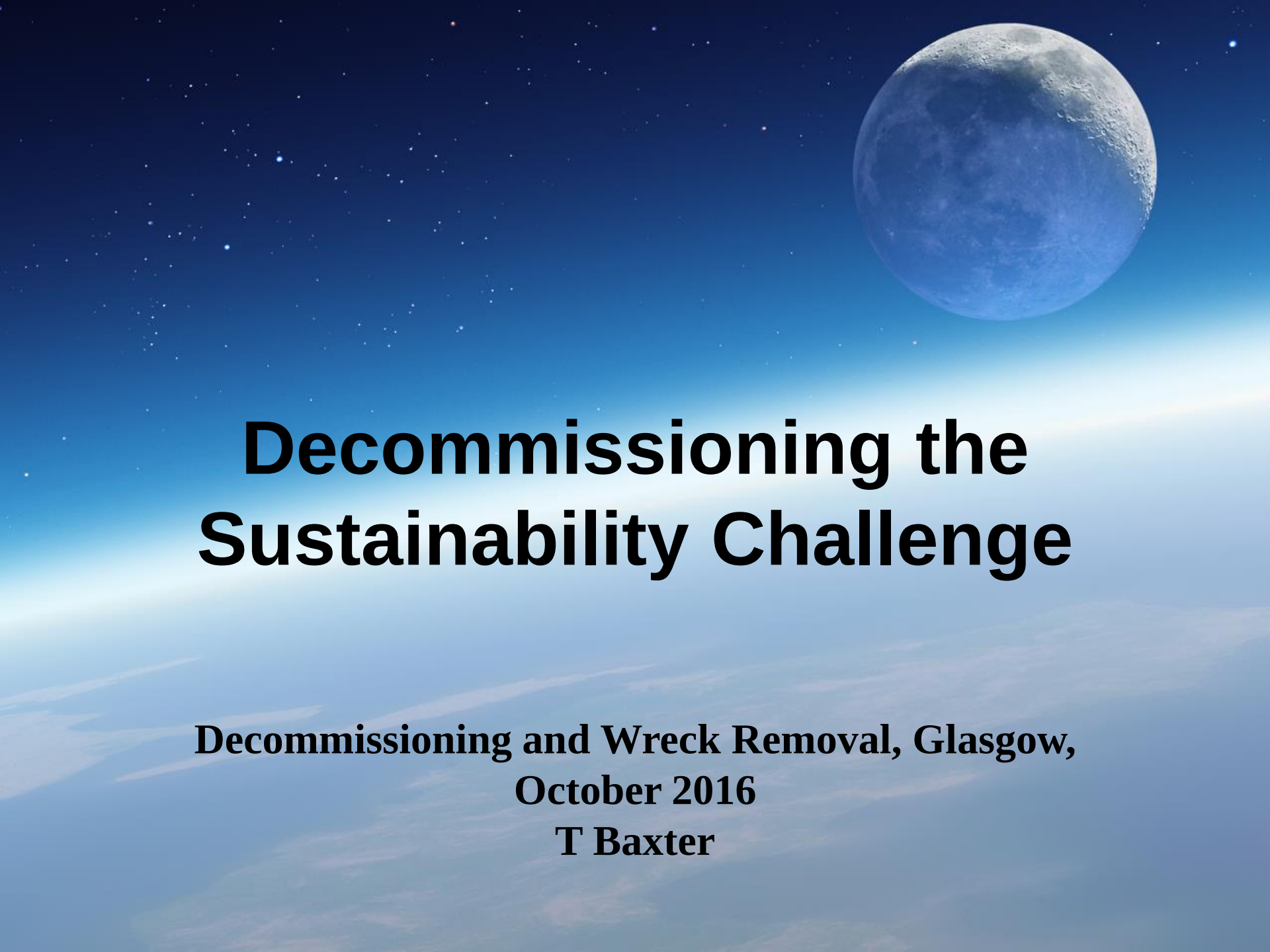


The background of the slide is a composite image. The upper portion shows a deep blue night sky filled with numerous small, bright stars. A large, detailed full moon is positioned in the upper right corner. The lower portion of the image shows a view of Earth from space, with a curved horizon and a pale blue atmosphere. The title text is centered over the transition between the sky and the Earth.

Decommissioning the Sustainability Challenge

**Decommissioning and Wreck Removal, Glasgow,
October 2016**

T Baxter

Sustainability Mandate

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Policy position statements

Where does IChemE stand on sustainable technology?

IChemE supports the more rapid pursuit of a global energy policy based on using non-fossil primary energy sources (e.g. nuclear, including fusion in the longer term, and renewables, including solar, geothermal) coupled with the development of hydrogen, or other options, as energy carriers.

IChemE supports the continuing introduction of appropriate legislation, taxes and other fiscal measures to encourage a change of behaviour, coupled with targeted information and education to drive the 'reduce, reuse, recycle' mentality deeper into industry and the consumers of its products.

IChemE believes that the necessary change in business strategy to speed the introduction of innovative and sustainable technologies should be led from the boardroom, facilitated and encouraged by chemical engineers at all levels in industry, commerce and academia.

Introduction

1. Overview of the Sustainability Assessment Model - SAM
2. Some examples of SAM applications
3. Decommissioning Challenge
4. Decommissioning Challenge Conclusions

Sustainability

Conventional accounting numbers do not tell the 'full story' of how a business impacts upon its environment.

In particular, all business decisions have economic, resource, environmental and social impacts. Furthermore, these impacts are incompletely captured by conventional accounting and reporting mechanisms.

As a result, managing the diverse impacts of business decisions is difficult because conventional accounting decision making tools do not usually recognise their existence.

Sustainability

All business decisions have economic, resource, environmental and social impacts.

The three pillars;

PEOPLE
PLANET
PROFIT

The triple bottom line

Sustainability Assessment Model - SAM

A full cost accounting tool which recognises externalities.

Environmental full-cost accounting (EFCA) is a method of cost accounting that traces direct costs and allocates indirect costs by collecting and presenting information about the possible environmental, social and economic costs and benefits or disadvantages.

All values are monetised.

