

**FRIENDS OF THE EARTH EUROPE, STOCKHOLM ENVIRONMENT INSTITUTE
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Europe's share of the climate challenge – Domestic actions and international obligations to protect the planet

A new study prepared by Stockholm Environment Institute in partnership with Friends of the Earth Europe shows that emission reductions of at least 40% below 1990 levels within Europe by 2020, and cuts of 90% by 2050, are possible. It also gives an estimation of the costs of these cuts and of the EU's fair share of the finances needed for developing countries to fight climate change.

Why at least 40%?

If developed countries reduce their emissions by 25-40% by 2020, CO₂ concentrations in the atmosphere can be stabilised at 450 parts per million (ppm) which would give only a 50% chance of limiting global average temperature increase to 2°C and avoiding the worst impacts of climate change. Many leading scientists are calling for 350 ppm¹ to stand any chance of meeting the 2°C target. Even if the industrialised world's emissions drop to 40% below 1990 levels by 2020, and then to almost 90% below 1990 levels by 2050, this would still consume roughly one third of the atmospheric space remaining for the world to safely pollute, thereby severely limiting the space available to the developing world. These two reasons are the rationale behind Friends of the Earth Europe's call for at least 40% domestic cuts by 2020 in Europe.

What is climate justice?

Climate justice demands that those most responsible for the climate crisis have to act first and do most to reduce their own emissions. They should also provide money and technology so that those least responsible and most affected, who are already suffering due to climate change, can develop sustainably and adapt to the effects of climate change. Based on a burden-sharing approach known as the Greenhouse Development Rights, SEI calculated that this total obligation for Europe amounts to 103% greenhouse gas reductions below 1990 levels by 2020. This figure is only meaningful if it is understood as a two-fold obligation to undertake 40% cuts domestically and invest in mitigation internationally equivalent to €150billion to €450billion per year by 2020.

Why are some options excluded?

Friends of the Earth Europe excluded high risk or false solutions which divert valuable resources from safer, less risky alternatives and do not address the root problem of soaring emissions and wasteful use of energy. Nuclear power is excluded for safety and costs concerns, and biofuels because they do not generally reduce emissions,

¹ Hansen James et al (2008). *Target Atmospheric CO₂: Where Should Humanity Aim?* Others such as Rajendra Pachauri, chairman of the IPCC, have publicly supported the goal of keeping atmospheric CO₂ concentrations below 350 ppm.

especially when land-uses changes are taken into account. Carbon, capture and storage is excluded as it remains unproven and could lead to a new generation of coal-fired power plants locking society into carbon-intensive power generation. This scenario also excludes offsetting through the Clean Development Mechanism, and any North-South emissions trading, which is an excuse for developed countries not to take the necessary action at home, delays the urgently needed shift to a green economy, is not guaranteed to deliver real emissions cuts, and in many cases harms people and the environment.

What methodology was used for the study?

The SEI study compares a baseline to a mitigation scenario. The baseline is built upon detailed historical energy statistics for the EU 27 published by the International Energy Agency and extrapolated into the future based on projections to 2030 from the European Commission.² Figures from the economic crisis and projections for greenhouse gas emissions from international air travel and non-energy sectors have also been included. Both scenarios have been developed using an energy modeling system to analyse the energy consumption and production, greenhouse gas emissions and costs and benefits of the scenarios.

What changes can be expected to energy in Europe?

Steep emission cuts can be achieved through radical changes in Europe's energy system combined with behavioural changes. Dramatic improvements in energy efficiency, the rapid phase out of fossil fuels and a major shift towards various types of renewable energy are required. By far the biggest potential for renewables comes from onshore and offshore wind with its share in the generation mix increasing from 3.3% in 2010 to 22% in 2020 and 55% in 2050. The study foresees electricity demand growing until 2020 due to the replacement of fossil fuels in many sectors. After 2020 gains in energy efficiency lead to an overall decrease in electricity demand. Those sectors that will contribute the largest emission cuts by 2050 are transport (approx 30% of decreases), electricity generation (approx 25%) and heat production (approx 10%).

What changes can be expected to lifestyles in Europe?

Changes in Europe's energy system need to go hand in hand with a less materialistic society and lower levels of growth in GDP. Examples of lifestyle changes include a shift from individual to public transport with only 43% of trips being made by car in 2050 compared to 75% in 2005, and reduced flying with 80% of intra European flights under 1000km switching to rail by 2050. Some emission cuts are also achieved by more healthy but less meat intensive diets and a reversal of the trend for bigger homes. Lifestyle changes result in average per capita emissions of 1 metric tonneCO₂ per year in 2050 – around 8 times lower than today. It is clear that these kind of behavioural changes will not happen without political guidance.

