Appendix D: Sources of information for different sectors

This appendix provides a list of data sources for sectors and subsectors. These sources may be consulted if appropriate national data are not available when users are estimating the potential impact of actions and policies in terms of emissions reductions.

D.1 Agriculture, forestry and other land use sector

- FAO database (FAOSTAT) (www.fao.org/faostat/en/#home)
- Other relevant FAO resources for information on forest cover; forest carbon stock; and reforestation, afforestation and deforestation rates:
  - *Global Forest Resources Assessment 2015* (www.fao.org/3/a-i4808e.pdf)
  - *State of the World's Forests 2016* (www.fao.org/3/a-i5588e.pdf)
- World Bank open data covering several metrics, including forest cover, agriculture and food production (http://data.worldbank.org/indicator)
- United States Environmental Protection Agency global GHG emissions data, covering emissions by gas, sector and country, as well as trends (www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data)
- United Nations World Population Prospects (https://population.un.org/wpp/)
- Additional information on methods and tools:
  - IPCC guidance on forest land – provides methods for estimating carbon stock changes, and GHG emissions and removals associated with changes in biomass and soil organic carbon on forest lands and lands converted to forest land (www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/Chp3/Chp3_2_Forest_Land.pdf)
  - Tools to calculate emissions reductions from reforestation (www.environment.gov.au/climate-change/government/emissions-reduction-fund/publications/forest-tools-and-data)
  - Greenhouse Gas Protocol *Mitigation Goal Standard* – chapter on land sector accounting (https://ghgprotocol.org/mitigation-goal-standard)
  - *GHG Protocol Agricultural Guidance* (http://ghgprotocol.org/node/602/%20)

D.2 Energy supply sector

- IEA statistics, which include indicators such as carbon intensity of electricity generated with oil, gas and coal (www.iea.org/statistics)
- IEA's *World Energy Outlook 2018*, including estimates of energy demand and renewable energy under the New Policies and 450 scenarios (www.iea.org/weo2018)
- IEA's *Energy Technology Perspectives 2017* report, detailing energy transition pathways, including relevant data about energy demand and projected CO_2 emissions (www.iea.org/etp)
- International Renewable Energy Agency (IRENA) REmap Energy Demand and Supply by Sector (https://irena.org/Statistics/View-Data-by-Topic/Energy-Transition/REmap-Energy-Demand-and-Supply-by-Sector)
- IRENA Data & Statistics, which includes country data and an avoided emissions calculator (https://irena.org/Statistics)
- IPCC Emission Factor Database (www.ipcc-nggip.iges.or.jp/EFDB/main.php)
- World Bank Open Data, covering several metrics, including renewable energy consumption and renewable electricity output (http://data.worldbank.org/indicator)

- *Guidelines for Quantifying GHG Reductions from Grid-Connected Electricity Projects* (www.wri.org/publication/guidelines-quantifying-ghg-reductions-grid-connected-electricity-projects)
- IPCC guidelines on "Energy" (www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html)

D.3 Industry sector

- IPCC Emission Factor Database (www.ipcc-nggip.iges.or.jp/EFDB/main.php)
- IEA's technology roadmap for the chemical industry (https://dechema.de/en/industrialcatalysis.html)
- United Nations World Population Prospects (https://population.un.org/wpp/)
- Additional information on methods and tools:
  - IPCC guidelines on *Industrial Processes and Product Use* (www.ipcc-nggip.iges.or.jp/public/2006gl/vol3.html)
  - World Business Council for Sustainable Development Cement Sustainability Initiative, containing data on cement and a detailed roadmap for the sector (http://wbcsdcement.org)
  - Greenhous Gas Protocol emissions calculation tools (http://ghgprotocol.org/calculation-tools#sector_specific_tools_id)

D.4 Buildings sector

- IEA's *World Energy Outlook 2018* with data trends for buildings emissions by fuel and final energy consumption by end use (www.iea.org/weo2018)
- IEA's *Energy Technology Perspectives 2017*, including estimates about floor area growth and floor area per household, and buildings' energy consumption (www.iea.org/etp)
- IRENA *Roadmap for a Renewable Energy Future*, with data on share of modern renewable energy in building energy use (www.irena.org/DocumentDownloads/Publications/IRENA_REmap_2016_edition_report.pdf)
- IPCC Emission Factor Database (www.ipcc-nggip.iges.or.jp/EFDB/main.php)
- *GHG Protocol Scope 2 Guidance* (http://ghgprotocol.org/scope_2_guidance)
- IPCC guidelines on "Energy" (www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html)

D.5 Transport sector

- IEA's *World Energy Outlook 2018*, which provides information on trends in energy demand by source in the transport sector and the renewable energy outlook for the transport sector (www.iea.org/weo2018)
- IEA's *Energy Technology Perspectives 2017*, which includes information on trends in energy demand from the transport sector, emissions intensity of new electric vehicles, and developments in passenger and freight transport (www.iea.org/etp)
- IRENA *Roadmap for a Renewable Energy Future*, with information on the renewable energy share in transport for key countries (www.irena.org/DocumentDownloads/Publications/IRENA_REmap_2016_edition_report.pdf)
- IPCC Emission Factor Database (www.ipcc-nggip.iges.or.jp/EFDB/main.php)
- World Bank Open Data, covering several metrics (http://data.worldbank.org/indicator)
- Additional information on methods and tools:
  - IPCC guidelines on "Energy" (www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html)
  - International Council on Clean Transportation *Transport Roadmap 2012* – provides an Excel-based tool to assess emissions from transport and estimates changes in actual transportation activity by country and region, based on changes in forecasts of population, GDP and relative fuel (https://theicct.org/transportation-roadmap)
  - SloCat (Partnership on Sustainable, Low Carbon Transport) Transport Greenhouse Gas Emissions Research Briefs (http://slocat.net/node/1538)
  - Paris Process on Mobility and Climate *An Actionable Vision of Transport*

Decarbonization: Implementing the Paris Agreement in a Global Macro-Roadmap Aiming at Net-Zero Emissions Transport (www.ppmc-transport.org/wp-content/uploads/2016/04/Global-Macro-Roadmap-Consultation-Draft-March-2017.pdf)
  - Greenhouse Gas Protocol calculation tool for emissions from transport or mobile sources (http://ghgprotocol.org/calculation-tools#cross_sector_tools_id)

D.6 Waste sector

- UNEP and International Solid Waste Association *Global Waste Management Outlook* (www.iswa.org/nc/home/news/news-detail/browse/1/article/press-release-global-waste-management-outlook-gwmo/109)

- IPCC report on waste management (www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg3-chapter10-1.pdf)

- IPCC Emission Factor Database (www.ipcc-nggip.iges.or.jp/EFDB/main.php)

- Additional information on methods and tools:

  - IPCC guidelines on "Waste" (www.ipcc-nggip.iges.or.jp/public/2006gl/vol5.html)
  - *Protocol for the Quantification of Greenhouse Gas Emissions from Waste Management Activities* (https://ghgprotocol.org/sites/default/files/Waste%20Sector%20GHG%20Protocol_Version%205_October%202013_1_0.pdf)
  - California's landfill methane emissions calculation tool (www.arb.ca.gov/cc/protocols/localgov/localgov.htm)