CLIMATE CHANGE

QUESTIONS & ANSWERS

Moving Beyond 20%

How reducing GHG emissions benefits people's health in the EU

HEAL
Promoting environmental policy that contributes to good health

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Cutting greenhouse gas emissions boosts health as a result of simultaneous improvements in air quality. The European Commission Staff Working Paper entitled *Analysis of options to move beyond 20% greenhouse gas emissions reductions: member states' results*[1] from February 2012 represents one of the first times that the health benefits have received such a significant focus in an EU analysis of higher climate targets. As a result of its higher profile, "health" becomes central to the case for more ambitious climate action.

The aim of this question and answer review is to explain why health will benefit from higher emission reduction levels, to present the figures for the health-benefits of individual Member States, to highlight the evidence on why this assessment is likely to be underestimation and to make clear why especially early action on greenhouse gas emissions will create the greatest health benefits.

Specifically, the Commission assessment includes estimates of the effects of a higher target on energy system costs, investments, fuel costs, air pollution control costs and health benefits in member states. It concludes that increasing the EU climate ambition will deliver substantial financial, health and environmental benefits for all member states, including up to 7.9 billion Euros per year in health benefits. It provides the costs savings (health benefits) for the EU as a whole as well as for individual countries. The main conclusion for a higher target is that "the 30% reduction scenario has become considerably less costly" - thus rebutting the cost arguments that have held Europe back from strengthening its emissions reductions target for 2020.

WHAT DOES THE NEW EU COMMISSION ASSESSMENT SAY ABOUT HEALTH?

The new Commission assessment estimates the health benefits of moving from 20% to 30% at between €3.4 and €7.9 billion annually from 2020 in the EU. The Commission proposes that this 30% reduction be met through a 25% cut in domestic emissions and the use of international credits to eliminate an amount equivalent to a further 5% of EU emissions, which would take place in non-member states, i.e., the EU would pay for a 5% reduction in emissions to be made in other regions of the world.

WHAT DOES REDUCING GREENHOUSE GASES HAVE TO DO WITH OUR HEALTH?

Reducing the emissions of greenhouse gases (GHG) will coincidentally lead to a reduction of other air pollutants such as fine particles, sulphur dioxide or nitrogen oxides, which cause major problems for air quality in Europe. This is because processes by which these pollutants are emitted are the same as those that produce CO2. They are based on the burning/combustion of fossil fuels: so a car engine emits both CO2 as well as hazardous air pollutants.

The Commission Staff Working Paper provides the Council with a major opportunity to raise EU ambition levels on climate change mitigation. Taking into account that the numbers presented by the Commission are only an underestimation of the full health benefits the analysis provides a strong boost not only for national and EU commitments, but also to tackle the ambition gap in the UN climate talks.

Evidence that improved air quality leads to health benefits is abundant in dozens of published papers. Particularly compelling is the experience in Dublin, Ireland, after the ban on coal burning in 1990. Studies there showed prompt and substantial improvements in respiratory health. In the USA, improvements in air quality during the 1980s and 1990s have been estimated to be responsible for as much as 15% of the overall increase in life expectancy observed for the studied populations.[2]

Air pollution is still a major public health problem in Europe with a wide range of health impacts that reduce life

Health and Environment Alliance (HEAL)
28, Boulevard Charlemagne - B-1000 Brussels – Belgium / Phone: +32 2 234 36 40 / E-mail: info@env-health.org / Web: www.env-health.org

expectancy and increase illness, especially respiratory and cardiovascular diseases. Nearly half a million Europeans die prematurely each year because of air pollution, but there is also a significant impact from sickness and on people's quality of life and productivity (i.e., days of restricted activity and work days lost because of illness).

As the greenhouse gas and air pollutant emission levels decline, the ambient air becomes healthier and the incidence of respiratory and cardiac disease falls.

It is possible to quantify the health benefits resulting from improved ambient air quality with models called GAINS and ALPHA, which have been developed to assist the European Commission to evaluate air quality policies, such as the Thematic Strategy on Air Pollution, the National Emission Ceilings Directive and the Ambient Air Quality Directives. However, improvements in air quality are not the only benefits for health associated with climate action, see below for more examples.

