



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Transforming Germany's Energy System

Climate Change and Renewable Energy Policy

Daniel Argyropoulos

Federal Ministry for the Environment, Nature Conservation
and Nuclear Safety

Germany



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Structure of the presentation

- National climate protection policies
- Promotion of renewable energies in Germany
- International policies for renewable energies



Some climate change targets

Short term:

- Kyoto target for Germany 21% GHG reduction by 2008/12 compared to 1990

Medium term:

- Doubling energy and resource productivity by 2020 compared to 1990
- Germany minus 40 % GHG reduction by 2020
- European Council March 2005: minus 15-30 % GHG reduction for all industrialized countries by 2020

Long term:

- EU Environment Council March 2005: 60% - 80 % GHG reduction for all industrialized countries by 2050



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

National Implementation of the Kyoto Protocol

- Germany already reduced its greenhouse gas emissions by 18.5 % in 2003 based on 1990 levels
- Kyoto target – reduction of 21 % - has almost been achieved already, but additional measures are required:
- Introduction of emissions trading scheme on 1 January 2005
 - Specification of binding reduction limits for industry and the energy sector
 - Around 58 % of CO₂ emissions are covered by ET
- Reduced GHG emissions from the transport sector: decrease of 8.1% since introduction of the eco-tax in 1999



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Energy Policies for Climate Protection

German climate protection policy is based on 3 pillars

- Increasing energy efficiency
- Energy saving
- Increasing the use of renewable energies
 - » Electricity
 - » Heat
 - » Transport



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Promotion of renewable energies in Germany



