

*Germany 2003*



# **The Brazilian Energy Initiative Perspectives after Johannesburg**

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# WSSD 2002

- 28 Aug - 4 Sept
- assessment of results of the Agenda 21 implementation (Rio 1992)
- more than 170 countries
- addressing the Millenium Goals
  - social exclusion eradication
  - poverty reduction and
  - environmental sustainability



# **The Brazilian Energy Initiative proposed at the WSSD**

*To increase the global share  
of renewable energy  
to 10% by 2010*

**A new policy paradigm: targets and timeframes**  
aiming at governmental commitments to  
incentive the demand in order to increase the  
supply

# Proactive parts in Johannesburg

- EU: a 12% target by 2012 (Directive 2001/77/EC)
- Brazil, Latin America and Caribbean: 10% of renewables by 2010

## **Latin America and the Caribbean**

***“Increase in the region the use of renewable energy to 10% as a share of total by 2010”***

*(Draft of the Final Report of the 7th Meeting of the Intersessional Committee of the Forum of Ministers of Environment of Latin America and the Caribbean, May 17, 2002)*

## European Community

*“The strategy and action plan in this White Paper therefore, are directed towards the goal of achieving a 12% penetration of renewables in the Union by 2010 - an ambitious but realistic objective.”*

*ENERGY FOR THE FUTURE: RENEWABLE SOURCES OF ENERGY. White Paper for a Community Strategy and Action Plan COM(97)599 final (26/11/1997), p.10*

# Johannesburg Plan of Implementation

## Paragraph 19e

*“Diversify energy supply by developing advanced, cleaner, more efficient, affordable and cost-effective energy technologies, including fossil fuel technologies and renewable energy technologies, hydro included, and their transfer to developing countries on concessional terms as mutually agreed. With a sense of urgency, substantially increase the global share of renewable energy sources with the objective of increasing its contribution to total energy supply, recognizing the role of national and voluntary regional targets as well as initiatives, where they exist, and ensuring that energy policies are supportive to developing countries’ efforts to eradicate poverty, and regularly evaluate available data to review progress to this end;”*

# **Johannesburg Plan of Implementation**

## **Par. 19**

Recognizes:

- the urgency of substantially increasing the global share of renewable energy sources in the world's total energy supply;
- the role of national and voluntary regional as well as initiatives to that effect and
- the role of energy policies to eradicate poverty

# The Coalition of the Willing

*“The way forward on RE”*

- **a strong commitment subscribed by 77 countries** (as of Jan 2003): the EU15, EU Candidate Countries, Iceland, Norway, Switzerland, New Zealand, the Alliance of Small Island States, Argentina, Brazil, Chile, Uganda, Afghanistan, Bosnia-Herzegovina, Bolivia, DR of Congo, FYR (Yugoslavia), Israel, Singapore

