A clean energy source is going global - the status of wind power development around the world

Klaus Rave
Chairman
Global Wind Energy Council

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Who does GWEC represent?

Members are the leading national and continental associations representing the different continents, plus the major turbine and components manufacturers, developers and energy companies.

The members of GWEC represent:

- Over 1,500 companies, organisations and institutions in 70 countries
- 99% of the world's installed wind power capacity

Uniting the Global Wind Industry

C0 Members

C2 Members

Associations

GWEC - Uniting the global wind industry and its representative associations

Presentation outline

1. Global market status
2. Projections 2010-2014
3. Global Wind Energy Outlook 2010
4. Conclusions

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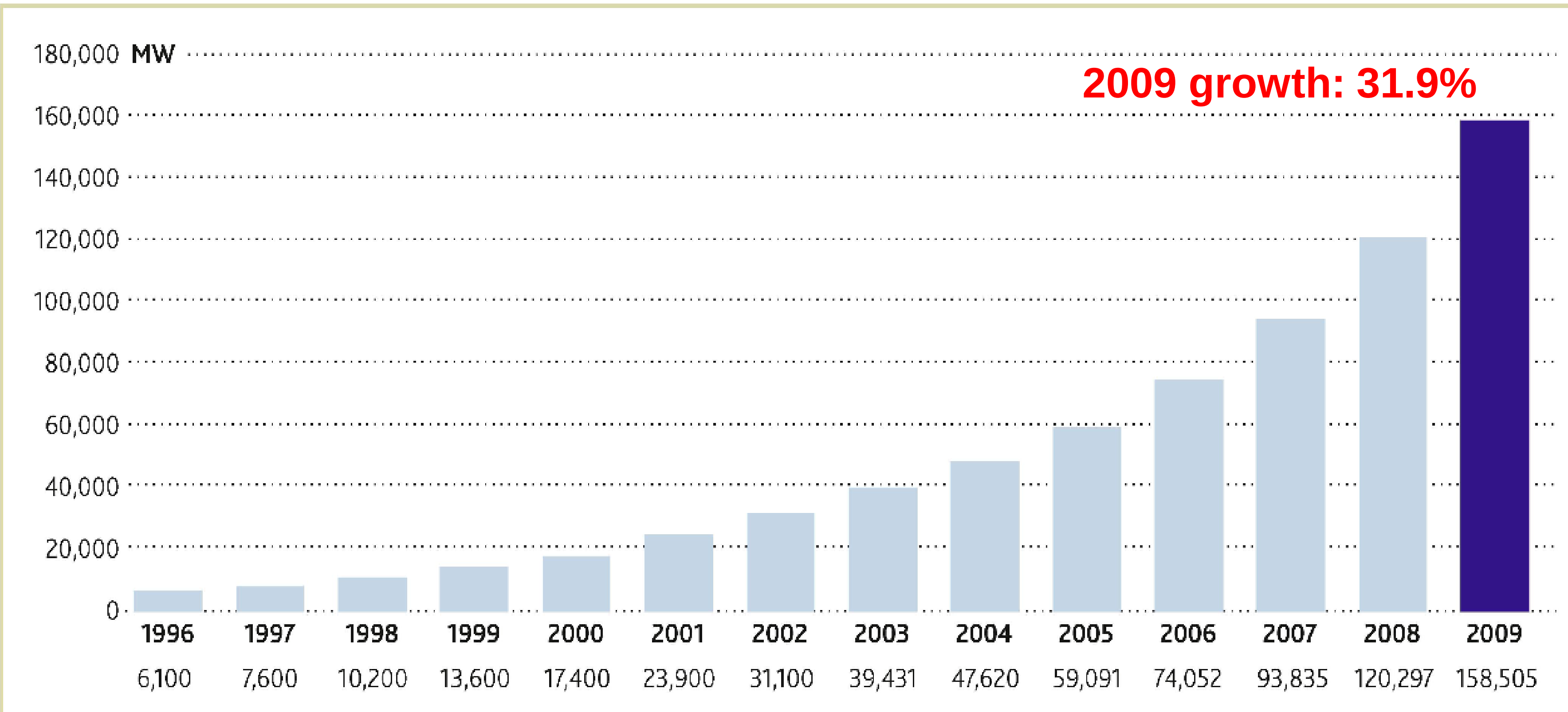
Cumulative Installed Capacity

