



Assessment of EU Policies Supporting Wind Power Development

Statement of Issues

Dr. Posorski & DuBois 杜博斯

GTZ Project Director CWPP GTZ Technical Director CWPP (decon)



Wind Power Support Mechanisms in Europe Today - Main Principles

1. Guaranteed Feed-In Tariff System

- Priority access for wind power to the electricity-grid at guaranteed tariff for clearly defined time period
- Sometimes implemented as wind-premium-price on top of standard electricity market price

2. Quota Obligation with Green-Certificates

- Government defined quota target for Wind (RE) to be met by power companies – if this quota is not met, a penalty applies
- Installing Wind (RE) Generation “generates” gov. issued Green Certificates which can be sold at varying market prices

3. Other

- Tax-subsidies
- Pure quota

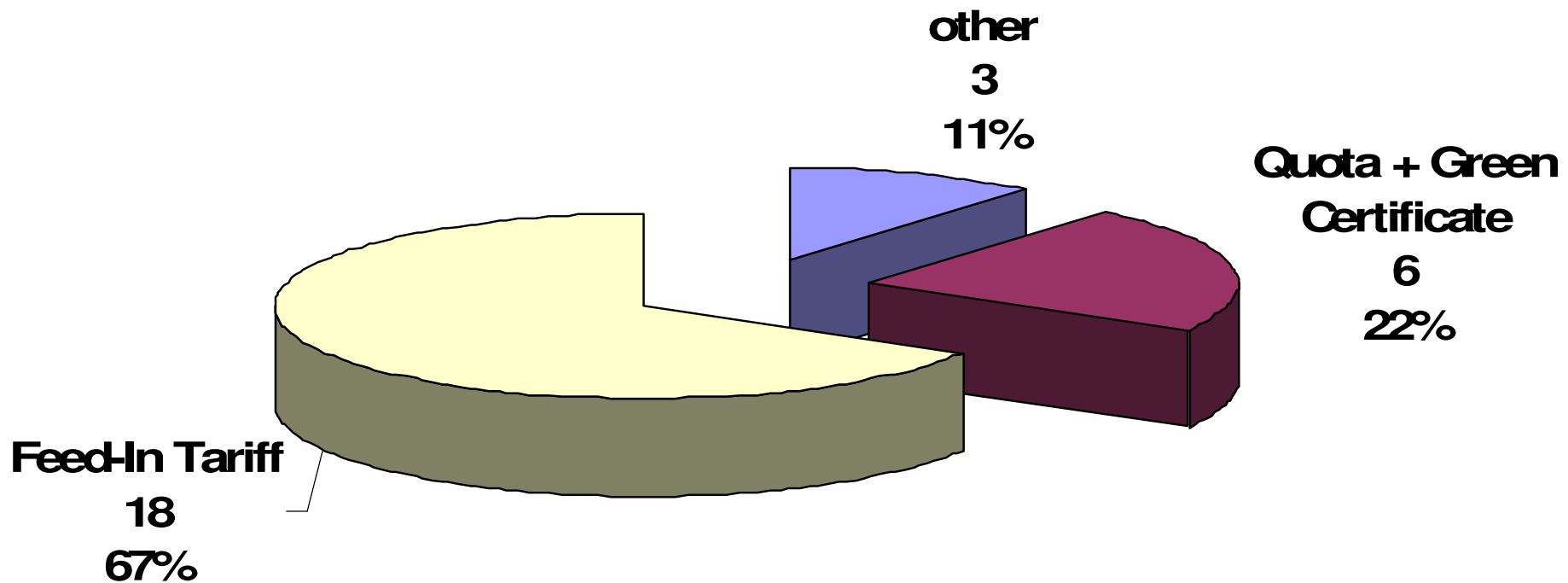


Wind Power Support Mechanism of the Past

- Tendering System
 - Bidding for certain amounts of RE defined by the government by means of investor chosen projects (NFFO of UK 1990 - 1998)
 - Abolished due to slow project realization (at the end of NFFO only ~400 MW wind were reached)



