



# Global Energy Solutions e.V.

For Prosperity and Climate Neutrality

## Net Zero 2070 - The GES reference solution

A solution to the global energy and climate problems is possible. The GES reference solution shows how ten billion people can succeed in leading a life in freedom with sufficient prosperity in social balance and in peace with nature by 2070. The guiding principle is global energy prosperity through innovation and the market instead of administrating energy scarcity.

The prerequisites for this are: Openness to all available technology, pragmatism and a policy that also offers emerging and developing countries economic prospects. No country can solve the world's climate problem on its own territory. On the contrary, enormous biological system services from the Global South are necessary for this. This is only possible with international cooperation and substantial financial transfers from North to South – the key to the climate problem. We all live in a global and multipolar world.

GES assumes that the members of the OECD and countries such as China, Russia, Saudi Arabia and the Emirates will achieve the climate targets they have set themselves. However, the biggest challenges in solving the global climate problem lie in the newly industrialising and developing countries. This is where crucial growth processes are likely to take place, both in terms of population size and the economy. Without support from the Global North, these countries will advance with their economic development without giving the necessary consideration to climate protection. In the UN environment, an average gross domestic product growth of six per cent in the poorest countries is considered desirable for sustainability reasons. To achieve this in a climate-neutral way, these countries need financial, technical and logistical support: for climate-neutral energy systems and infrastructure. In the OECD countries, implementing the GES reference solution will result in an average cost of 800 US dollars per citizen per year. That is a lot, but it is feasible.

The concentration of greenhouse gases in the atmosphere is crucial. It can be influenced anywhere in the world. If we act with this in mind, it quickly becomes clear that the costs of avoiding CO<sub>2</sub> are dramatically lower in the Global South than in industrialised countries such as Germany. This is why the rich North must make a special effort in these countries. The financing is not charity, rather the Global North is raising these funds in its own interests: for the ecological and social system services of the South, for rainforest protection, the supply of raw materials and soil improvement, but also for the stabilisation of social systems. Not least to prevent mass migration.

A peaceful development must take account of global conditions and the different interests of states. Fossil fuel producing countries such as Saudi Arabia, Russia, China, Iran, Venezuela and the USA will defend their business models. For this reason, a policy of ever-increasing "decarbonisation" is illusory for the foreseeable future. Climate neutrality can also be achieved with a proportion of fossil fuels. To achieve this, CO<sub>2</sub> must be captured and further utilised or disposed of. Fossil emissions are the problem, not fossil fuels. Carbon capture is the game changer.

The global expansion of renewables, especially solar and wind, is underway - and they must continue to grow. However, the reality is that around 80 per cent of global primary energy still comes from fossil fuels. Only five per cent comes from renewables. Coal, gas and oil are deeply integrated into the value chains, as energy carriers and in the production of cement, steel and chemicals. Humanity will continue to use fossil fuels for decades to come - which is another reason why carbon capture is needed. There is no patent remedy for Net Zero. All technical paths must be taken.

A stable electricity system is essential. However, wind and sun cannot always deliver. Electricity storage systems are either too small or too expensive. The volatility of renewables must therefore be balanced out by affordable and reliably controllable energy. These are primarily fossil (gas) power plants with carbon capture or nuclear energy. Two pillars" are essential for a stable electricity system at all times. This is the only way to make the overall system affordable.

Electrification will continue, for example in electric cars, heating and air conditioning. But in addition to electricity (electrons), climate-

neutral energy carriers (molecules) are also needed. This applies to many everyday products, but above all to mobility. For aeroplanes and ships, there is no way around e-fuels or bio-fuels. Electrifying the global fleet of 1.4 billion cars and lorries is an illusion, especially as it is long-lasting and continues to grow. This is why climate-neutral fuels and energy carriers are needed in large quantities.

Methane emissions alone account for 16 per cent of the global greenhouse gas impact and are a key starting point for reducing greenhouse gases. The focus is on best practices for minimising emissions during the extraction, transport and use of natural gas as well as the aftercare of depleted deposits.

Nature is an important CO<sub>2</sub> storage: plants absorb CO<sub>2</sub> from the atmosphere. Soils store CO<sub>2</sub> when they are intact. The same applies to the oceans. This CO<sub>2</sub> -binding capacity needs to be strengthened. One of the quickest and most effective methods of climate protection using nature is the preservation of tropical rainforests. For every hectare that remains intact, money must flow, year after year. Monitoring using satellite technology ensures success. This is how cross-financing works: money in return for performance.

GES proposes three programmes for nature-based solutions: in addition to preserving the rainforest, long-term programmes for the massive reforestation of forests and degraded areas as well as improving soils, for example humus formation with the help of biochar. All of these measures can create millions of new jobs in developing countries.

The development of a climate-neutral energy system for the world is a gigantic task. The technology for this is largely available. Further innovations can help, as history has impressively shown. The difficulties lie in the areas of politics and financing. In view of the worsening crises, it is in everyone's interest to develop solutions that create and maintain peace. The GES proposal would not only address climate and energy issues, but would also bring people in poorer countries a level of prosperity that they previously could only dream of. Birth rates and migration would fall. A global economic miracle from which all countries can benefit would be possible.