



Changing the Way the World Makes Electricity

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Distributed Generation Conference
Sao Paulo, Brasil – 19/20 June 2002

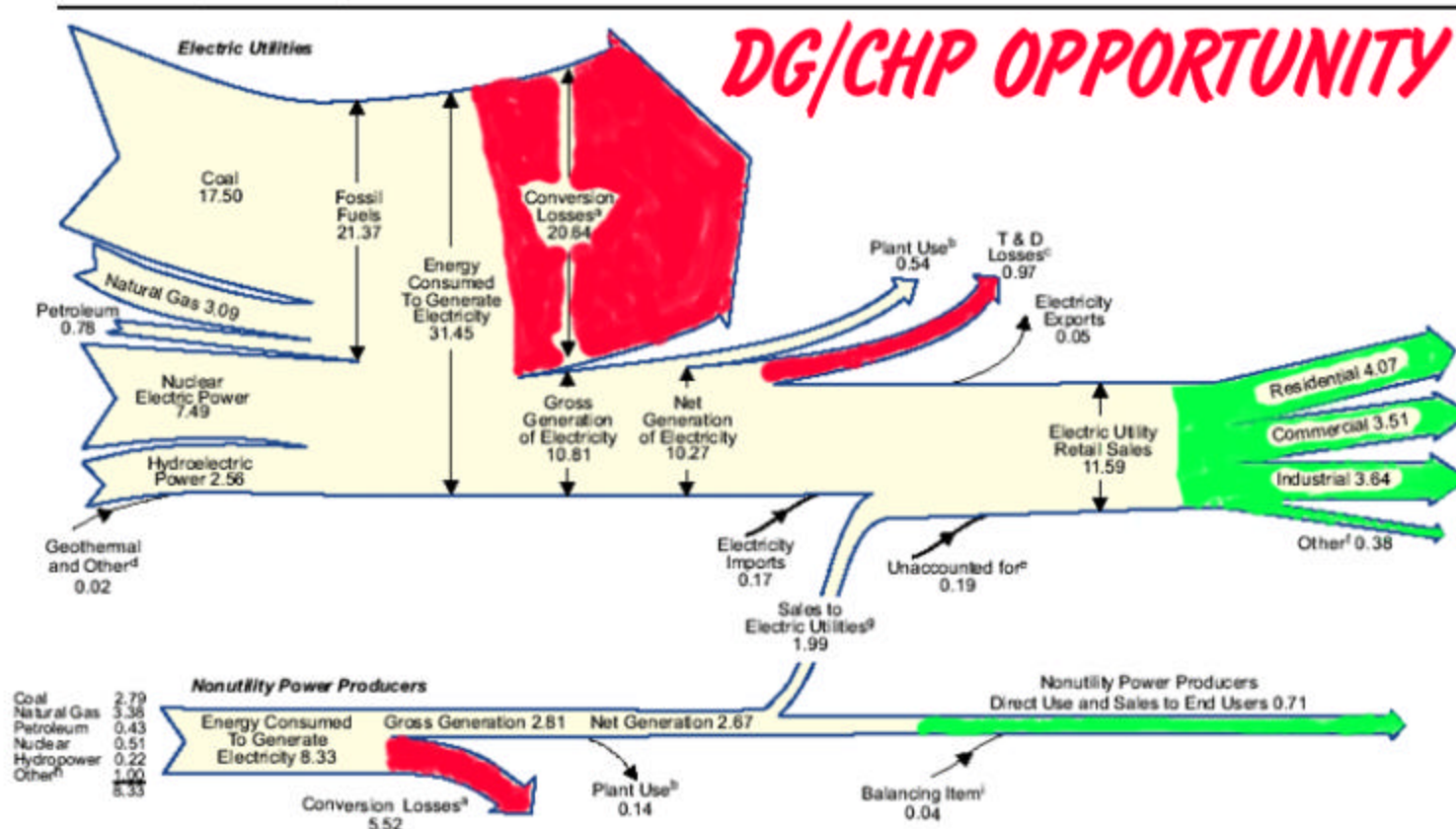
The World View is Changing

- The Earth is not flat
- Central power is not the best way to produce electricity

