe - 2050

Required to Prevent Dangerously Exceeding Planetary Boundaries (As developed in the POLFREE Visioning Process)

Target	2010	2030	2050
AIR			
Greenhouse gas emissions reduced by 80 to 95% by 2050 (compared to 1990)	-9.1%	-39.6%	-74.6%
Mean carbon footprint per capita reduced 60-80% (below 2004 levels)	-9.3%	-33.2%	-72.2%
METALS & MATERIALS			
5 tonnes of raw materials consumption per capita	12.3	8.6	5.1
No net additions to built-up stock	N/A		
LAND USE			
Use of global cropland (ha/person)	0.31	0.27	0.25
Average annual loss of cropland for EU27 (2045-2050)	-0.05%		
WATER			
Mean water footprint per capita reduced 30-50% (below 2004 levels)	N/A		
Water Exploitation Index below 20% in all EU Countries	10.2%	9.8%	9.4%

Civil Society Leads

Economic Outcomes

The Modeling Process and Outcomes

Targets for Europe - 2050

Required to Prevent Dangerously Exceeding Planetary Boundaries (As developed in the POLFREE Visioning Process)

Target	2010	2030	2050
AIR			
Greenhouse gas emissions reduced by 80 to 95% by 2050 (compared to 1990)	-9.1%	-41.8%	-72.2%
Mean carbon footprint per capita reduced 60-80% (below 2004 levels)	-9.3%	-38.4%	-74.8%
METALS & MATERIALS			
5 tonnes of raw materials consumption per capita	12.3	8.8	5.6
No net additions to built-up stock	N/A		
LAND USE			
Use of global cropland (ha/person)	0.31	0.23	0.16
Average annual loss of cropland for EU27 (2045-2050)	-0.03%		
WATER			
Mean water footprint per capita reduced 30-50% (below 2004 levels)	N/A		
Water Exploitation Index below 20% in all EU Countries	10.2%	9.7%	9.0%