



“Wind is the new grass”

(Dr Brendan Halligan)

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All-island Seminar

Nuclear Free Local Authorities

Fingal County Council, Swords 7th June 2013



Contents

- A sustainable future
- Ireland has the right stuff
- Ireland can export far more than it uses
- Actions to make sustainable energy future possible



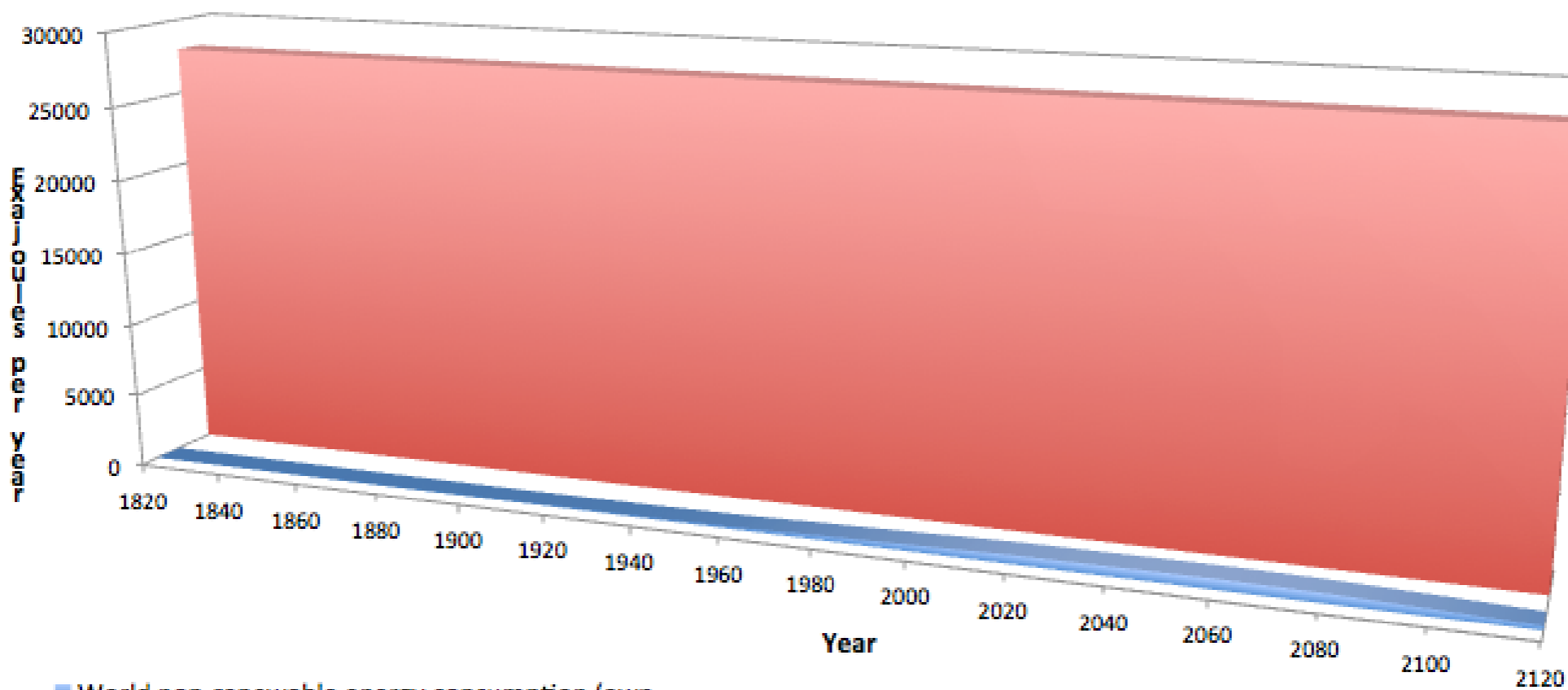


“The tragedy of our present civilization is that it became dependent on marginal energy sources. The marginal energy sources are fossil... and nuclear.”

