

**ENVIRONMENT DIRECTORATE
ENVIRONMENT POLICY COMMITTEE**

GREEN Action Task Force

Energy Transition: Implications for jobs and social inclusion

Discussion Note

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This discussion note supports the High-level Panel Discussion 1 (Agenda Item 2).

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Transitioning to a low-carbon economy does not happen without decarbonising the energy sector across the world, including in the countries of Eastern Europe, the Caucasus and Central Asia (EECCA). Energy transition for a low-carbon economy can help, among others, to enhance energy security, reduce health impacts of pollution and increase resilience to climate change. However, pursuing the low-carbon transition of the energy sector also faces challenges: availability of cheap, carbon-intensive domestic fossil fuels, obsolete infrastructure, persisting energy subsidies and concerns about impacts on employment and energy affordability.

This note supports the High-Level Panel discussion “Energy transition: Implications for jobs and social inclusion” (Agenda item 2) by exploring challenges and opportunities for accelerating the energy transition while taking into account policy measures to address the social implications. In some countries, the energy transition agenda needs to be considered also in the context of the energy-water-food nexus.

Questions for discussion:

- What are priority issues in reforming the energy sector of your country?
- What are potential negative impacts of reforms that may prevent stakeholders from advancing the energy transition and how to address them?
- How can subsidies for fossil fuels be phased out in a manner that avoids social disruptions, and addresses inclusiveness
- What potentials are there for countries/regions that are dependent on fossil fuel industry today but are willing to transition, to create new jobs?
- In which areas should the Task Force work be helpful /be of best use?

What does energy transition mean?

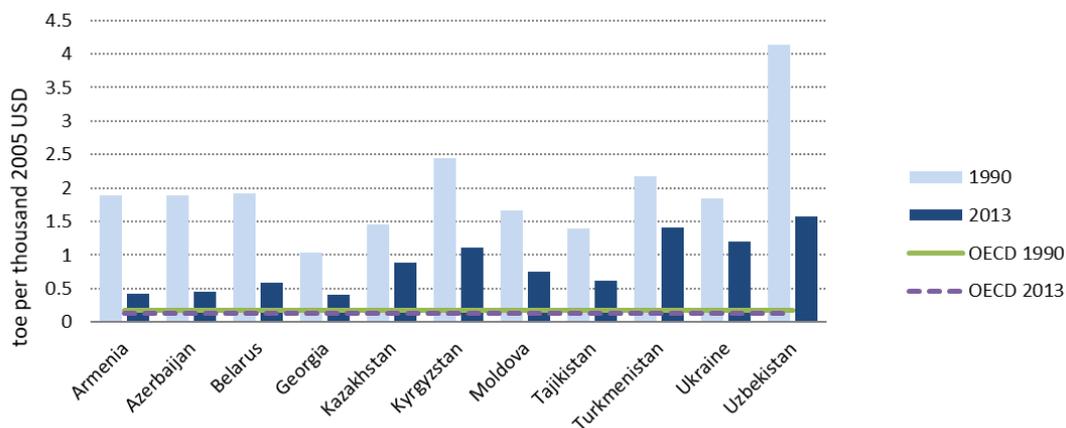
1. **Around 70% of the global energy supply mix in 2050 will need to be low-carbon to achieve the goals under the Paris Agreement (OECD/IEA & IRENA, 2017), while Sustainable Development Goal 7 commits to ensuring affordable, reliable, sustainable and modern energy for all.** All the 11 EECCA countries have internationally communicated their own climate change goals through their (Intended) Nationally Determined Contributions.

2. **Pursuing such “energy transition” for a low-carbon economy needs a range of policy reforms on both supply and demand sides.** Examples of such reforms include rationalising energy subsidies, pricing carbon emissions, developing open and efficient energy markets, promoting technological innovation and managing climate risks on energy supply. The transition also needs structural reforms to support the adjustment of firms and workers to new market conditions for industrial sectors and communities, which could be negatively affected by such transition.

