REmap
A Renewable Energy Roadmap

IRENA
International Renewable Energy Agency

#REmap

ROADMAP FOR A RENEWABLE ENERGY FUTURE

The REmap approach

- IRENA's REmap programme explores how to operationalize a doubling of the global renewable energy share by 2030 and put the world on a <2C climate pathway by 2050 in line with Paris Agreement

- Bottom-up process -> Developed together with and validated by country experts

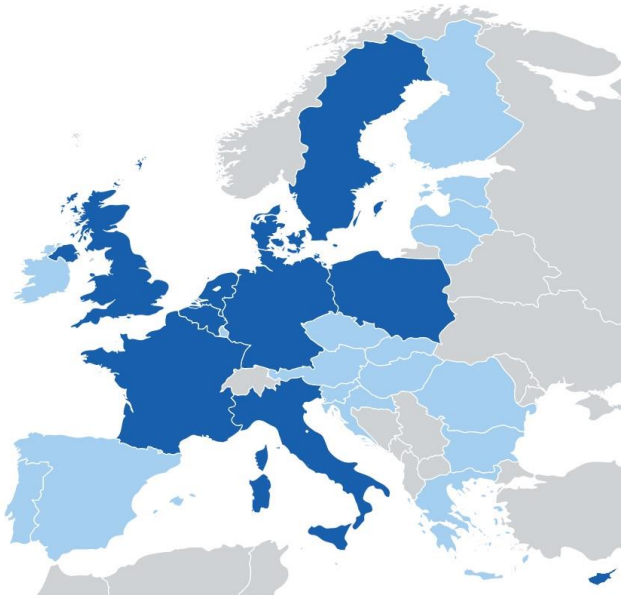
- RE technology options:
  - Includes power, district heat, end-uses (industry, transport, buildings)
  - Each technology option is characterized by its cost and potentials
  - Identified options can be combined into roadmaps or plans and translated into policy action

REmap EU – goals and timeline

- **Goal:** advise regarding options in all sectors and their implications to meet the 27% 2030 RE target, what more can be done and the role renewable energy can play for decarbonisation.

- **Consultative process:**
  - First workshop with Member States and the EC, October, 2016
  - 3 sectoral webinars, December 2016 – February 2017
  - Second workshop with Member States and the EC, March 2017
  - Draft results presented at EU Sustainable Energy Week, June 2017
  - Final meeting Brussels, October 2017

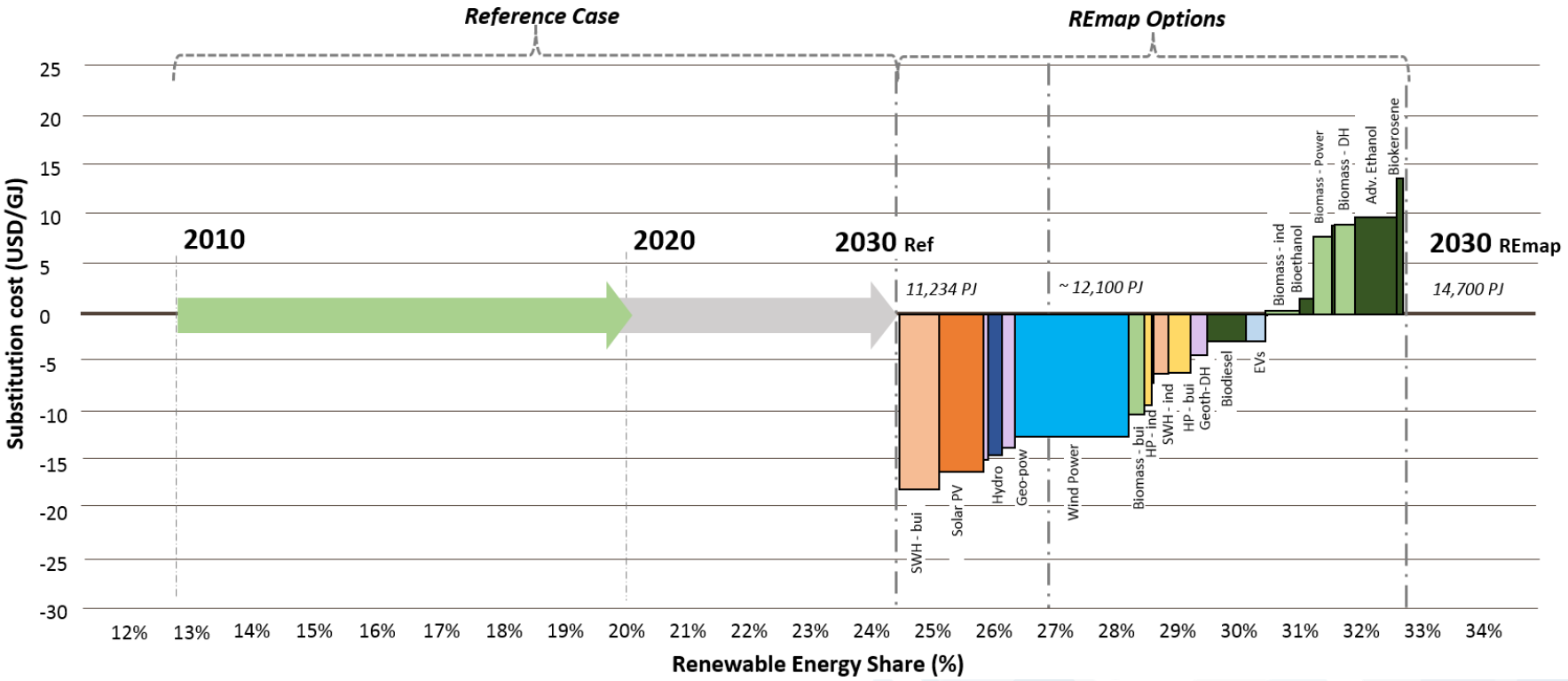
REmap EU analysis – scope and data sources



