

Partnership on the Grids:

***A Pas de Deux* in harmony for
Wind Power and Natural Gas?**

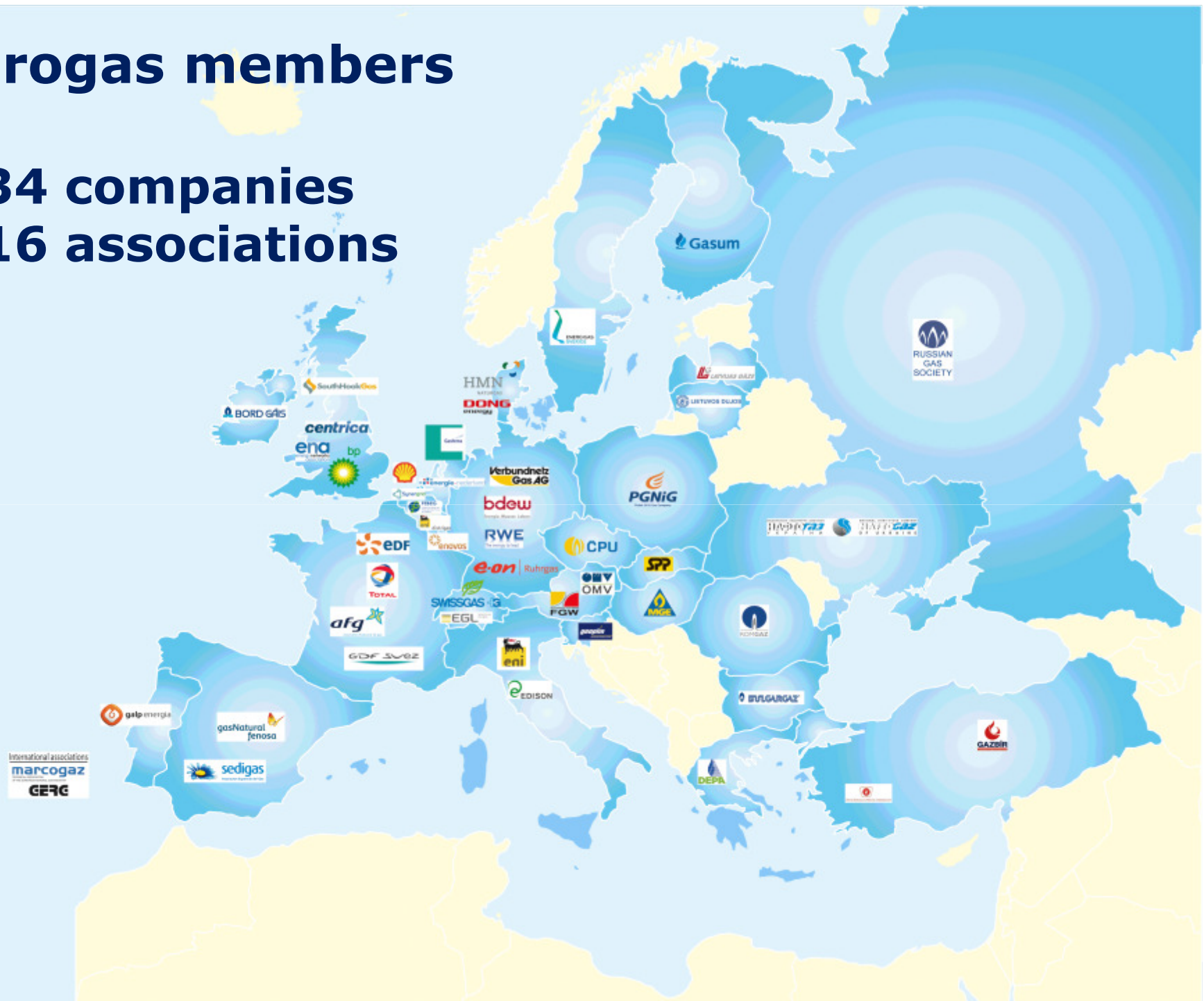
Simon Blakey
Special Envoy

TP Wind Energy Event
Brussels, 4 October 2011



Eurogas members

- 34 companies
- 16 associations



Two Themes

We need to make friends ...

**Wind needs to
be liberated
from system
limits**



Making friends with gas ...