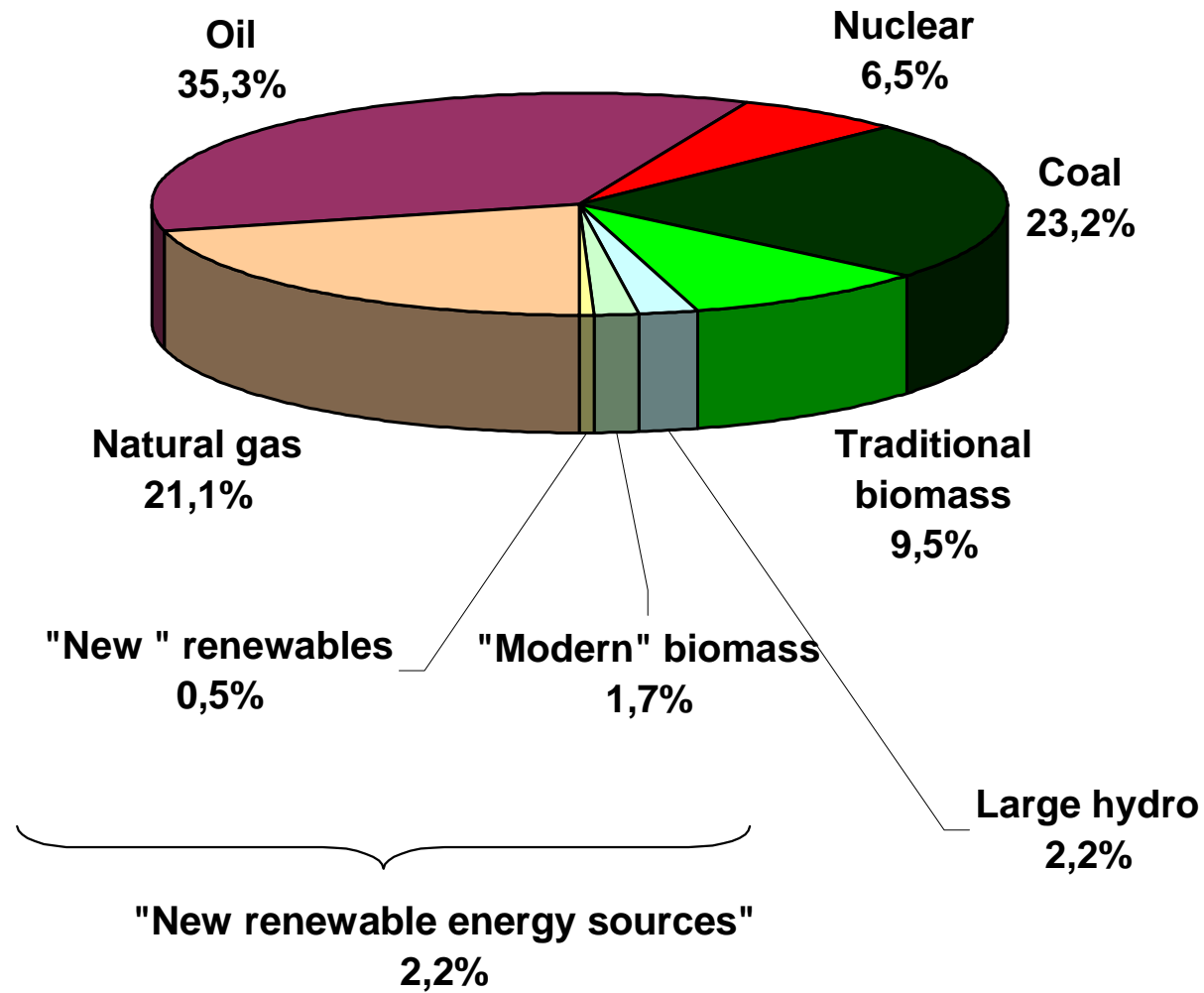
# Benefits of RE technologies

- diversifying energy carriers for the production of heat, fuels and electricity
- improving access to clean energy sources
- balancing the use of fossil fuels, saving them for other applications and the future generations
- increasing the flexibility of power systems as electricity demands changes
- reducing pollution and emissions from conventional energy systems
- reducing dependency and minimizing spending on imported fuels