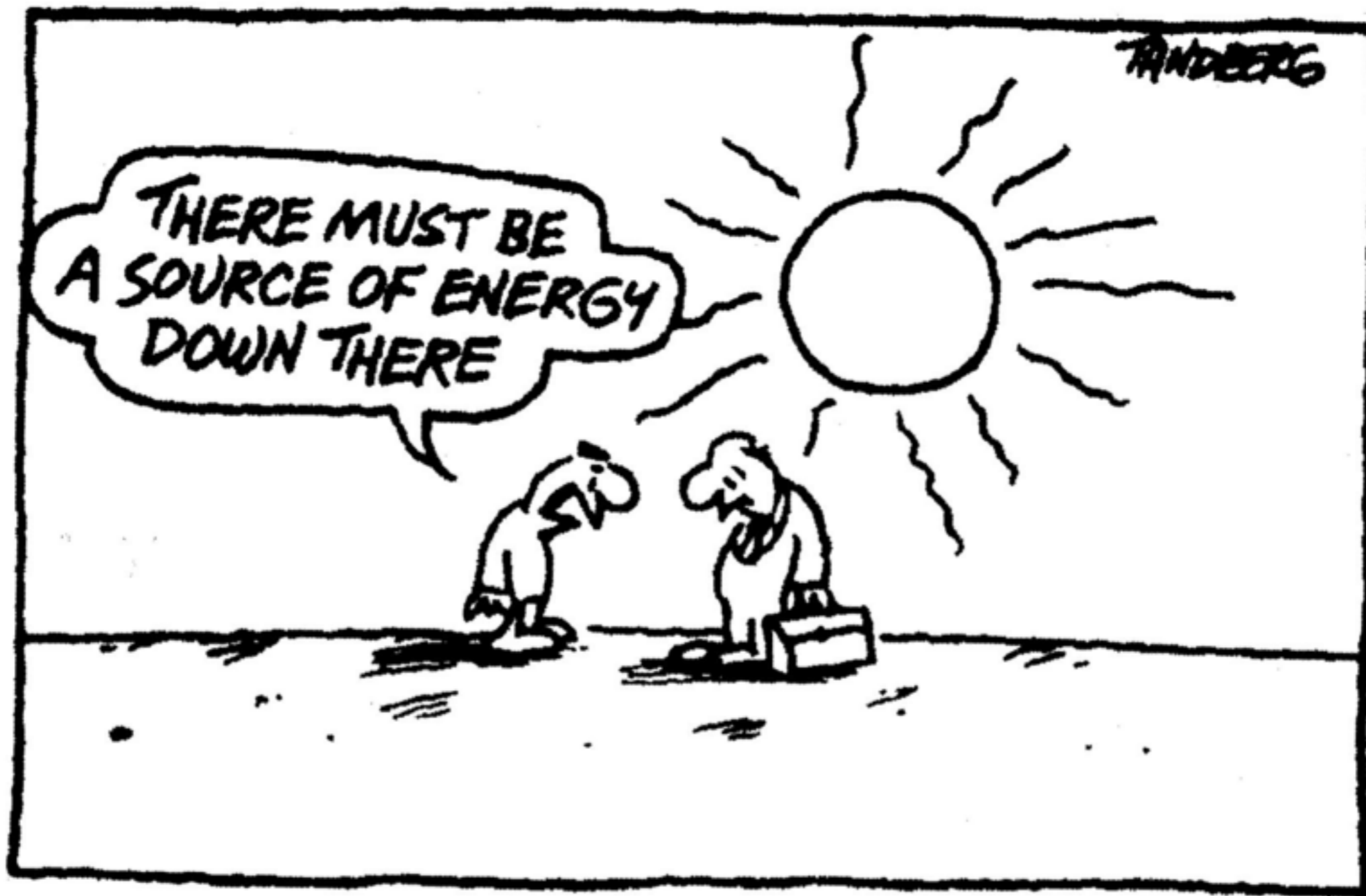
Dr Hermann Scheer MdB
Democracy Now, 19th Oct 2010