European Union of 27 Countries Share of Countries per RE Support System

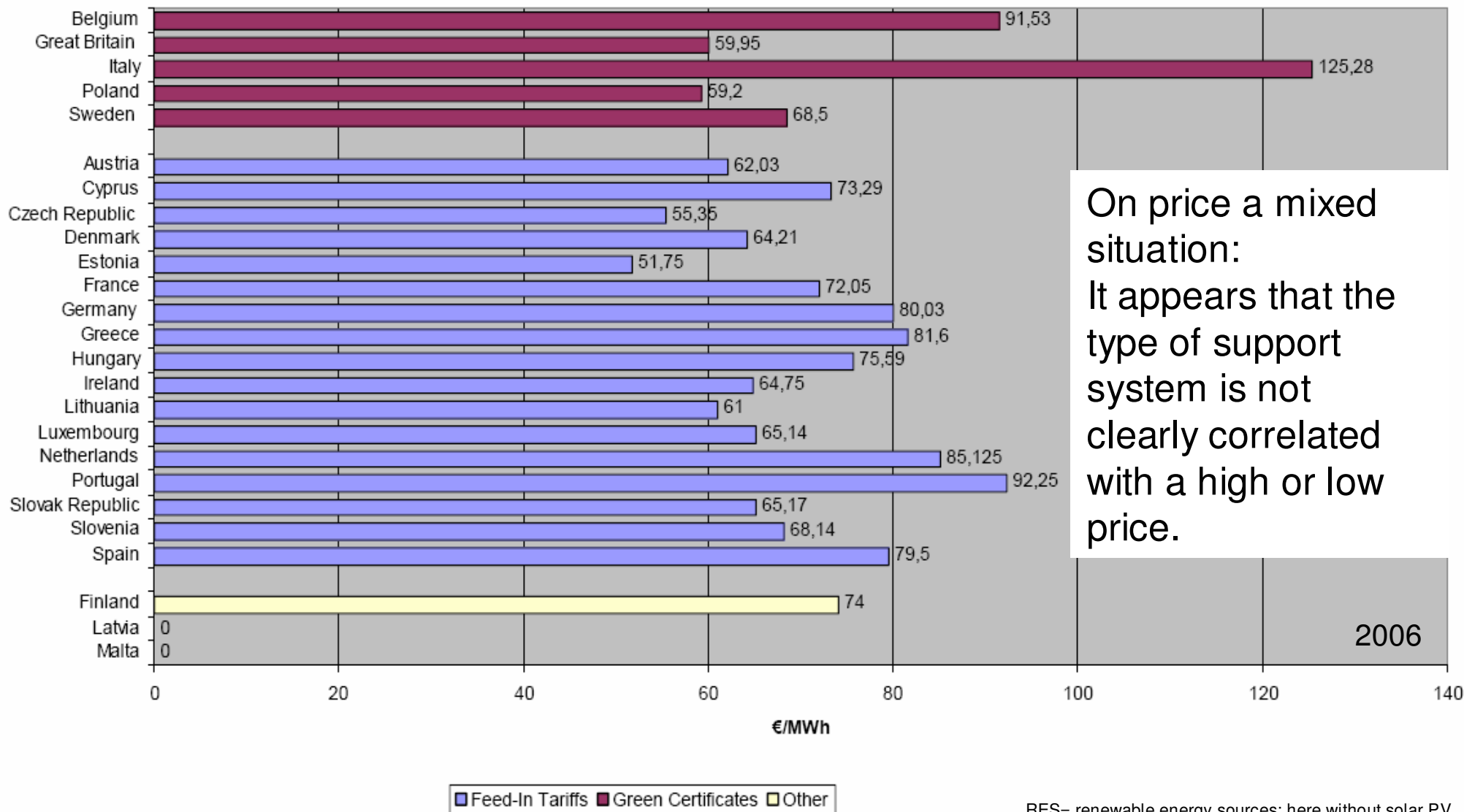


Source: EREF: Report 2006/2007 Prices for Renewable Energies in Europe:
Feed tariffs versus Quota Systems – a comparison

by end of 2006



Average RES price by Support System *)



On price a mixed situation:
It appears that the type of support system is not clearly correlated with a high or low price.

2006

RES= renewable energy sources; here without solar PV

Source: EREF: Report 2006/2007 Prices for Renewable Energies in Europe:
Feed tariffs versus Quota Systems – a comparison



