

26 January 2004

PRESS RELEASE

WADE ANNUAL DECENTRALIZED ENERGY SURVEY: GLOBAL DECENTRALIZED POWER GENERATION MARKET SHARE REMAINS STEADY AT 7%

**ELECTRICITY SYSTEM TRANSITION TO CENTRAL / DECENTRAL HYBRID
APPEARS NOT YET TO HAVE STARTED**

**2001 / 2003 GROWTH IN U.S. MARKET OFFSET BY SLUGGISH EUROPE AND
NON-OECD. THIS PATTERN MAY NOW BE REVERSING**

SIGNS OF 'GREEN SHOOTS' IN EUROPEAN / EMERGING MARKETS

According to WADE's latest annual DE market assessment, the *World Survey of Decentralized Energy – 2004*, published today, the overall share of DE¹ in global power generation remained steady at 7% during the period covered by the survey, January 2001 – January 2003.

The long discussed, and expected, transition from a central power model to a 'hybrid' central-DE model appears not yet to have started. This is largely a consequence of persistent electricity market regulatory frameworks that incentivise the central power model of generation and supply – despite WADE's contention that DE deployment delivers substantial cost and environmental benefits.

The survey, based in large part on market information provided by WADE members, also concluded activity in one of the main demand growth areas, North America, where DE market growth was relatively strong, was offset by the poor market activity in Europe and many non-OECD countries.

WADE's research concludes that the world DE market grew by around 21 GWe during the two year period. This is equivalent to an annualised growth rate of 2.4% that mirrors the world power market as a whole.

¹ Defined in the attached Notes to Editors

Anecdotal feedback from WADE members during the latter part of 2003, together with a parallel strengthening of some important market drivers in 2003, suggests that the DE market share may now be increasing, with European and non-OECD markets showing some promise. WADE's goal is to bring about a doubling of market share to 14% by 2012.

By far the greatest part of the DE market is the high efficiency cogeneration sector, whose performance dominates the survey findings. The PV sector, for example, continues to enjoy very high global growth rates but its share of the overall DE market remains at less than 3%.

WADE identifies four emerging drivers that it believes can enable the DE share to climb above 7%, and progress towards the 14% target by 2012:

- The role of DE in reducing vulnerability to blackouts, brownouts and terrorist disruption – both at the level of the system and of individual consumers.
- The role of DE in substantially reducing the need for massive capital investment in T&D networks in both non-OECD and OECD countries.
- The role of cogeneration in maximising the efficient use of natural gas.
- The role of DE in reducing CO₂ emissions, and the potential commercial value of these reductions in many countries.

The achievement of the 14% target, an installed capacity of around 650 GWe compared to today's figure of around 250 GWe, would suggest an annual DE investment flow of \$60 billion compared to today's figure of \$10 billion – a six-fold increase requiring a year-on-year increase of 25%.

WADE also highlights two of the most important challenges to DE market share growth:

- Continuing power market regulatory frameworks that accommodate and incentivise central power development, even though it will usually not be the more cost-effective or environmentally sustainable option.
- High and / or volatile natural gas prices.

For more information, please contact:

Michael Brown, Director, WADE:
michael.brown@localpower.org; +44 131 625 3333

Tom Casten, Chairman, WADE:
tcasten@primaryenergy.com; +1 630 371 0505

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NOTES FOR EDITORS:

