

Development of Wind Power in Austria

Importance of Regional Initiatives

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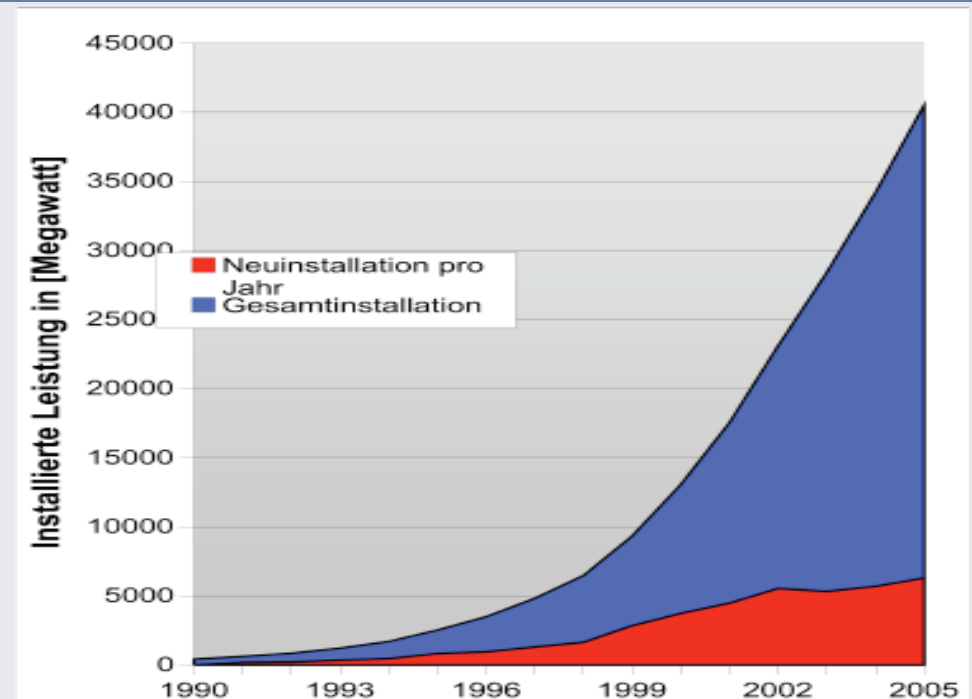
IG Windkraft – Austrian Wind Energy Association

- founded in 1993
- 1500 members
- all important manufacturers and operators
- board member of EWEA and EREF



Windpower in Europe

- End of 2006:
- 48,000 MW installed
- 100 billion kWh
- 3.2% of consumption
- Installed 2006: 7,300MW
- annual rate of growth since 1995: 32%



