

**Belgrade** – The recent collapse of the coal based energy system in Serbia, debunks the popular myth of coal's reliability. On December 12, 2021, the electricity production in Nikola Tesla coal fired thermal power plants, the energy backbone of Serbia, collapsed. Is it because of the unusually heavy and wet snow, everyone wondered. The snow could have caused difficulties in the mining processes, but this time the cause relates to the poor planning and management process of running coal powered plants in Serbia.

The consequences would have been milder if all of this was not happening at the time of a serious global energy crisis, prompted by the reliance on fossil fuels. As such Serbia had to import electricity, and at a very high price.

While thousands of households were left without electricity and heating, we need to focus on lessons learned for the sake of ensuring the best way forward. Serbia's policymakers need to let go of the power keys they are tightly holding onto, and open up the floor for dialogue between a wide spectrum of stakeholders, to collectively and responsibly decide on an effective future plan to phase-out coal and introduce renewable energy sources. To this end we decided to explain the context by taking a look into the past, the present, and offering action points for the future.

### **The past: coal as the backbone of electricity generation**

The first lightbulbs were lit along Belgrade's boulevards in September of 1893, when the first thermal power plant began to operate in Dorćol. It took almost forty years to bring electricity to all of Serbia's cities (1931), while electricity supply reached almost all smaller towns by 1945. The electrification of Serbia was concluded in the 1980s, when the last lignite fired plants were installed and started running. Lignite, the low grade (brown) coal, is the basis for producing electricity and supplying the energy system of Serbia. It represents around 71% of the electricity mix, making Serbia very much dependent on one energy source.

The average age of the coal power plants in Serbia is 49 years, where the oldest is the Kolubara A (239 MW) built in 1956, and the 'youngest' is the Kostolac B (697 MW) which started operation in 1987. For reference, let's consider the lifespan of power plants. On the global level the average age of the retired coal power plant is 46, while they can operate up to 50 or 60 years.

With the exponential increase of development trends of new and sustainable technologies for the production of electricity, Serbia is becoming more inefficient every year, bearing a tremendous cost, and keeping the country at bay from the energy transition efforts.

Without a doubt, the time has come for Serbia to ensure long term sustainability of its energy system – a system which will guarantee stability and wellbeing of its citizens, and

towards achieving its international obligations in the context of the 21st century global energy developments.

### **The present: the popular myths about coal**

#### ***Coal is reliable***

The recent collapse of the energy system in Serbia, by itself debunked the myth of the reliability of coal. Despite the existing coal reserves, which led Serbia to be assured in its energy supply stability, the coal delivered to the thermal power plants was not of sufficient quality to power the system. One can always find excuses to explain why the system collapsed in the first snow of the season, but we need to look into the facts. The lignite, the lowest grade of coal, goes through a process of extraction, preparation, burning and disposal. This process itself is time consuming, and harms the environment, from soil and underground water contamination, from extraction and disposal of ash, to burning. Due to the complex nature of the grids and the transmission lines, which are interconnected between countries, regions and continents, it is essential to synchronise the system to ensure stability. When in spring 2020 the covid19 pandemic brought the world to a standstill, the energy produced from renewable energy sources showed flexibility and resilience.

Moreover, it has been widely confirmed that the current energy crisis is driven by the fossil fuel industry, namely coal and gas. Since the beginning of 2021, the steady increase in fossil gas prices, driven by the growing demand and a limited supply, have caused electricity prices to soar. In preparation for the winter, big suppliers like Russia are prioritising their domestic markets. In turn, this has left European countries like Italy and Spain, which rely greatly on gas to meet their domestic needs for electricity production, in a precarious position.

In fact, power generation from renewable and zero-carbon sources has cut the costs of this crisis and has limited the overall gas bill in the EU to 7 billion euros, instead of a potential 33 billion euros.

As such, we see that coal is not that reliable.