3. **Currently, the economies of EECCA countries remain highly energy intensive, compared to, for instance, the G20 or the OECD countries (Figure 1).** This implies the crucial importance of energy efficiency measures in all the EECCA countries. Further, development of renewable energy will also help to decarbonise the energy sector while enhancing energy security and access to electricity, especially in remote areas. This can help poverty alleviation in the EECCA countries, particularly those at the lower income levels, such as Tajikistan, Kyrgyzstan and Moldova. A greater level of energy security,

accessibility and affordability may also lead to a greater level of political stability in the region. Currently the shares of renewable energy in the energy mix remain low in many EECCA countries (0% to 9%) except hydropower-rich countries: Tajikistan (49% of total primary energy supply), Kyrgyzstan (30%) and Georgia (27%), (REN21 & UNECE, 2017)

Figure 1. Energy intensity in EECCA countries (1990-2013) (Total primary energy supply / GDP)



Source: IEA (2016), “World Indicators”, IEA World Energy Statistics and Balances (database). DOI: <http://dx.doi.org/10.1787/data-00514-en>

Why has energy transition been challenging especially in EECCA?

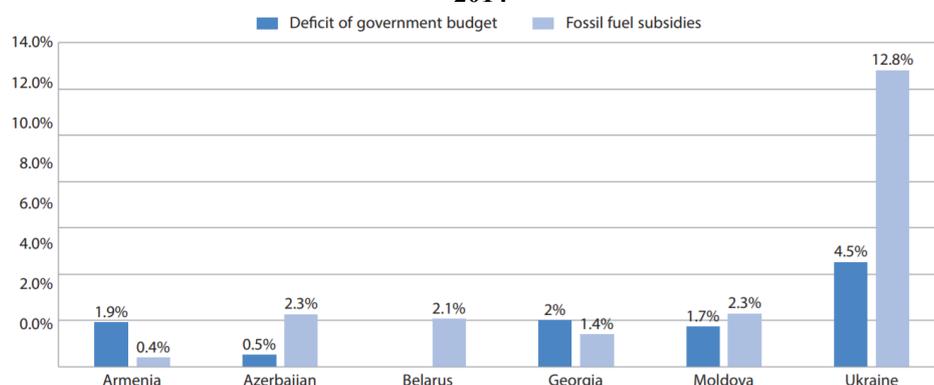
4. **Pursuing the low-carbon energy transition is hindered by, among others, continuing dependence on cheap, carbon-intensive domestic resources, obsolete, often oversized infrastructure built during the Soviet era, persisting energy subsidies and lack of carbon pricing.** Concerns for energy affordability and other social aspects such as impacts on employment often make it politically and technically challenging to promote the shift away from fossil energy sources to low-carbon alternatives. This can be particularly challenging in countries that have regions where fossil energy related sector accounts for important share of employment (e.g. Azerbaijan, Kazakhstan, Turkmenistan, and Uzbekistan).

5. **Energy subsidies undermine the transition for a low-carbon economy in many ways**, such as, encouraging wasteful energy consumption, discouraging private-sector investment in energy efficiency and clean energy, and creating “vested interest” among carbon-intensive sectors in continuing the current practices (OECD, 2018a; IMF, 2013). Economic cost of energy subsidies can be a considerable burden on a country’s public finance, depleting financial resources that could be used to improve social welfare and environmental quality. A recent OECD analysis and IEA database show that some of EECCA countries, such as Azerbaijan, Kazakhstan, Moldova, Ukraine and Uzbekistan, still subsidise fossil fuel production or consumption, or both, to a large extent (OECD, 2018a; IEA, 2017).

6. **The OECD (2018a) quantifies government deficits and fossil-fuel subsidies as percentage of GDP in 2014 in six Eastern Europe and the Caucasus countries** (Figure 2). The size of fossil fuel subsidies reached 12.8% of GDP in Ukraine while equalling 2.1- 2.3% in Belarus, Azerbaijan and Moldova and 1.4% in Georgia in 2104

(OECD, 2018a). In Azerbaijan, Moldova and Ukraine, fossil-fuel subsidies were larger than the national budget deficits.