Quelle: EWEA

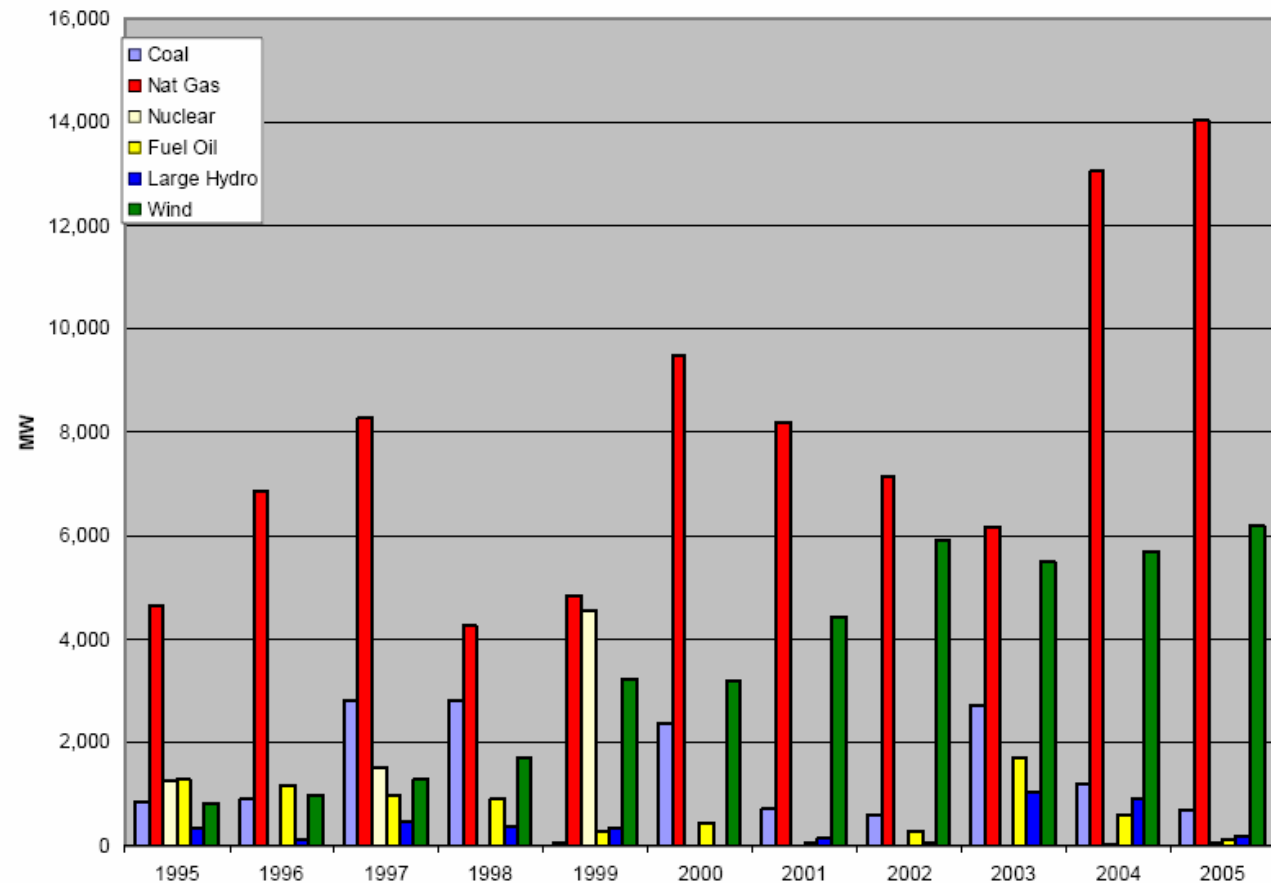
www.igwindkraft.at

Enercon E112



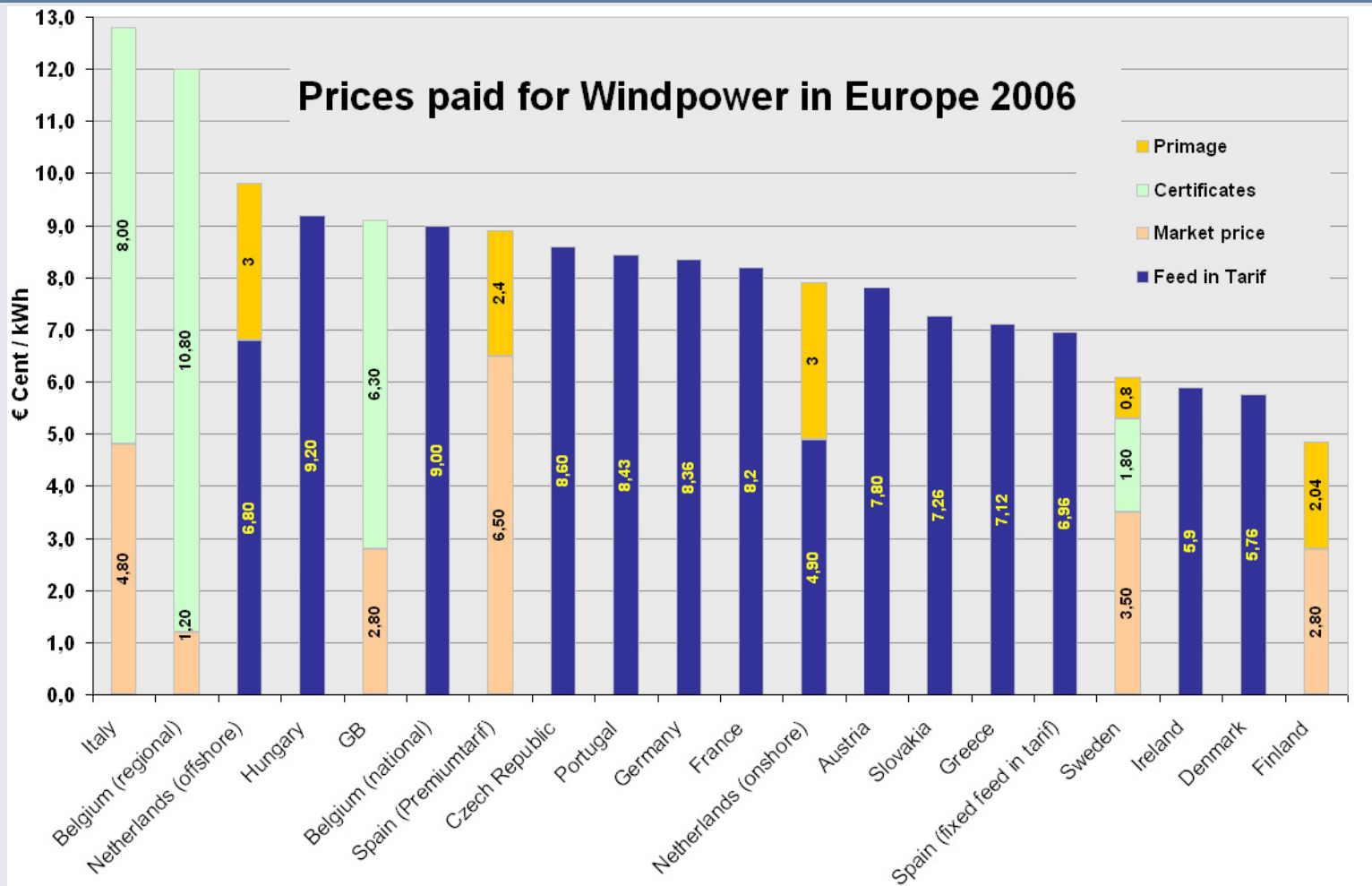
New Capacity in Europe: Wind N°2 since 2000