Tom
Baxter



Jan
Bebbington



David
Cutteridge



SAM Functionality

Measure changes
to:



**Three Pillars
at
commencement
of project**



**Three Pillars
at completion
of project**

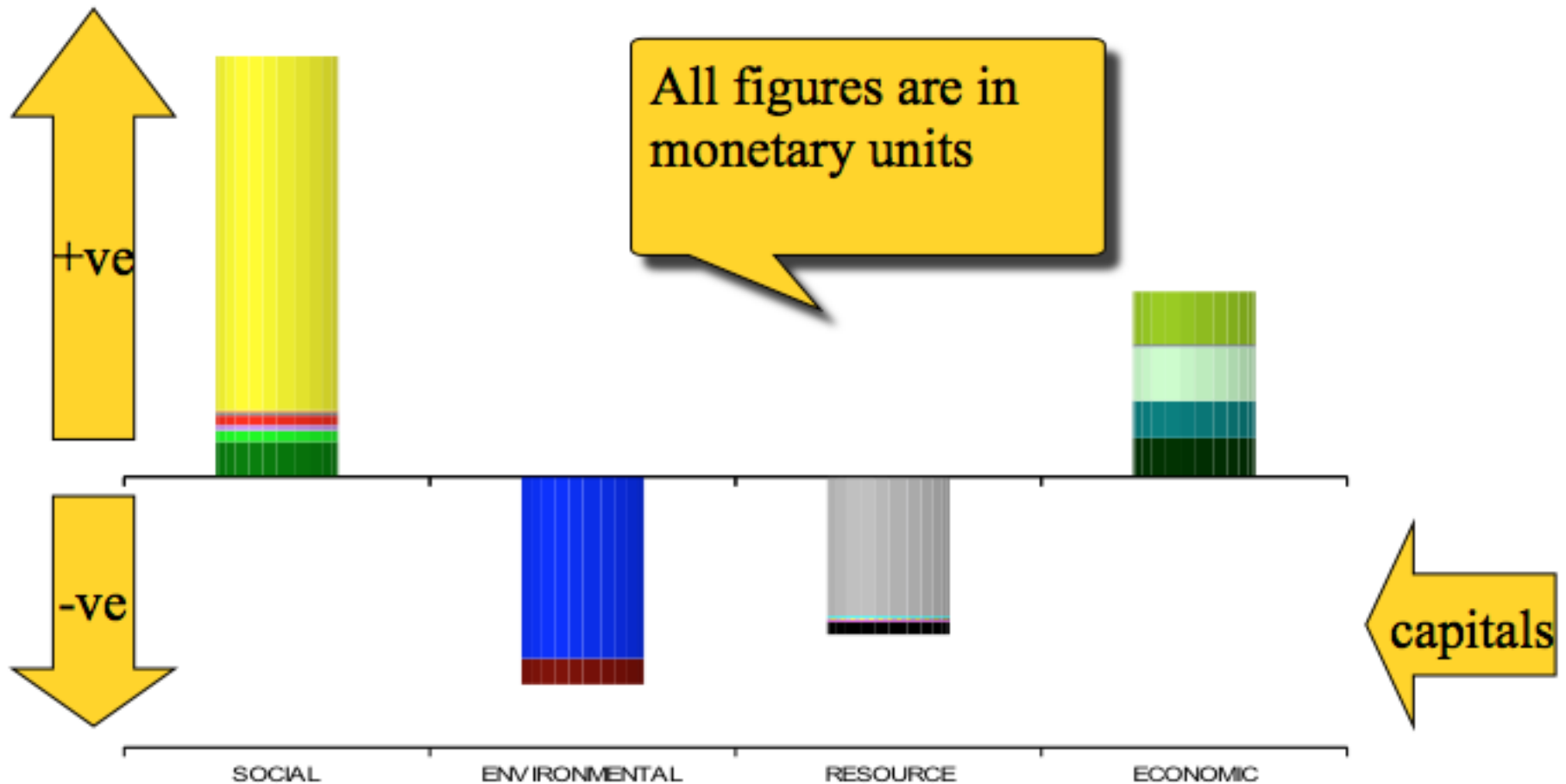
**Economic
Prosperity**

**Availability
of Resources**

