

# THE ECOFYS SCENARIO IN A NUTSHELL <sup>14</sup>

In 2050, energy demand is 15 per cent lower than in 2005. Although population, industrial output, passenger travel and freight transport continue to rise as predicted, ambitious energy-saving measures allow us to do more with less. Industry uses more recycled and energy-efficient materials, buildings are constructed or upgraded to need minimal energy for heating and cooling, and there is a shift to more efficient forms of transport.

As far as possible, we use electrical energy rather than solid and liquid fuels. Wind, solar, biomass and hydropower are the main sources of electricity, with solar and geothermal sources, as well as heat pumps providing a large share of heat for buildings and industry. Because supplies of wind and solar power vary, “smart” electricity grids have been developed to store and deliver energy more efficiently.

Bioenergy (liquid biofuels and solid biomass) is used as a last resort where other renewable energy sources are not

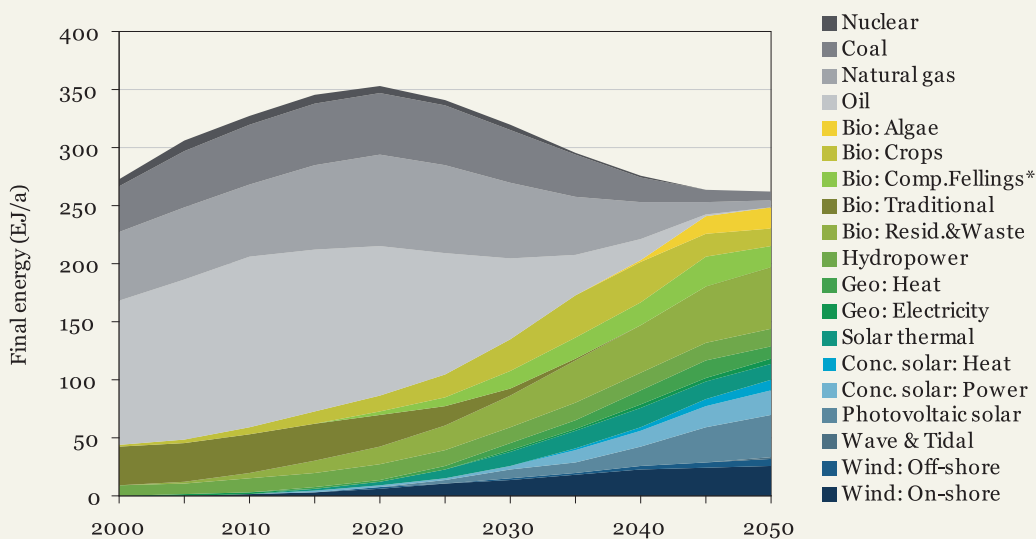
viable – primarily in providing fuels for aeroplanes, ships and trucks, and in industrial processes that require very high temperatures. We can meet part of this demand from waste products, but it would still be necessary to grow sustainable biofuel crops and take more wood from well-managed forests to meet demand. Careful land-use planning and better international cooperation and governance are essential to ensure we do this without threatening food and water supplies or biodiversity, or increasing atmospheric carbon.

By 2050, we save nearly €4 trillion per year through energy efficiency and reduced fuel costs compared to a “business-as-usual” scenario. But big increases in capital expenditure are needed first – to install renewable energy-generating capacity on a massive scale, modernize electricity grids, transform goods and public transport and improve the energy efficiency of our existing buildings. Our investments begin to pay off around 2040, when the savings

start to outweigh the costs. If oil prices rise faster than predicted, and if we factor in the costs of climate change and the impact of fossil fuels on public health, the pay-off occurs much earlier.