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

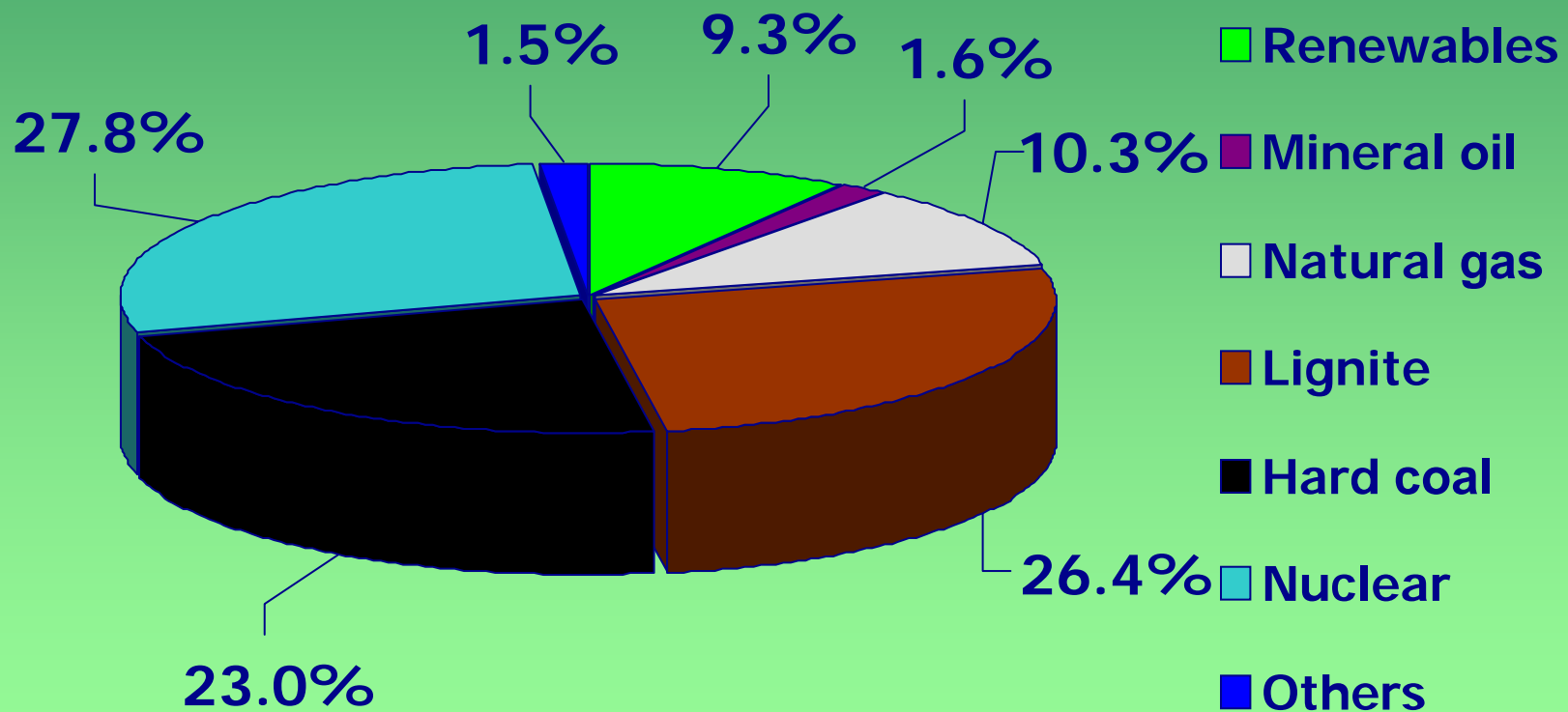
Forsa Survey April 2005

- 62 % are in favour of an increased promotion of RE
- 25 % would like to keep existing promotion of RE
- 4 % wish to decrease or skip promotion of RE



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

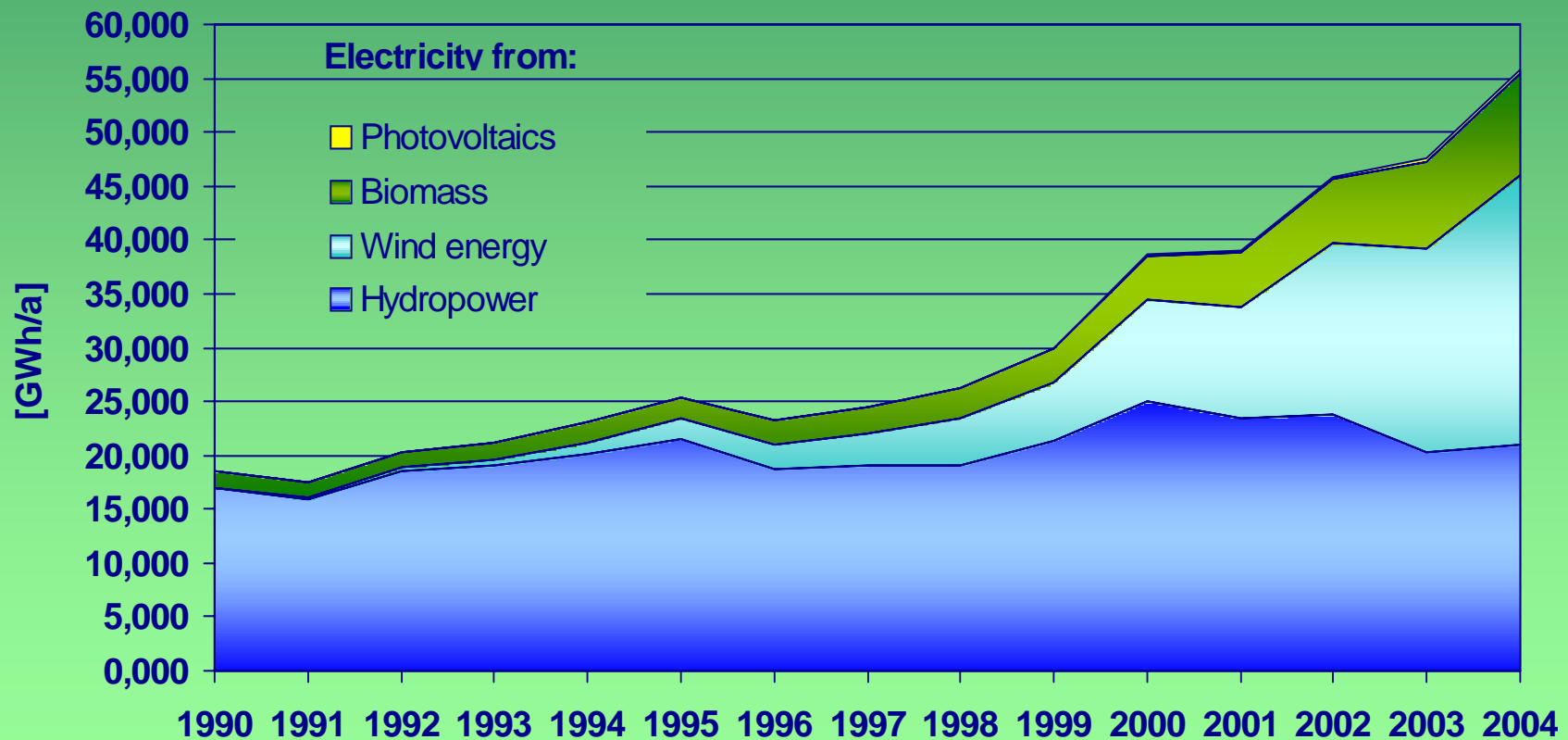
Germany - Electricity generation in 2004





Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

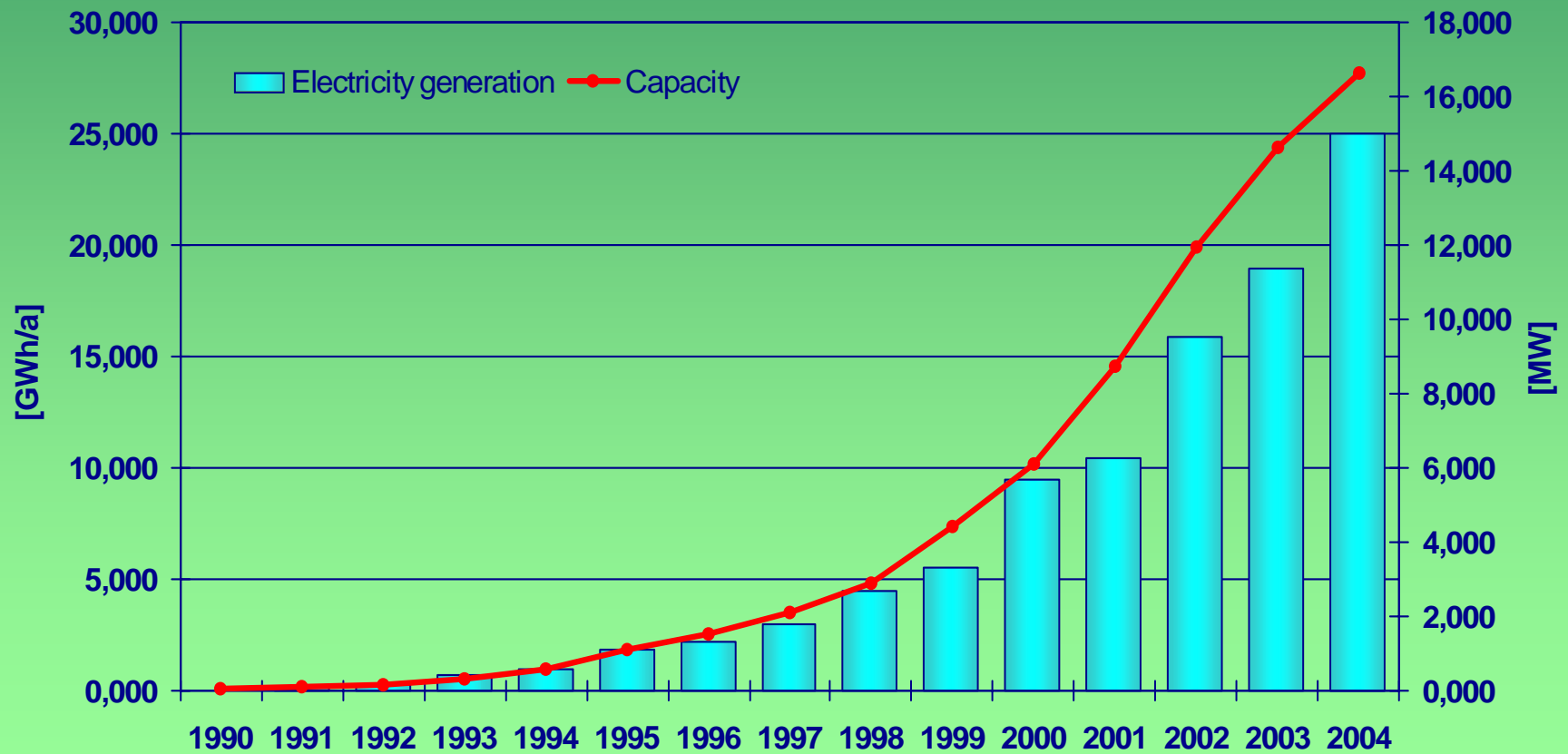
Development of German RE Electricity Generation





Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

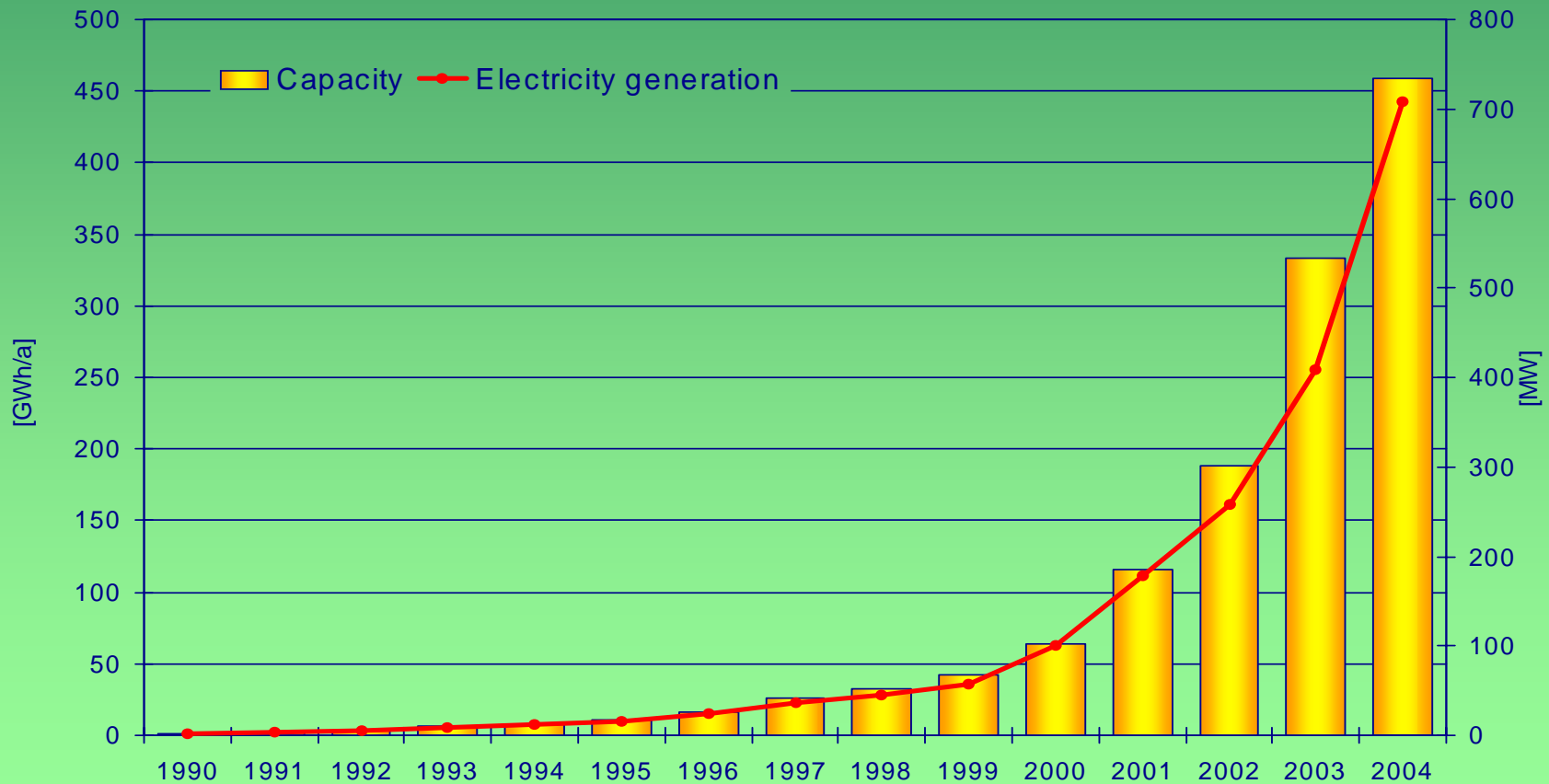
Development of Wind Energy Capacities





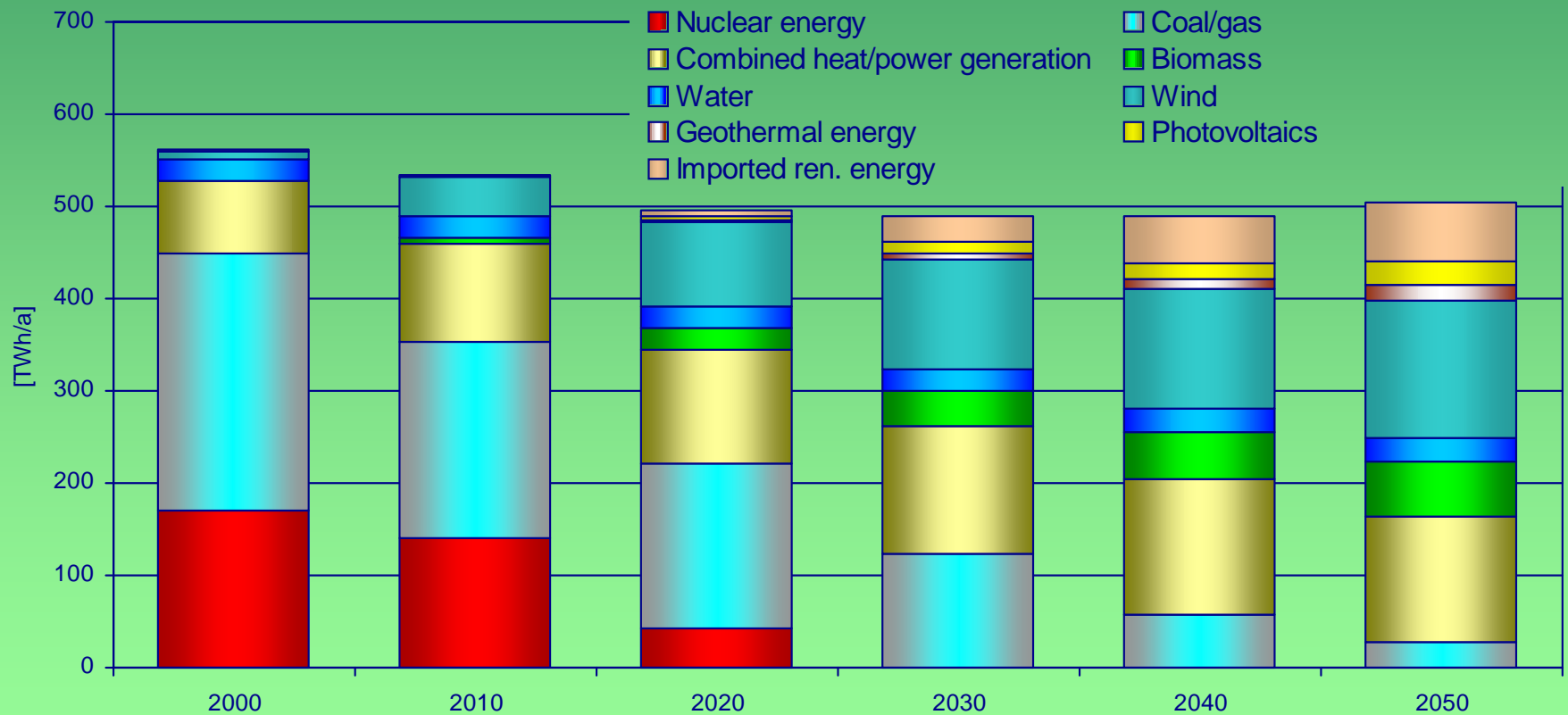
Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Development of Photovoltaics





Scenario up to 2050 – electricity



Quelle: Fischeidick, Nitsch u.a



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Instruments

- Market Incentive Programme
 - > *Grants and loans*
- Tax Reduction for Biofuels
- Research and Development
- Renewable Energy Sources Act (EEG)
 - > *Feed-in guarantee*