WHY ARE THE COMMISSION'S HEALTH BENEFITS LIKELY TO BE AN UNDERESTIMATION?

The Commission assessment from the recently published paper estimates that the health benefits from going from 20 to 30% are from 3.4 to 7.9 billion EUR annually by 2020. HEAL thinks this quantification is probably an underestimation for several reasons:

The Commission analysis only includes mortality, and ignores the costs associated with illness, or 'morbidity'.

While the Commission looks at the improvements in life expectancy due to cleaner air associated with strong climate action, the calculation does not take into account the following factors which quantify ill-health: days of restricted activity, including fewer working days lost for those with respiratory or cardiac diseases; days of respiratory medication use by adults and children; consultations for upper respiratory symptoms and asthma each year; and, hospital admissions for respiratory and cardiac conditions.

In 2010 HEAL together with Health Care Without Harm Europe (HCWH) published a report entitled 'Acting NOW for better health: A 30% reduction target for EU climate policy'[2]. The report took into account both the mortality and morbidity effects and calculated that for a 25% domestic reduction in carbon emissions the health benefits in terms of mortality and morbidity would be in the range of 5 to 14.6 billion. For a full 30% domestic reduction, the benefits to the EU population are naturally higher, by roughly a factor of two (see section below entitled: "What are the benefits of a full 30% domestic reduction goal?").

The Commission analysis does not consider the full range of health benefits from climate mitigation measures in sectors such as transport and agriculture.

In 2009, the leading medical journal *The Lancet* published a series of articles quantifying the public health benefits of strategies to reduce GHG emissions for different sectors: household energy, urban land transport, low-carbon electricity generation, and food and agriculture.[3]

Researchers showed that in London, the largest health benefits from changes in urban land transport would be reaped from a combination of active travel (more walking and cycling) and lower emission vehicles. Such measures would lower premature deaths and ill-health from heart disease in London alone by up to 20% annually by 2030.[*]

In the EU Commission assessment, the health benefits of cleaner air from lower emission vehicles would be included but not the additional health benefits for people from walking and cycling more often.

Emissions from agriculture are of major concern for climate and air pollution, especially methane and nitrous oxide emissions, which are significant greenhouse gases. Methane is belched from cows as they chew and digest grass whereas nitrous oxide is for example produced in soils after manure has been applied.

A case study from the UK presented in the Lancet assumed a 30% reduction in livestock production in order to keep temperature rise below 2ºC and found that less meat eating as a consequence could decrease the burden of heart disease by 15% annually.

As well as these almost immediate, ancillary benefits of climate change efforts, the mitigation measures will help protect health by halting climate change. Global warming and extreme weather events are associated with increases in many types of chronic and infectious diseases.

The 2003 European heat wave caused more than 46,000 additional deaths[4], and climate change is affecting allergy sufferers through prolonged allergy seasons as well as the introduction of new allergens (because of invasive alien plants).[5] There are also indications that air pollutants become more aggressive with temperature changes from climate change.[6]

Preventing these impacts may be hard to quantify, but that does not mean they should not be taken into account in policy decisions.

[*] The year 2030 is the reference year used in the study, there is no quantification available for 2020.

The HEAL report provides an illustration of the extent to which acting immediately on climate policy will produce greater benefits for health by 2020.

It highlights that the health benefits would be 250% higher by 2020 if the move to the 30% internal target takes place in 2010 rather than in 2015. The cumulative benefits of early action were estimated at up to €163 billion compared with up to €63 billion if action were delayed until 2015.

The Commission analysis does not consider the greater benefits for health of early action nor the accumulation of health benefits over time.

WHY SHOULD REDUCTION TARGETS BE RAISED FOR 2020?

Improvements in air quality, and thus in health, start to accrue as soon as implementation begins. The HEAL report established that significantly more benefits can be achieved by acting sooner rather than delaying.

Whilst the full benefit of European greenhouse gas reductions may only be experienced by future generations and occur at the global level, the secondary benefits of air quality improvements occur in the short-term and lead to direct (local) benefits in Europe. At the same time, delays in climate action will cause greater health impacts over time from local air pollutants. Thus, the sooner the higher climate targets are introduced, the better for health.

