

## “The Energy Transition and its Macroeconomic Effects<sup>1</sup>”

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Remarks and conclusions of this BIS paper by Alberto Americo, Jesse Johal and Christian Upper.

When the war in Ukraine reached another step with the invasion by Russian troops in 2022, the concern for the future of energy prices and their long term on industrial production, prices and competitively skyrocketed. At least that was the case in Western Europe, emphasized also by the large reduction in the flow of cheap gas from Russia.

All of a sudden, certain topics became headlines again and were the focus of attention not only of energy experts, but the public at large: dependency on one or few types of energy sources, dependency on one or only few providers of such energy sources, the urgency to find alternative energy sources, the speed, desirability and cost of transitioning to new, alternative energy sources, etc.

While such discussions are important, if not essential, the information given in the media seemed to concern mainly the effect on consumers, those primarily concerned with the sudden change in the energy landscape.

A lot less attention was given to the macroeconomic consequences of energy transition, and to whether some countries, for instance fossil fuel and metals and minerals producers, might suffer or benefit more than others from such transition.

This is where this Paper by the three BIS economists sets in. The authors conclude that a small number of fossil-fuels producing countries are likely to be severely hit. On the other hand, specialized minerals producers should experience large net benefits. Most of the world who are fuel importers, might benefit to some degree.

When exploring the macroeconomic implications of the energy transition, the paper focuses on three types of country: (i) fossil fuel exporters, who will see their main source of export and fiscal revenues severely eroded, forcing a shift to a new growth model; (ii) fossil fuel importers, who will spend less on importing fuel due to the abundance and geographical dispersion of clean energy resources; and (iii) exporters of key metals and minerals, who are likely to benefit from a structurally higher demand for their products and possibly from a new metals and minerals *supercycle*.

As the authors write: “The long-term picture may be as follows. Most of the world, particularly East and South Asia, should benefit from replacing expensive, polluting, imported fossil fuel with cheaper, cleaner, locally sourced energy. For major fossil fuel producers, especially those in the Middle East and North Africa, the economic benefits of clean energy will probably be overshadowed by the decline of existing energy sources.

Producers of key metals and minerals (e.g., copper, lithium, rare earths) should see amplified benefits, but the value of these exports will be substantially smaller than for fossil fuels. Overall, economic activity should shift from fossil fuel producers and towards energy importers and metals/minerals producers.”

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<sup>1</sup> BIS Paper No. 135, May 2023; <https://www.bis.org/publ/bppdf/bispap135.pdf>

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Based on analysis of publicly available data, made visible in several clear graphs, we can see that:

- “Clean energy” is growing, and the cost of generating is improving far faster than expected.
- The relative cheapness and abundance of renewable energy sources is increasing their usage.
- The outlook for fossil fuel electricity is poor.
- The electrification of transport is accelerating, with increasing global EV sales, increase in the driving range and in particular the decrease in the cost for EV batteries which will put pressure on oil demand.
- This may in turn create a “*supercycle*” for minerals such as copper, lithium, cobalt and rare earths, all essential for the generation, storage and use of electric power.

On the basis of these facts the authors then address possible macroeconomic consequences. This may seem highly speculative, but the authors base their analysis on experiences (and data) from case studies of representative countries during previous commodity booms and busts.

For instance, as regards oil producers, the 2014 oil price crash had major macroeconomic impacts on producers, for instance as regards FX reserves, current account balance or government debt to GDP ratios.

As regards fuel importers, India’s experiences in boom-bust cycles are highlighted to show the tight correlation between oil prices and the country’s economic and financial conditions.

As regards the effects on suppliers of metals and minerals, the analysis takes as example the boom for Peru and Chile as a consequence for the commodity super cycle. Clearly the real wages, the exchange rate and also the Government debt to GDP ratio are closely correlated to the copper price.

In the last chapter of the paper, the authors analyze countries’ exposure to the energy transition and list several potentials “winners and losers”. Fossil fuel exporters and importers whose income from fossil fuel makes up a relatively large portion of GDP or of the country’s exports are likely to suffer more.

As regards fuel importers, 80% of the world population live in countries that are net importers of fossil fuels. The authors conclude that the benefits of the transition will be spread out far more than the costs of the transition will be. Nevertheless, the authors’ analysis show that Asian economies should see the largest benefits from abandoning fossil fuels. Interestingly, a country’s current reliance on fossil fuels, while important, is not the only factor that will influence how much and how quickly it stands to gain from the energy transition. Mineral reserves and refining capacity for instance will become increasingly important yet are concentrated in relatively few countries.

As a conclusion the authors recommend that all countries should immediately start building resiliency and making preparations for a very plausible path of volatile energy prices and perhaps even a rapid collapse in demand for fossil fuels. The range of such preparation is of course wide and may vary depending on whether a

country is a fossil fuel exporter or importer. But importers, particularly those in Emerging Market Economies, can use the energy transition as an opportunity for structural reform and better insulation from volatile global energy markets.