- There is a limit to how much wind (and solar) an electricity system can absorb
 - We don't know for sure how high or low it is
 - In the interest of maximizing zero-carbon output, we want it to be as high as possible
- Interconnections, electricity storage, demand-side management can all help ...
 - ... a little bit, at a price, and in time

Wind may stand alone in small markets—but not in all of Europe

W. Denmark

7.6 GW total capacity

2.5 GW wind

5.1 GW other

3.6 GW peak demand

3.4 GW export/import

Europe

-->> **890 GW**

-->> **84 GW**

-->> **806 GW**

-->> **490-520 GW**

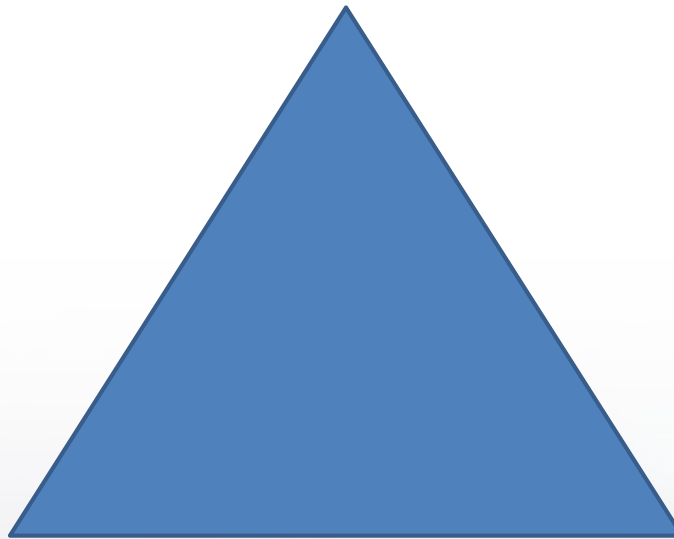
-->> **5 GW ?**

A friend today, a friend tomorrow

- Natural gas can help *immediately*
 - Fast ramp-up/ramp-down rates of OCGTs
 - Balance local variability
 - Provide 'manually-operated tertiary reserve'
- Progressive technologies offer an even better deal:
 - New generation CCGTs (FlexEfficiency, KA-26)
 - Storing wind power as methane in the gas grid

Three challenges

Dealing with surplus wind power when demand is low



Following load quickly

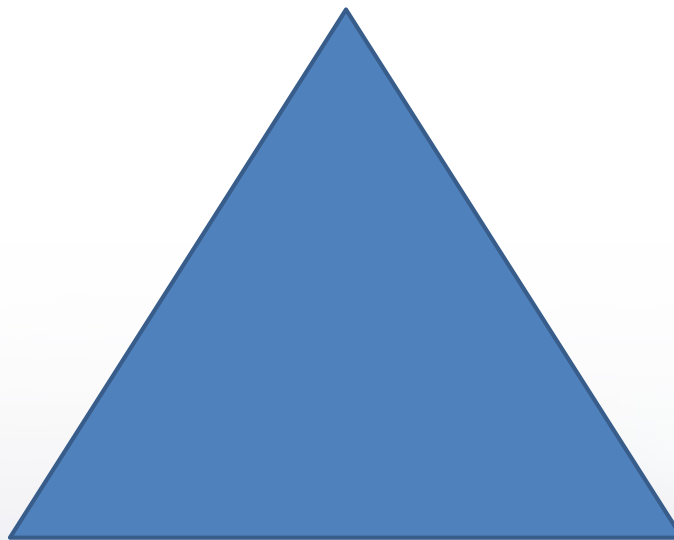
Replacing wind on still days

Storing wind power surpluses

- The surpluses will be tomorrow's problem—or they will halt expansion of wind power
- Exciting new technique:
 - Take zero marginal cost electricity—make hydrogen by electrolysis
 - Absorb CO₂ from air, from capture, from waste
 - Then, $\text{CO}_2 + 4\text{H}_2 \rightarrow \text{CH}_4 + 2\text{H}_2\text{O} \dots$ and you store the **CH₄** (natural gas) in the gas grid
 - Avoids power transmission construction delays