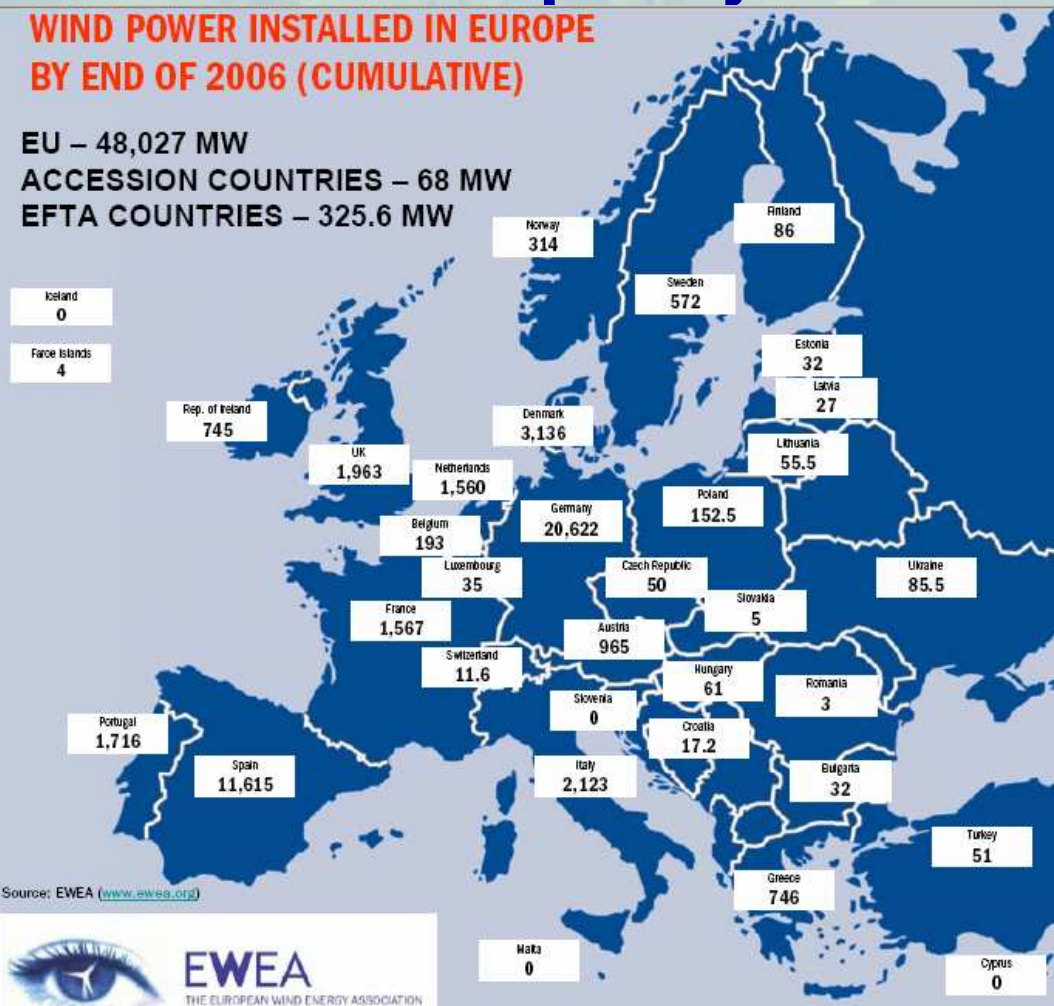
China Wind Power (Research & Training) Project C W P P



Success of Wind Support EU- Wind Capacity 2006

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

EU – 48,027 MW
ACCESSION COUNTRIES – 68 MW
EFTA COUNTRIES – 325.6 MW



Source: EWEA (www.ewea.org)