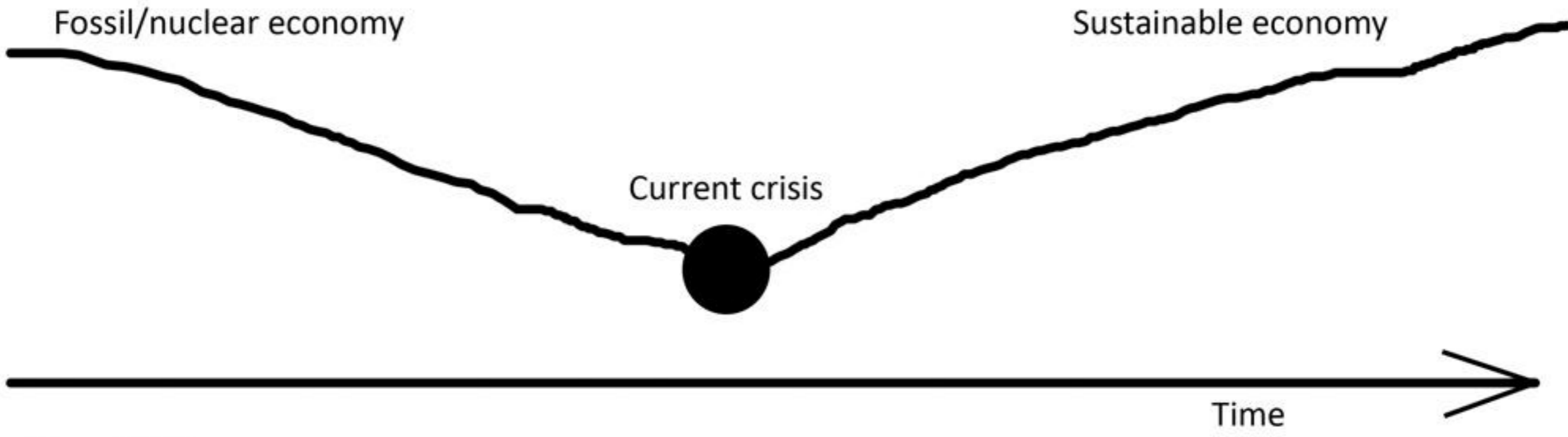


Fossil and nuclear are marginal, compared to just 1% of total solar energy (Ierne Ltd © 2012/3)



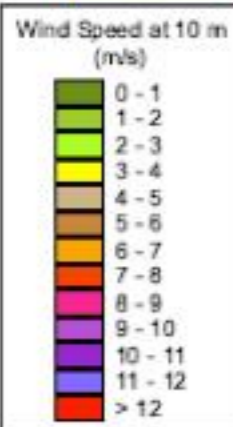
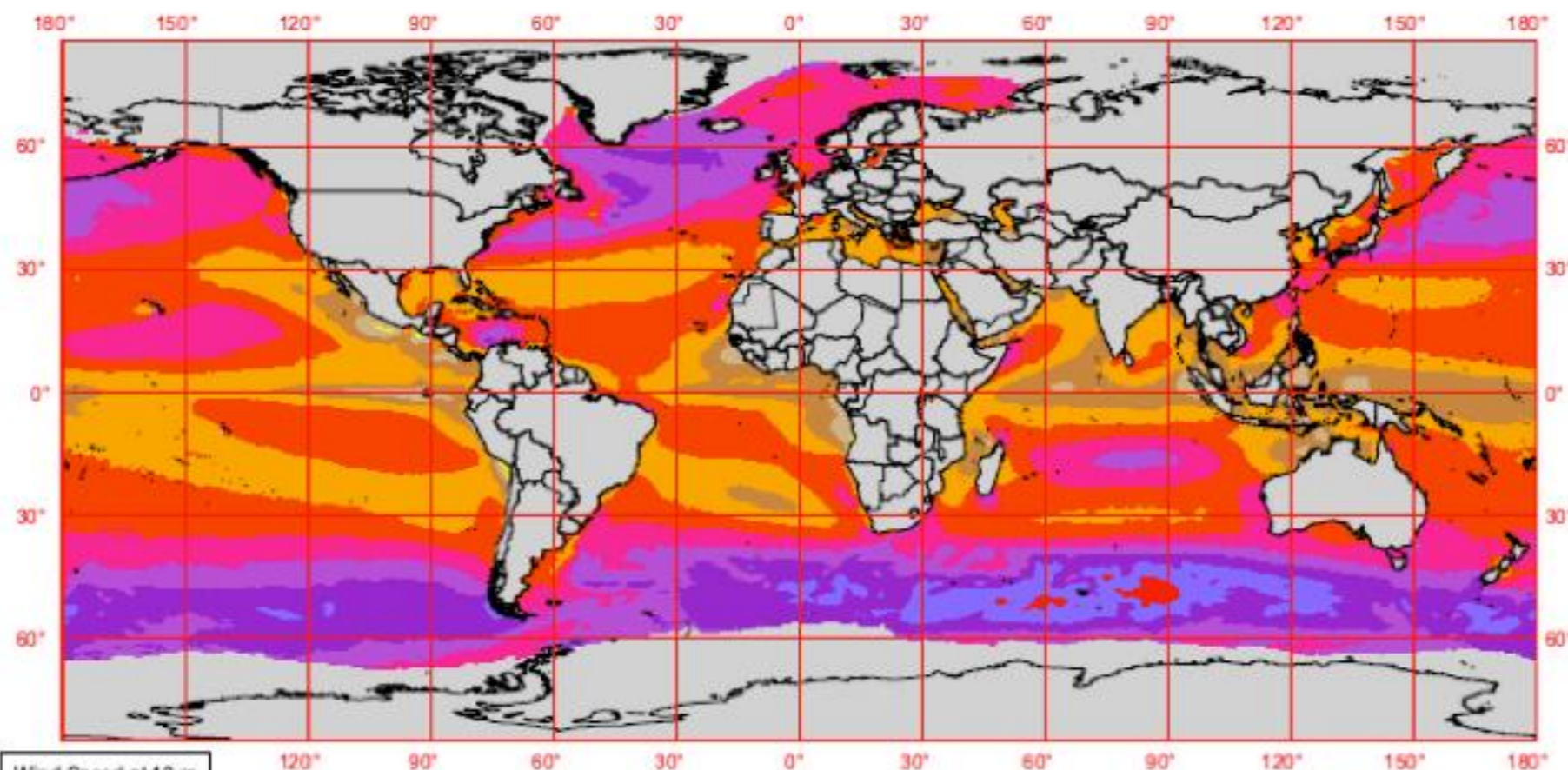
- World non-renewable energy consumption (own projection, loosely based on IPCC estimates of known non-renewable reserves, excl. MOX)
- 1% of all annual solar energy (effectively includes wind, wave etc)