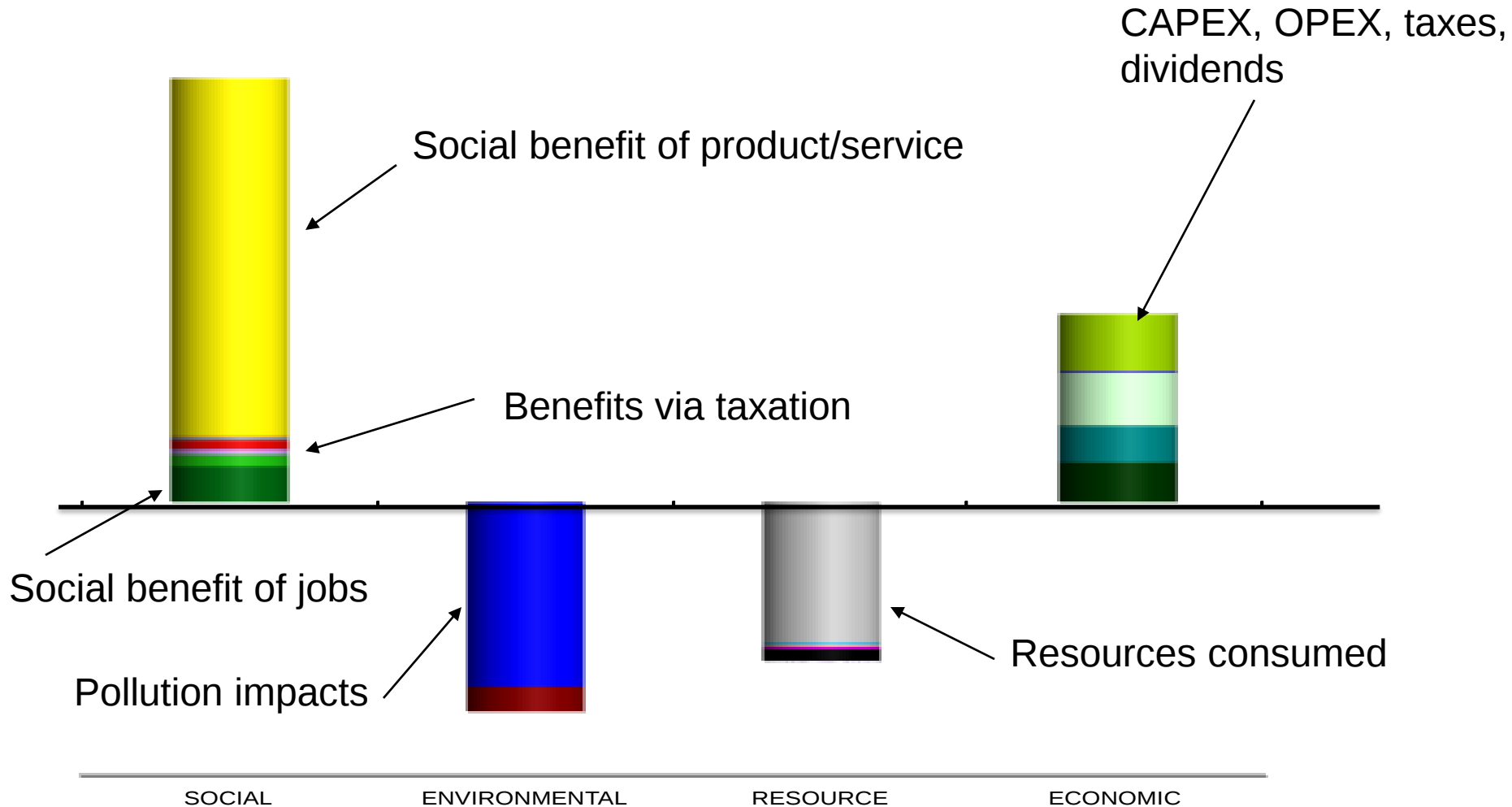
**Environmental
Quality**

**Social
Progress**

The SAM Signature



The SAM Signature

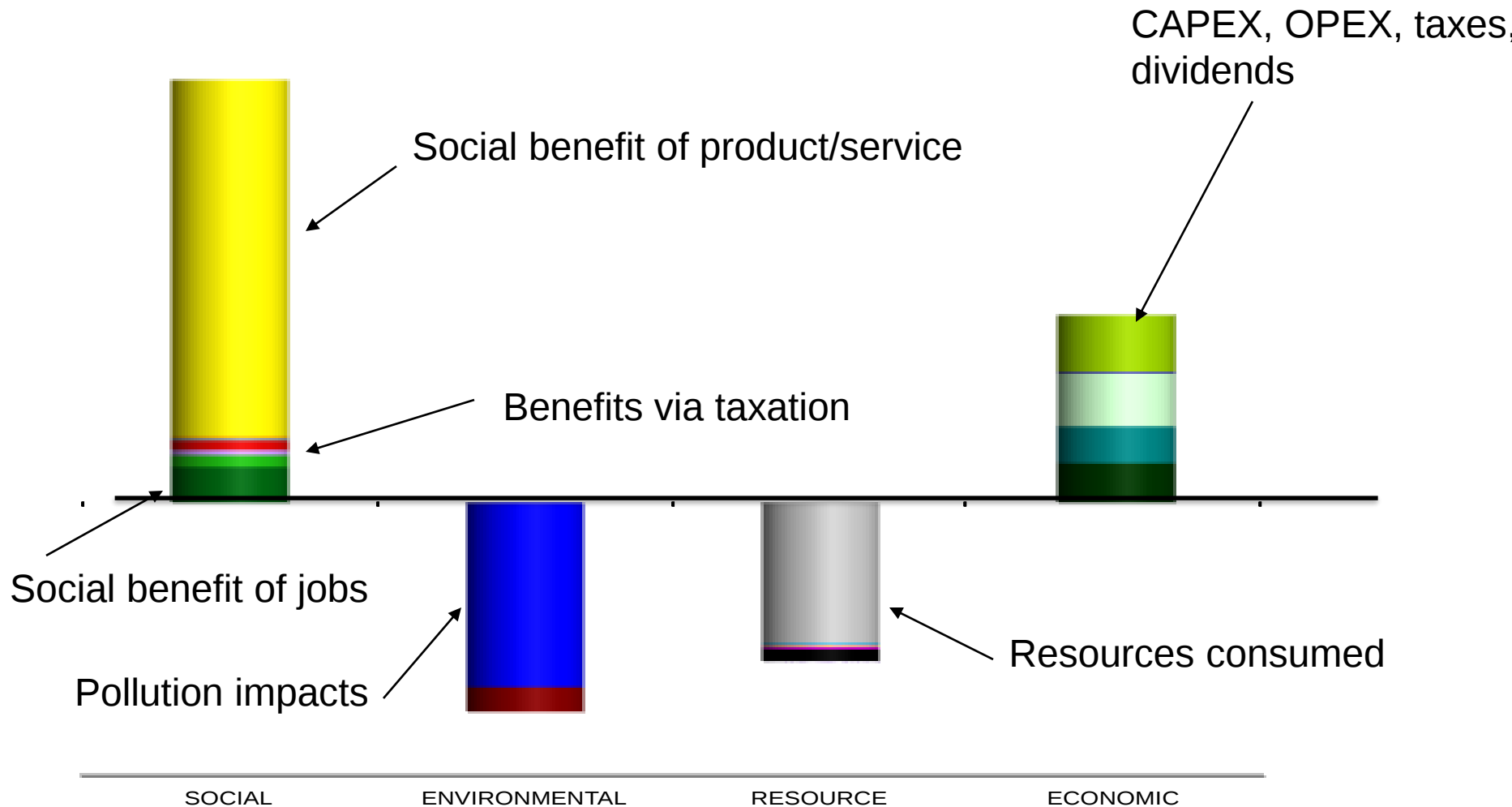


SAM Examples

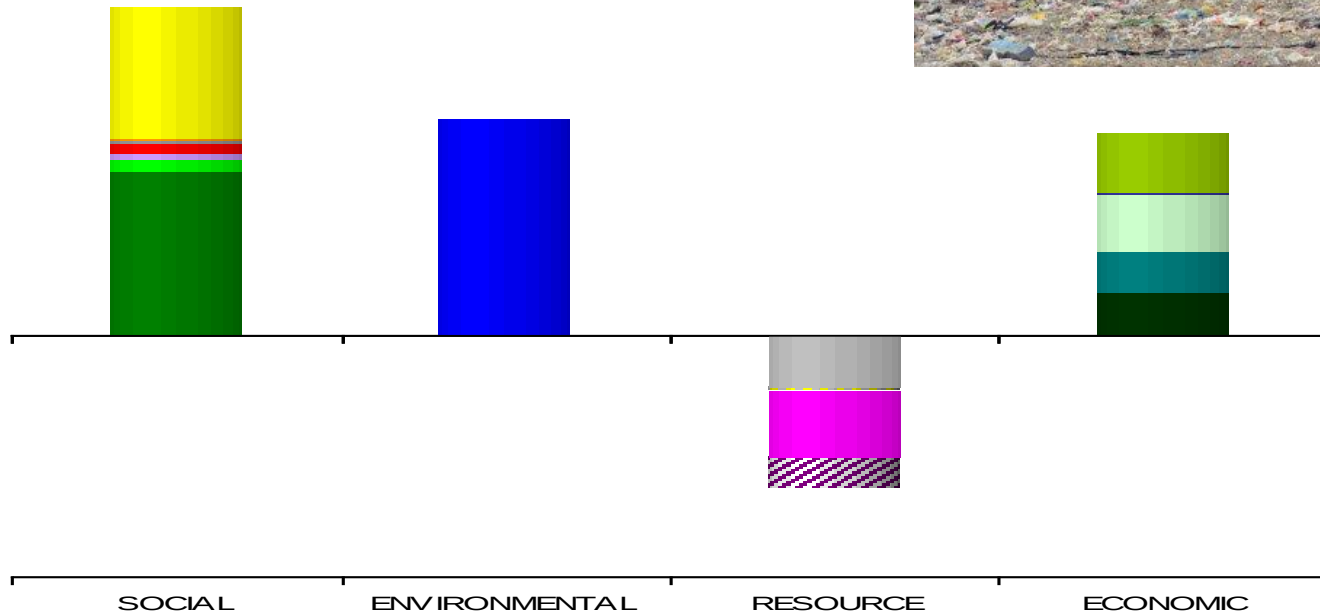
- Oil and Gas project
- Landfill Gas Capture project
- Tree Planting scheme