Figure 2. General government deficit and quantified fossil-fuel subsidies as % of GDP in 2014



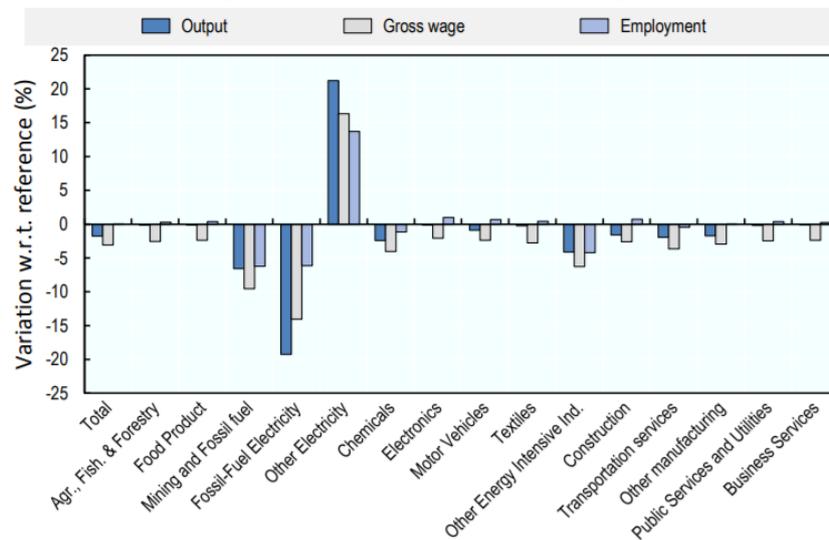
Note: In 2015, Ukraine's fossil fuel subsidy reforms, declining GDP and the currency devaluation led to halve the size of fossil fuel subsidies from 2014 (in USD).

Source: OECD (2018a)

What are the socio-economic implications of the energy transition?

7. **Promoting energy transition should be accompanied by policy measures that smooth the transition by addressing its real or perceived negative impacts on energy affordability, jobs and competitiveness** (OECD, 2017b; Newell & Mulvaney, 2013). Carbon intensive industries, firms and communities often perceive the economic and social costs of energy transition as high, and express concerns about competitive disadvantage and job losses. Indeed, an OECD analysis shows that job reallocation can be substantial in industries, such as fossil fuel based energy generation, mining and fossil fuel extraction, and other energy intensive industries, when a high carbon price is introduced (Figure 3). Further, in particular regions where carbon-intensive industries are the dominant employer, the entire communities could be affected by a rapid energy transition.

Figure 3. Change in output, employment and gross wage by sector in Non-OECD countries (Global carbon tax of USD50/tCO₂)



Note : “Other Electricity” includes renewable and nuclear electricity generation.

Source: Chateau, et al. (2018), Impact of green growth policies on labour markets and wage income distribution,

Ensuring energy affordability

8. **There is great potential that governments can pursue energy transition for a low-carbon economy and inclusive growth objectives in a mutually reinforcing way** (OECD, 2017a). Moreover, a changing climate will not only undermine growth potential of the economies, but also exacerbate inequalities. It hits hardest the most vulnerable populations and communities to climate change, such as women, elderly people, and poor communities. There are possible policy measures governments can use to achieve strong and inclusive economic growth while pursuing energy transition for a low-carbon economy.

9. **A recent OECD study on energy subsidy reforms in Moldova shows how carefully designed accompanying measures can protect poor households from higher bills** that result from phasing out reduced rate of, or exemption from the value-added-tax (VAT) on electricity and gas. This can be done if the additional revenues generated by the VAT increase is partly transferred back to households using an income-tested voucher transfer¹. The study identifies “Income-tested, VAT compensation with voucher” as the best social protection measure for electricity and natural gas subsidies reforms. (OECD, 2018b)

10. **While such empirics is an essential basis for energy subsidy reforms, implementing the reforms will require political will in order to translate the analysis into actual legislative proposals.** Any new fiscal policy package should include, among

¹ However, reforming the subsidy scheme for heat consumption is not recommended at this stage. First, increasing the price of heat (which is already very high in Moldova) as a result of the VAT rate increase may make end users switch from district heating (based on efficient co-generation of electricity and heat) to other energy sources that are less efficient. Second, most consumers do not have any instruments to measure and regulate the level of heating in their homes. This suggests that the higher price will not be an incentive for users to conserve heat since this will not lead to a decrease of their heat bills (OECD, 2018b).

others, a clear definition of targeted low-income households and a carefully designed and resourced system to deliver support (OECD, 2018b).