How much will the 40% scenario cost? ³

² EC – DG TREN, 2008. *European Energy and Transport: Trends to 2030, Update 2007*.

³ Please note that the SEI study is not intended as a detailed economic assessment of the costs of achieving 40% domestic cuts in the EU.

The total costs of implementation are estimated to be €1.94 trillion or 1.7% of the Europe's discounted cumulative GDP between 2010 and 2020 (€111trillion). However, this is only a partial estimate not including the industry, non-energy and agriculture sectors and a more comprehensive calculation would result in approximately 2.5% - 3% of Europe's discounted cumulative GDP. This is comparatively small when compared to the costs of inaction which have been estimated to amount to at least 5%, but perhaps more than 20%, of global GDP. Broken down the costs are around €2 per person per day. It is worthwhile noting that the SEI mitigation scenario does not take into account economic benefits of early action, which include increasing job creation, health benefits and avoided costs from energy savings and efficiency. These benefits would need to be counted against the costs.

How much must Europe pay to support developing countries?

The EU's fair share of finances for the developing world amounts to €150 billion to €450 billion per year by 2020 according to the SEI study, depending on the overall global costs of mitigation. This corresponds to between approximately 1.1% and 3.3% of the EU's projected 2020 GDP of €13.6trillion. Between 2010 and 2020, steadily increasing amounts of financial and technological resources should be provided to support and enable the transition in developing countries, reaching the €150bn to €450billion range in 2020. Again, broken down to a daily expenditure this equals less than €3 per person per day.

What are the next steps for Europe to achieve climate justice?

Incentives to tackle the climate challenge must be a guiding principle in all EU policy making, from housing to transport, and agriculture to energy. The EU must design a holistic 'climate protection framework' including all the various – existing and additional – measures needed to deliver the necessary emission cuts. Such a framework should incorporate strong climate legislation in member states to regulate greenhouse gas emissions in all parts of the economy at the national level. These laws would ensure that emissions are brought down year-by-year with the speed that is needed.

National mechanisms are needed to place appropriate sanctions on government departments, regions and sectors that fail to meet their targets to reduce emissions. An EU-wide compliance mechanism is needed to penalise countries that fail to meet national targets.

Friends of the Earth Europe's climate campaign, the Big Ask, is actively calling for annual emission cuts and the introduction of climate laws in more than 15 countries. Since the start of the campaign the UK and Scotland have already passed climate change laws.

Overarching climate and energy policy recommendations

(non-comprehensive examples, for more details and sector-specific policy recommendations please see Friends of the Earth Europe's document 'The 40% Study – Mobilising Europe to achieve climate justice')

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- a domestic greenhouse gas emission reduction target of at least 40% by 2020 with emissions declining more than 5% annually from 2012 onwards
 - an ambitious binding target for renewable energy in line with the 40% target
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- an ambitious overall target for energy savings across all sectors in line with the 40% target
 - international financing obligations of between €150 billion and €450 billion per year in 2020
 - the binding phase out of nuclear, coal and oil fired power generation as soon as possible
 - earmarking significant amount of funding for climate mitigation measures in the current EU structural and cohesion funds allocations, and the post 2013 EU budget and cohesion policy
 - overall GHG or carbon tax to create a stable environment for investment in energy savings and renewable energy
 - regulations to reduce consumption and subsidies to promote the reuse and recycling of materials
 - support for public awareness and education activities on the need for changes in consumption and lifestyle
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Is this scenario realistic?

This scenario shows a pathway which gives good chances to limit temperature increase to well below 2°C, in line with what science says is necessary. The picture painted is an emergency pathway and is significantly steeper than even the most ambitious of current proposals. In this respect it could be described as 'politically unrealistic'. But the study proves that these cuts ARE possible and affordable. 'Politically realistic' must be recalibrated to the scale of the challenge of rescuing the planet. A massive brave shift in policy and determination from EU politicians is needed. Governments and businesses were able to mobilise huge almost 'unrealistic' efforts to rescue bankrupt banks – now they must mobilise to rescue the planet.

How does this link to the UN climate talks in Copenhagen?

In December countries will meet at global climate talks in Copenhagen to reach an agreement on the action the world will take against climate change post 2012. To achieve climate justice in Copenhagen the European Union must set an example for other developed countries to follow and commit to reduce Europe's emissions by 40% by 2020 within Europe and to provide the finances needed for adaptation and mitigation in developing countries. This study shows that ambitious climate targets can be achieved but policy and societal shifts need to happen right now. The EU should have no excuse for not making the necessary commitments in Copenhagen.
