

The Future is electric and solar:

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The IEA Hybrid and Electric Vehicle Implementing Agreement (IA HEV)

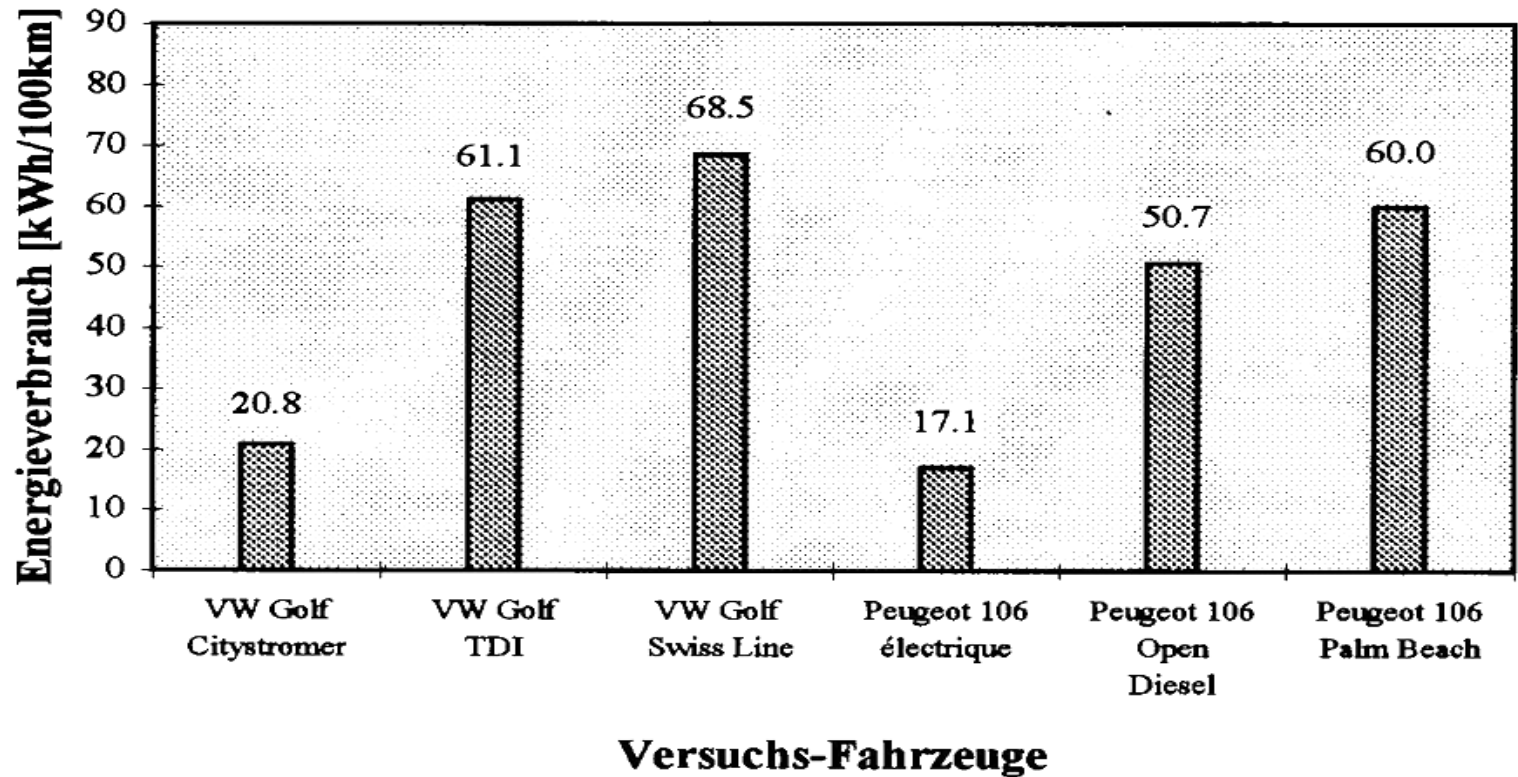
- What is the IEA Implementing Agreement IA HEV
- Efficiency combined with renewable electricity
- The IEA transport roadmap describes the future
- Running annexes of the IA HEV
- New Annexes of the IA HEV in preparation
- Strategy of the IA HEV for the 4th phase 2009-2014
- Country goals for EVs/ PHVs market introduction