Main Features of the EEG (I)

- Priority access for RE to the power grid
- Priority transmission and distribution
- Obligation of grid operators to purchase the electricity produced from RE
- Fixed price ('tariff') for every kilowatt hour produced from RE for in general 20 years



Main Features of the EEG (II)

- Equalisation of additional costs for electricity from RE between all grid operators and electricity suppliers
- All different types of RE are considered and differentiated by source and size of the plant
- Annual decrease of the tariff due to technical development (*degression*)
- Investors are individuals (e.g. farmers), professional investors, the federal, state or community level



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Feed-in tariffs under EEG for 2005

	2004 (Cent/kWh)	Degression (%/a)
Hydropower	6.65-9.67	0
Biomass (<20MW)	8.27-17.33	1.5
Geothermal Energy (<20MW)	7.16-15.00	1.0
Wind energy (onshore)	5.39-8.53	2.0
Wind energy (offshore)	6.19-9.10	2.0
Solar energy	43.42-59.53	5.0



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Achievements in the field of renewable energies in 2004

- Share of RE in power production: ca. 10 % in 2004
[1998: 4.7%]
- 130 000 additional jobs
- 11.5 Billion Euro turnover
- 70 Mio. tons of CO₂ reduction



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

International policies for renewable energies

Main outcome:

- Political Declaration
- Policy Recommendations for Renewable Energies
- International Action Programme (IAP)

Message:

- *Share vision* that RE will become a most important, widely available source of energy
- *Commitment* to halve proportion of people living in poverty and to give access up to 1 billion people from RE by 2015
- Underlines the need for coherent *regulatory and policy frameworks*, finance, strengthened human and institutional capacities, targeted research and development in order to create a market.
- Adopted in consensus by 154 countries and outlines principles of a follow-up process



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Impact of the International Action Plan (IAP)



Internationale Konferenz
für Erneuerbare Energien, Bonn
International Conference
for Renewable Energies, Bonn

- About 200 actions and commitments from governments, IOs and IFIs, regional associations, private sector, NGOs were contributed

If fully implemented, this will result by 2015 in:

- an estimated CO₂-reductions of 1.2 billion tons/year (around 5% of global CO₂-emissions)
- access to energy for an additional 300 million people
- 163 GW additional installed electrical capacity from renewable energies
- investments at the level of USD 326 billion



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Top 10 IAP Actions & commitments



Internationale Konferenz
für Erneuerbare Energien, Bonn
International Conference
for Renewable Energies, Bonn

Rank	Description of the Action	CO2 Reduction [million t/a]
1	China - Renewable Energy Development Strategy and Plan until 2010	813
2	Mexico - Renewable Energy Target for 2014	66
3	Germany - Renewable Energy Target for 2020	42
4	European Investment Bank (EIB) – RE Loan Target and Climate Facility	18
5	USA - Renewable Energy Production Tax Credit	14
6	Brazil - PROINFA and “Light for All” Projects	13
7	Philippines - Renewable Energy Target for 2013	10
8	Australia - Renewable Energy Target for 2010/2020	9
9	Japan - Renewable Portfolio Standard Law	8
10	South Africa - Renewable Energy Target for 2013	8



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Beijing International Renewable Energy Conference 2005

The Great Hall of the People, Beijing, China
November 7 - 8, 2005



Sessions of the „main track“:

1. Global Status and Trend of RE Development
2. Ministerial High Level Segment: Success Stories, Challenges
3. Options for Review Arrangements
4. International Cooperation for Increase of Renewable Energy Use, Particularly in Developing Countries
5. Multi-Stakeholder Dialogue
6. Adoption of Beijing Declaration

+ Business Forum:

Financing; CEO-Meeting; South-South Cooperation; Technology



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Beijing International Renewable Energy Conference 2005

The Great Hall of the People, Beijing, China
November 7 - 8, 2005



Expected results:

Beijing Declaration giving further advice on international cooperation on renewables; in particular:

- Cooperation with developing countries – means of support, financial assistance, technology transfer, capacity building
- Input to the CSD 14/15, encourage further actions, consider and give advice to an effective review arrangement



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Thank you very much for
your attention !