14. A table summarising all energy data is provided on pages 231 and 232 of the Ecofys scenario.

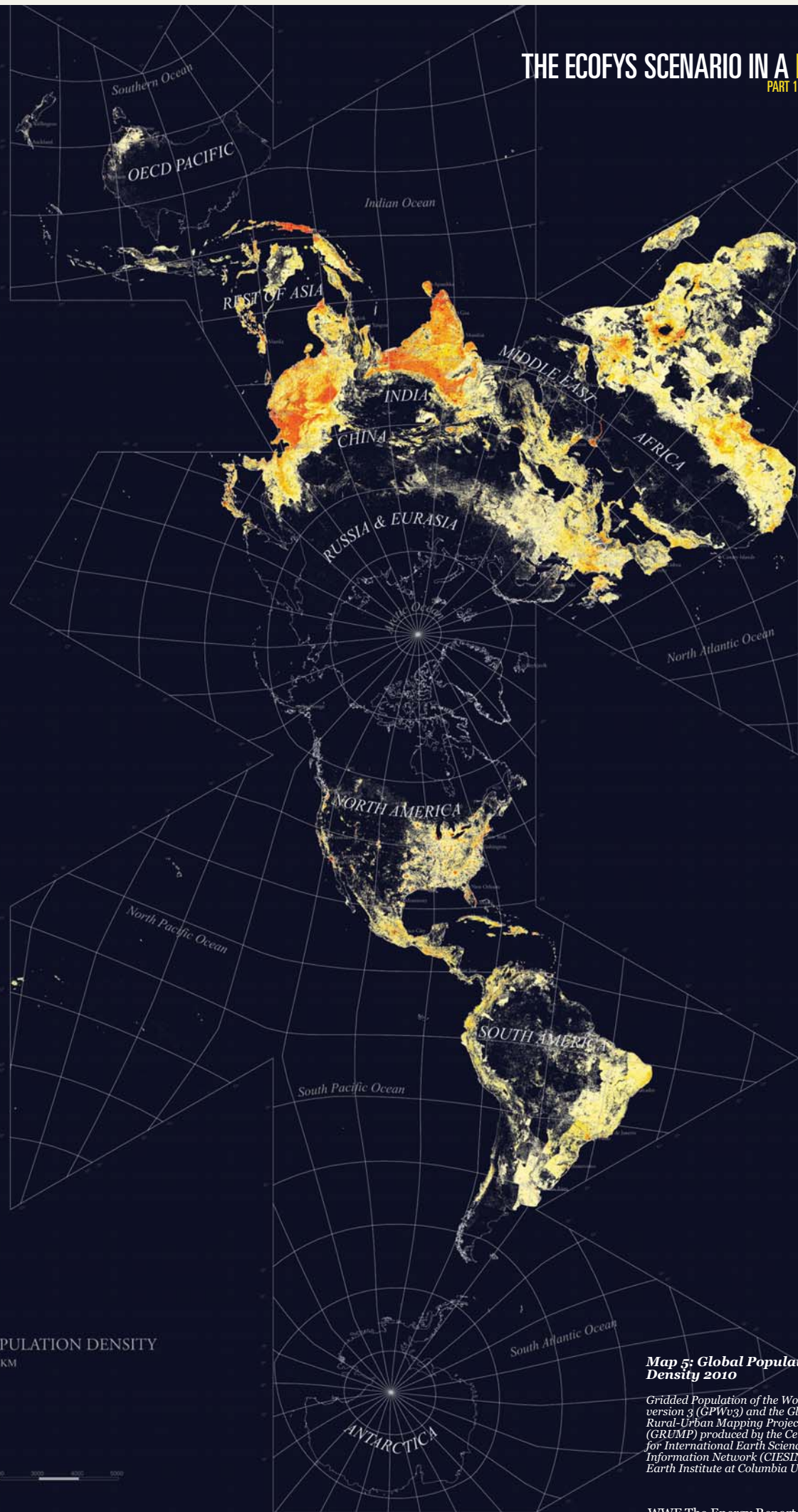
**“BY 2050, WE SAVE NEARLY €4 TRILLION PER YEAR THROUGH ENERGY EFFICIENCY AND REDUCED FUEL COSTS”**



**Figure 4: World Energy Supply by Source.**  
The Ecofys Energy Scenario, December 2010

WORLD POPULATION DENSITY

PERSONS PER SQ / KM



**Map 5: Global Population Density 2010**

Gridded Population of the World, version 3 (GPWv3) and the Global Rural-Urban Mapping Project (GRUMP) produced by the Center for International Earth Science Information Network (CIESIN) of the Earth Institute at Columbia University.