The IEA Hybrid and Electric Vehicle Implementing Agreement (IA HEV)

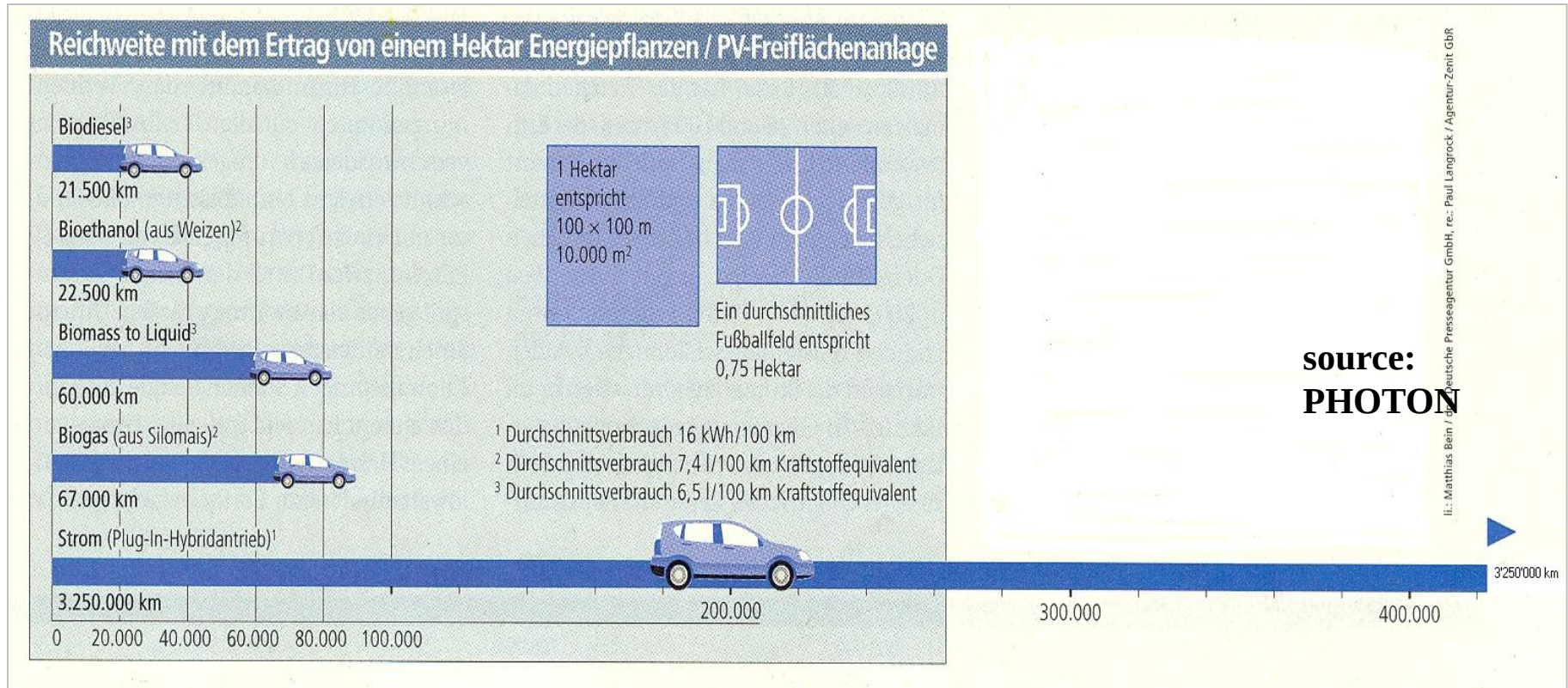
- The International Energy Agency (IEA) based in Paris has 28 member countries.
- The IEA manages the energy supply in member countries.
- The IEA runs 42 so called “Implementing Agreements” as platforms for technical collaboration between countries.
- The **IA HEV is a working group** of 15 governments (Austria, Belgium, Canada, Denmark, Finland, France, Italy, Netherlands, Portugal, Spain, Sweden, Switzerland, UK, Turkey, USA) interested in advanced vehicle technologies.
- Countries as Germany, Ireland, South Africa and the European Union are in the process to become a member.
- Actually we are running **8 Annexes** (3 for free/1 joint Annex with AMF) and are preparing 2 new ones.