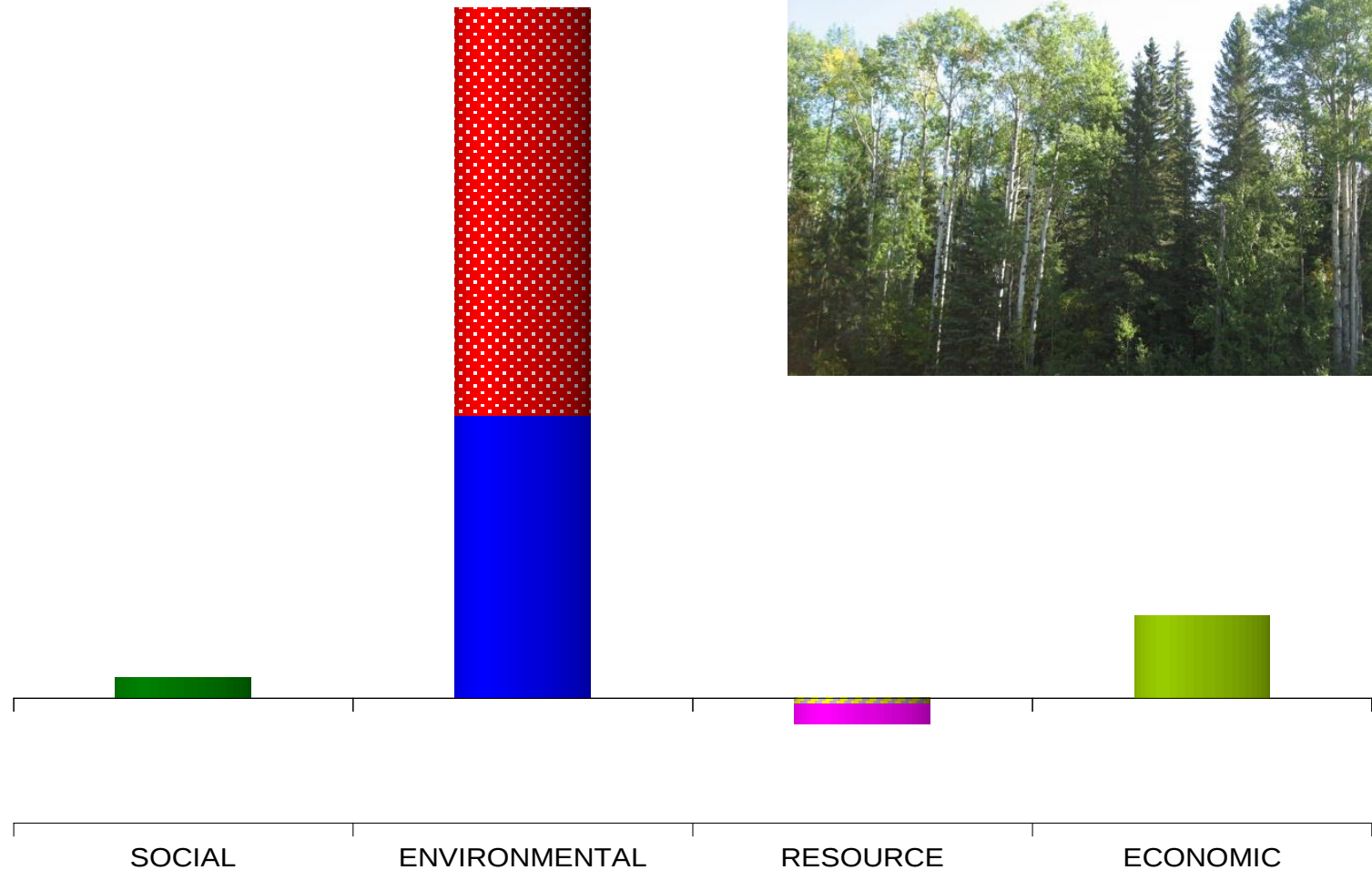
Typical Oil and Gas Signature



Landfill Gas Capture Project Signature



Tree Planting Scheme Signature



Decommissioning – Who pays?



£30bn–£60bn

The estimated cost of fully decommissioning the North Sea fields through to the 2050s



If it comes in at the top of the current range of estimates, decommissioning could end up costing British taxpayers £1,000 each over the course of the next few decades – as much as the controversial plan to renew Britain's fleet of Trident nuclear submarines.

The Times

Decommissioning Perception of Who Pays

“Everyone has to get rid of their waste, why should North Sea oil giants be any different?”

DOUG PARR,
CHIEF SCIENTIST
GREENPEACE



Removing old North Sea rigs 'wasting money'

Clean and plug them and spend the funding on renewable energy instead, urges expert

Iona Amos
Environment Correspondent

DEFUNCT oil rigs and pipelines should be cleaned up, plugged and left in the North Sea and the money that would have been spent on dismantling and disposal redirected into renewable energy solutions, according to an industry expert.

Offshore decommissioning is an emerging sector being developed to deal with the



Lang Banks, director of campaign group WWF Scotland, said: "In the interests of the environment and our economy, the fact is that we need to see both the continued acceleration of renewables as well

as the clean-up and restoration of our seas.

"Having made hundreds of millions of pounds in profits over the past few decades, it's only right that the industry now cleans up its mess as Scotland looks to a cleaner, more sustainable energy future."

