



Impacts of Post-2012 Climate Policies on Air Quality

European researchers have recently analysed the potential air quality co-benefits from different European post-2012 climate policies in Nordic countries. The results suggest that stricter targets and a more ambitious climate change policy will contribute to reduced emissions of air pollutants. On the other hand, expanding the European emissions trading scheme to new sectors might result in a small increase in emissions of air pollutants. A key aspect will be the post-2012 participation of Russia and non-EU Eastern Europe countries in emission trading.

Previous studies have shown that policies aiming to mitigate greenhouse gases (GHG) can have a positive effect on regional air quality. Indeed, structural changes, fuel switching and energy efficiency improvements can help reduce emissions of air pollutants, in particular sulphur dioxide (SO₂), nitrogen oxides (NO_x) and particulate matter (PM). In early 2007, the Commission set a goal of reducing its emissions by 20% by 2020. Options for global climate policies after 2012, the end of the first commitment period of the Kyoto Protocol of the United Nations Framework Convention on Climate Change, are currently under discussion and vary with respect to their ambition levels and the number of countries they include. However, it is not clear for the moment what specific co-benefits the different post-2012 climate policy options are likely to generate.

In this regard, a research team from Nordic countries has recently analysed the potential effects of different European CO₂ policies on air quality, avoided costs of meeting air pollution targets, regional environment and human exposure in the Nordic region. To this end, the researchers created and modelled 6 alternative scenarios that illustrate different caps on emissions, the expansion of the European Union Emission Trading Scheme (EU-ETS), carbon taxes and Russian and non-EU Eastern Europe participation after 2012.

The results suggest that:

- Stricter commitments for GHG emissions in the post- Kyoto period until 2020 will contribute to reduced emissions of air pollutants in the Nordic countries, which would have required substantial abatement costs if achieved with further application of 'end-of-pipe' measures. Approximately 7 million Euros per year could be saved on abating air pollutants in this way. Nevertheless, reductions in emissions in the Nordic countries are smaller than in other regions, since the assumed use of the flexibility mechanisms implies a shift in GHG abatement, and co-benefits to other regions, mainly Russia and Eastern Europe.
- A key question is the participation of Russia and non-EU Eastern Europe in emission trading and their targets. Withdrawal from cooperation will result in increased long-range transport of air pollutants to parts of the Nordic countries. If Russian and non-EU Eastern European countries were to abandon participation in a climate agreement, Nordic countries would have to undertake more emissions cuts in order to meet the same targets. Under this scenario, the costs to reach the same emission level of air pollutants by 'end-of-pipe' measures would be extremely high.
- Expanding the ETS will result in small increases in emissions of air pollutants because abatement is shifted towards sectors where CO₂ abatement is cheaper but less efficient in reducing air pollutants. Expansion of the ETS would imply an additional cost of abating air pollutants of 9 million Euros per year compared to keeping the ETS inclusion at the current level.
- Adding a carbon tax to households, transport and service sectors in 2015 leads to small increases in SO₂ emissions and has little or no effect on NO_x. This tax leads to an increase in PM emissions in the Nordic countries.

Overall, this study illustrates how different directions of climate policies after 2012 could influence ecosystems and the cost of reaching future targets for emissions of air pollutants. It also suggests that the co-benefits of climate policies are expected to be greater in some regions compared to others. On 10 January 2007 the European Commission set out proposals and options for keeping climate change to manageable levels in its Communication "Limiting Global Climate Change to 2° Celsius: The way ahead for 2020 and beyond"¹, which is a major contribution to the ongoing international discussions on a future global agreement to combat climate change after 2012.

¹For more information: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52007DC0002:EN:NOT>

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