We can make it 3-times better!

Diagramm Energieverbrauch



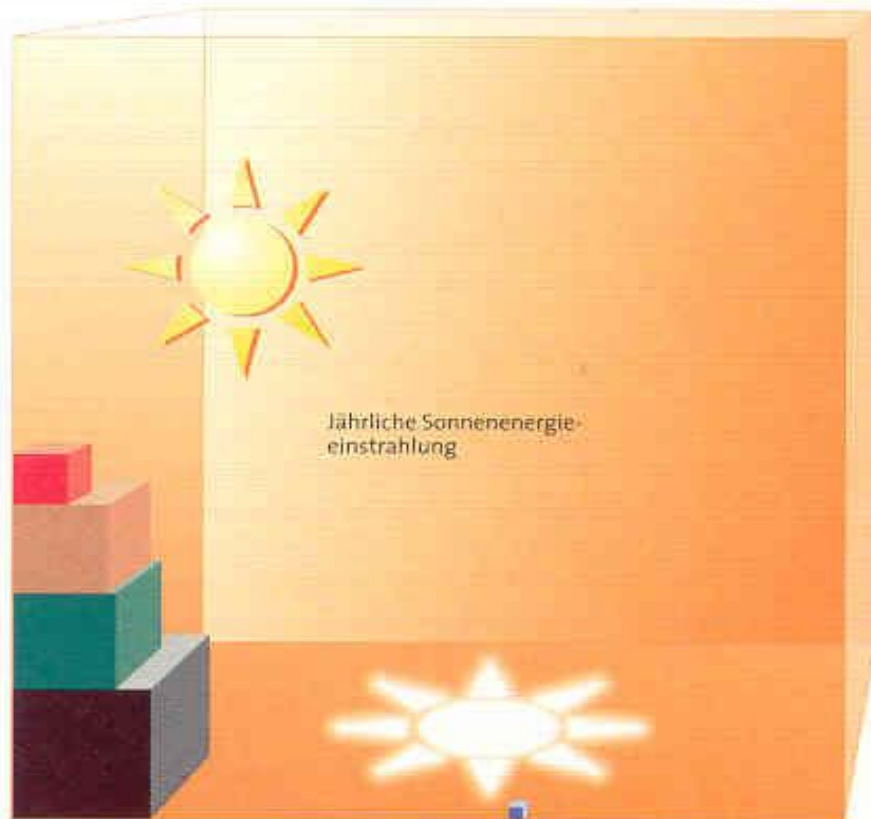
Winning combination: PV + EV/PHEV!



Range achieved by the energy produced on 1 ha land
(the bar of the plug-in-hybrid vehicle is 7 times longer than shown here)

→ The PHEV (consumption 16 kWh/100 km) using solar energy produced by a PV installation on 1 ha drives 150 times further than a car (consumption 6,5 l/ 100 km fuel equivalent) using bio-ethanol extracted from grain produced on 1 ha.