- Natural gas
- Windpower
- Coal
- Nuclear
- Fuel oil
- Large hydro



Source: Platts

Prices paid for Wind in Europe



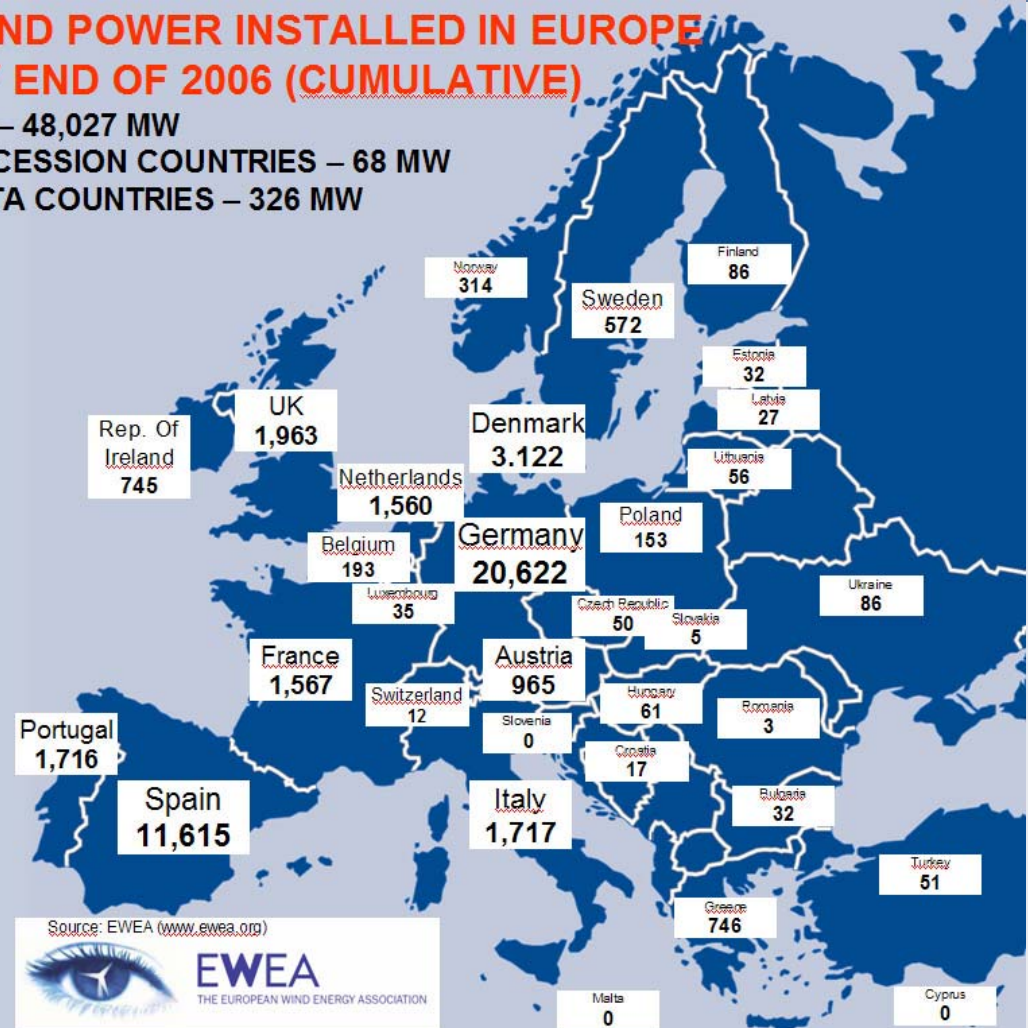
- EU Komm Report 2005 S.45

Windpower in Europe

Total End 2006:
EU 48,027 MW

WIND POWER INSTALLED IN EUROPE BY END OF 2006 (CUMULATIVE)