A Waste of Money - I

Diagram 5. Electricity Flow, 2000
(Quadrillion Btu)

From Energy Information Agency, USDOE, 2000 Annual Energy Review



A Waste of Money - II

- Worldwide energy loss from transmission and distribution systems exceeds total electricity demand of Germany, UK and France (the 3rd, 4th and 5th largest economies in the world).
- US losses are 9.5% of electricity production
- Brasil?

A Waste of Money - III

- More central power is not the solution:
 - The most modern and efficient state-of-the-art CCGT power station wastes almost 50% of fuel input.
 - There is little spare T&D in developed countries and none in most developing countries
 - Central power and new T&D costs are 2 x those of new DE

Power Failure

- We have failed to be economically efficient
 - The world wastes \$400 billion/year for its heat and electricity
- We have failed to supply electricity to 2 billion people
- We have failed to provide secure supplies to the rest of US
- We have failed to stop energy systems ruining the environment

Why are we Failing?

- Because the Central Power Model is getting out of date:
 - Designed at a different time, under different conditions
 - Wastes 50-70% of fuel energy
 - Cannot provide high reliability/quality for critical loads
 - Too costly for provision of supply to regions without electricity
 - Less flexible than DE system
 - Vulnerable to system disruption/destruction

The World Alliance for Decentralized Energy

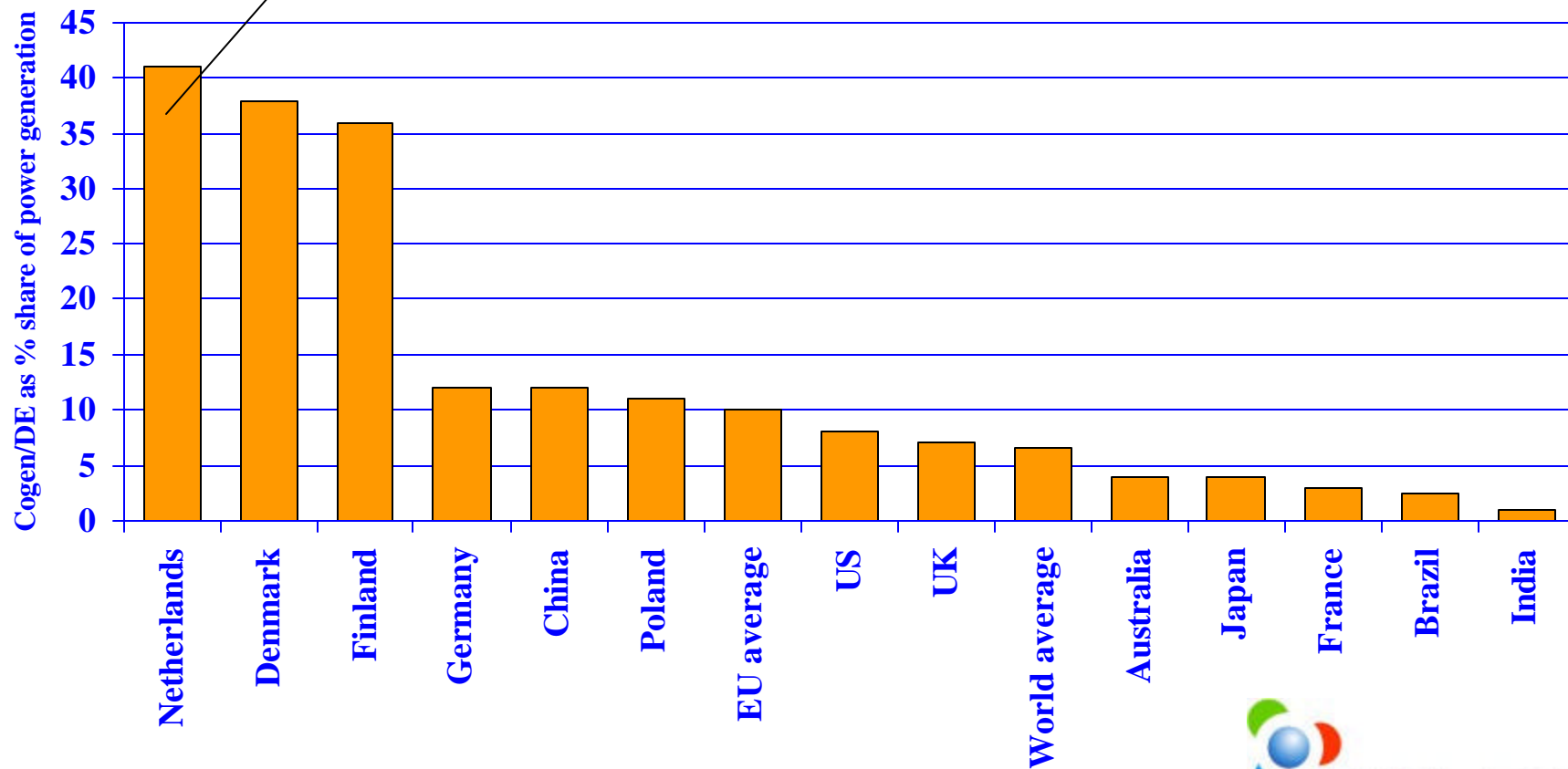
- WADE's goals:
 - To stop wasting money in power generation
 - To change the way the world makes electricity
 - To promote a competitive hybrid system of central power and DE
- WADE is supported by:
 - National cogen/DE organisations
 - Major cogen/DE companies
 - Eg Solar Turbines, Wartsila
 - Charitable foundations