QuikSCAT - Annual Wind Speed at 10 m



Scatterometer measurements of the state of the ocean surface are used to estimate 10-m ocean winds in the QuikSCAT satellite data set. The QuikSCAT data are produced by Remote Sensing Systems and sponsored by the U.S. National Aeronautics and Space Administration Ocean Vector Winds Science Team. Data are available at www.remss.com. NREL used a 5-yr average from 2000-2004 to produce the map.

NREL has not validated the QuikSCAT satellite ocean wind estimates. NREL has observed that satellite-derived estimates of wind resource in near-shore, coastal, and island areas do not always agree with high-quality anemometer wind measurements. Therefore, satellite estimates in these areas should be compared with available wind measurements wherever possible.



Solar and Wind
Energy Resource
Assessment



United Nations
Environment
Programme

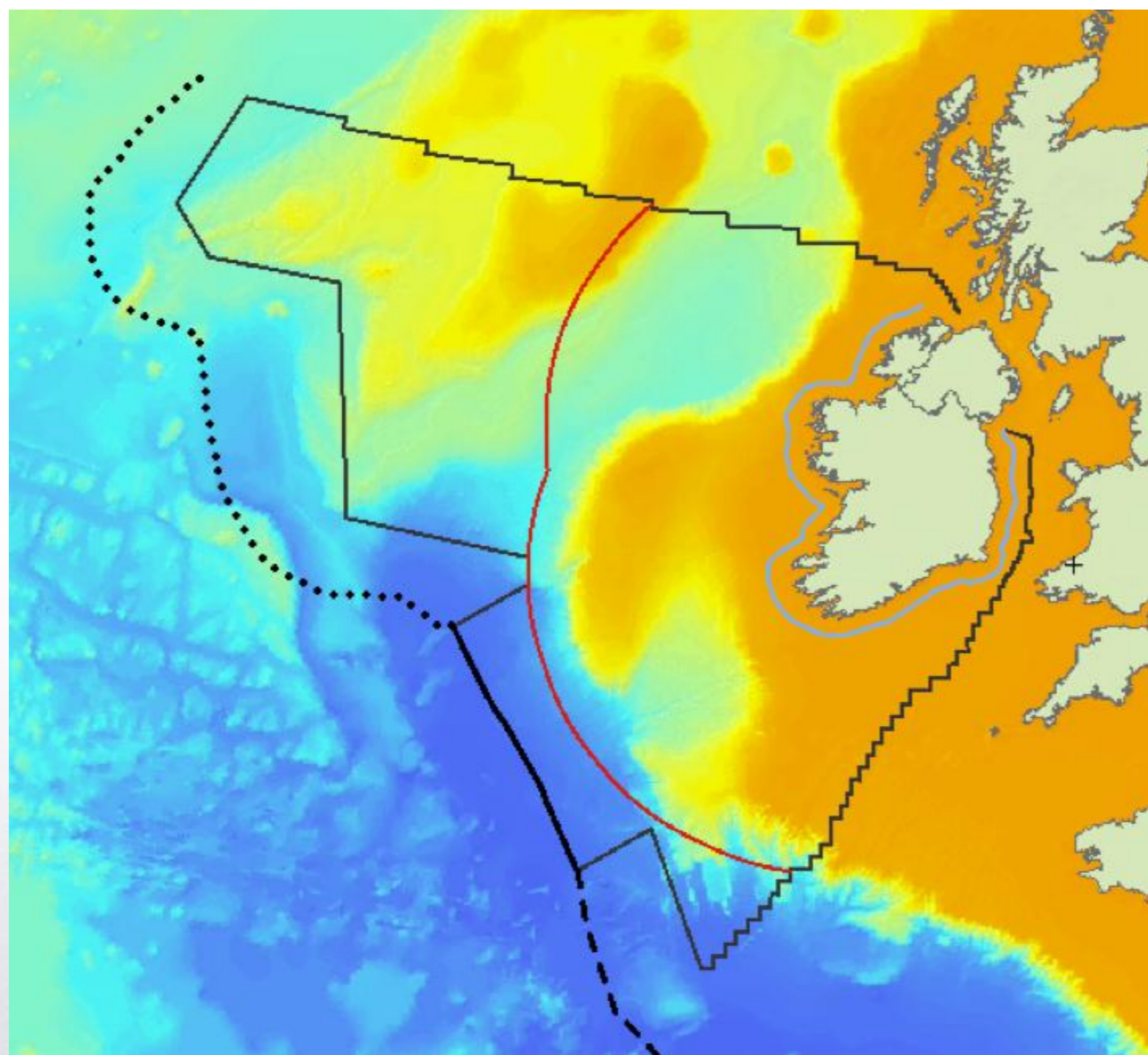


Global Environment
Facility

U.S. Department of Energy
National Renewable Energy Laboratory



13-OCT-2005 1.1.00



Map Legend

- OUTER LIMITS CONTINENTAL SHELF**
- Final
 - Subject to delimitation
 - Submitted to CLCS
 - 200M LIMIT
 - 12M LIMIT
 - DESIGNATION
 - COUNTRY



Renewable resources

- Estimate of Ireland's technical resource, electricity:
 - Onshore wind: 2,000 TWhrs/yr
 - Offshore wind, fixed/floating: 7,000 TWhrs/yr
- Approximate demand:
 - EU 3,000 TWhrs per year
 - UK 350 TWhrs per year
 - Ireland 25 TWhrs per year



Ireland can compete

- High Voltage Direct Current (HVDC) technology dramatically reduces losses
- Higher wind can offset cost of longer delivery cables
- Power can be delivered from anywhere in Irish jurisdiction to EU competitively



Current development scale

- Onshore connected: ~ 1,800 MW
- Onshore contracted: ~1,600 MW
- Offshore connected: 25 MW
- Onshore in development: ~ 10,000 MW
- Offshore consented: ~ 2,000 MW
- Offshore in development: ~ 5,000MW
- Potential output per year: ~ 60 TWhrs

