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Supplementary Materials for

A roadmap for rapid decarbonization

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This PDF file includes

Other Supplementary Material for this manuscript includes the following:
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Tables S1 and S2 as Excel files
Supplementary Code S1 as a MATLAB script (.m) file and as a text file.

Materials and Methods

The graphical figure in the main text (top: Decarbonization pathway consistent with the Paris Agreement) uses a published simple carbon-cycle and climate model MAGICC (*13*) to illustrate the carbon fluxes implied by a scenario in line with the Paris Agreement. A multigas scenario was created by the MESSAGE integrated assessment modeling framework (*14*) for the study described in Rogelj *et al*. (*15*) and was assessed subsequently in the context of scenarios limiting global mean temperature increase to 1.5°C in 2100 described in Rogelj *et al*. (*3*). Uncertainties are plotted around the gross anthropogenic emissions are based on Le Quéré *et al*. (*16*).

Emissions data
The emissions data for this scenario can be found in Table S1, in the "MESSAGE CO_2 export" and "MAGICC emissions" tabs. The precise data shown in the figure (top) are reported in Table S1, in the Plotdata tab.

The estimated natural carbon sinks
The natural carbon sink uptake for this scenario was estimated with the simple climate model MAGICC, which is described and documented in detail in Meinshausen *et al*. (*13*). More info on this model is available on http://wiki.magicc.org/ (*17*). MAGICC was run in a probabilistic setup as described in Meinshausen *et al*. (*18*). The median carbon-cycle response, together with the 5 to 95 percentile range, is plotted for the natural sinks.

Fossil fuel phase out
Text figure, bottom left: Sources in gray (2000–2010) are measured as million metric tons of oil equivalent (Mtoe).

Excel Table legends

Table S1. Decarbonization pathway consistent with the Paris agreement.

Table S2. Adapted fuel data from the *BP Statistical Review of World Energy*. See first worksheet "Contents" for table of contents. Adapted data are listed in sheets "Compilation-Electricity" and "Compilation-Mtoe" and are used to create the fossil fuel phase-out panel of the main text figure. Data adapted from (*5*) are reported as terawatt-hours (TWh), million metric tons of oil equivalent (Mtoe), and barrels per day oil equivalent (b/doe), in some cases for a specific time period.

Supplementary Code S1. Script to create fossil fuel phase-out panel of the main text figure. The script uses adapted fuel data from the *BP Statistical Review of World Energy* (*5*) (see specifications in the script header). Provided as a MATLAB script (.m) file and as a text file in a zipped file.

References and Notes

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