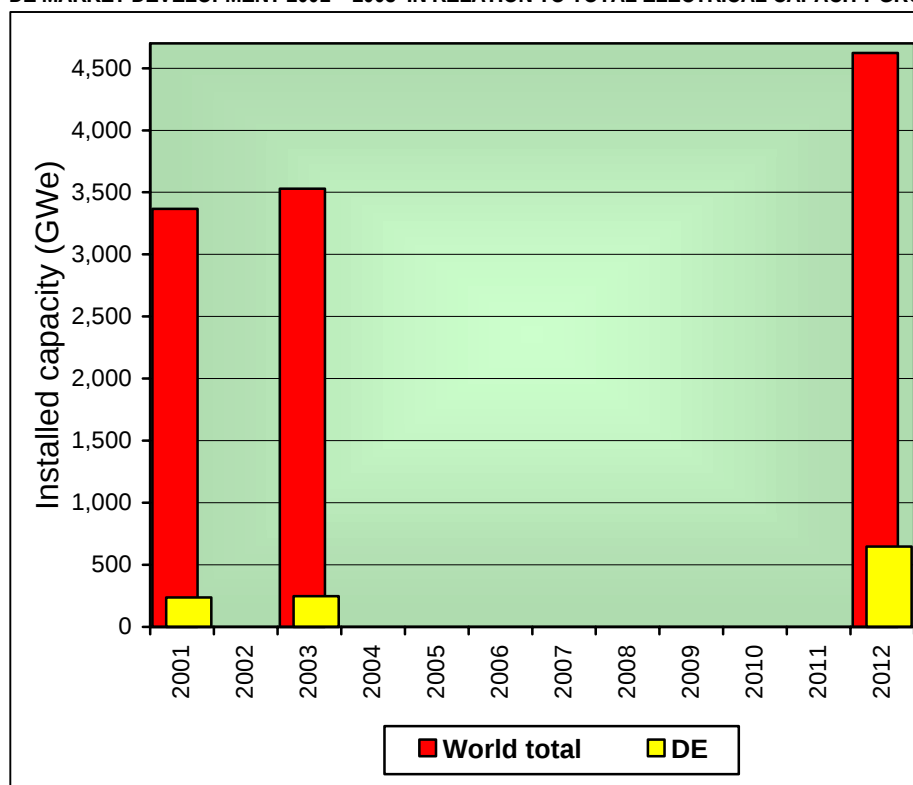
SURVEY HIGHLIGHTS

1. The share of decentralized power generation in the world market remains at around 7% - unchanged between 2001 and 2003. The long discussed, and expected, transition from a central power model to a 'hybrid' central-DE model appears not yet to have started.
2. Installed DE capacity stood at around 247 GWe at the beginning of 2003, the great proportion of this consisting of high efficiency cogeneration systems.
3. Around 21 GWe of DE capacity was added worldwide during the two year period worldwide between 2001 and 2003, most of this being cogeneration. Of renewable DE systems, the most reliable data relates to PV installation – it is estimated that around 950 MWe was installed during the period. Unlike the cogeneration market, PV industry growth rates remain very high.
4. The US cogeneration market grew significantly up to 2002 but has since slowed sharply in the face of high gas prices and persistent regulatory barriers. The European cogeneration market has been flat for at least four years. With both of these major markets being flat since 2002, the industry has had one of its worst ever periods.
5. At the end of 2003, the European market was showing the first signs of new activity after almost five years of low / no growth. The EU Emissions Trading Scheme and newly agreed cogeneration directive should reinforce this positive development.
6. The major blackouts of 2003, including those in North America and Italy, are bringing about major reviews of options to minimise such disruption in future. DE is able to reduce vulnerability to such outages, and to the threat of terrorist attack on power systems.
7. Some developing country markets are beginning to emerge, including China, Brazil and India – though hard data from these markets is not yet available.
8. Of major emerging markets, China is buoyant and prospects are good; India is catching up. With both countries introducing greater power market competition and reform, there is potential for substantial, or very substantial, DE development. New gas discoveries off the south-east coast of Brazil provide a very significant opportunity for new cogeneration investment in the São Paulo and Rio de Janeiro industrial / commercial regions.
9. As ever, future market prospects depend critically on the removal of electricity market regulatory barriers and of long-standing incentives / subsidies for central generation. With a small number of exceptions, these conditions remain largely in place worldwide.
10. WADE expects cogeneration growth to pick up in European and emerging markets in the short-term. The worldwide market for on-site renewable energy

remains very small but is growing rapidly on the back of various incentive programmes.

