

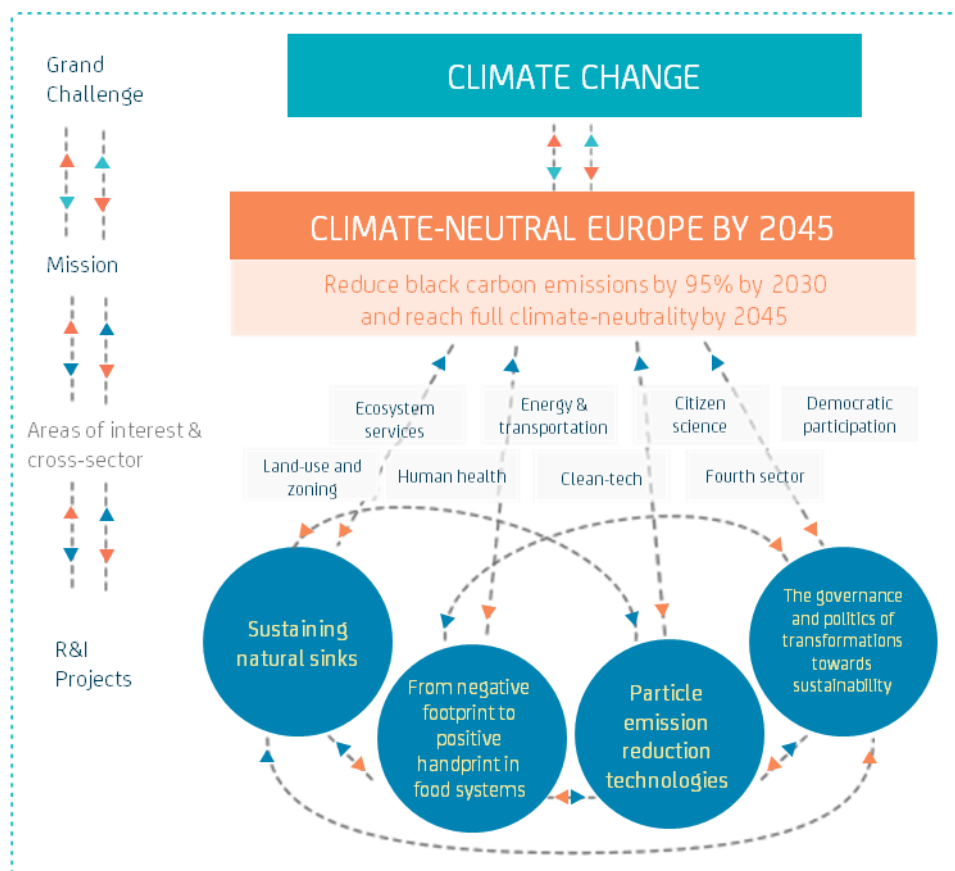
17 August 2018

## CLIMATE-NEUTRAL EUROPE 2045

### Proposal by the Academy of Finland for a *Horizon Europe* mission

Europe is uniquely positioned to lead the way towards a climate-neutral and ultimately climate-negative world through its internal cohesion and global influence, and its leading capabilities in scientific and technological innovation. Climate change poses serious threats – without bold and decisive actions, much stands to be lost. The task is therefore not easy to achieve and requires both R&I and regulative actions on multiple fronts. The Academy of Finland's proposal for a Horizon Europe mission, **Climate-Neutral Europe 2045**, seeks to promote research and innovation on reducing greenhouse gas (GHG) emissions across the board. Furthermore, it aims developing new governance models based on a better understanding of people's individual preferences and choices.

- BY Europe has...
- 2030 ... reduced black carbon emissions by 95%
- 2035 ... tripled its carbon sinks
- 2040 ... reduced methane emissions by 90%
- 2045 ... reduced nitrous oxide emissions by 90% and reached full climate neutrality



### 1. WHY: CLIMATE CHANGE AFFECTS EVERYONE

Climate change affects everyone, everywhere, and for the most part the predicted effects are negative. Rising sea levels threaten coastlines and increasing temperatures and associated changes in weather patterns threaten food production and natural ecosystems. The threats have been recognised and international commitments have been made (especially the Paris Agreement), but for the most part implementation of these commitments lags behind.

The main source of GHGs (carbon dioxide, methane, nitrous oxide, water vapour and ozone) in Europe is fuel combustion in energy industries, transport, household and commerce. The land-use sector – especially the current agriculture – is another important source of emissions. In addition to GHGs, black carbon emitted especially from the transportation sector has a warming effect on the climate and an adverse effect on human health. In the Arctic region, black carbon is a particular problem as it increases the melting of ice, thus further increasing the negative effects of climate change also far beyond the Arctic region.

### 2. WHAT: CLIMATE-NEUTRAL EUROPE AS A MISSION: AN INTEGRATED APPROACH

Reaching a climate-neutral Europe means curbing GHG emissions and stepping up the removal of GHGs from the atmosphere. The focus thus far has been on carbon, but we need to extend climate change prevention and mitigation measures to also include other GHGs. Set objectives for the reduction targets need to be specific, measurable, ambitious, realistic and time-bound. The Climate-Neutral Europe 2045 mission promotes research and innovation on reducing GHG emissions following these principles. At the same time, attention must be paid to the governance and political challenges on the European level so that a consensus can be reached on how the mission targets can be reached together.

### 3. HOW AND WITH WHOM: EUROPE IS COHESIVE INTERNALLY AND INFLUENTIAL EXTERNALLY

To succeed, this mission requires substantial strengthening of key knowledge areas. New technological solutions, industrial processes and services as well as changes in lifestyle offer new business opportunities for a broad range of actors. Basic research is needed on how natural ecosystems act as dynamic GHG sinks and how land-use, including natural resource use and food production, affects these sinks.

As the mission succeeds or fails with the perceived legitimacy of the instruments used, research and innovation on different modes of governance and political participation are at the core of the mission. A better understanding on how people make their everyday choices as individuals and as part of social collectives is needed to develop more climate-friendly behaviour and norms. Shifting the focus from a negative carbon footprint to a more positive carbon handprint (i.e. a net positive action and beneficial environmental and social impacts) can decrease emissions and improve positive public engagement at the same time.

All sectors of society across all member states need to be engaged and collaborate in fulfilling this mission. Scientists, engineers, civil servants, citizens, companies, NGOs and governments need to collaborate in co-designing the R&I actions and co-creating both technological and social solutions. Citizens' involvement through citizen science projects supports the understanding of research objectives as well as the development and employment of new technological and social innovations.

The EU has what it takes to become a true global leader in fighting climate change, and the time for action is now.