EU – 48,027 MW
ACCESSION COUNTRIES – 68 MW
EFTA COUNTRIES – 326 MW



Quelle: EWEA

Casestudy Austria

- small landlocked country
8 Mio. inhabitants
84.000 km²
- **Experts until the 1990s:**
“There is no wind in Austria”

Even three institutions that had measured wind for more than 100 years



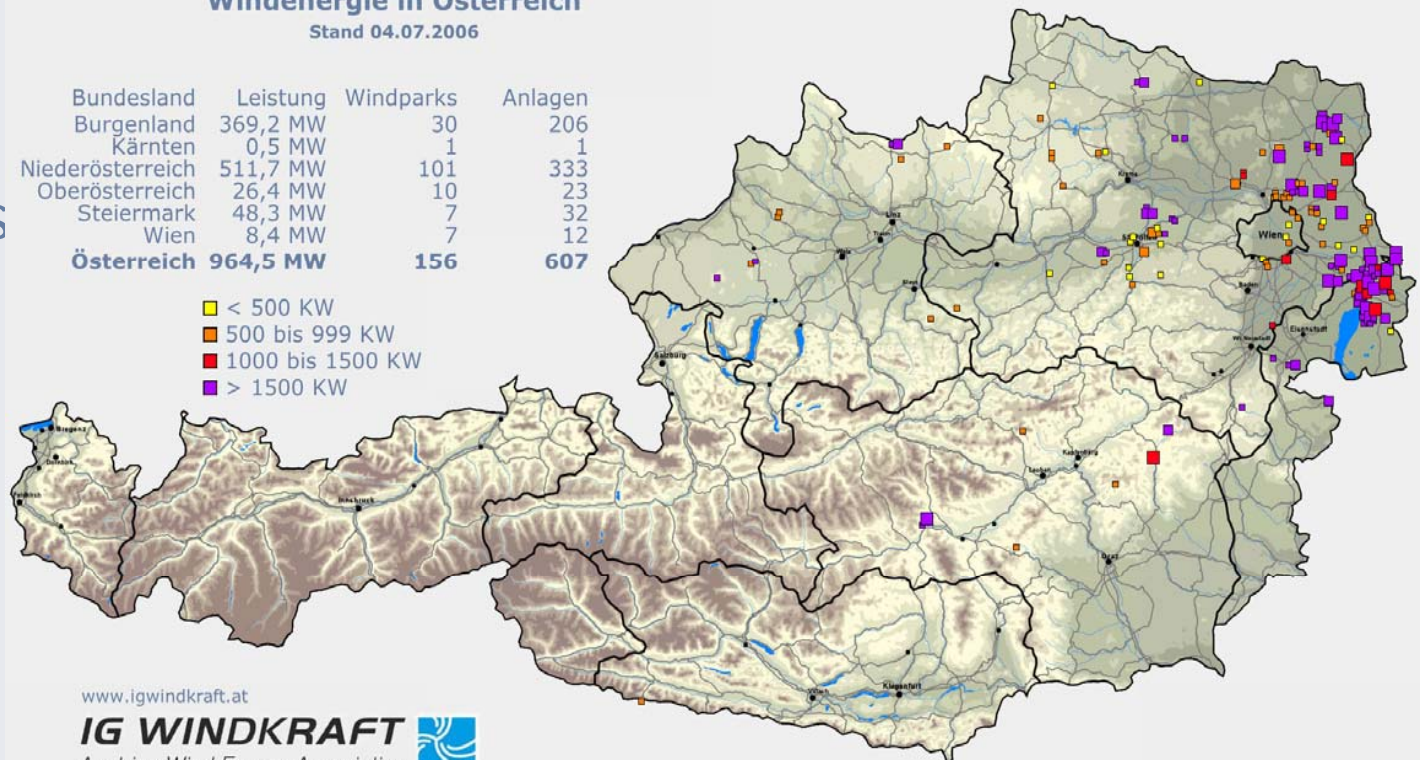
Windenergy in Austria by the End 2006

- 965 MW
- 607 Turbines
- 3% of electricity consumption

Windenergie in Österreich Stand 04.07.2006

Bundesland	Leistung	Windparks	Anlagen
Burgenland	369,2 MW	30	206
Kärnten	0,5 MW	1	1
Niederösterreich	511,7 MW	101	333
Oberösterreich	26,4 MW	10	23
Steiermark	48,3 MW	7	32
Wien	8,4 MW	7	12
Österreich	964,5 MW	156	607

- < 500 KW
- 500 bis 999 KW
- 1000 bis 1500 KW
- > 1500 KW



www.igwindkraft.at

Wind Power in Austria

How could this happen?