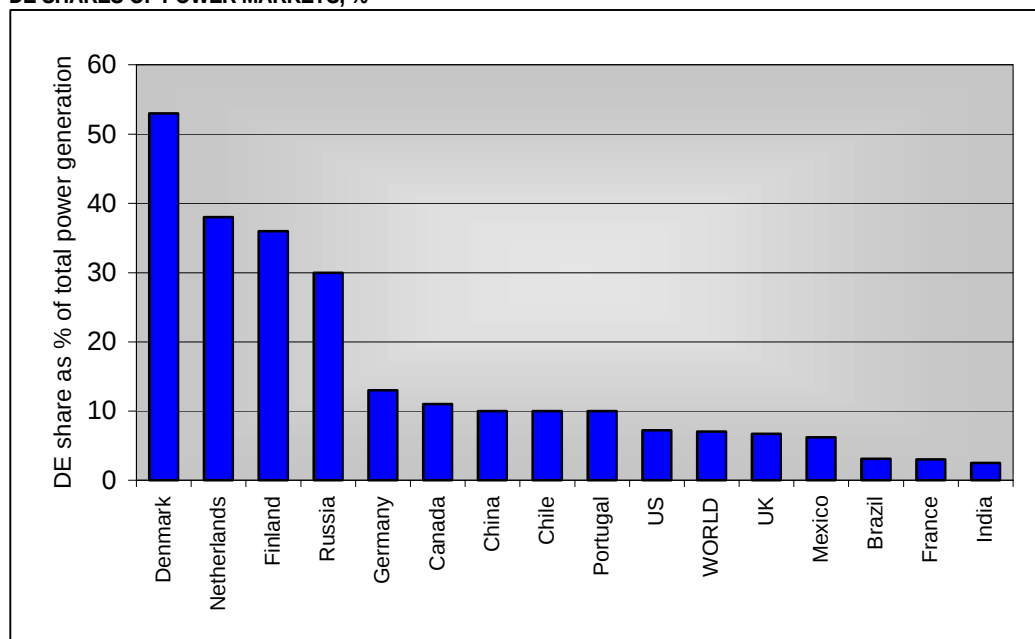
WADE SURVEY DATA

DE MARKET DEVELOPMENT 2001 – 2003 IN RELATION TO TOTAL ELECTRICAL CAPACITY GROWTH



WADE, 2004

DE SHARES OF POWER MARKETS, %



WADE, 2004

WADE & DECENTRALIZED ENERGY

WADE, the World Alliance for Decentralized Energy, is a non-profit organisation that was launched in June 2002 by a group of major companies and national industry associations to accelerate the development of decentralized energy (DE) systems worldwide. DE technologies consist of:

- High efficiency cogeneration/CHP
- On-site renewable energy systems
- Energy recycling systems, including the use of waste gases, waste heat and pressure drops to generate electricity on-site.

Such systems are classified as DE regardless of project size, fuel or technology, or whether the system is on-grid or off-grid.

Inefficient central power systems hold a 93% share of the world's electricity generation. The DE share is only 7%. WADE's overall mission is to bring about the doubling of this share to 14% by 2012.

WADE Membership and Support

WADE is supported by its member companies, by national DE associations, by national governments, the EU and the UN. Details of WADE members and membership benefits can be found at www.localpower.org.

Corporate members now include *Solar Turbines, Wärtsilä, Primary Energy, Caterpillar, MTU CFC Solutions, Centrax Gas Turbines, Marubeni, Cummins Power Generation, Rolls-Royce Bergen, Dalkia, Capstone Turbine Corporation* and *FuelCell Energy*. In total, WADE's direct and indirect membership support includes over 200 corporations around the world. Other financial support has been provided by the governments of Norway, the USA and Canada, and UNIDO.

WADE Objectives and Programmes

- To provide its Members and supporters with value added market intelligence, information and business opportunities;
- To bring about effective power sector reform which eliminates barriers to DE and creates real market opportunity for DE;
- To co-ordinate the creation and monetisation of high quality carbon credits from DE projects;
- To compile global data on all aspects of DE development;
- To support the establishment of DE groups in every country.

Why a balanced hybrid of central / decentralized power is better than a central power dominated model:

- The world's central fossil-fired plants cannot recycle by-product heat and thus waste about 70% of fuel energy. Total losses from the world's central plants are equivalent to global energy consumption by the transportation sector.
- State-of-the-art CCGT plants waste about 50% of energy input.
- Transmission and distribution (T&D) system losses are around 10% of global power supply. These losses are growing due to transmission congestion. Global T&D waste exceeds the combined annual electricity consumed by Germany, the UK, Spain and France.
- Economies of scale increasingly favour smaller plants. Decentralized electricity generation at or near users requires only half the capital of new central power generation plus new transmission and distribution, and DE plants can be substantially more efficient.
- Power failures due to T&D congestion are increasingly inevitable. Existing T&D wires in many countries are already loaded, but new networks are costly and unpopular.
- The central power model is more vulnerable to system disruption or destruction, including terrorist attack.