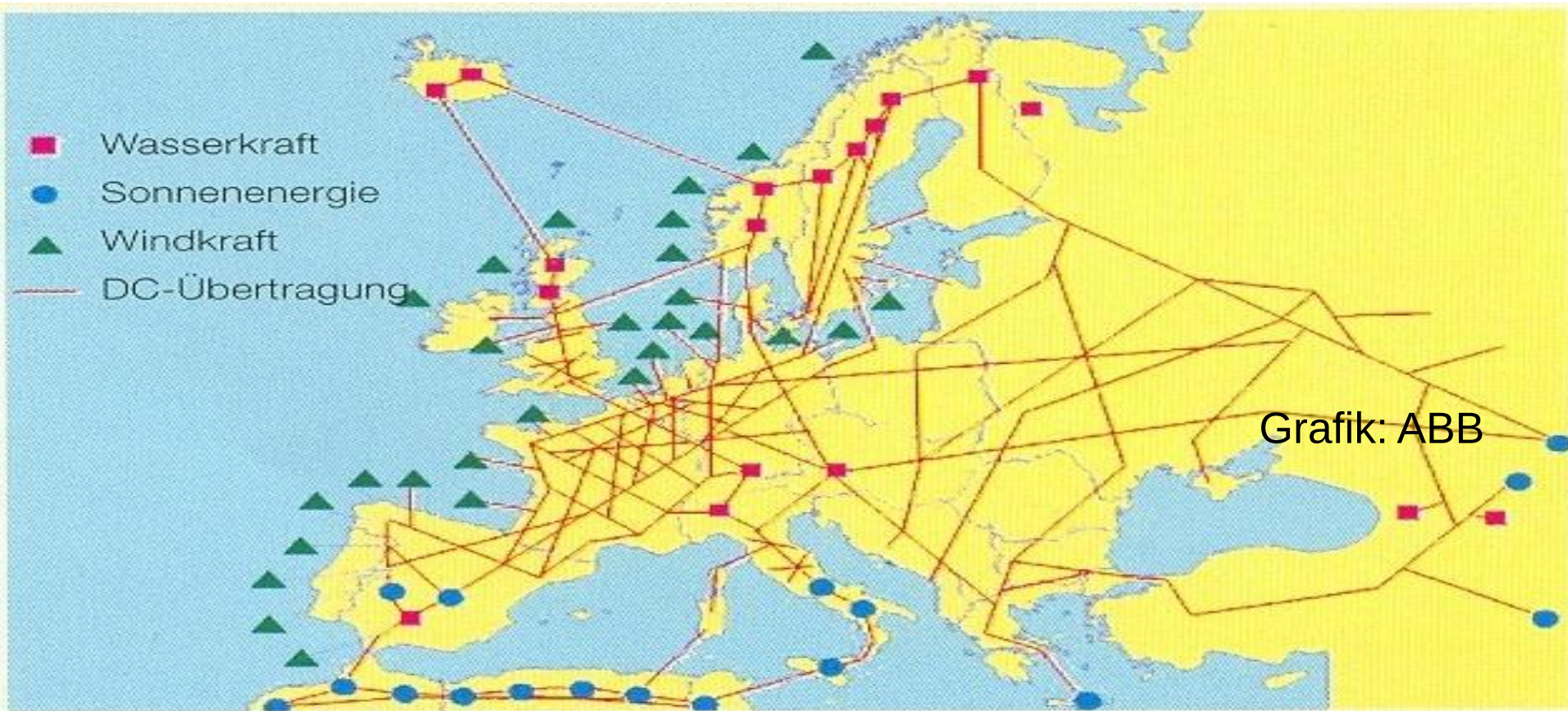
potential of renewable energies



ENERGIEWÜRFEL

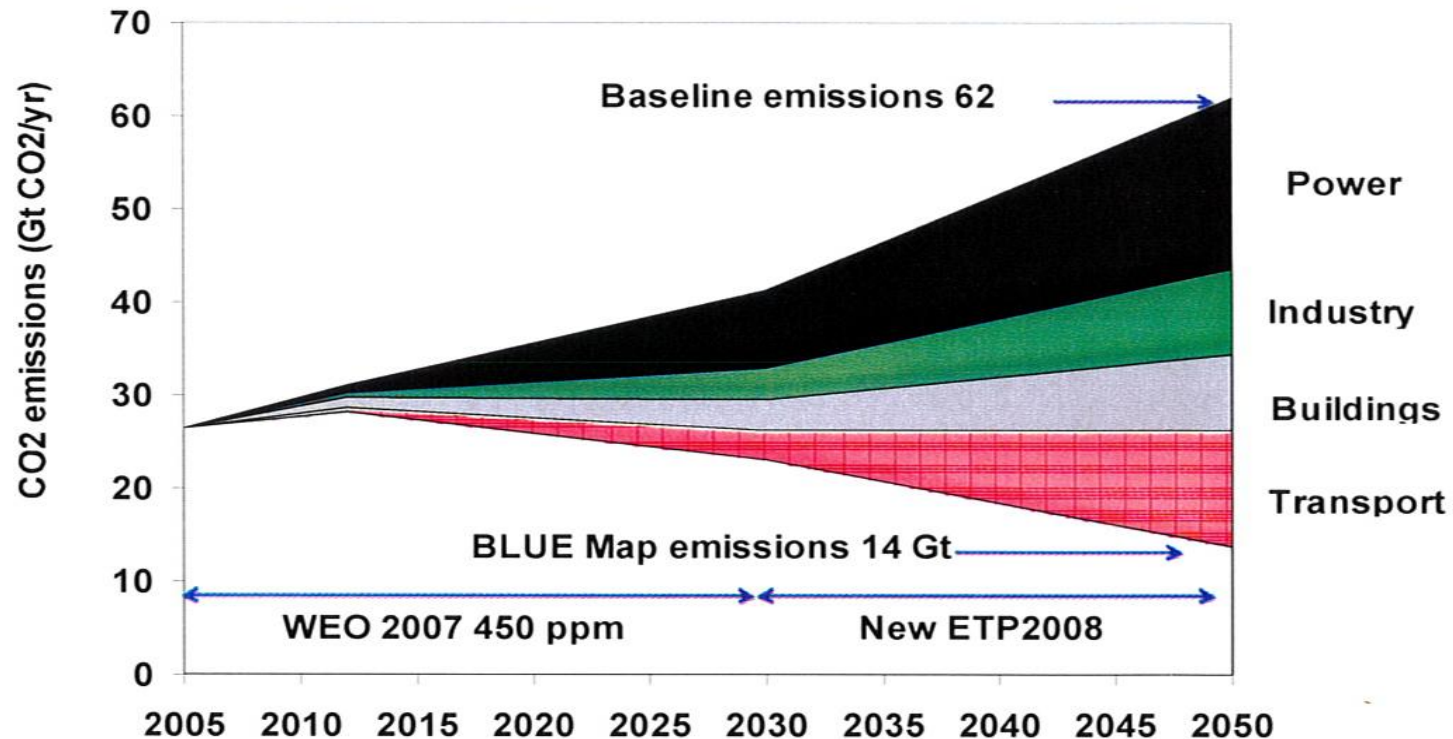
Die jährliche Sonneneinstrahlung übertrifft den Energieverbrauch und sämtliche Energiereserven um ein Vielfaches.

The future is electric and renewable!

