

ABOUT IIER

IIER is a non-profit organization based in Switzerland, the Netherlands and the U.S. We are focused on identifying empirically validated macro-economic system descriptions and models, and ensuring their dissemination. Key aspects of our work include:

- Development of a thorough understanding of our (human) eco(nomic) system, integrating traditional economics, energy and resource use, financial systems and human behavior – with the objective of establishing robust models;
- Identification of potential issues affecting the future and development of mitigation solutions for unexpected non-linear developments which may become highly disruptive. The focus is on solutions that are realistic in light of today's knowledge on human behavior;
- Provide and promote inputs for society, academia and policymaking with the aim of broadening knowledge and effort towards understanding and mitigating future risks.

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...an urgent need in changing times

Over the next two decades, national plans and international agreements like the 2016 Paris Climate Agreement demand massive changes to global energy systems.

One of the key challenges in implementing the desired transformation is to truly understand what we are trying to achieve, what obstacles we are facing and how they could be overcome. As always, solid data is an essential piece of good decision-making. Without accurate information about energy consumption and carbon intensity for all key economies, we are flying blind into an unknown future.

Unfortunately, solid data for energy consumption and carbon emissions per capita and per unit of GDP are not available from any reliable source.

Energy and carbon statistics ignore trade The core shortcoming of all national energy and carbon intensity statistics is that they are based on local energy consumption accounts, and are completely oblivious of the large amount of energy and resources consumed elsewhere that are shifted across borders in final goods and services. For some advanced economies, these amount to very considerable amounts.

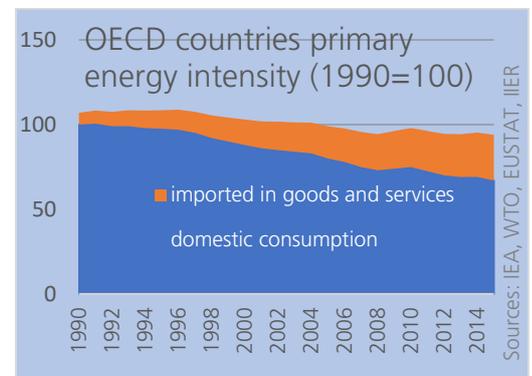
With today's strong outsourcing and globalization trends, this is a significant shortcoming. Incorrect energy and emission statistics severely distort the picture, as it makes advanced, largely deindustrialized countries look much better in comparison to key suppliers like China, India, and others, while they in fact are not.

The omission of "imported" energy and emissions in those statistics further creates the misleading perception that GDP and wealth growth can be easily decoupled from resource and energy inputs.

We need new metrics that include embedded energy and emissions As we move quickly towards implementing major changes to energy systems globally, doing so based on a flawed metric seems dangerous, as it might lead to making the wrong choices, defining incorrect incentives, and missing to accomplish our ambitious goals altogether.

IIER has thus developed the TECS – True Energy and Carbon Statistics concept – a metric that combines national energy and carbon statistics with trade data to depict national energy and carbon emissions more accurately.

This effort is based on IIER's extensive materials and process datasets which were developed in joint modelling projects with Imperial College and Stanford University. These datasets enable us to attach the footprint of materials, energy and carbon to almost any product and service that is globally traded.



TECS-adjusted primary energy consumption (OECD)

A transparent methodology IIER is using publicly available data to evaluate the TECS dataset. It is based on national energy consumption and carbon emissions statistics, combined with publicly available trade data. Based on materials and energy footprints for individual trade categories, energy and carbon emissions are attached to the goods imported and exported from an economy.

TECS should become a standard dataset IIER aims at establishing the TECS dataset as a regular annual service that is available on an open-source basis free of charge to anyone, much comparable to globally available energy statistics, and expand it by including a larger number of countries and by creating time series going back to the beginning of globalization around the early 1980s.

The road to implementation In IIER will have a first dataset for a number of EU countries available in Q3/2017. We aim at securing sufficient funding to establish a permanent team by late 2017.

Support our project by...

You can support this important project by:

- Provide funding for setting up a permanent team to create these statistics on an annual basis;
- Provide access to even better data for embedded energy and carbon;

Please contact us at: TECS@iier.ch