Background

- **High level of consciousness regarding energy**
 - Tradition of producing and using own energy (wood for heating in rural areas)
 - Important events:
 - energy crises in 1970's and 80's
 - referendum 1978 rejected an already built nuclear power plant



Regional Wind Power Initiatives

- An interested group constructed their own wind measurement equipment and found sites as windy as at the coast
- (Remember the experts)
- Promoted the idea of searching windy sites with simple wind measuring systems



Participation of local Population

- New Players
Problem: lack of equity capital
- Solution: Idea of broad (financial) involvement of local population
- Local population becomes co-owner of power plants



Economic Impact

- Around 40% of installed wind power are made by participation projects (30% other private investors; 30% utilities)
- Investment volume of 500 mio.€, equity capital sum of 100 mio. €
- Chance for small companies to keep the pace with utilities or other big companies

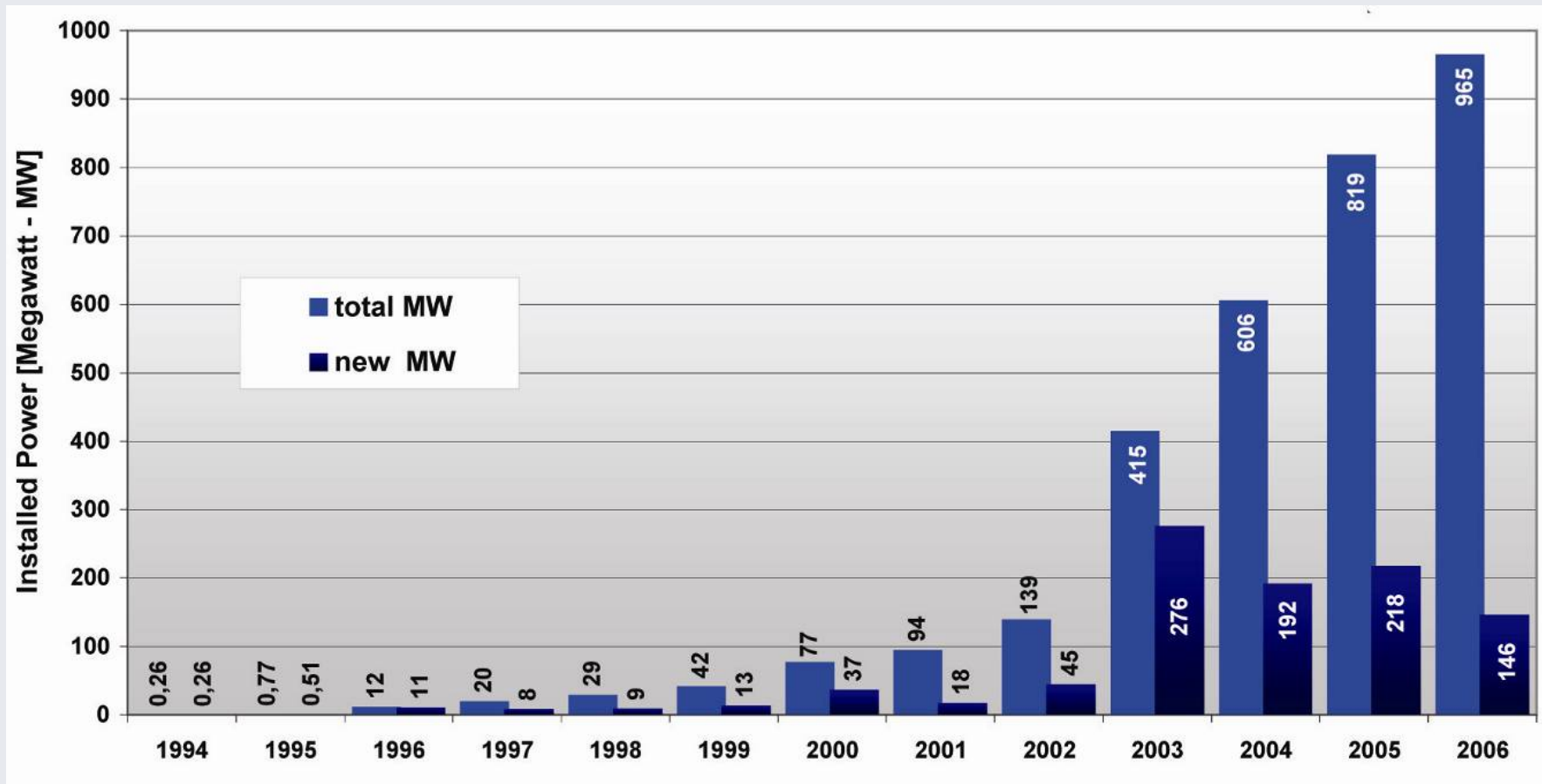
History of Legislation

- 1994 Voluntary Agreement, Utilities will pay the double market price for 3 years / 30% investment subsidy
- 1998 (2000) EIWOG:
 - Regions had competence for feed in tariffs
- 2003: Ökostromgesetz: Green electricity act: 4% until 2008
 - Federal Ministries of Economy and Environment have competence for feed in tariffs

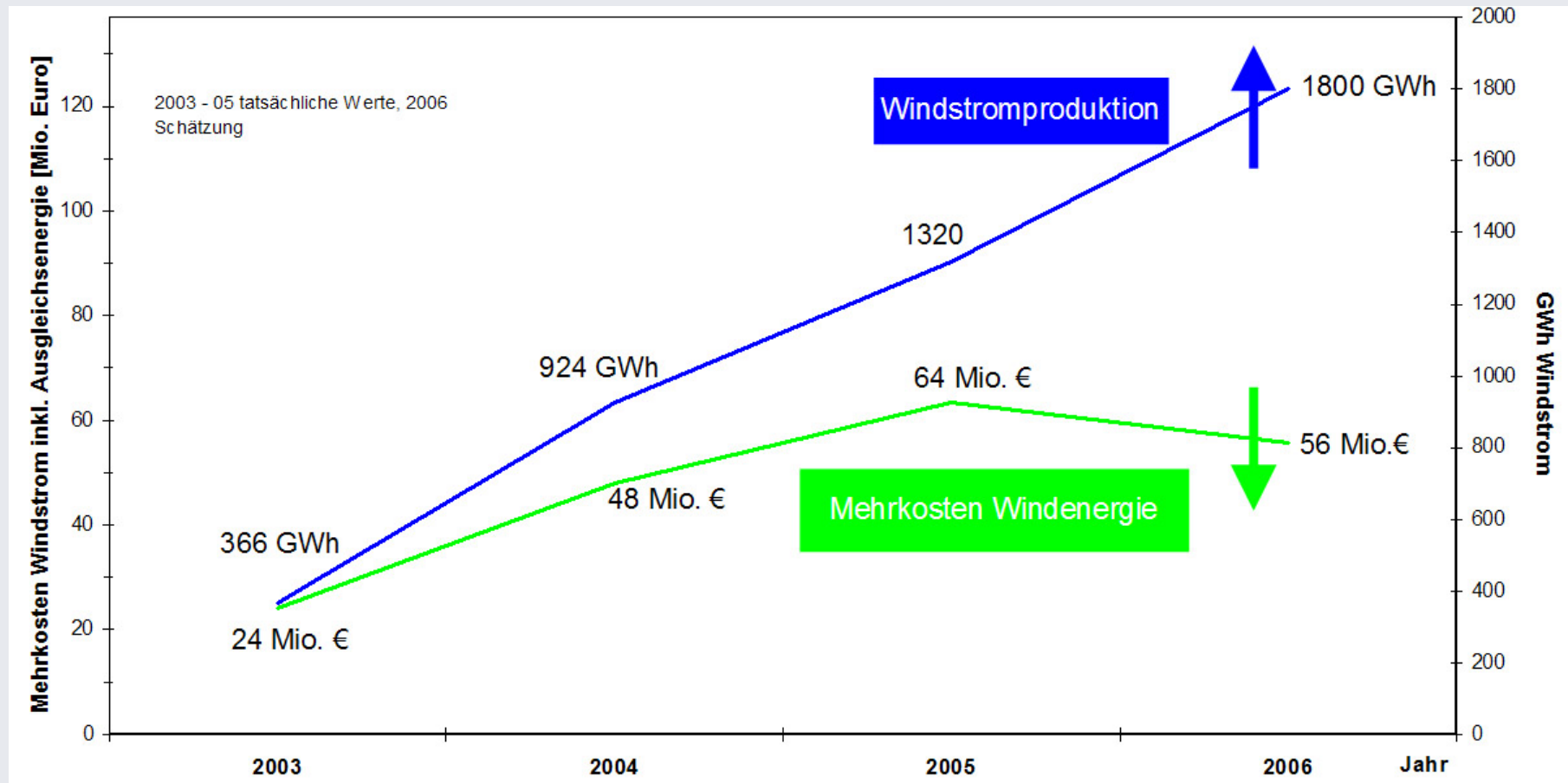
Ökostromgesetz 2003

- Feed in Tariff of 7,8ct/kWh
 - for all projects commissioned before end of 2004
- Feed in Tariffs for 13 years
- No Limitations (except PV)
- Eco electricity –balance group had a purchase obligation