#### ***Coal is cheap***

In the first half of 2021, household electricity prices in Serbia were relatively low at EUR 0.098 per kWh, compared to the EU average of EUR 0.2192 per kWh. When the energy crisis in Europe was picking up pace in September and October 2021, Serbia's president Aleksandar Vucic assured its citizens that the prices of electricity will not be increased in Serbia thanks to public subsidies.

As such the real reason for keeping the cost of coal low is due to subsidies, which amounted

to almost 400 million EUR in the period from 2015 until 2019. While this keeps the electricity bill allegedly stable, the cost of the polluting private businesses is shouldered from the citizens' various public taxes. Thus, the electricity price we see on the energy bill is not complete, since it does not account for subsidies.

Another cost, which is directly borne not only by the citizens of Serbia, but also the neighbouring and the EU countries, is the cost of pollution. Serbia has been unable to comply with its National Emissions Reduction Plan, aimed at limiting the emission of specific pollutants primarily from fossil fuel power plants, namely the nitrogen oxides (NO<sub>x</sub>), sulphur dioxide (SO<sub>2</sub>), and dust (particulate matter, PM). Serbian coal power plants emitted 6.1 times more of SO<sub>2</sub> than the national ceiling for this pollutant in 2020, while the emission of other pollutants, NO<sub>x</sub> and dust was relatively high in respect to national ceilings. The estimated health bill of pollution emitted by the coal power plants in Serbia in 2020 is 2,326 deaths, 666,939 work days lost, EUR 5.16 billion.

Unlike the EU member states and other countries globally, greenhouse gas emissions in Serbia are not taxed, which is another reason why the price of electricity produced by the coal plants remains low. If we would apply a carbon tax of EUR 20 to the CO<sub>2</sub> emissions from coal power plants, Elektroprivreda Srbije would have to pay EUR 600 million on an annual basis. At the time of writing this article, the CO<sub>2</sub> price in the EU was EUR 80 per tonne of CO<sub>2</sub>.

As such the inability to tax emissions hampers with the leveling of the playing field between the EU and Serbia, therefore putting severe breaks on achieving market integration with the EU through the Energy Community Treaty. It is important to note that these calculations do not account for other environmental and social costs, which if taken into account would drive the cost of electricity bills even higher.

So, if all costs are considered coal is not cheap.

### ***Coal assures jobs***

The common narrative used by politicians at the time of the general elections in Serbia, as in the rest of the Western Balkans, is that they will continue investing in coal and creating jobs.

The numbers nevertheless show a different situation, as from 2017 to 2019 the number of employees in the Kolubara mining basin decreased by 3000, while in Kostolac mining jobs decreased by over 500 from 2000 to 2009. The loss of jobs happened despite the expansion of these coal mines and an increase in coal production.

Regardless of the systematic reduction of jobs in the coal industry, politicians never miss an opportunity to use income stability and job creation in this industry to gain political points.

In May 2020, just a month before the parliamentary elections in Serbia, president Vucic visited the Kolubara mining basin, where he guaranteed not only that the recent expansion of that mine will supply the energy industry in Serbia with coal for the next 60 years, he also assured the miners that there will be no job cuts, adding that there might be a raise in salaries if Serbia was 'economically successful'.

This happened just a few days before the Minister of Energy Zorana Mihajlovic, sent a letter to the director of EPS, asking him to halt development of the Kolubara B power plant construction plans, reasoning their incompatibility with the decarbonization plans of Serbia. At the same time, several units in the thermal power plants Kolubara A and Morava were planned to close in 2022 and 2023, while the workers were not informed, and there is still no clear plan in place to ensure a secure future.

Recent research confirms that citizens of the coal-impacted regions, who almost exclusively rely on employment in the coal industry, are kept in limbo between promises of their income stability and the possibility of the coal phase out in Serbia. It furthermore confirms how the citizens, workers and relevant actors are not included in the planning and developmental processes, as there is no public debate on the future of the region.

Thus, jobs in the coal sector are no longer reliable.