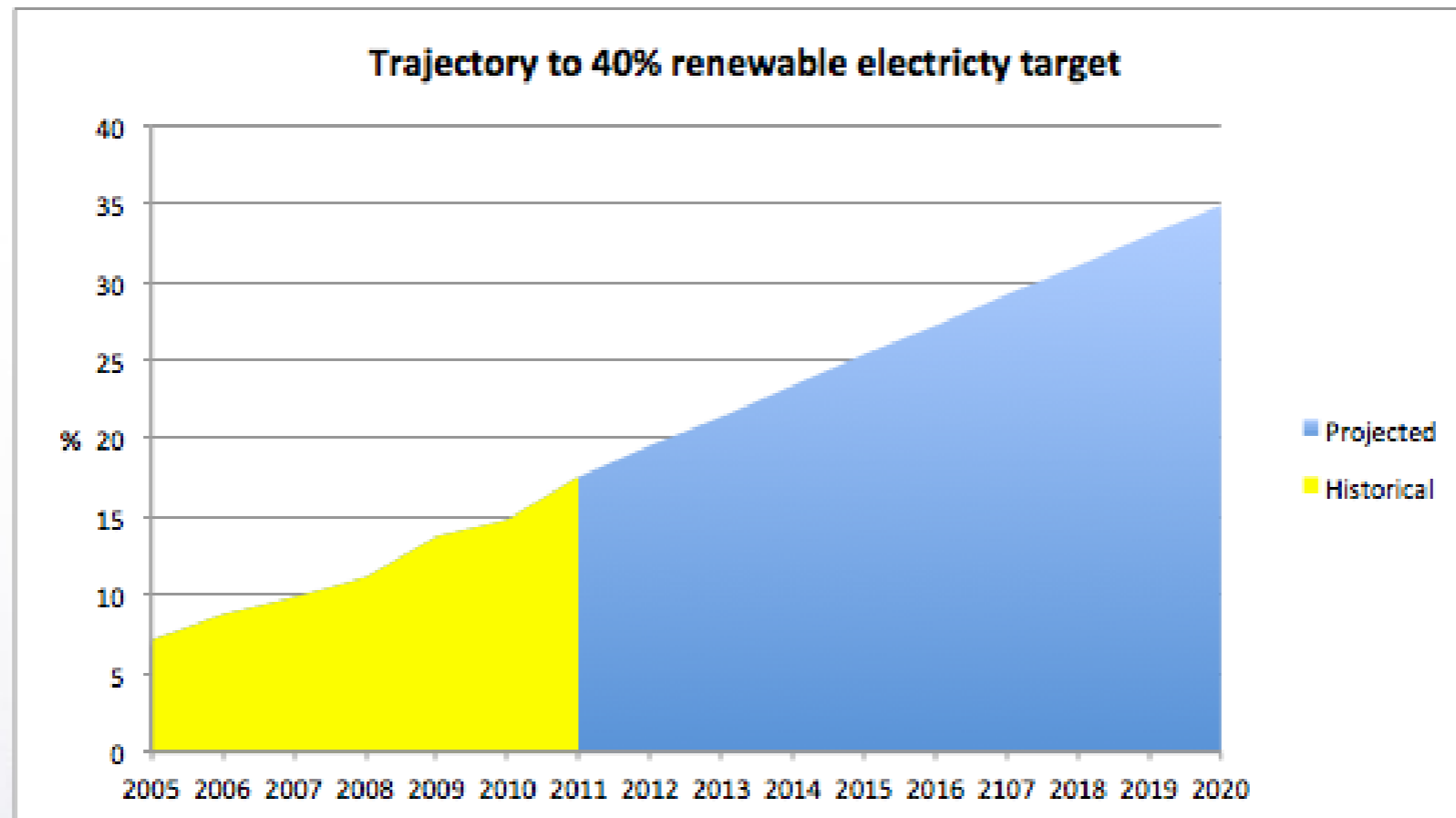


Ireland's own needs

- Legally binding EU 2020 renewable targets:
 - 16% primary energy
 - means ~ 40% elec, 12% Heat, 10% transp.
- Estimated need 4-5,000 MW by 2020
- Must meet own target to allow exports



Progress to targets



- Not currently on trajectory for 2020 target



Inter Governmental Agreement

- UK-Ireland MOU signed 24th January 2013
- IGA being negotiated for year end
- Would enable trade between the countries under RE Directive
- Supports paid & credits claimed by the UK
- UK wants up to 10,000 MW by 2020
- Main issues are price and delivery by 2020



Onshore wind projects

- 3 projects in development in midlands
- Mainstream, Element Power, Bord na Mona
- One at Glinsk, Mayo (with pumped storage)
- Likely to be paid as onshore projects
- Likely to require SEA
- Timing VERY tight for 2020 (planning, cable etc)
- High risk of not assisting UK with 2020 targets



Offshore wind projects

- 2 consented in Irish Sea without grid:
 - Codling, Arklow (~2000MW)
- 1 conditional consent Irish Sea with grid:
 - Oriel (~300MW)
- 3 further projects in consenting:
 - Codling 2 ~1,000MW, Dublin Array ~520MW, Skerd 100-400MW



Offshore progress

- Codling seeking direct connection to UK
- Oriel shovel ready, could use interconnector
- Dublin Array has grid and could also export over 2nd interconnector
- All three can make 2020
- Position of Arklow unclear
- Skerd in West could also make 2020



Actions

- Accelerate grid delivery, and build sufficient to meet Ireland's 2020 targets
- Sign UK-Ireland IGA this year and agree with European Commission
- Already begin onshore SEA for export projects
- Start 2nd East-West Interconnector
- Consider AC interconnection NI-Scotland



Conclusions

- Currently not on target to meet national targets; need to raise our game
- Ireland has capacity for large exports
- Series of actions needed now for 2020 exports
- Offshore ahead of onshore



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- **consulting services on the development of wind energy projects**
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