At the same time, delays in climate action will have wider impacts. Not only will they cause greater health and ecological impacts over time from local air pollutants, but they will also make it more difficult and expensive in the long term to meet climate goals. For example, the costs will ultimately be greater if a power station built now subsequently must be retrofitted with emission controls at a later date, or even be scrapped.

HOW HIGH WILL THE EXTRA HEALTH BENEFITS OF A 30% DOMESTIC REDUCTION GOAL BE?

The scenario of the European Commission is based on a 25% domestic reduction and a 5% international emission reduction credits. This new European Commission assessment estimates the health benefits of moving from 20% to 30% at between €3.4 and €7.9 billion annually from 2020.

The HEAL report shows that for a 25% domestic reduction in carbon emissions the extra health benefits in terms of mortality and morbidity would be in the range of 5 to 14.6 billion. For a full 30% domestic reduction the benefits would be in the range of 10.5 to 30.5 billion EUR. This means that the additional benefits from going from 20 to 30% domestic (rather than 25% domestic) target including morbidity and mortality produce twice as much in health impacts.

WHAT ARE THE HEALTH BENEFITS FOR EACH EU MEMBER STATE?

The table on the next page gives a comparison of the health benefits quantified by the European Commission and the co-benefits estimated in the HEAL report. The analysis is available for 15 of the 27 EU Member States. All numbers refer to health benefits arising from cleaner air only and hence do not take into account other health benefits as outlined above.

For the HEAL projections, both morbidity and mortality are taken into account, firstly for a 25% domestic reduction scenario and secondly for a 30% domestic reduction goal (in the European Commission analysis 30% reduction are achieved with 5% international offsets such as the CDM).

For example for Germany, the expected health benefits stated by the EU Commission are from EUR 779 million – 1.8billion annually by 2020; whereas the analysis commissioned by HEAL shows that the additional health benefits from a 25% EU domestic reduction are at least EUR 1.4 billion and could be as high as EUR 3.9 billion. Under a 30% EU domestic reduction scenario, the health benefits for Germany would accrue to additional EUR 2.8 – 8.1 billion. Please note that the table gives an estimate of the additional benefits that result from moving from 20% domestically to 25% or 30% respectively.

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Additional health benefits for individual EU Member States – moving from 20% to 30%

	EU Commission	Health & Environment Alliance (HEAL)	
compared to 20% baseline	**25% internal: mortality only**	**25% internal: morbidity + mortality**	**30% internal: morbidity + mortality**
Member State	lower to upper bound, in € millions per year	lower to upper bound, in € millions per year	lower to upper bound, in € millions per year
Austria	59 – 136	101 – 291	210 – 606
Belgium	112 – 258	153 – 442	320 – 923
Bulgaria	59 – 134	48 – 140	101 – 291
Czech Republic	114 – 263	224 – 646	467 – 1347
France	224 – 516	578 – 1 669	1 206 – 3 481
Germany	779 – 1 796	1 353 – 3 905	2 822 – 8 144
Greece	59 – 136	159 – 458	331 – 956
Hungary	105 – 204	180 – 518	375 – 1 081
Italy	397 – 912	563 – 1 624	1 174 – 3 388
Netherlands	168 – 388	182 – 526	380 – 1 097
Poland	442 – 1 019	672 – 1 938	1 401 – 4 042
Romania	161 – 370	226 – 651	471 – 1 358
Slovakia	47 – 107	121 – 348	252 – 726
Spain	121 – 276	145 – 419	303 – 873
UK	410 – 948	156 – 451	326 – 941

Additional health benefits for the EU as a whole (in million Euros per year)

	EU Commission	Health & Environment Alliance (HEAL)	
compared to 20% baseline	**25% internal**	**25% internal**	**30% internal**
EU 27	**3 425 – 7 891**	**5 061 – 14 607**	**10 556 – 30 466**

Contacts

Génon Jensen,
Executive Director
Health and Environment Alliance (HEAL)
E-mail: genon@env-health.org,
Tel: +32 2 234 36 42

Julia Huscher,
Climate & Air Quality Policy Officer
Health and Environment Alliance (HEAL)
Email: julia@env-health.org
Tel: +32 2 234 3646

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