REPORT / 2022

CURING CHRONIC COAL

How an early coal power phase out in the **Western Balkan region** can **save lives, improve health** and strengthen the economy



HEAL gratefully acknowledges the financial support of the European Union (EU) and the European Climate Foundation (ECF) for the production of this publication. The responsibility for the content lies with the authors and the views expressed in this publication do not necessarily reflect the views of the EU institutions, CINEA and funders. The European Climate, Infrastructure and Environment Executive Agency (CINEA) and the funders are not responsible for any use that may be made of the information contained in this publication.

HEAL EU transparency register number: 00723343929-96



LEAD AUTHOR

Vlatka Matkovic, Senior Health and Energy Policy Officer, Health and Environment Alliance (HEAL)

REVIEW TEAM

Anne Stauffer, Elke Zander, HEAL

RESPONSIBLE EDITOR Genon K. Jensen, Executive Director, HEAL

EDITOR

Zoe Casey

MODELING AND TECHNICAL ANALYSIS

Lauri Myllyvirta, Rosa Gierens, Centre for Research on Energy and Clean Air (CREA)

GRAPHIC DESIGN

Marzena Wasilewska-Lasa, Polska Grupa Infograficzna, infograficy.pl

> HEAL Curing Chronic Coal, Western Balkans Report 2022

CONTENTS



The World Health Organization (WHO) says that no level of air pollution can be considered 'safe'; and the science on how air pollution harms our health keeps growing. Breathing in particulate matter, even at low levels, can lead to physiological changes in the body that damage health. Poor air quality is also linked to chronic and acute respiratory diseases, such as bronchitis and the aggravation of asthma, which significantly degrades quality of life.

Scientists continue to identify new ways that air pollution can harm our health, for example, there is increasing evidence linking air pollution to dementia. New evidence has also shown that particles of air pollution travel through the lungs of pregnant women and lodge in their placentas, harming babies before they are born.

When burning coal to generate electricity, three main health-harming pollutants are released into the air:

Particulate matter (PM): Small particles in the air. The number next to the abbreviation PM indicates the size of the particle: PM10 is 10 micrometers or less, while PM2.5 is 2.5 micrometers or less. When inhaled, particles travel into the bloodstream and cause harm to our lungs and heart. They can cause strokes and lead to premature death. New studies also link particulate matter with harm to the healthy development of children, and diseases such as obesity and Alzheimer's.

Sulphur dioxide (SO2) is classified as very toxic for humans when inhaled. It can cause severe irritation of the nose and throat. High concentrations can cause a life-threatening accumulation of fluid in the lungs (pulmonary edema). Symptoms may include coughing, shortness of breath, difficulty breathing and tightness in the chest. Even a single exposure to a high concentration can cause a long-lasting condition like asthma. It can react in the atmosphere to form PM, called 'secondary PM'.

Nitrogen oxides (NOx) are gases that cause inflammation of the airways. They are oxidisers which means they cause oxidative stress which can disrupt normal cell mechanisms and cause damage to tissues, reducing the immune abilities of the body. They can react in the atmosphere to form PM, called 'secondary PM'.

The Western Balkan region is notorious for old and highly polluting coal power plants. <u>HEAL's 2019 report</u> on chronic coal pollution in the region showed that the 16 outdated coal power plants are a public health and economic liability for the whole of Europe.

Air pollution from coal burning also reduces productivity and causes huge costs to society, in addition to the many health problems. Phasing out coal sooner rather than later will bring real and tangible benefits to the people of the region.

The graphs in this report show the Western Balkans' chronic coal pollution problem from different angles. Most importantly, this publication aims to illustrate the difference an earlier coal phase out date would make. It provides the details on mortality, morbidity, hospital admissions, impacts on children's health, productivity and costs.

All calculations and scenarios assume compliance with the existing legislation of the respective year.