### **The future: planning a just energy transition**

Investing in building coal power plants is already not an economically viable option. The fast falling cost of renewable energy installations makes investments into coal more and more obsolete. Also no credible international financial institution is ready to support investments into fossil fuels. That is why the only current investors into coal power plant projects in Serbia are Chinese banks, who not only disregard the procurement procedures that projects they invest will follow, but also lack implementation of environmental standards. The recent world wide headlines of treatment of Vietnamese workers in a Chinese backed project in Serbia, is the latest in the series of scandals involving Chinese related investments.

While Serbia has made a series of commitments on the international level with regards to energy and climate change issues, the key to a just energy transition is the bottom up approach, with specific long-term objectives. With this regard, Serbia needs to focus on the following:

### **Develop a long term strategy with a clear path and set coal-phase out date:**

In November 2020, Serbia signed the Sofia Declaration on the Green Agenda for the Western Balkans, committing to becoming climate neutral country by mid century. This calls for synergy between all relevant development strategies in Serbia.

**Rapid phase out of coal:** It is clear that the outdated coal capacities are inefficient, expensive to run and causing havoc to the health of the citizens and the environment. They have run out of their lifespan, and pose a direct threat to the energy stability in Serbia, as recent events have shown. Introduction of carbon pricing mechanism has been shown to be a key incentive to phasing out of coal, leaving room for energy transition. Building new capacities needs to ensure production of electricity from renewable energy sources in order to ensure gradual move away from the use of coal.

**Develop credible National Energy and Climate Plans:** Serbia is part of the legally binding Energy Community Treaty, which aims to create a pan-European energy market. Within this framework, Serbia is drafting their NECPs, which is a ten year plan aiming to achieve certain reductions of greenhouse gas emissions by 2030, have a specific amount of renewable energy in its energy mix, as well as energy efficiency targets. These targets need to be ambitious enough in order for Serbia to be on the path to climate neutrality by 2050.

**Increase energy efficiency:** Serbia's final energy consumption has been in the upward trend in the last 25 years. This rose by 30% in the last ten years, and the main consumption sector is the household sector accounting for about 34% of the final energy consumed, followed by the industrial sector at 31%, and the transport sector at 23%. These also signal that there is much room for improvement in controlling the demand for energy. Lack of energy efficiency is one of the drivers of energy poverty in Serbia, therefore it is imperative that Serbia works on decreasing energy related expenditures, such as retrofitting buildings, and improving the heating system.

**Deployment of renewable energy:** About 28% of the electricity mix is composed of renewable energy, where the hydropower plants are the dominant producer accounting for about 25% of all electricity produced. Most of the hydropower capacities in Serbia are more than 40 years old, which indicates that there is room for efficiency improvement of these capacities.

It is nevertheless imperative that Serbia focuses on diversification and development of renewable energy primarily from wind and solar, and other sources such as sustainable biomass, which are becoming cheaper by the day. The solar photovoltaic module prices have fallen by 90% since 2009, while the wind turbines costs have fallen by 60% since 2010. Diversification of energy sources will ensure resilience and flexibility of the energy supply.

**Energy integration:** Integrated energy is one of the key players in the energy transition, as it guarantees efficiency by making room for combining forces of electricity, heat and mobility sectors.

**Just energy transition:** The energy transition in Serbia requires a solid foundation for

environmental and social resilience to be built across the society. This foundation will allow us to build and create opportunities not only for those who are currently employed in the coal sector or who will be employed in green jobs, but the whole of society through shared opportunities for greater well-being.

**Conclusion: the future is in our hands**

Many more winters await us, as well as scorching summers where we increasingly depend on the air-conditioning units. Whether we are going to be ready to face these conditions with a stable energy system depends on the decisions we make today. In order to ensure that we have reliable production of energy from renewable sources, priced accordingly to allow economic as well as social and environmental wellbeing, it is imperative that we adopt clear and tangible plans, in a transparent and participative framework where all stakeholders are consulted during the decision making process. We would then need to realise this plan, which would not be an easy endeavour. Nevertheless, is there another path we should take?

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