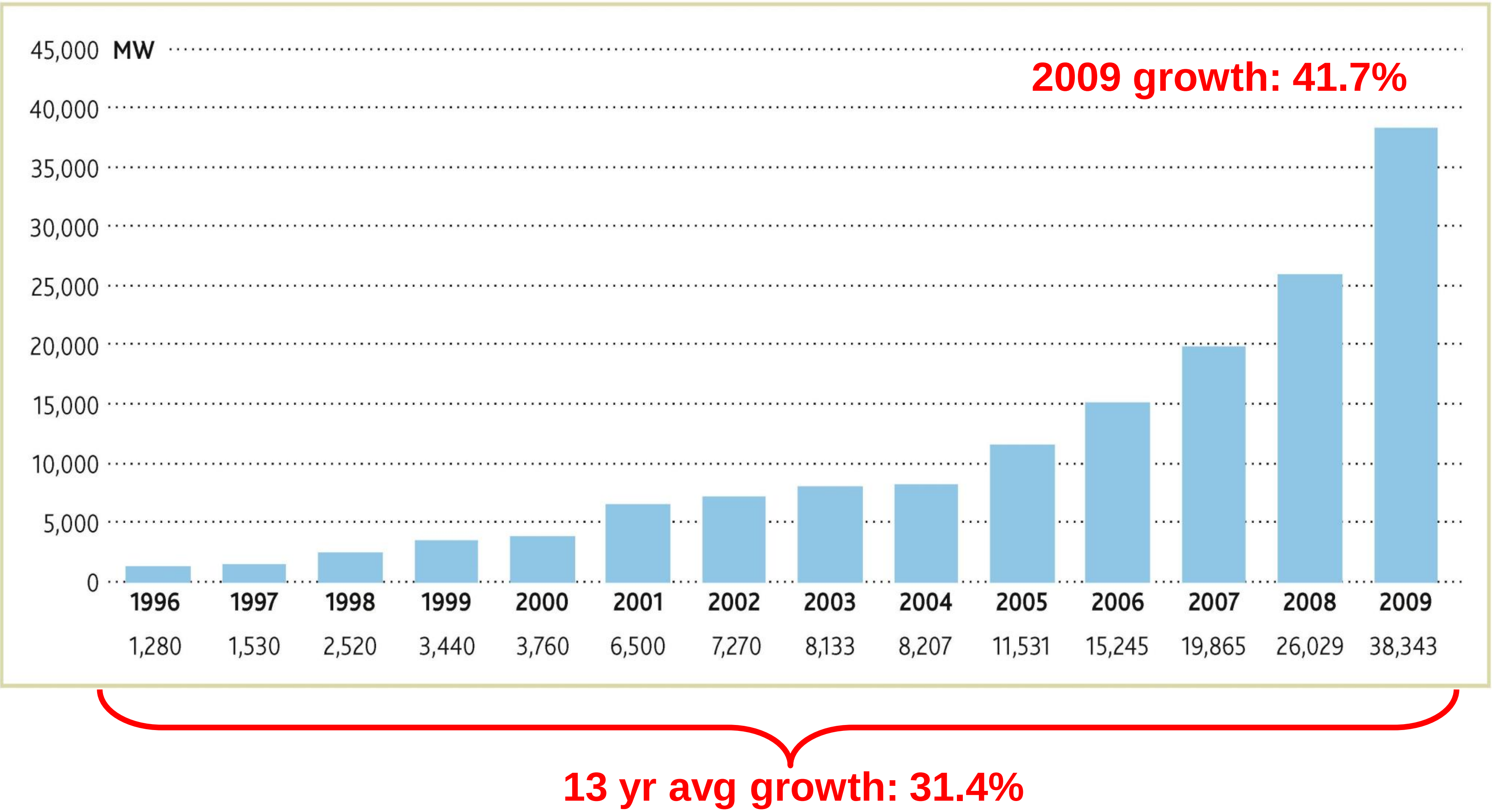
GLOBAL CUMULATIVE INSTALLED CAPACITY 1996-2009



13 yr avg growth: 28.6%

Annual Installed Capacity

GLOBAL ANNUAL INSTALLED CAPACITY 1996-2009



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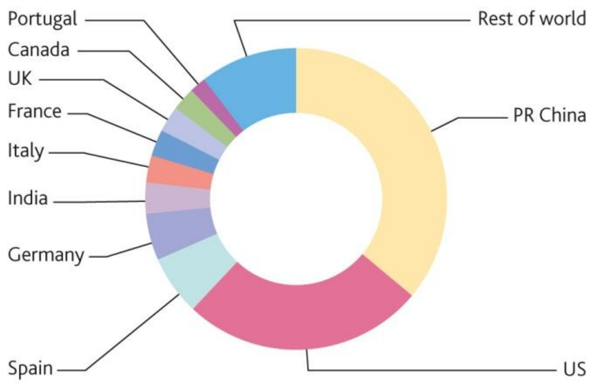
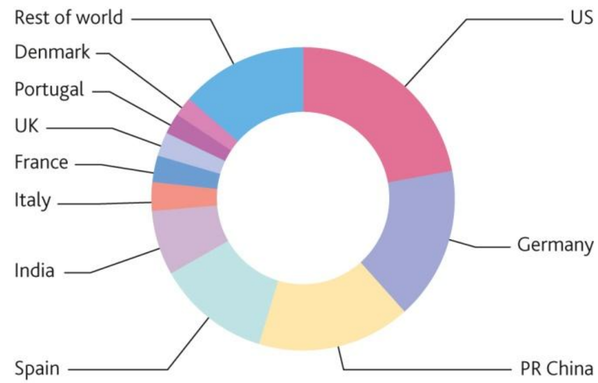
2009 Market Leaders