HEALTHIER LIVES

with a coal phase-out by 2030

Phasing coal out by 2030, instead of 2050, will bring a significantly greater reduction of illness and, ultimately, early deaths. For example: asthmatic children would be free from asthmatic symptoms for 272,993 additional days compared to a 2050 phase-out, 32,476 cases of bronchitis would be avoided in healthy children, 2,657,043 days off work with sickness would be avoided, 11,768 premature deaths due to PM2.5 pollution would be avoided and over 1,202 premature deaths due to other pollutants.

> **AVOIDED HEALTH IMPACTS** with a coal phase-out by 2030

> > 6.872

due to PM10

incidence of chronic

bronchitis in adults



272,993

asthma symptoms in asthmatic children due to PM10



325 bronchitic symptoms in asthmatic children due to NO2

32.476 bronchitis in children due to PM10



12,978,485 restricted activity days due to PM2.5







2,657,043 work days lost due to PM2.5





N02

PM2 5

428 respiratory

hospital admissions due to NO2

6.095 respiratory hospital admissions due to PM2.5

1,678 cardiovascular hospital admissions due to ozone



N02

PM2.5



low birth weight due to PM2.5

654 premature deaths due to NO2

11,768 premature deaths due to PM2.5

21 postneonatal premature deaths due to PM10



407 respiratory PM10 hospital admissions due to ozone 5.246 cardiovascular 03 hospital admissions due to PM2.5





PM2.5



PREMATURE DEATHS

with coal phase-out in 2030, 2040 and 2050

7

Air pollution from coal power plants between 2020 and 2030 will have caused a total of more than **64,265** deaths. Deaths from air pollution will continue to rise to more than **77,234** if Western Balkan countries continue business as usual coal burning until 2050 and assuming compliance with existing legislation.



PRODUCTIVIT Y LOSS

with coal phase-out in 2030, 2040 and 2050

Productivity loss is defined as partially restricted activity days, restricted activity days and work days lost. Air pollution caused by burning coal will have caused a total of more than **96 million** restricted activity and lost work days by 2030. This number will rise to over **114 million** days lost by 2050.



TOTAL

HEALTH IMPACTS ON CHILDREN

with coal phase-out in 2030, 2040 and 2050

9

Children are one of the most vulnerable groups to the impacts of air pollution. They are at a crucial time of their development and air pollution can potentially have lifelong consequences (disease may develop decades later). They can even be affected in fetal stages, as shown in the numbers below. By 2030, air pollution from burning coal will have caused over **12,000** cases of low birth weight, rising to more than **14,000** by 2050. Children's respiratory tracts are particularly sensitive to air pollution, with **192,000** cases of bronchitis symptoms in otherwise healthy children by 2030, rising sharply to **224,000** cases by 2050. The suffering of asthmatic children is of particular concern, with over **1.6 million** symptoms by 2030, and over **1.8 million** by 2050.



HOSPITAL ADMISSIONS

with coal phase-out in 2030, 2040 and 2050

It is well established that hospital admissions go up when air pollution levels are high. By 2030, air pollution caused by coal-fired power plants will have caused over **79,000** hospital admissions, set to rise to close to **85,000** by 2050.



HEALTH COST

savings with a coal phase-out in 2030, 2040, 2050

Every health impact and premature death is associated with a cost to society. Much like the above described health effects, the air pollution from burning coal for power generation in the Western Balkan region will cause billions of Euros in health costs as a consequence - and these costs can be reduced drastically by phasing out coal power by 2030. Health impacts on children would cost society up to **€506 million** by 2030, rising up to **€593 million** by 2050. The difference in the cost burden caused by productivity loss due to illness ranges between up to **€5 billion** by 2030 and **€6 billion** by 2050. Overall, the cumulative cost of running polluting coal power plants will cost society up to **€146 billion** by 2030, up to **€165 billion** by 2040, up to **€176 billion** by 2050.



Non-compliance

An additional risk factor specific to the Western Balkan countries is the notoriously large emissions from coal power plants that do not comply with existing laws for cutting pollution.