Three solutions—with gas as your friend

Dealing with surplus wind power when demand is low

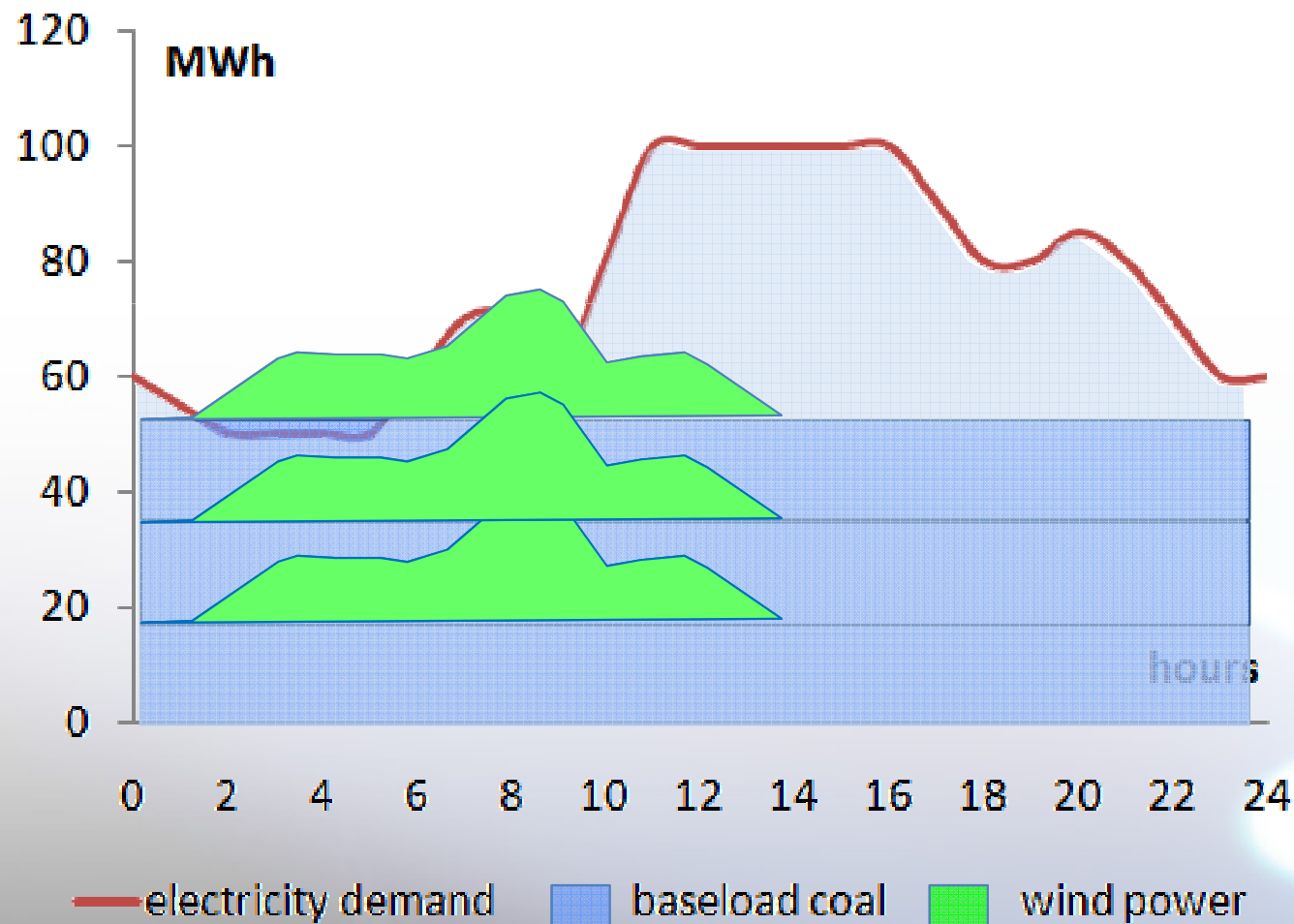


Following load quickly

Replacing wind on still days

No more 'just baseload' please

...



Gas needs 'message friends'

- Effective co-working 'natural gas with wind power' won't just happen
 - It needs policies
 - It needs research work
- Investment in gas-power and gas grids will slow if people think future is limited for gas
 - Policies: tariff structures may need to adapt
 - Research: need to know impact on the gas midstream—high send-out rate storage, impact on distribution linepack