TOP 10 NEW INSTALLED CAPACITY 2009



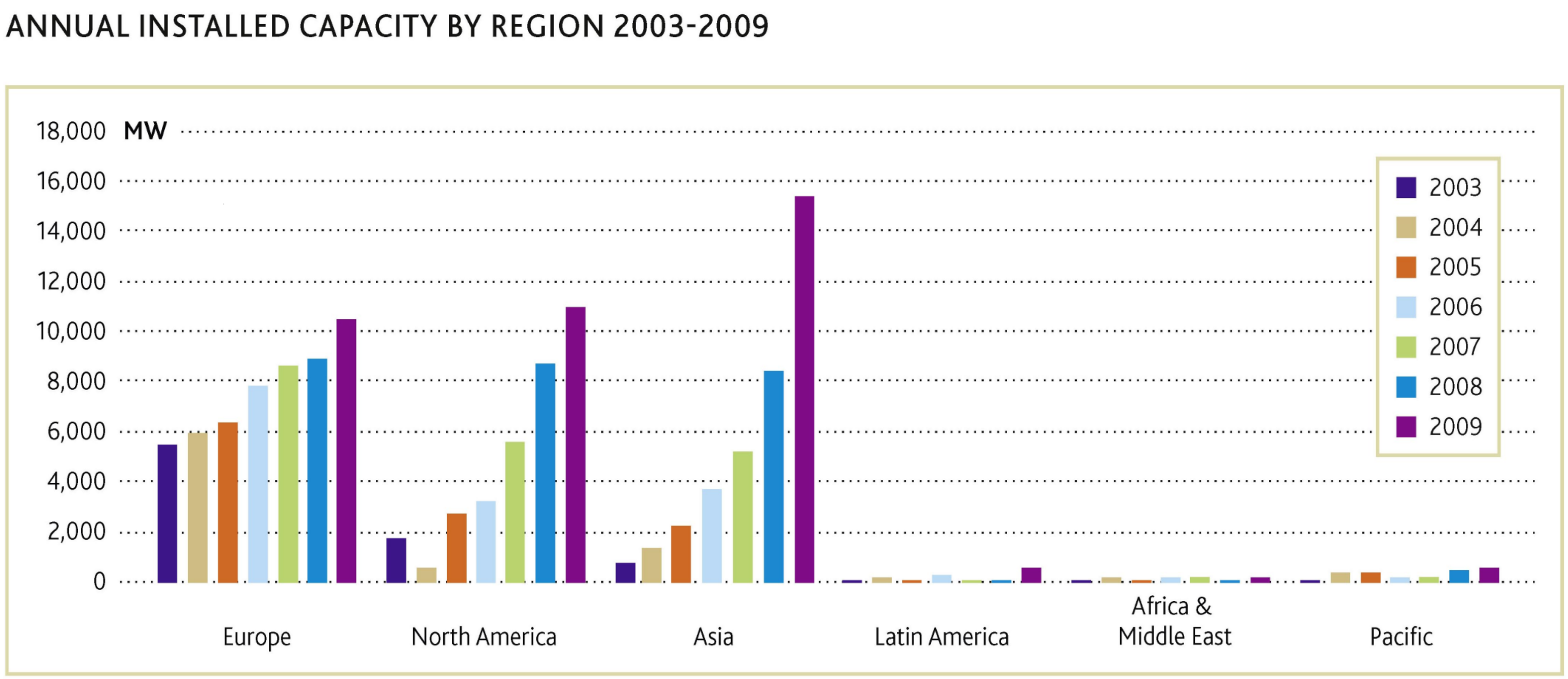
	MW	%
PR China	13,803	36.0
US	9,996	26.1
Spain	2,459	6.4
Germany	1,917	5.0
India	1,271	3.3
Italy	1,114	2.9
France	1,088	2.8
UK	1,077	2.8
Canada	950	2.5
Portugal	673	1.8
Rest of world	3,994	10.4
Total top 10	**34,349**	**89.6**
World total	**38,343**	**100.0**