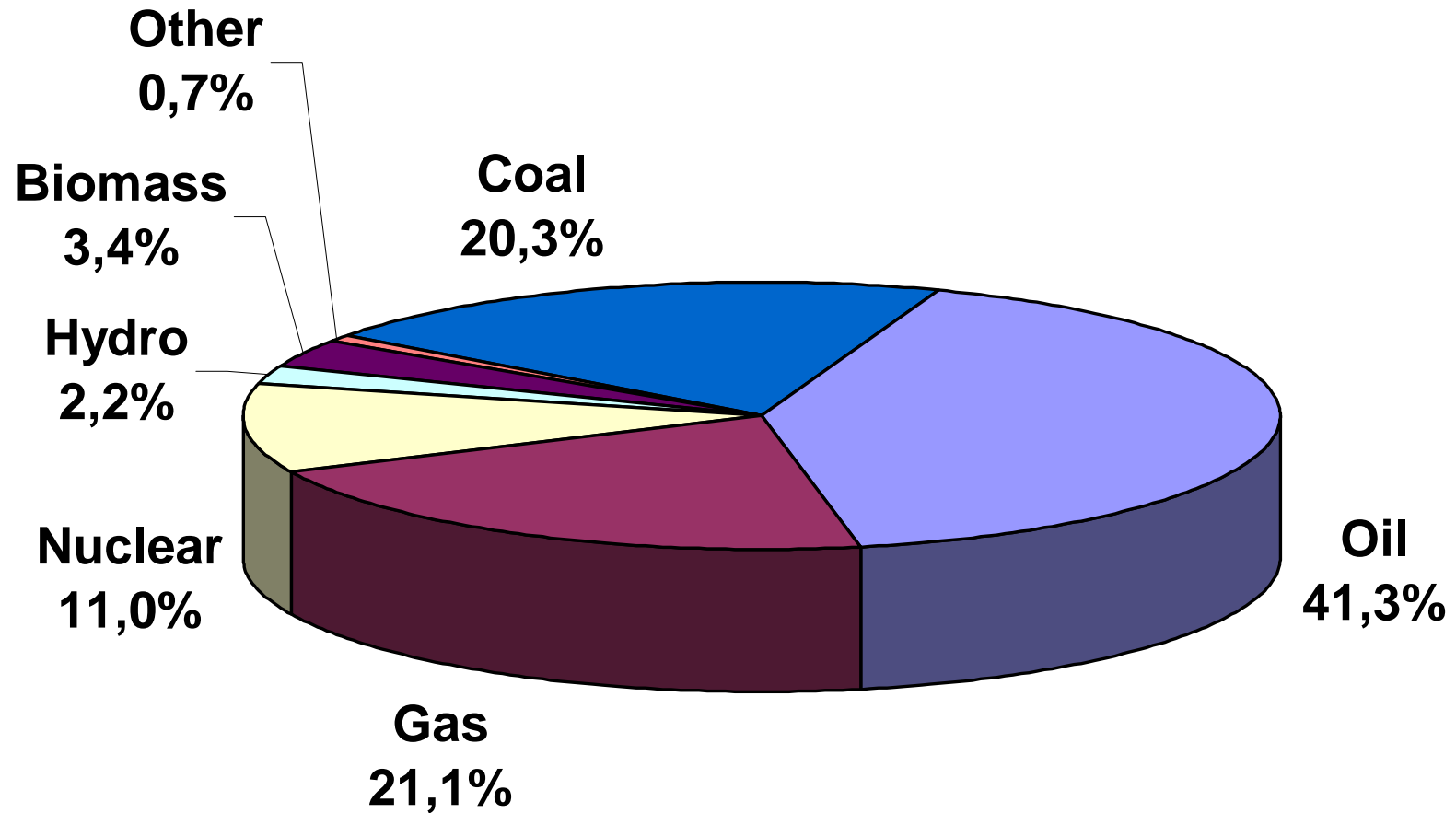
# Direct jobs in energy production

<b>Sector</b>	<b>Jobs (person-years/ Terawatt-hour)</b>
Petroleum	260
Offshore oil	265
Natural gas	250
Coal	370
Nuclear	75
Wood energy	1000
Hydro	250
Minihydro	120
Wind	918
Photovoltaics	76,000
Ethanol (from sugarcane)	4,000