Decommissioning – Sustainable Challenge

Compare the sustainability metrics for;

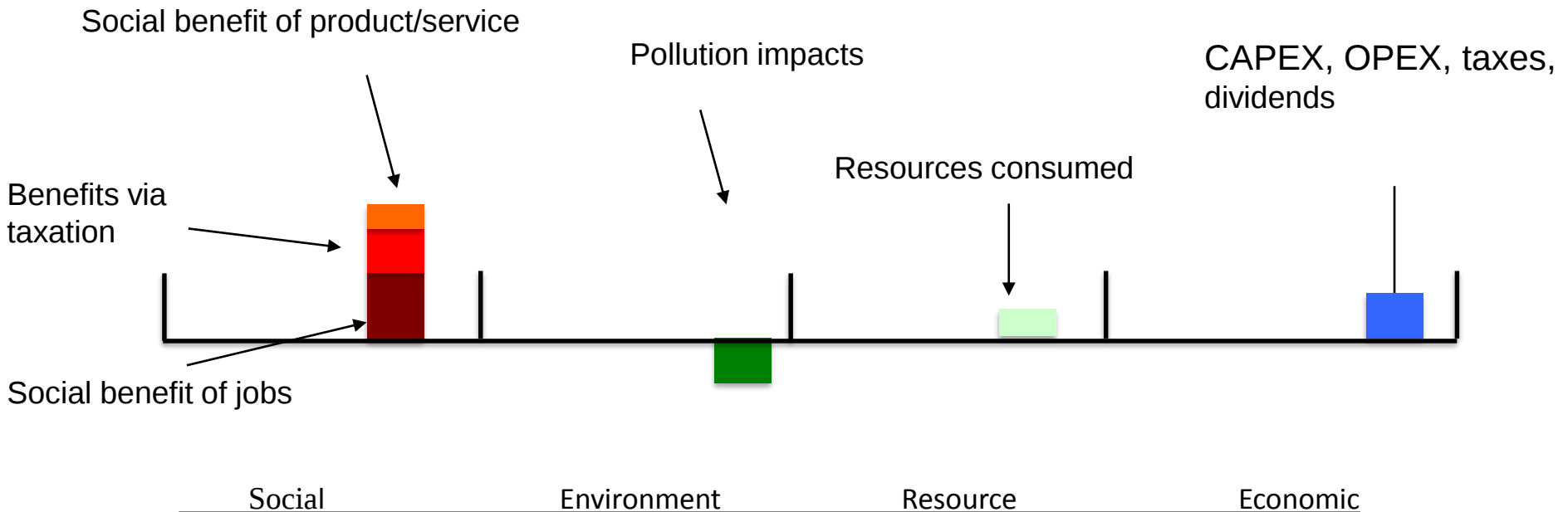
1. The base line – the current decommissioning plans
2. The alternative – plug and abandon the wells, make clean and safe and leave in place. Redirect the capital saved (tax payers' money) through no removal into renewables.

Decommissioning Challenge

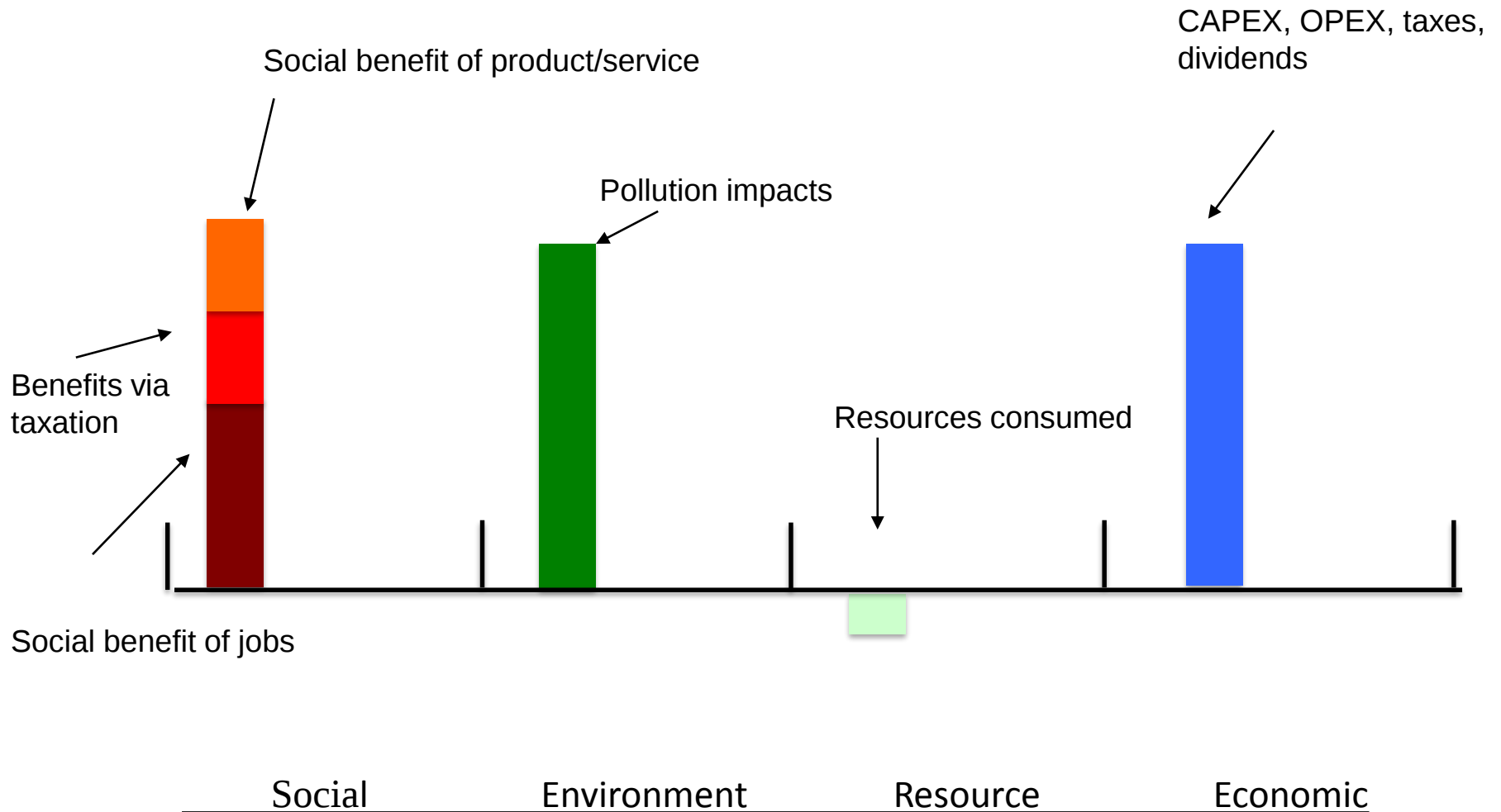
For the base line, the information will be held by DECC as submitted by the Oil and Gas Cos. This would cover the cost of decommissioning to the operator and tax payer, the jobs and other socio-economic impacts (fishing, marine transport) together with the environmental footprint (habitat, biodiversity, impact of decommissioning activities etc.).