TOP 10 CUMULATIVE INSTALLED CAPACITY 2009



	MW	%
US	35,064	22.1
PR China	25,805	16.3
Germany	25,777	16.3
Spain	19,149	12.1
India	10,926	6.9
Italy	4,850	3.1
France	4,492	2.8
UK	4,051	2.6
Portugal	3,535	2.2
Denmark	3,465	2.2
Rest of world	21,391	13.5
Total top 10	**137,114**	**86.5**
World total	**158,505**	**100.0**

Regional Breakdown



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Summary Status

- Three main markets: Europe, North America and Asia – strong political commitment and framework in EU and China; US and Canada uncertain

- China now home to largest manufacturing industry – #1 market in 2009, and #1 overall early in the next decade

- European market continues to broaden – new boom with offshore getting underway

- Latin America, Africa and the Pacific continue 'on the verge of take-off'

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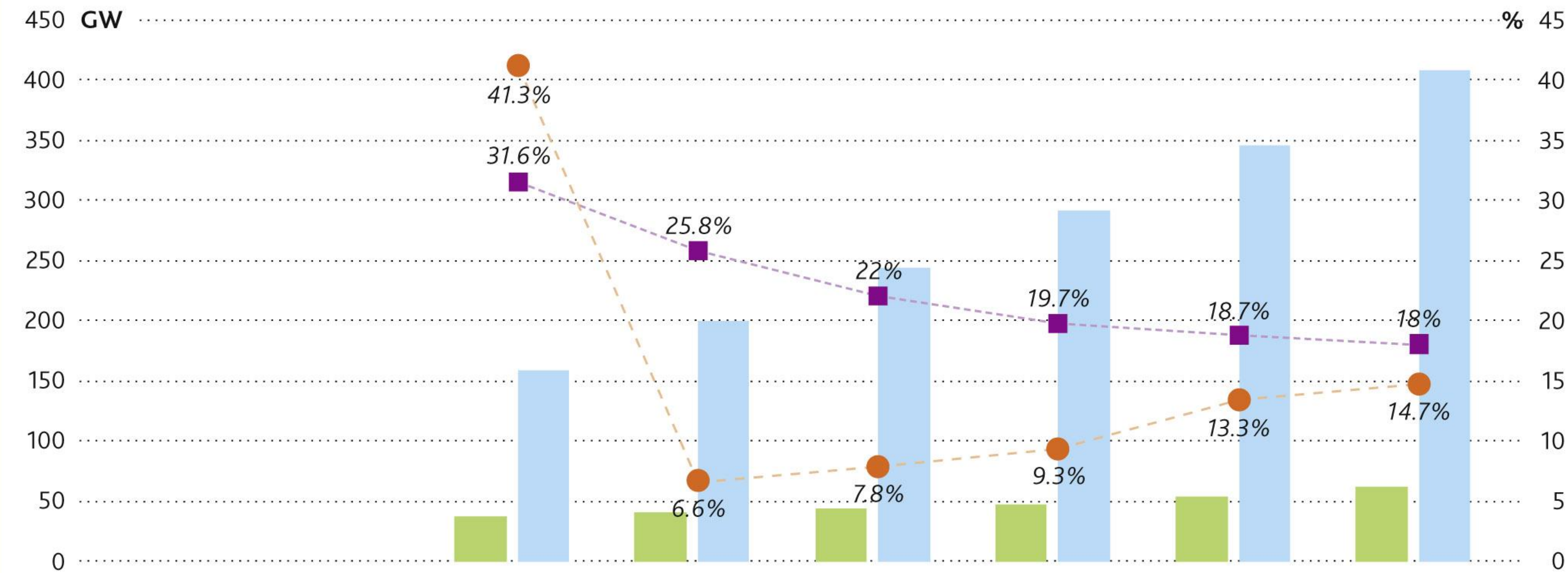
Projections up to 2014