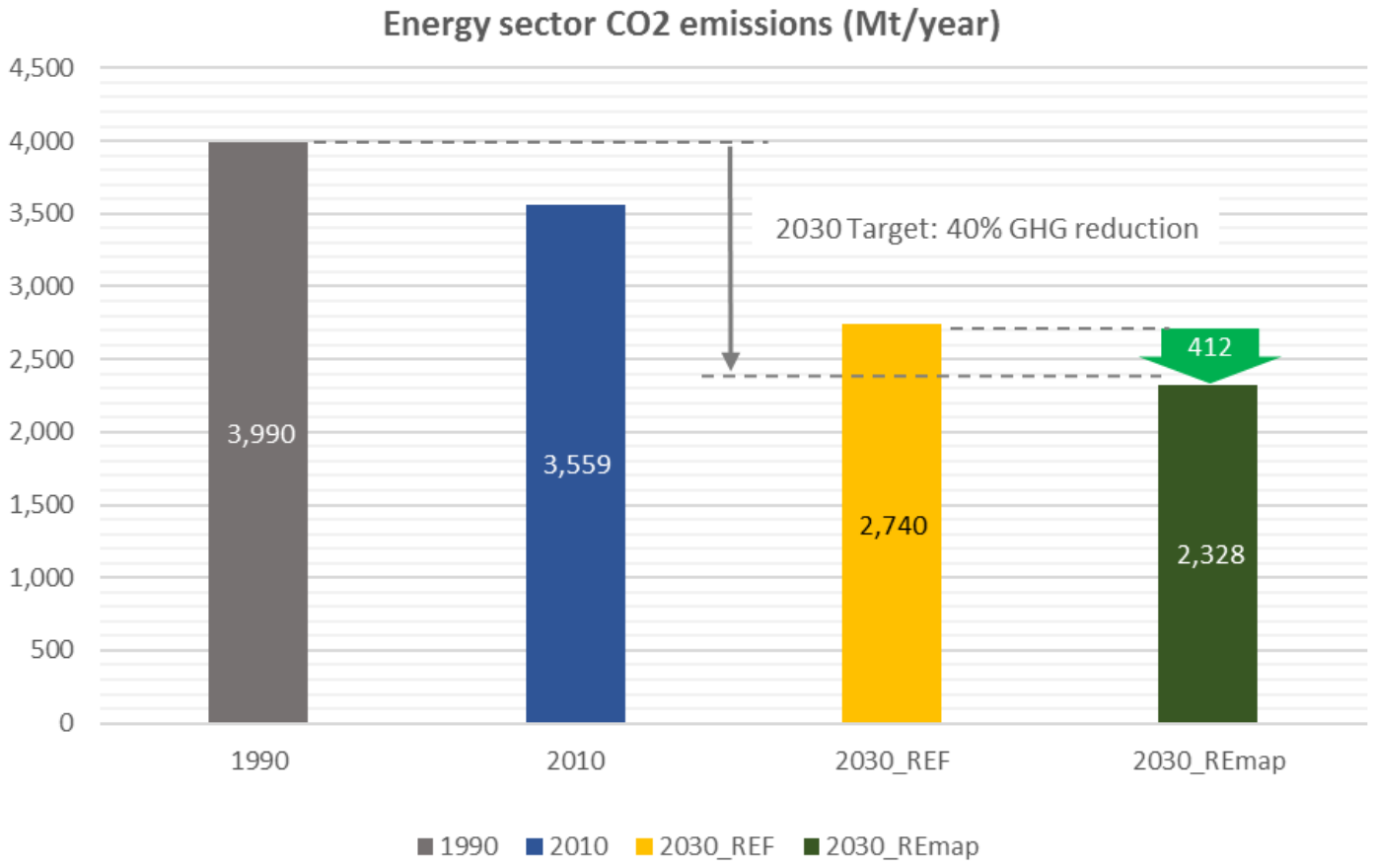
- 10 in-depth REmap analyses (73% of EU energy use)
- 18 RE quick-scans for the remaining Member States
- Reference case in 2030:
  - Country-specific scenarios, where available
  - PRIMES model results

- Country specific data: energy prices, cost, resource availability, etc.

From 24% to 33% through REmap options in 2030



Impacts of REmap on GHG emissions in the EU-28



Source for 1990 and 2010 values: European Environment Agency. GHG emissions inventory (CO2 emissions from fuel combustion, excluding agriculture/forestry/fisheries. Available from: https://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2016; Source for 2030 values: IRENA REmap analysis.

Economic impacts of REmap case for EU-28

- **USD 438 billion** in additional investments in RE over reference scenario.
- **USD 25 billion/year of savings** to the energy system by 2030.
  - Grid integration cost and lower fossil fuel prices can impact the savings
- REmap **savings total USD 52-133 billion per year by 2030**, when reduced externalities from CO_2 emissions and improved air quality are considered.
  - Public benefits make for a solid policy case

REmap EU – Conclusions

- REmap EU analysis identified cost-effective RE potential beyond the 27% target agreed in 2014:
  - Technology costs have decreased faster than expected.
  - RE potential expanded through technology improvements
  - Positive developments in end-use sectors, e.g. electric vehicles

- Full implementation of **identified REmap options would result in a 33% share of RE in 2030** (34% if the realisation of the proposed 30% EE target is considered)