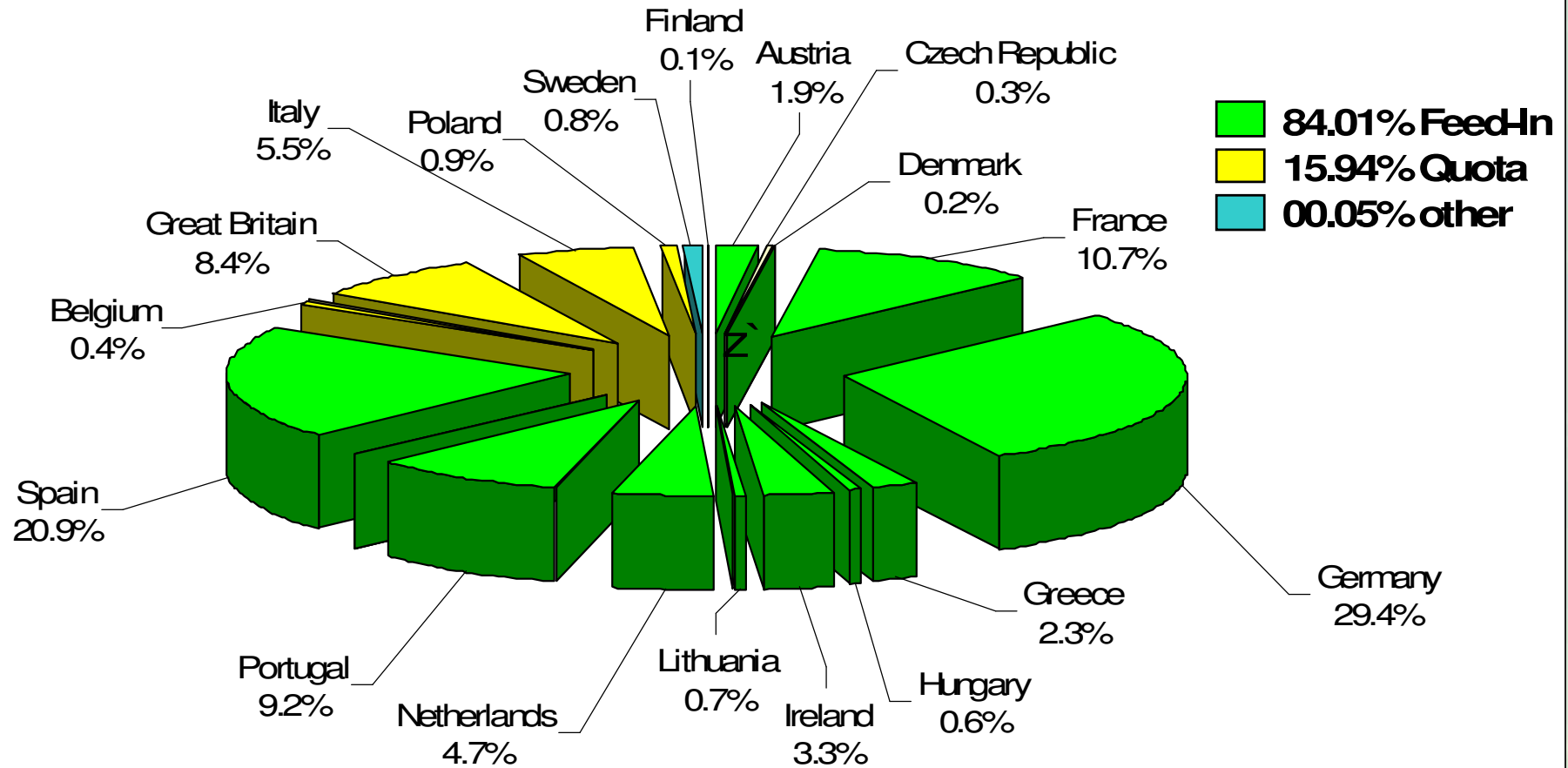
Source: EWEA



Countries	Total end 2005	Installed 2006	Total End 2006
Austria	819	145.6	965
Belgium	167.4	26.3	193
Bulgaria*	10	22	32
Cyprus	0	0	0
Czech Republic	28	22	50
Denmark	3,128	11.5	3,136
Estonia	32	0	32
Finland	82	4	86
France	757	810	1,567
Germany	18,414.9	2,233.1	20,622
Greece	573.3	172.5	746
Hungary	17.5	43.40	61
Ireland	495.5	249.9	745
Italy	1,718	417	2,123
Latvia	27	0	27
Lithuania	6.4	49.05	55.5
Luxembourg	35.3	0	35
Malta	0	0	0
Netherlands	1,219	356	1,560
Poland	83	69.3	152.5
Portugal	1,022	694.4	1,716
Romania*	1.69	1.3	3
Slovakia	5	0	5
Slovenia	0	0	0
Spain	10,028	1587.16	11,615
Sweden	509.5	62.15	572
UK	1,332	634.4	1,963
EU-15	40,301	7,404	47,644
EU-10	199.2	183.7	383
EU-25	40,500	7,587.9	48,027
EU-27	40,511	7,611	48,062



EU-25 Country Shares of New Wind Power in 2006 by Support System



Source: EWEA + EREF



Why is Feed-In Winning?

- Investor confidence is very high!
 - The price/kWh is known at the time of investment decision for the project lifetime ($\leftarrow \rightarrow$ certificate values are unknown and changing)
 - =less risk
- No annual changes (quotas, bidding rounds); no frustration
- Less government interference and hence empowering the people to invest
- Incentive for development of wind turbine manufacturing in a competitive market



China's Position in the World

New capacity	MW	Market share
US	2,454	16.1%
Germany	2,233	14.7%
India	1,840	12.1%
Spain	1,587	10.4%
China	1,347	8.9%
France	810	5.3%
Canada	776	5.1%
Portugal	694	4.6%
UK	634	4.2%
Italy	417	2.7%
Top 10 – Total	12,792	84.2%
Rest of the world	2,405	15.8%
World total	15,197	

Total capacity	MW	Market share
Germany	20,622	27.8%
Spain	11,615	15.6%
US	11,603	15.6%
India	6,270	8.4%
Denmark	3,136	4.2%
China	2,604	3.5%
Italy	2,123	2.9%
UK	1,963	2.6%
Portugal	1,716	2.3%
France	1,567	2.1%
Top 10 - Total	63,217	85.2%
Rest of the World	11,004	14.8%
World total	74,221	

Source:





1347 MW new Capacity in 2006 Doubling of Installed Wind Power

Some Questions for discussion:

- How was this achieved?
- **Does China have a successful tendering system?**
- Or is there a different mechanism at work?
- → only 200 MW of new capacity are concession projects *)
- Has the rest really been tendered? What is the driving force?

*) Source: Wind Power Monthly No.3 2007 page 38