MARKET FORECAST 2010-2014



	2009	2010	2011	2012	2013	2014
Annual installed capacity [GW]	38.3	40.8	44.0	48.1	54.5	62.5
Cumulative [GW]	158.5	199.9	243.9	292.0	346.5	409.0
Cumulative capacity growthrate [%]	31.6	25.8	22.0	19.7	18.7	18.0
Annual installed capacity growthrate [%]	41.3	6.6	7.8	9.3	13.3	14.7

Annual market 2009-14 by region

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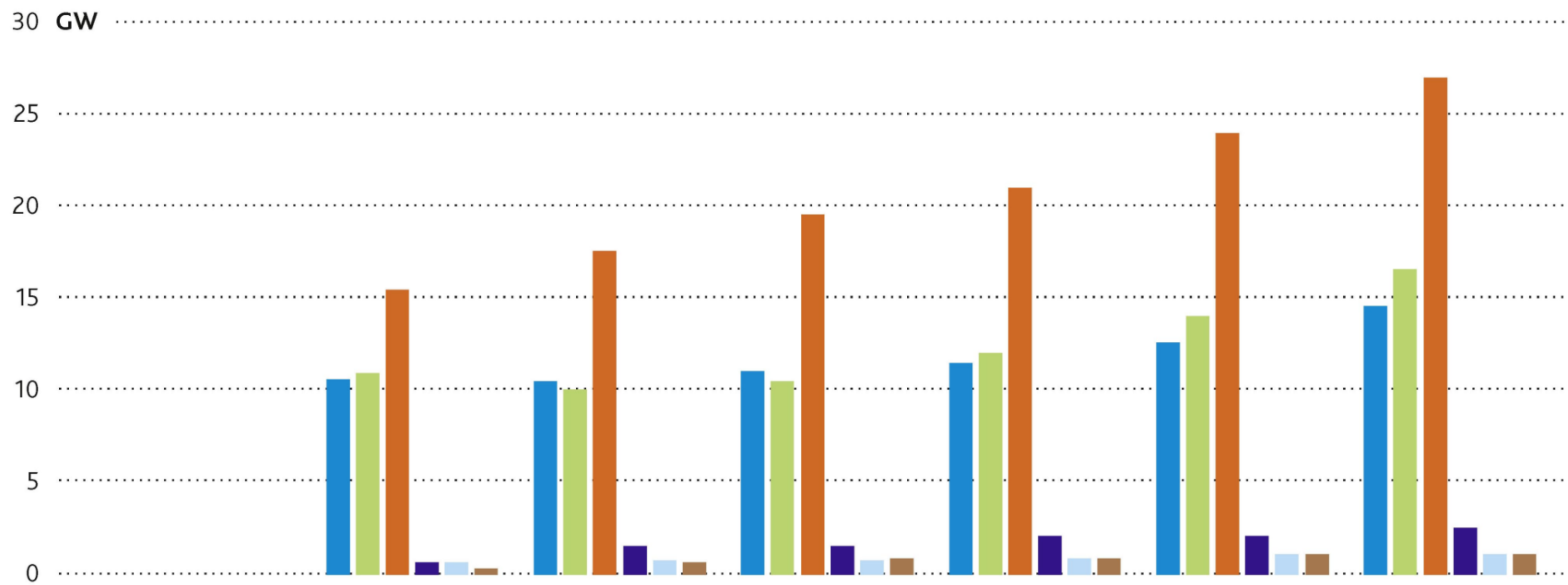
ANNUAL MARKET FORECAST BY REGION 2009-2013