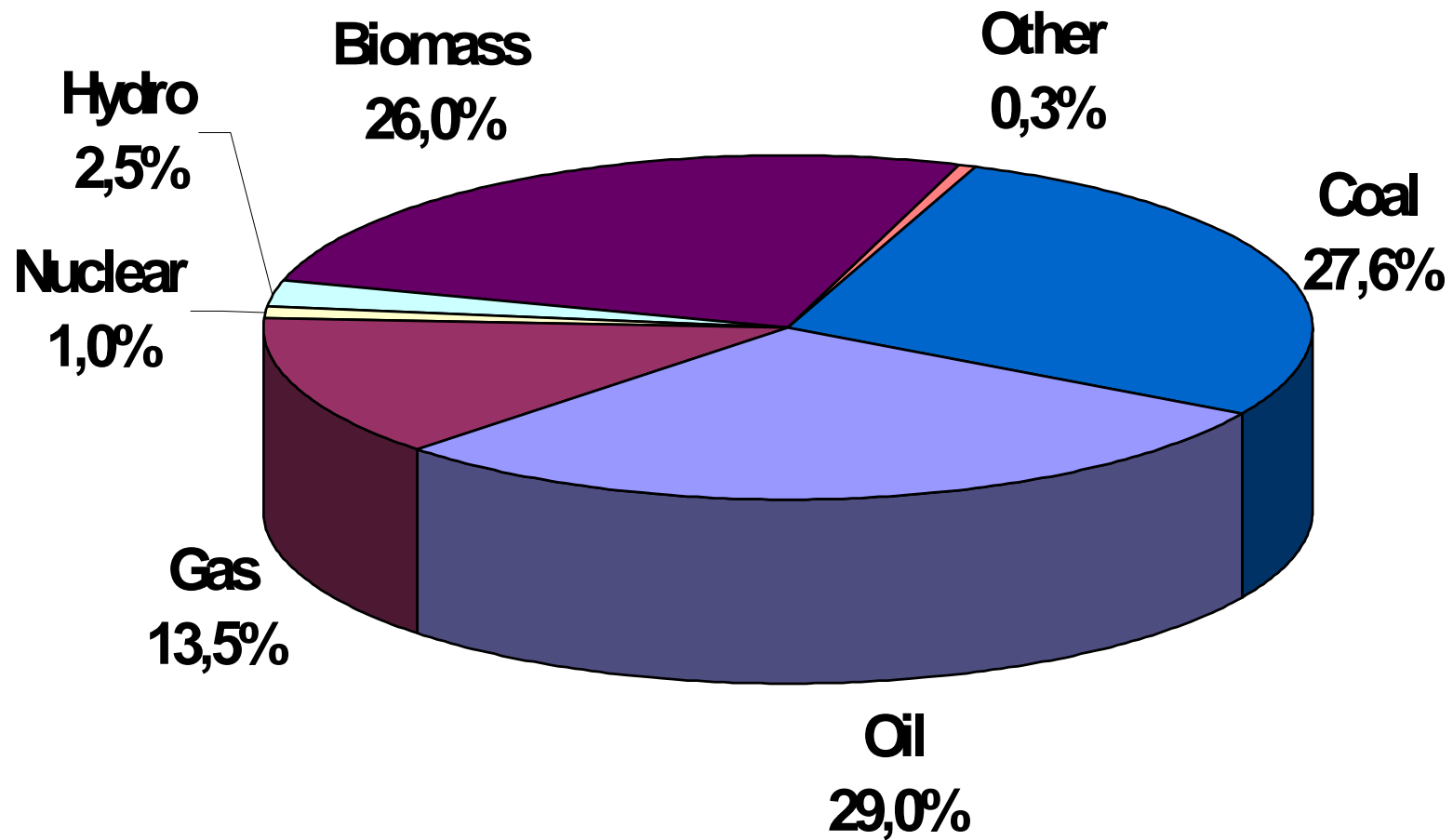
# World Consumption of Primary Energy and Renewables, by Energy Type, 1998



# OECD 2000



# Developing countries 2000



<b>Table 2</b>		
<b>Contribution new renewables to world primary energy consumption in the year 2001 *)</b>		
<b>Source/Technology</b>	<b>Contribution</b>	<b>Growth (%/Year)</b>
- <b>Modern biomass energy</b>	<b>~6.2</b>	<b>~3</b>
- <b>Geothermal energy</b>	<b>2.1</b>	<b>5</b>
- <b>Small hydropower</b>	<b>0.36</b>	<b>3</b>
- <b>Low-temperature solar heat</b>	<b>0.20</b>	<b>10</b>
- <b>Wind electricity</b>	<b>0.15</b>	<b>30</b>
- <b>Solar photovoltaic electricity</b>	<b>0.004</b>	<b>30</b>
- <b>Solar thermal electricity</b>	<b>0.004</b>	<b>3</b>
- <b>Marine energy</b>	<b>0.002</b>	<b>0</b>
<b>Total</b>	<b>~9.0 EJ</b>	<b>Weighted ave. Growth ~4%/year</b>