For the alternative the same metrics would be defined. There would be clear differences – completely different job and socio-economic signature, the renewables route would be generating money from energy sales and paying taxes and of course there would be a huge carbon reduction environmental benefit.

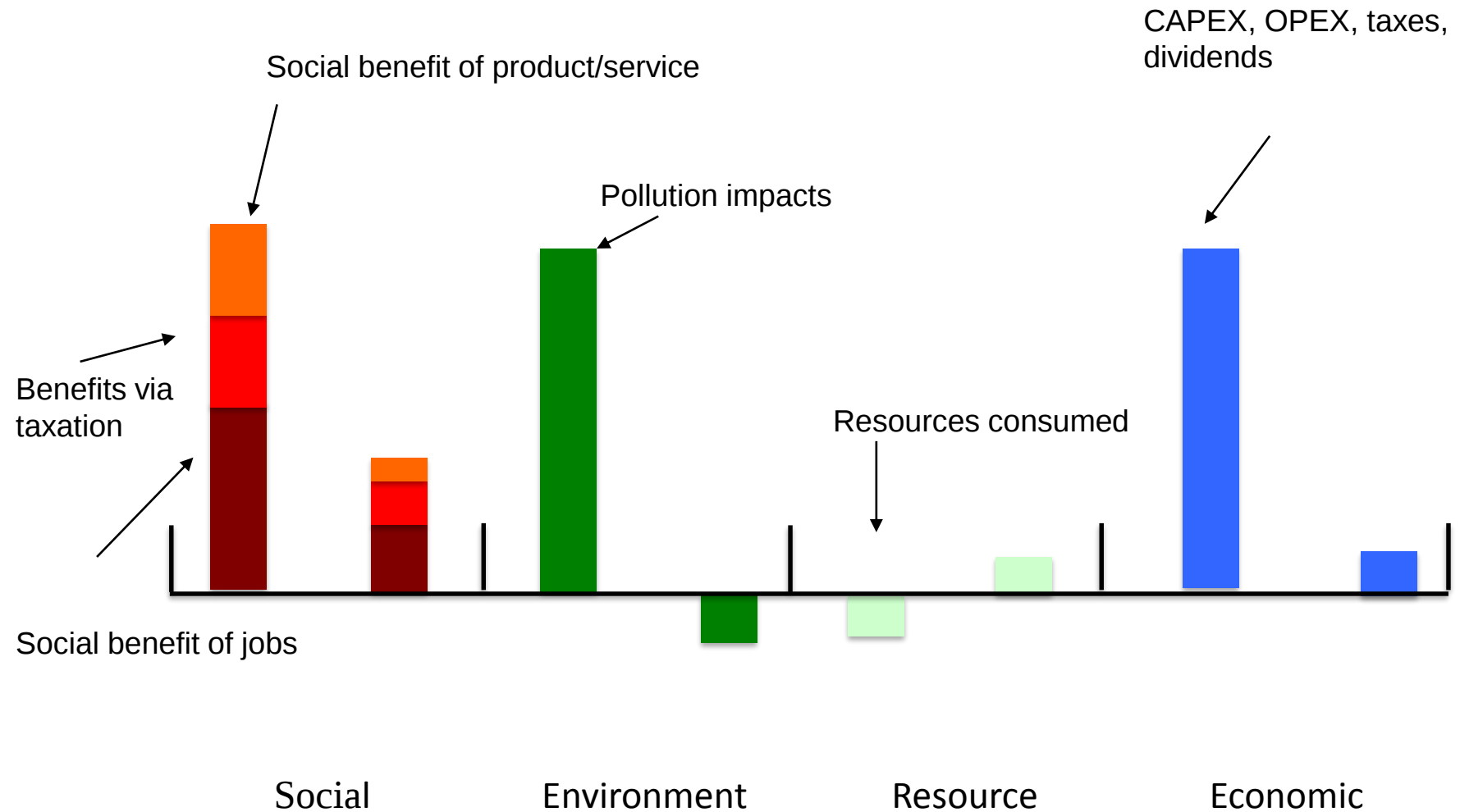
Sustainable Signature Current Plans



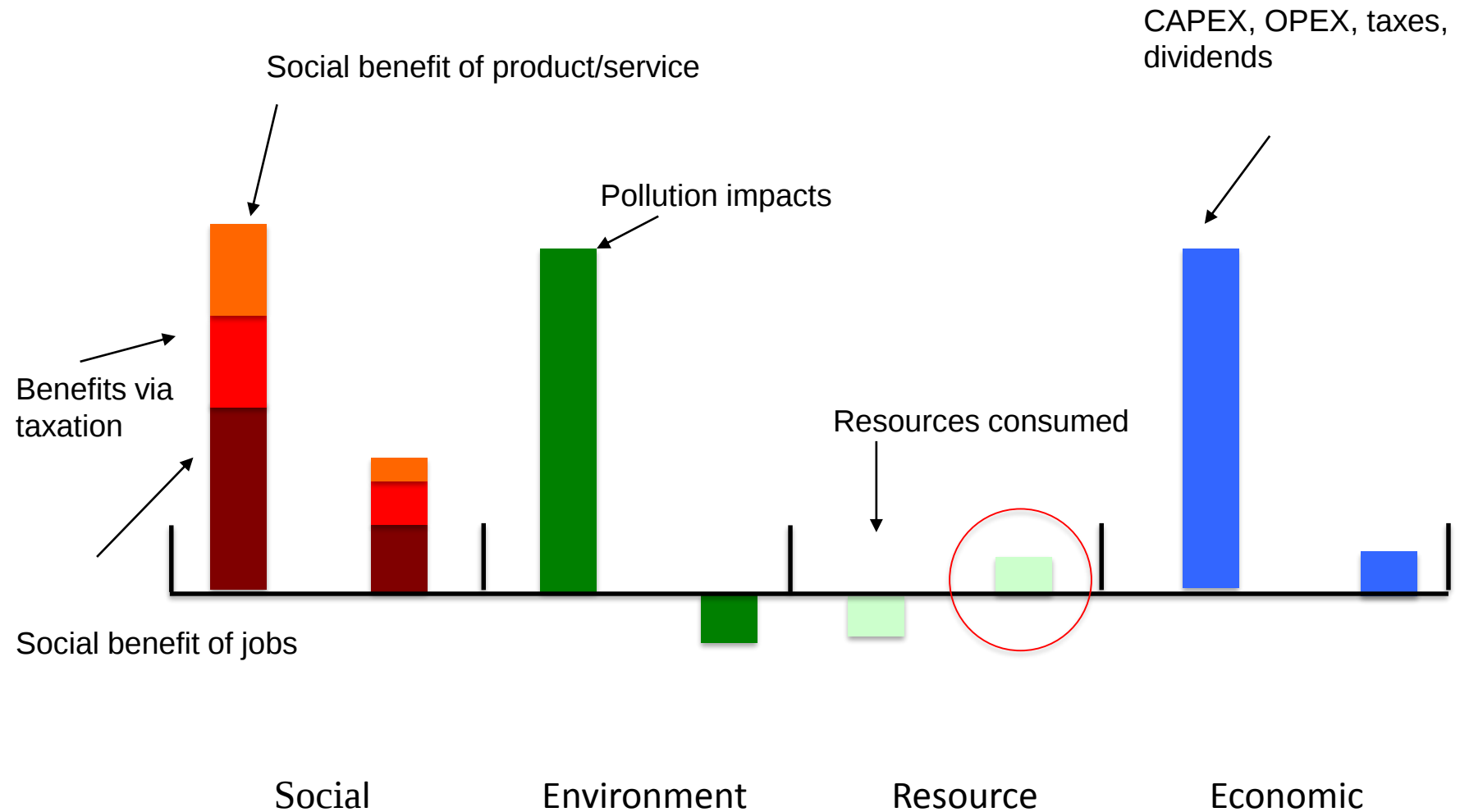