Smoothing the impact of energy transition on employment

11. **Low-carbon energy transition can create jobs in, for instance, renewable energy development and energy efficiency services, whilst it can also negatively affect employment in carbon-intensive activities** (ILO, 2018; Chateau, et al., 2018). The knock-on effects on employment in other related sectors can also be significant. Low skilled workers are likely to be the most affected while job turnover for high skilled workers can be small (OECD, 2017b).

12. **Impacts of the low-carbon transition are often region or location-specific.** For example, there is evidence that “brown” industries tend to be geographically concentrated, often clustered with coal-mining activities. An OECD study on 14 European countries shows that certain carbon intensive sectors, such as “coke and fuel production” and the “manufacturing of basic metals”, are highly concentrated, especially in several former socialist countries (OECD 2012). To offset job losses in these “brown” industries, new jobs may be created in clean energy or other sectors. Yet, such new jobs may be created in distant regions or require different skill sets. Some workers - especially older - may not be willing to re-locate or may face challenge in re-skilling to seize new job opportunities. Importantly, an empirical study suggests that also longer commuting distance, and not only relocation, may discourage job search (Marinescu & Rathelot, 2018).

13. **Several policy options can be available to mitigate transition risks on jobs, and yield positive overall employment outcome from low-carbon energy transition.** Examples include the use of government revenues from environmental tax reform for lowering labour taxes, and funding education, vocational training and re-skilling programs. Well-functioning labour markets are also important to smooth a transition and reintegrate workers who lose their jobs due to energy transition. Income support such as unemployment insurance and work benefits can also help to ensure a fairer transition to workers. An active social dialogue between unions, employers and local or central governments could help support a more inclusive energy transition. Such policies can be especially important for regions and cities where a high share of workers is in ‘brown’ sectors (e.g. fossil fuel extraction). (OECD, 2017b). Further, “regeneration” or “conversion” policies can also be adopted for old industrial sites that preserve the cultural heritage of the area. For instance, the Zollverein that is one of Europe’s largest industrial coal facilities has been restored to preserve the local industrial cultural heritage and has become a UNESCO World Heritage Site in Germany. (Botta, forthcoming)

Securing the supply of water, energy and food

14. **The EECCA region is endowed with water and rich and varied energy resources — hydropower, oil, gas, and coal.** However, the distribution of water and energy resources across the region is highly unbalanced and access is uneven. Some communities cannot meet its electricity needs during certain times of the year, while others lack adequate water resources and supply, affecting agriculture productivity. In this regard, the energy transition discussion in some of the countries needs to consider the water-energy-food nexus that presents the need for greater resource co-ordination, management, and policy alignment across sectors with various implications for inclusive socio-economic development and water and energy security.

15. **For instance, hydropower electricity generation through multi-purpose water infrastructure² (MPWI) may generate both positive and negative externalities.** The former includes: flood control; climate change mitigation; strategic water storage; and health benefits (e.g. avoidance of air pollution associated with fossil fuel energy generation) (OECD, 2017c). On the other hand, such hydropower projects could also lead to a range of negative externalities such as: displacement and relocation of population; biodiversity loss; negative impacts on livelihoods of neighbouring communities (e.g. fisheries, irrigated agriculture, etc.); loss of cultural heritage; water-related diseases near reservoirs and canals, among others (OECD, 2017c).

² There are more than 8 000 large multi-purpose water infrastructures all over the world, either with or without hydropower generation functions. These infrastructures encompass all human-made water systems, such as dams, dykes, reservoirs, and associated irrigation canals and water supply networks. Not only are they multipurpose, they are also multi-stakeholder and multi-sectoral. (OECD, 2018)

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