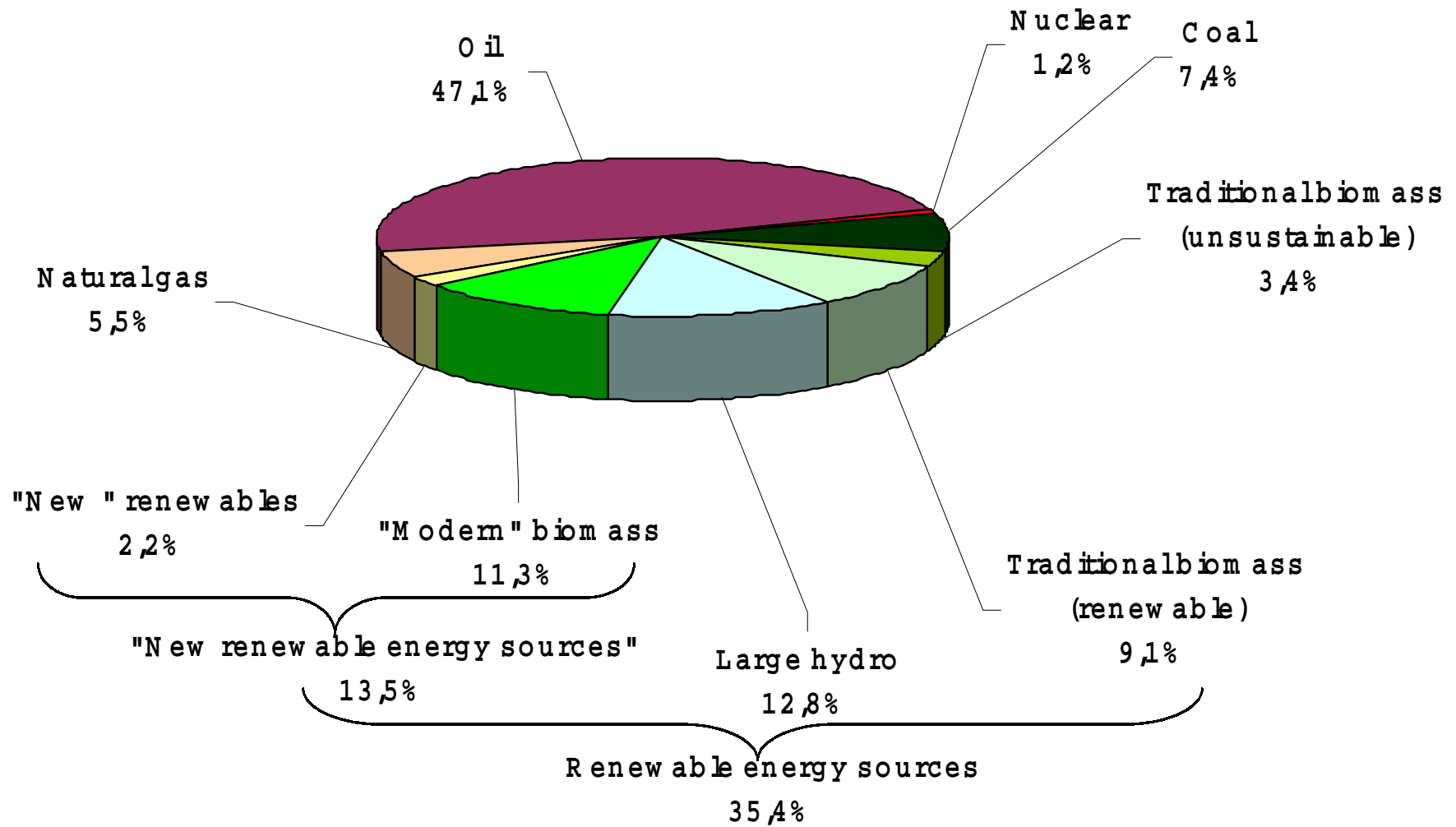
W.C. Turkenbourg, Utrecht University, The Netherlands, February 2003

\*) Assumed average conversion efficiency: for biomass heat 85 percent, biomass electricity 20 percent, biomass CHP 80 percent, geothermal electricity 10 percent, all others 100 percent

# Shares of RE in EU-15 inland energy consumption %

- Austria 23.2
- Belgium 1.3
- Denmark 10.6
- Finland 23.9
- France 6.7
- Germany 2.9
- Greece 5.0
- Ireland 1.8
- Italy 7.0
- Luxembourg 1.8
- Netherlands 2.1
- Portugal 13.0
- Spain 5.7
- Sweden 30.7
- UK 1.3 (including French hydro imports)
- EU-15 6.0

# Brazilian Total Primary Energy Supply, by Energy Type, 2000



# Basis: the Learning Curve