Sustainable Signature Renewables Route



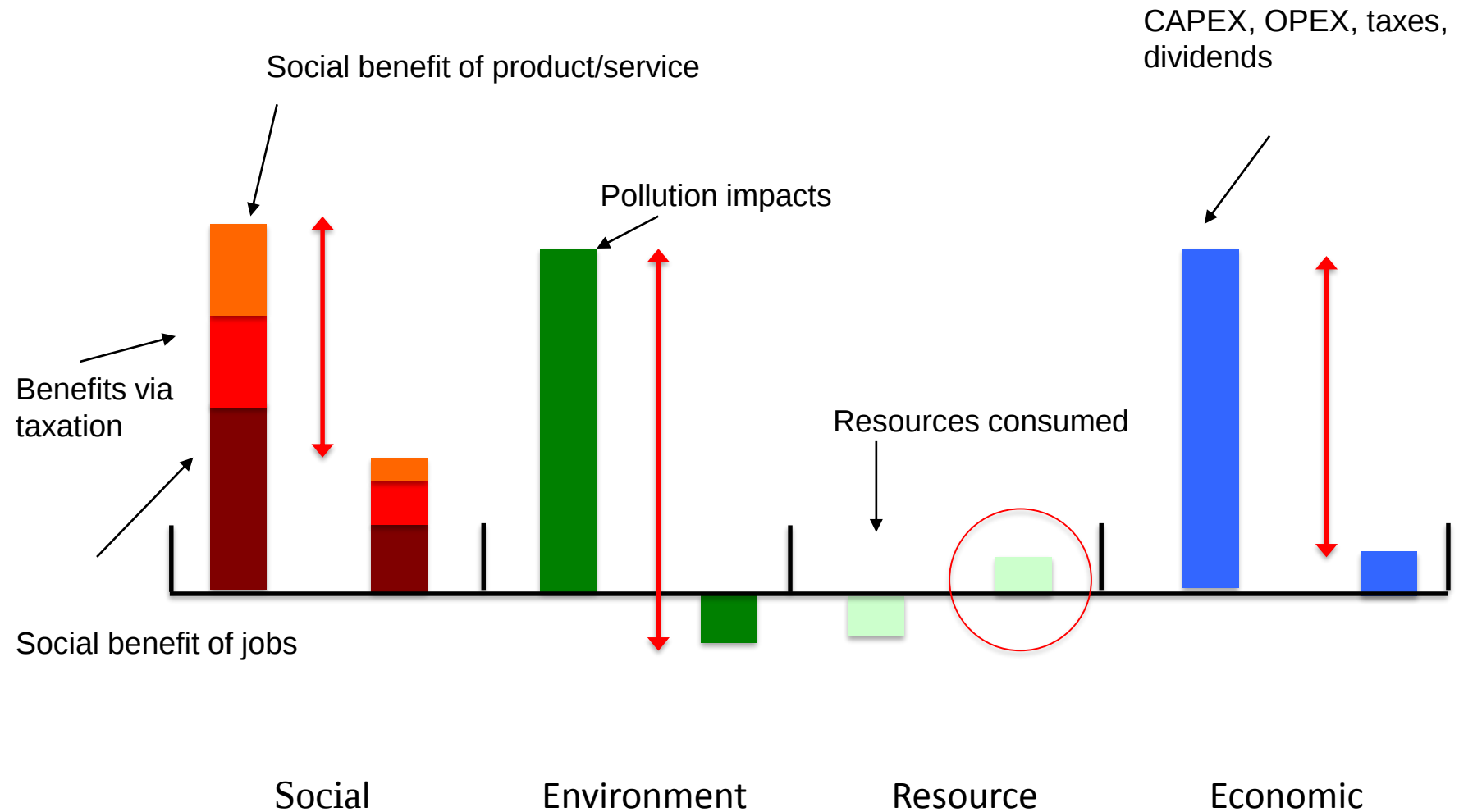
Sustainable Signature Comparison



Sustainable Signature Comparison



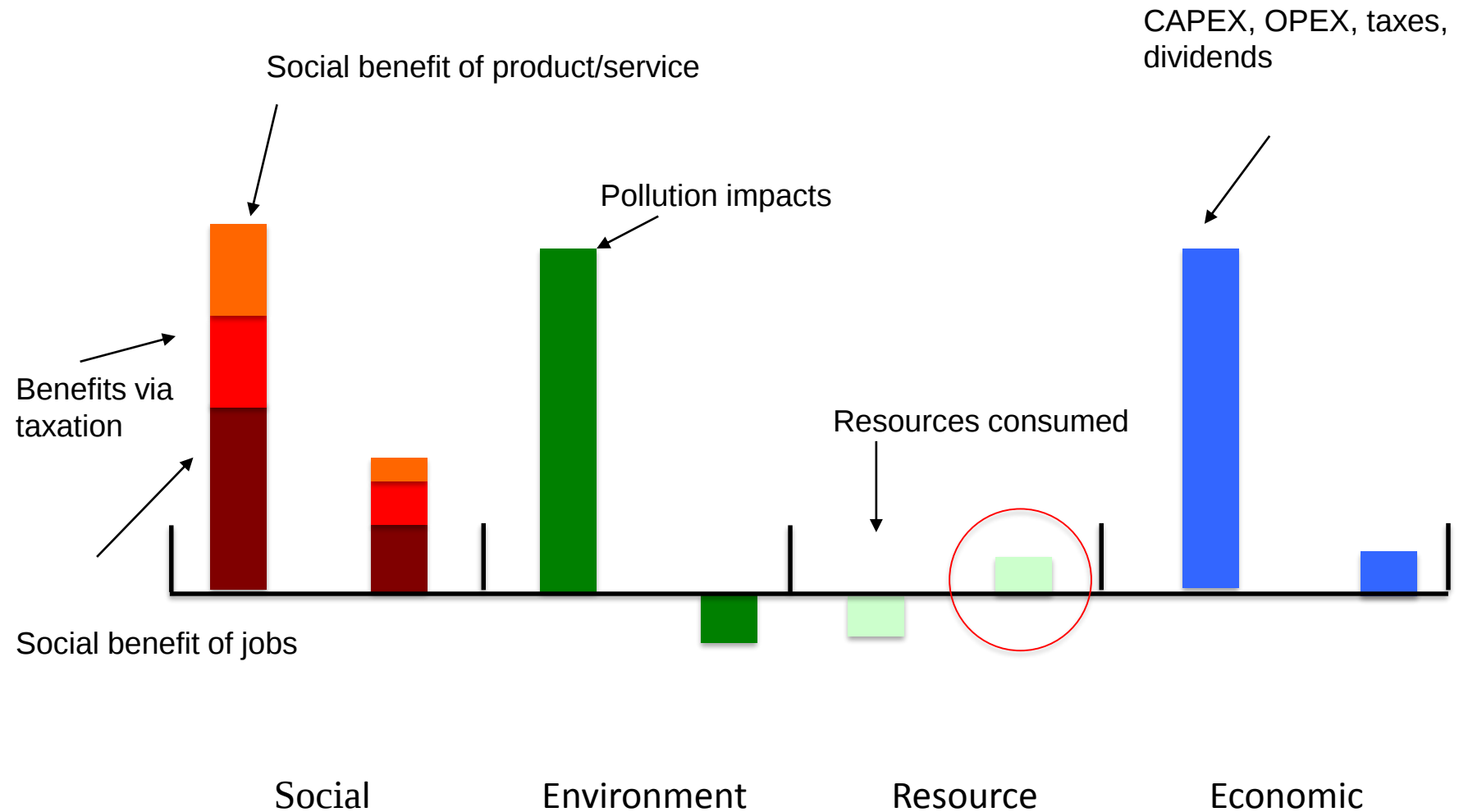
Sustainable Signature Comparison



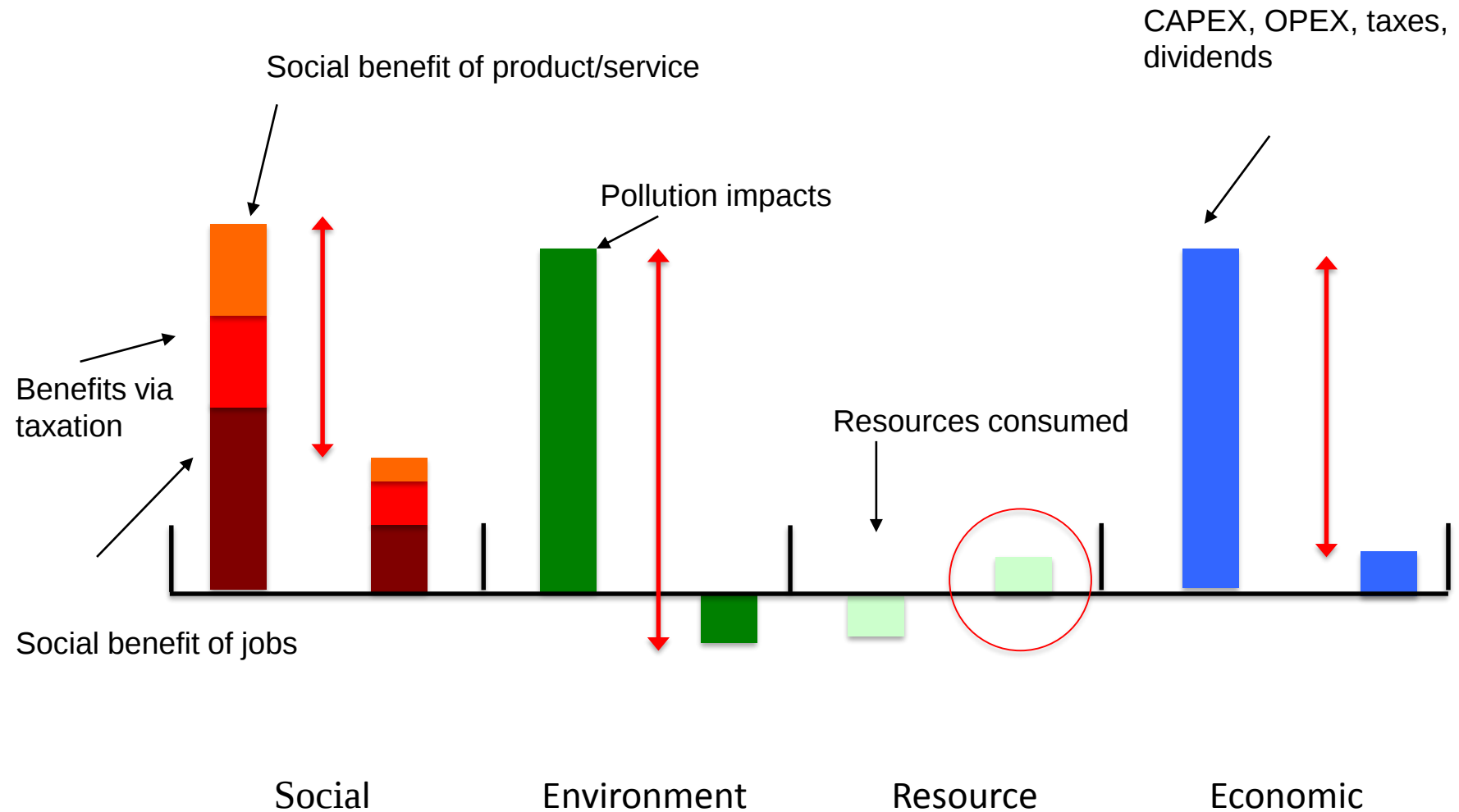
Conclusions

1. Tax Payer and NGOs need to be informed as to who pays
2. You can't stop any P&A, clean and make safe – multiple Brent Spars
3. Do the science - the comparative assessment provides the basis to challenge the current plans
4. The comparison would also form the basis to challenge OSPAR and Marine Regulations
5. The need is pressing – OSPAR 2018 - ports and fabrication sites are investing for a 'bonanza'

Sustainable Signature Comparison



Sustainable Signature Comparison





Built 1943 –
still there!