	2009	2010	2011	2012	2013	2014
Europe	10.5	10.5	11.0	11.5	12.5	14.5
North America	10.9	10.0	10.5	12.0	14.0	16.5
Asia	15.4	17.5	19.5	21.0	24.0	27.0
Latin America	0.6	1.5	1.5	2.0	2.0	2.5
Pacific	06	0.7	0.7	0.8	1.0	1.0
Middle East and Africa	0.2	0.6	0.8	0.8	1.0	1.0

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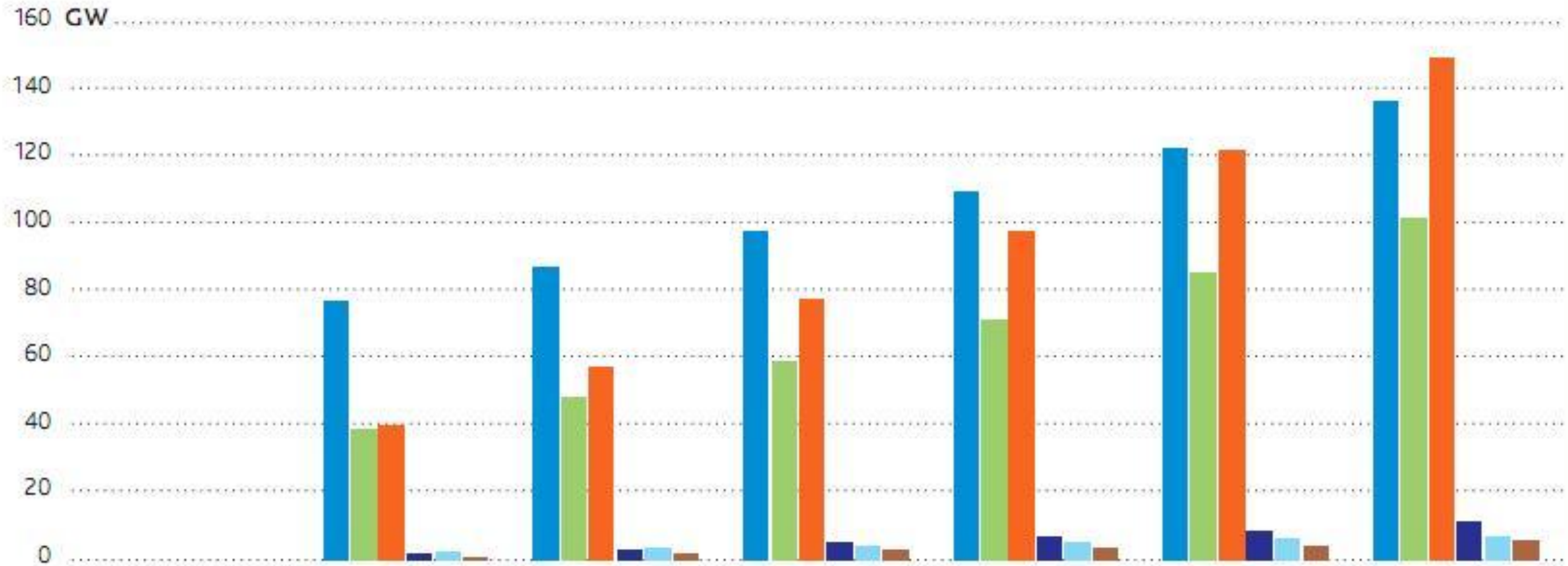
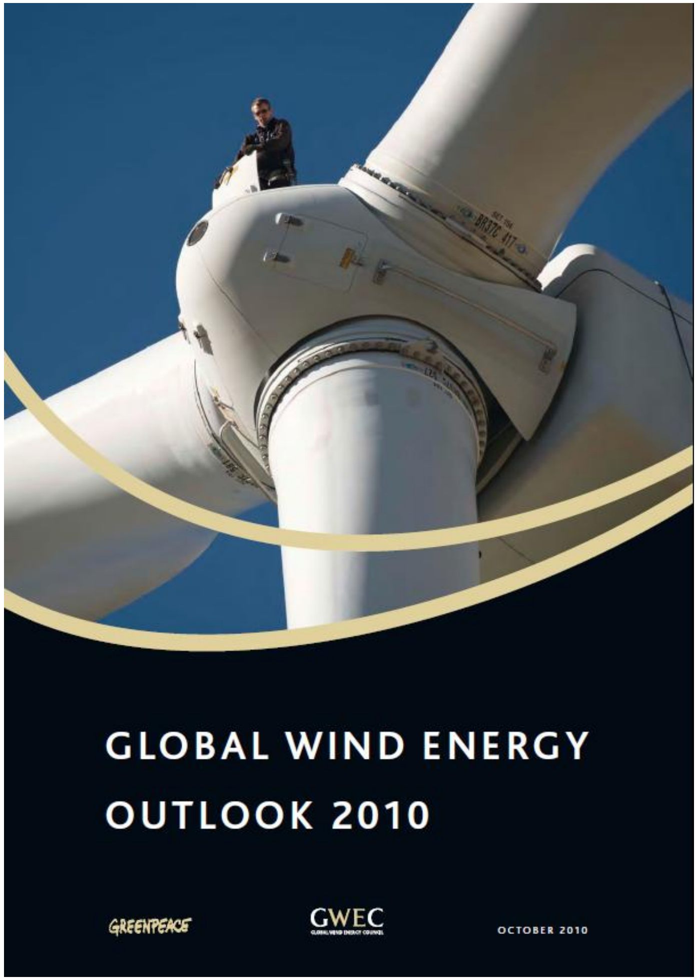
Cumulative 2009-2014 by region