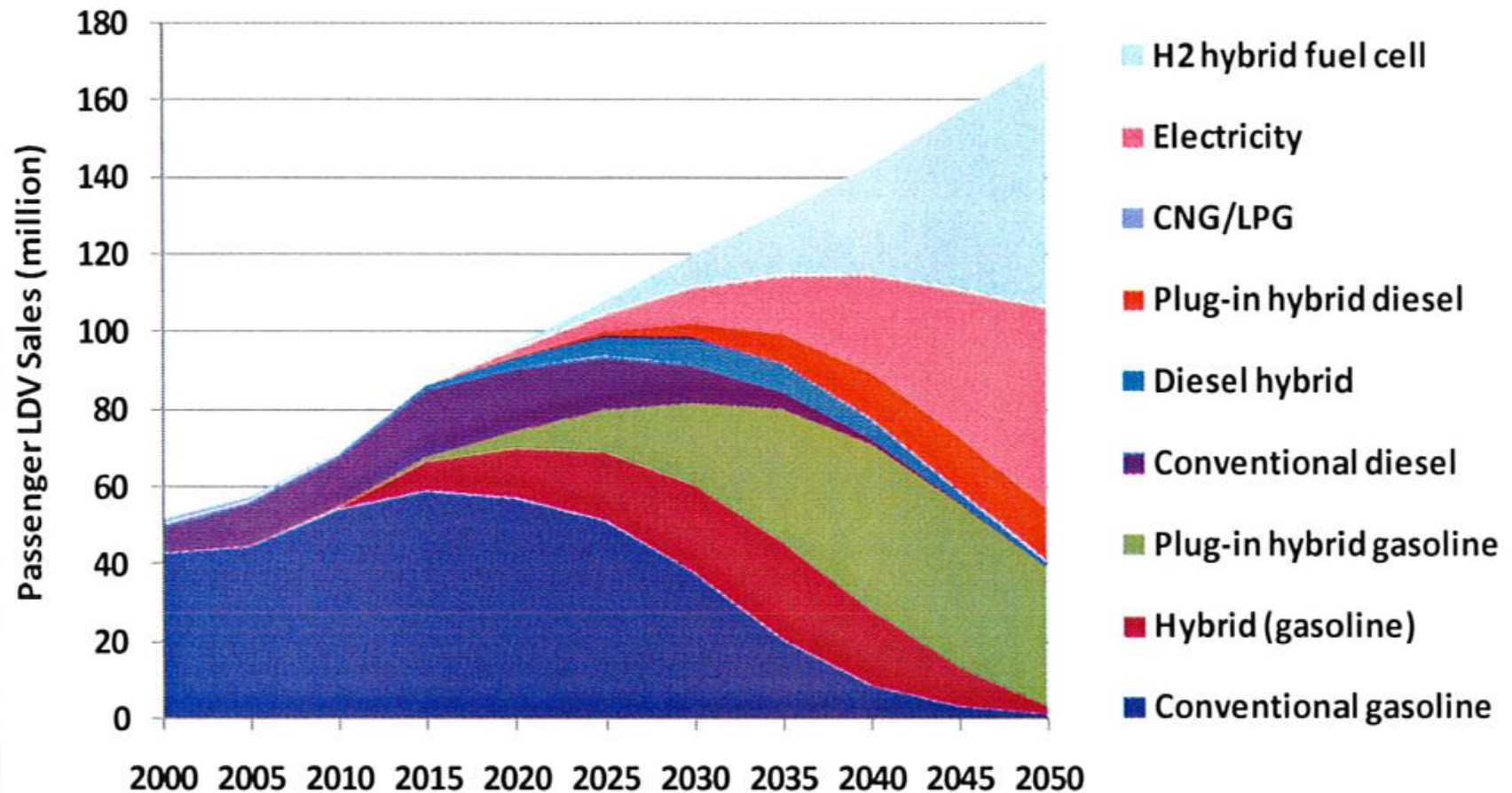


100% production with hydro-/ solar- and wind energy