Wind Power in Austria



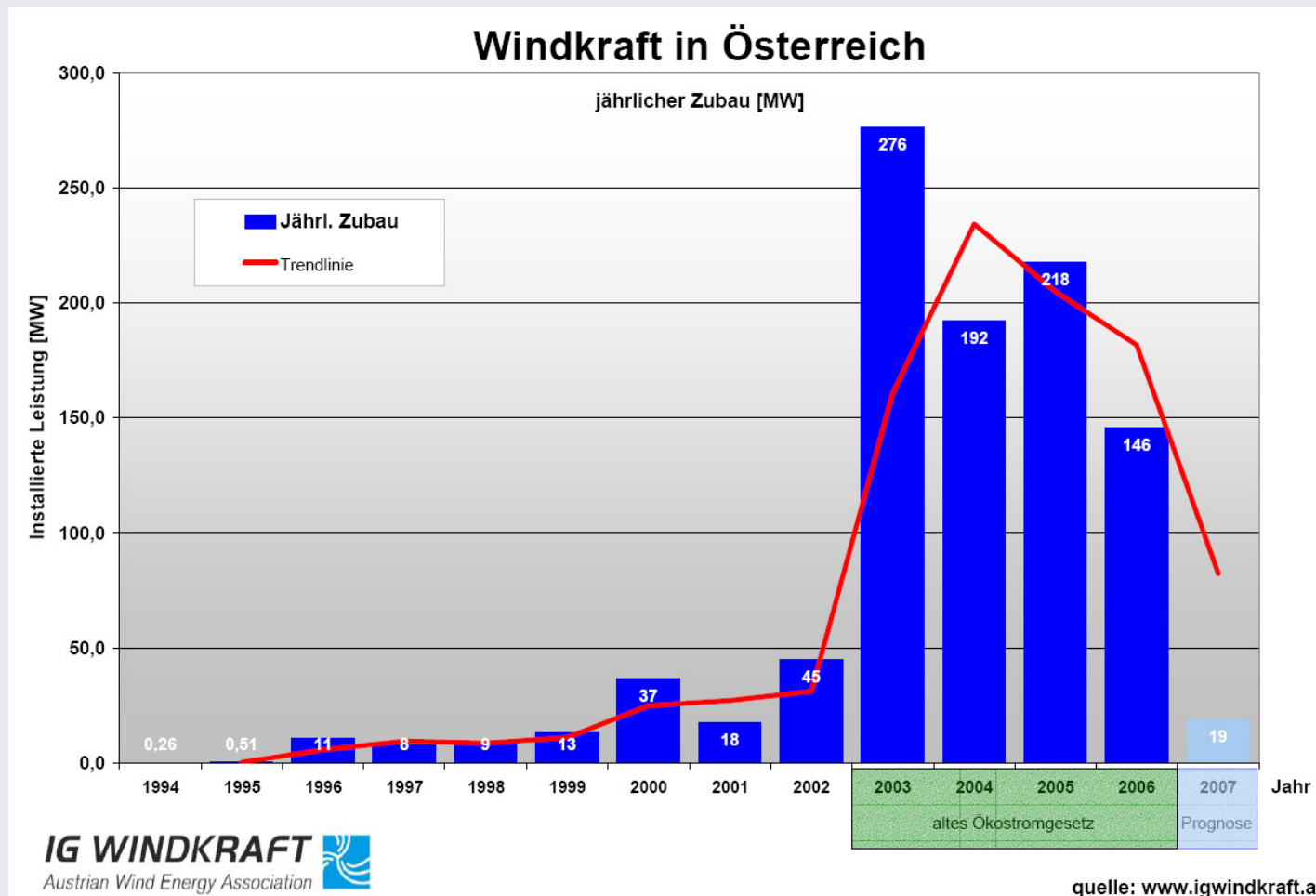
More Wind power – decreasing costs



Amendment Ökostromgesetz 2006

- Feed in Tariff of 7,55ct/kWh (yearly undefined degressions)
- Feed in Tariffs for 10 years
- Contingent of only 20% of the former growth
- No investment security
 - You don't know the tariff of next years
 - You don't know if you come into the contingent
 - To apply for a contract you need all permits

Results of the Amendment



Grid Connection

- Wind operator asks the grid operator
- Grid operator give their connection data
- No clear listing of projects
- No clear extension costs
- No possibility to proof the data and costs