Coal power plant operators are expected to be compliant with the LCPD directive from 1 January 2028. The majority of operators have, so far, not taken any steps to ensure compliance. This means there is a high likelihood that they will not fulfill their legal obligations from 2028 onwards either, as it becomes simply impossible to stick to the timeline regulated by law.

Should the non-compliance with existing law continue, the pollution, the health impacts, the number of premature deaths and especially the related costs will explode. Not complying with the Energy Community pollutant limits by 2050 would cost over double what a 2030 phase-out would cost.



RECOMMENDATIONS

for decision makers in Western Balkan countries



On coal power

Prioritise enforcing the Large Combustion Plants Directive for existing plants by the end of 2027 at the latest. Ensure all pollution abatement investments in coal plants are in line with the Best Available Techniques (BAT) under Directive 2010/75/EU for large combustion plants. This will better protect public health and avoid the need for additional investments in a few years.

Prioritise public health by closing all existing coal fired plants, preferably by 2030.

Avoid investments, refurbishments and prolongations of life for coal plants beyond 2030.

Avoid false solutions including the conversion of coal plants to gas or biomass. Such conversions are polluting and continue to fuel climate change and cause disease.

On healthy energy

5

6

Choose the full decarbonisation of the energy sector to protect public health and to ensure energy security.

Include health and environmental impact assessments as an essential part of any intervention in the transition to a carbon-neutral society, and determine the power generation solutions that have the least impact on health.

Use funds available from the EU on non-polluting energy options and promote healthy energy. Invest in interventions that are zero-pollution, contribute to energy efficiency and energy savings and have other co-benefits such as reducing energy poverty and improving the level of comfort and wellbeing.

Develop funding schemes for people that will truly support the production of energy from renewable sources that can self-sustain households, such as self-production via solar or wind, heat pumps or geothermal. In particular, develop dedicated funding schemes that will target those struggling with energy poverty.

RECOMMENDATIONS

for European Union decision makers and international donors



With fossil fuels being a health, financial and environmental liability, supporting companies that are planning new coal power plants or fossil fuel installations is not in line with an EU-wide decarbonisation and the Western Balkan Green Agenda. EU-related financial support should not be given to any company that plans to invest in or develop fossil fuel capacity at all, irrespective of the type of project they are applying for.

Avoid investing in projects that are false solutions - locking in pollution and harming the environment - such as wood burning, prolonged coal power use or investing in new fossil gas infrastructure.

Support financial mechanisms that increase investments in energy savings and renewables, and promote healthy energy, zero-pollution, climate and air quality ambition.



for the health community

Engage in shaping public opinion and awareness on the polluting aspect of burning fossil fuels. This could be done by taking part in public debates but also by encouraging health practitioners to raise awareness among their patients.

Highlight the evidence and materials provided by the World Health Organization (WHO) on air quality, including the latest <u>2021 updated Guidelines on Ambient air</u> <u>quality</u>, the <u>Guidelines on Indoor Air Quality</u>, and the recommendations on fossil fuel phase out in the <u>WHO COP26 special report</u>. These resources can help promote better local air quality and the greater immediate public health benefits of reducing peak pollution in indoor and outdoor environments.

The Health and Environment Alliance (HEAL) is the leading not-for-profit organisation addressing how the environment affects human health in the European Union (EU) and beyond. HEAL works to shape laws and policies that promote planetary and human health and protect those most affected by pollution, and raise awareness on the benefits of environmental action for health.

HEAL's over 90 member organisations include international, European, national and local groups of health professionals, not-for-profit health insurers, patients, citizens, women, youth, and environmental experts representing over 200 million people across the 53 countries of the WHO European Region.

As an alliance, HEAL brings independent and expert evidence from the health community to EU and global decision-making processes to inspire disease prevention and to promote a toxic-free, low-carbon, fair and healthy future.

HEAL's EU Transparency Register Number: 00723343929-96



www.env-health.org