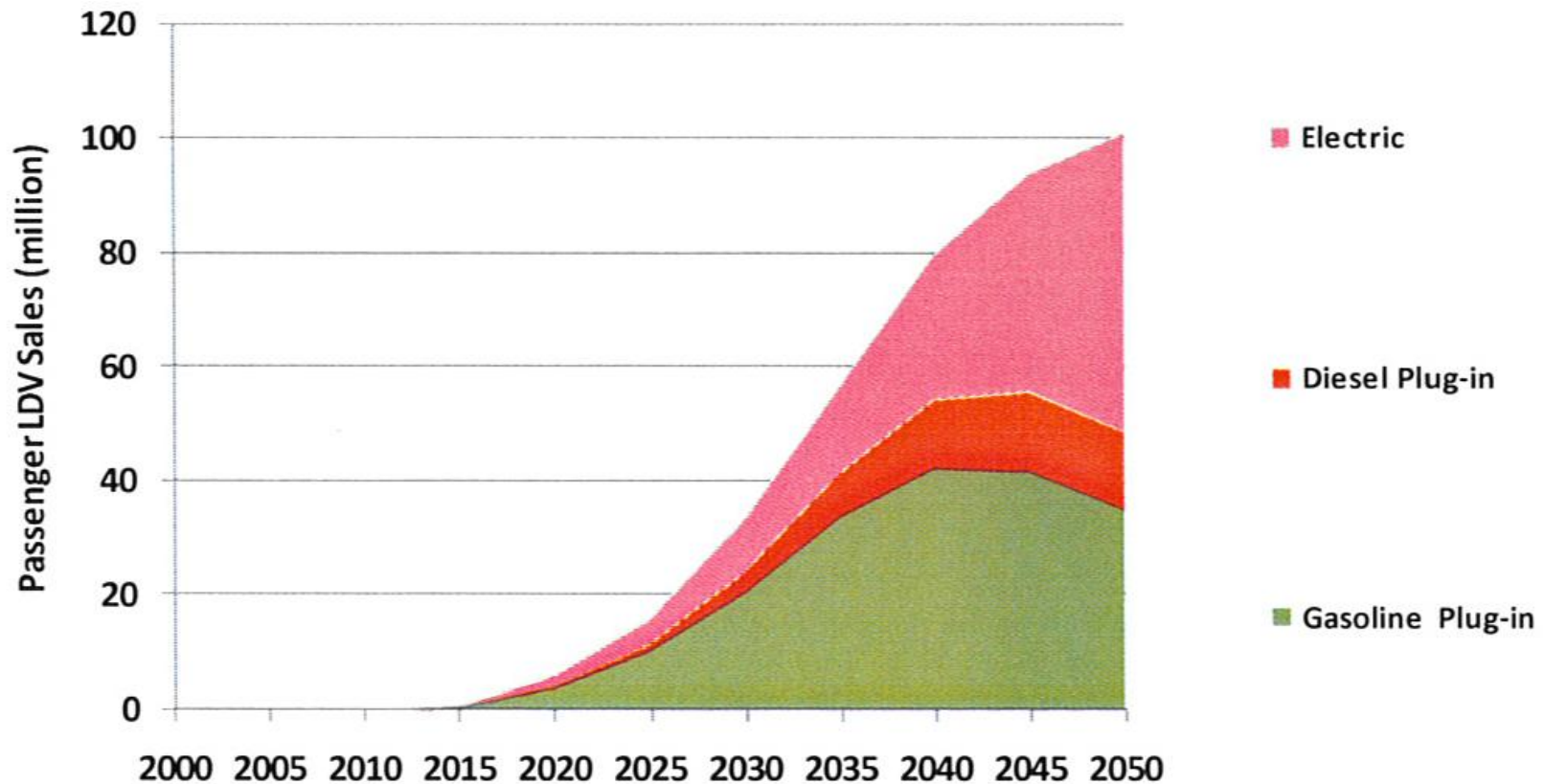
IEA roadmap: 50% CO2 needed!