What is Decentralized Energy?

- Electricity production *near the point of use*, irrespective of size or technology:
 - High efficiency cogeneration of heat and power – any size
 - Includes: Fuel cells, microturbines, Stirling engines, reciprocating engines, gas turbines, biomass, coal CHP,
 - Photovoltaic systems
 - Small hydro and on-site wind power

There is much to do ...

The most decentralized power system in the World



New World View

- Expose distribution and generation to competition
- Treat old and new players equally
- End all barriers to efficiency
 - Ensure fair and transparent grid access
 - Give economic benefit to reflect less T&D
 - Give all power companies a chance to fail
 - Give all power companies a right to charge what the market will bear and keep efficiency gains
 - Provide incentives to DE to overcome barriers

New World View in Action

WADE compiles worldwide information on examples of DE policy 'best practice':

- USA - Tax credits for cogen; Interconnection standardisation
- India - Soft loans for biomass cogen; Power purchase incentives
- Netherlands - Separation of power generation and distribution; Gas price incentives
- UK and Finland - Full electricity market opening with some DE benefits; Energy tax exemptions
- Brasil - ?
- **All these achievements are a direct result of work by the WADE network of national organisations**

WADE - 3 unique services

- Serves the worldwide Cogen/DE Network
 - Creating new national groups, eg India
 - Nurturing and supporting existing groups
 - Targets in train – Russia, Canada, Mexico, Nigeria, South America
- Provides direct advocacy to:
 - UNFCCC, World Bank Group, WSSD, IEA etc
 - Counterpoint to well-resourced power industry groups and the ‘status quo’
- Provides New Cogen/DE Resources:
 - Statistics, annual conference, worldwide policy best practice
 - Getting power sector reform right – analysis of impacts cogen/DE
 - Providing national cogen/DE market assessments of barriers and opportunities
 - Producing economic and environmental assessments of DE benefits
 - Free industry magazine – ‘Cogeneration & Onsite Power’: www.jxj.com

Effective National Organisations are Essential