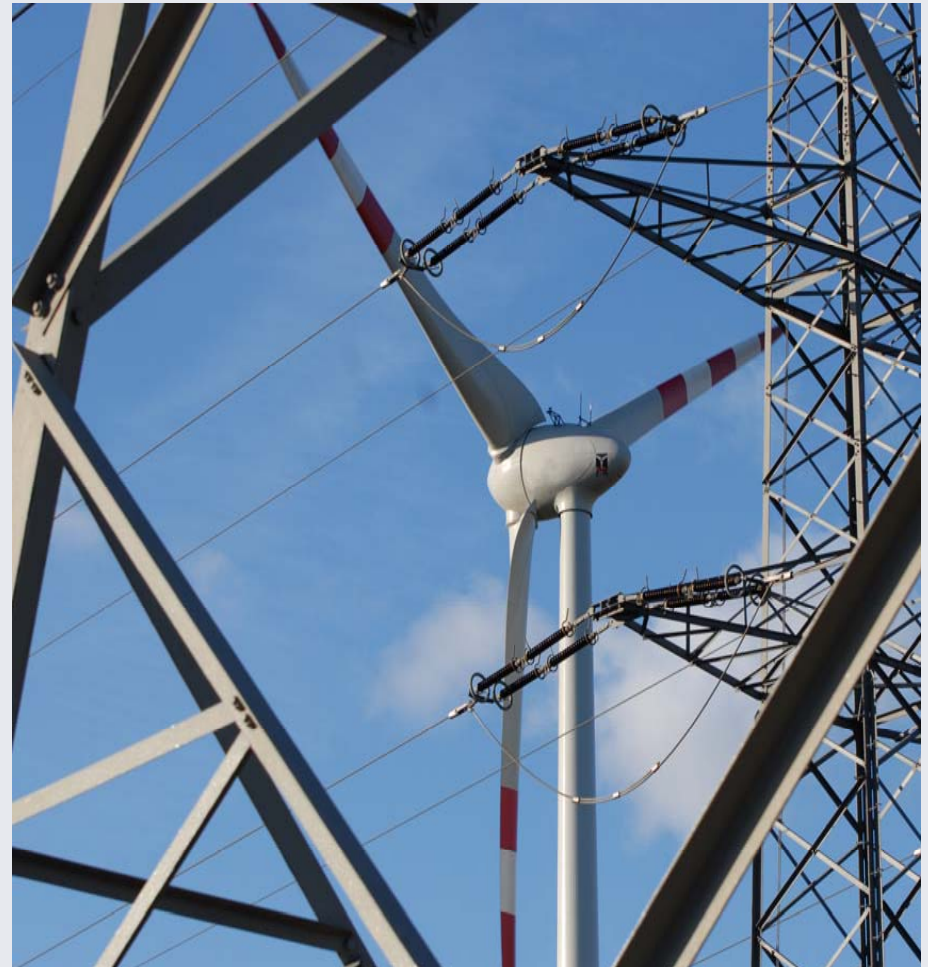
Grid Connection

- In 2003 1.700 MW of new Wind power-projects were planned
- Grid operators made extension plans
- Problem: weak and old 110kV grids in the windy regions
- "Solution" of grid operators: Wind power-operators have to pay 50.000 to 100.000 € per MW for Extension



Grid Connection

- Due to the time limit of June 2006 Wind power operators agreed
- Even the Electricity law states that expansion of the 110kV grid has to be paid by all users
- After this “agreement” the cooperation with the grid operators worked very well and very good and fast solutions were found



Conclusion support mechanisms

European experience shows: feed-in tariffs have proved to be more effective and efficient:

What is important for investors:

- Long term investment security
 - Feed in tariffs
 - Purchase obligation
 - Guaranteed regulated grid access

(necessary because of the unbalanced situation)

A stable framework provides lower risk and therefore allows cheaper production costs

Sociological Considerations

- At first sight, it may seem not that necessary to convince and involve local population in RES projects.
- However, our experience shows that local initiatives have been of utmost importance for RES development.
- Also in the long run RES-projects are very dependent on the positive attitude.
- If consensus is missing, this can delay the RES development substantially.

Conclusions

- Don't trust experts too much!

Information starts not at University Level



“Wild Wind” :
pupils-project:
more than
10,000 pupils
visited each year





Austrian Windenergy Symposium - AWES

Austrian Wind Energy Symposium AWES



More information:

www.igwindkraft.at www.windpower.org www.ewea.org

23rd- 24th October
St.Pölten

www.awes.at

- Experience with
Permissions
- Effective Operation
and Maintenance
- Grid Integration
- Market Outlook