Scenario Blue: advanced technologies are important



Blue EV/ HEV sales figures for 2050



Annual sales targets:

2020: 7 million: e.g. 70 models selling 100,000 each

2030: 30 million: e.g. 150 models selling 200,000 each

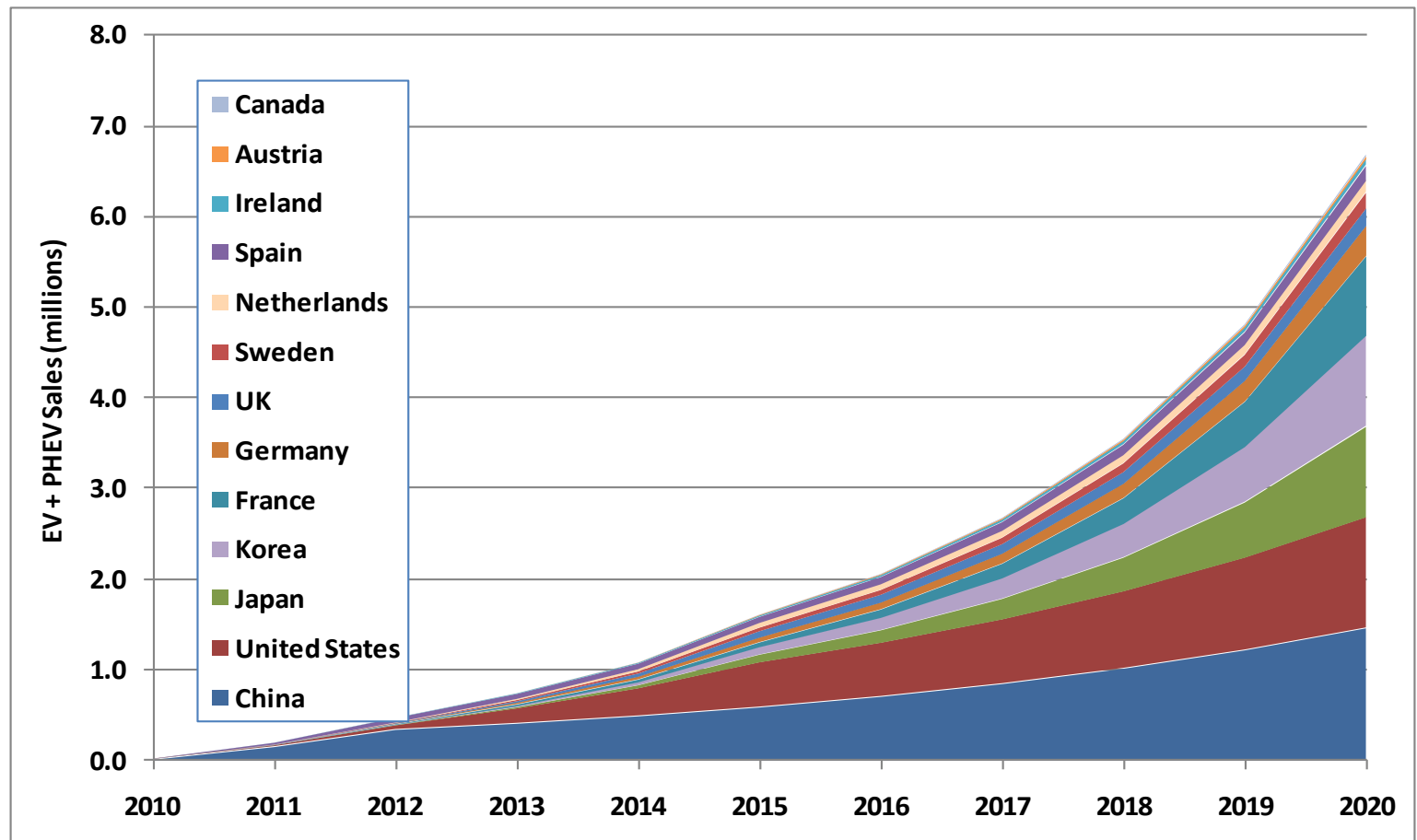
2050: 100 million: e.g. 400 models selling 250,000 each

