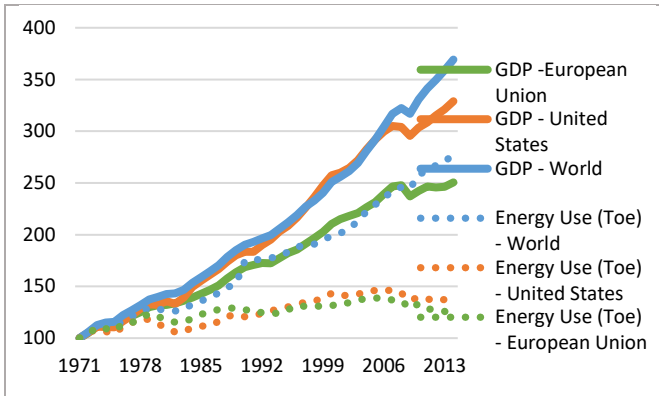






Moreover, in case we are still convinced that the world is steered by the economic and energetic choices of the European Union and the United States, Figure 6 shows how their GDP and energy use trends have gradually moved away from the world mean values, since the 70s-80s. The future choices of China, India, and Africa on these matters [8] will have much more impact on the world and although the appreciation of the great effort of the European Union in the decarbonization of its energy system, the impact on these policies on the environment at a global scale will be not so decisive.



**Figure 6.** GDP and energy use 1971-2013 for World, United States and European Union (Data Source: World Bank - World Development Indicators Data)

### 3. CONCLUSIONS

In this contribution, we focus our attention on the implications related to energy independence and energy research might have on the roadmap toward a more sustainable development of society.

We pointed out how the electricity generated from renewable energy sources is the key to achieve energy independence in countries where traditional energy sources are not geographically present. Nevertheless, considering the actual trends of RES penetration and scenario analysis, this goal is not expected to be met in a short-medium period.

Besides, we looked at "energy research" as the source of a breakthrough in developing new policy strategies, solutions for energy efficiency, new materials, and technologies. On one side, we hope that research can give the key to pursuing this goal, but on the other side, it is not adequately funded.

At last, we highlighted how, despite the great effort of European policymaker in engaging the decarbonization of the European energy system, the impact of these policies on the whole world environment would be very limited.

These considerations want to serve as a contribution to the discussion on the topics of sustainability in energy generation and final use of it but suggesting to focus on the point of view of those actors that will play the main role in the next future.

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### NOMENCLATURE

GDP	Gross domestic product
IEA	International Energy Agency
NPS	New Policies scenario
OECD	Organisation for economic co-operation and development
R&D	Research and development
RES	Renewable energy sources
SDS	Sustainable Development scenario
TFC	Total final consumption
TOE	Tonne of oil equivalent
TPES	Total primary energy supply