

50% of the global energy supply could come from renewables in 2040

EXECUTIVE SUMMARY

Renewable energies will dominate the world's energy supply system as there is simply no alternative to that. The question is rather: how fast can the transformation into a carbon free energy supply system based on renewable energy sources happen?.

An [ambitious but realistic scenario](#) was just published by EREC and its member associations (EPIA, ESHA, ESTIF, EUBIA, EUREC Agency, EWEA, AEBIOM and EGEC). This briefing shows that a global share of renewable energy up to 50% of total primary energy consumption by 2040 is possible

This scenario that presents the possible evolutions of annual installations growth rates for the different renewable energy technologies has been made in reaction to the two most quoted existing scenarios: the IEA scenario and the Shell scenario, both being rather conservative and reluctant on the development of renewables. The present EREC scenario is based on experiences and cumulative knowledge from the different RE associations members of EREC.

Renewable sources of energy are in line with an overall strategy of sustainable development:

- increased security of energy supply
- clean technologies, locally available
- improving competitiveness of industries
- electrification of remote areas, especially in developing countries
- increasingly cost-effective

If combined with the improvement of energy efficiency and the rational use of energy, **renewable energy can provide everything fossil fuels currently offer in terms of energy services: Heating and cooling, Electricity and Transport fuels.**

An Advanced International Policy (AIP) scenario developed by EREC and its member associations that makes the assumption that additional support measures to the existing ones are put into place and that therefore there are advanced cumulative growth rates for renewables shows that renewable energy sources can contribute to total primary energy consumption of nearly 50% by 2040.

The contribution of Renewable Energy Sources to the world energy supply in 2040 – Projections in million tons of oil equivalent (Mtoe) - Advanced International Policy Scenario

	2001	2010	2020	2030	2040
World Primary Energy Consumption (IIASA)	10038.3	10549	11425	12352	13310
Biomass	1080	1313	1791	2483	3271
Large Hydro	222.7	266	309	341	358
Small Hydro	9.5	19	49	106	189
Wind	4.7	44	266	542	688
PV	0.2	2	24	221	784
Solar Thermal	4.1	15	66	244	480
Solar Thermal Electricity	0.1	0.4	3	16	68
Geothermal	43.2	86	186	333	493
Marine (tidal/wave/ocean)	0.05	0.1	0.4	3	20
TOTAL RES	1364.5	1745.5	2694.4	4289	6351
RES Contribution	13.6%	16.6%	23.6%	34.7%	47.7%

If the advanced cumulative growth rates as outlined in this briefing are reached, renewable energy sources will have a contribution to total primary energy consumption of nearly 50% by 2040.

The advanced international policies scenario will however only be realised if governments from all the world increase efforts in implementing necessary minimum policy measures in favour of further deployment of renewable energy technologies. This includes:

- the establishment of legally binding RES targets
- increase awareness of RES of decision-makers, politicians and general public
- emphasize the importance of RES in any development policy
- shift financial resources from International Financial institutions from conventional energy to renewables
- internalisation of social and environmental costs of polluting energy
- change of subsidies-policy from conventional to renewables
- increase direct public spending on research and development for renewables and energy efficiency
- the ratification and fulfillment of the Kyoto-Protocol commitments and additional commitments to climate protection have to be adopted

A second scenario called the “Dynamic Current Policies” scenario (DCP) is also presented in the briefing and assumes less international cooperation in the field of RES than in the AIP scenario, but still ambitious policy measures on national level at least in the industrialised part of the world. Predictions lead in this case to 27% of global energy consumption to be supplied by renewable energy sources by 2040. This so-called “middle-course” scenario is more ambitious than a “business as usual” scenario would be.

Scenarios are images of alternative futures. Scenarios are neither predictions nor forecasts. They show how the future could unfold, giving a more precise picture on the behaviour of complex systems and it depends at the end of the day on the political will to realise this mature scenario to guarantee a healthy and wealthy future also for the coming generations.