Sales strategy up tp 2020

If a country as Germany has a goal of 1 million EVs in 2020 this says:

- 95% of users don't get an EV
 - Only 5% selected users get one
 - They can be selected very carefully
 - They don't need special charging stations
 - They don't need long range capabilities
- ➔ We need a lot of time for the ramp up of the market!
- ➔ This is needed to build up the industry and the user support!

Projected electric and plug-in hybrid vehicle sales through 2020, based on national targets



Strategy phase 4 (2009 - 2014)

Long term vision:

“The electric drive will be dominant in road vehicle propulsion in a future sustainable transport system that is preferable powered by renewable energy and that does not produce harmful emissions”.

Strategy phase 4 (2009 - 2014)

Strategic objectives (1):

1. Produce objective information for policy- and decision makers on HEV-technology, projects and programs, and their effects on energy efficiency and the environment.
2. Disseminate this information to the IEA community, national governments, industries and others.
3. Collaborate on pre-competitive research projects, and investigate the need for further research in promising areas.

Strategy phase 4 (2009 - 2014)

Strategic objectives (2):

4. Collaborate with transport related IAs, and with specific groups or committees.
5. Be a platform for reliable information on hybrid and electric vehicles.

Strategy phase 4 (2009 - 2014)

Membership in the IA HEV phase 4:

- Expanding the members to more than 20
- Include active European countries as Portugal, Spain, Ireland, Germany and the EC
- Include Asian countries as Japan, New Zealand, Australia, South Korea etc.
- At least one African member (SA)
- Searching collaboration with India, China etc.
- Collaboration with industry and research

Annexes in phase 4: 2009 -

- *Information Exchange (Annex I)*
- *Electrochemical Systems (Annex X)*
- **Electric Cycles (Annex XI)**
- **Hybrid Heavy Duty Vehicles (Annex XII)**
- Fuel Cells for Vehicles (Annex XIII): closed november 010
- **Lessons Learned (follow-up; Annex XIV)**
- *Plug-In-Hybrid Vehicles (Annex XV)*
- *Fuel and techn. Alternatives for buses (Annex XVI)*
- **New: “Annex XVII Components for BEV”**
- **New: “Annex XVIII EV-readiness forum”**
- **Prep.: “Annex XIX Accelerated testing of li-batteries”**
- **Prep.: “Annex XX “e-waste”**

Contributing to country objectives

Actual and potential IEA-HEV member countries such as UK, Switzerland, China, Germany, Ireland and Portugal have governmental programmes with EV fleet number goals for the coming years

‘What should governments do to reach these goals ?’ is topic of the **new Annex XVIII “EV-readiness forum”**! The new IEA “Electric Vehicle Forum (EVI)” fits into this field!

Thank you for your attention

Saving Energy by Electric Bicycles



Commuting 2 x 10 km per day with a E-Bike instead of a ICEV saves 2'000 l (equivalent to about 20'000 kWh) gasoline in 8 years. This energy can be produced by a 60 Wp PV-module in middle Europe (picture Muntwyler 1998)