CUMULATIVE MARKET FORECAST BY REGION 2009-2013



	2009	2010	2011	2012	2013	2014
Europe	76.2	87.0	98.0	109.5	122.0	136.5
North America	38.4	48.5	59.0	71.0	85.0	101.5
Asia	39.6	57.3	76.8	97.8	121.8	148.8
Latin America	1.3	2.7	4.2	6.2	8.2	10.7
Pacific	2.2	2.9	3.6	4.4	5.4	6.4
Middle East and Africa	0.9	1.5	2.3	3.1	4.1	5.1

Global Wind Energy Outlook 2010



Global Wind Energy Outlook 2010
Key findings:

- 2008 and 2009 markets ahead of Advanced scenario

- 2010-2015 growth updated to reflect actual development

- IEA Reference scenario more positive: up from 231 GW to 415 GW for 2020; and from 415 GW to 573 for 2030

-Reflects increasing credibility of wind power with key international bodies

- Even stronger than predicted growth in Asia, mainly in China

- Emerging markets: Latin America, Non-OECD Asia, Africa, promising signs in each

Global Wind Energy Outlook 2010

The Scenarios – Main Assumptions

“Reference” scenario:

- most conservative scenario, based on International Energy Agency (IEA) 2009 World Energy Outlook
- IEA assessment has then been extended up to 2050 using input from DLR

“Moderate” scenario:

- takes into account all policy measures to support renewable energy either under way or planned around the world
- assumes that renewables or wind targets set by many countries are successfully implemented

“Advanced” scenario:

- assumption is that all policy options in favour of renewable energy are selected and the political will is there to carry them out

GWEO 2010 - Production

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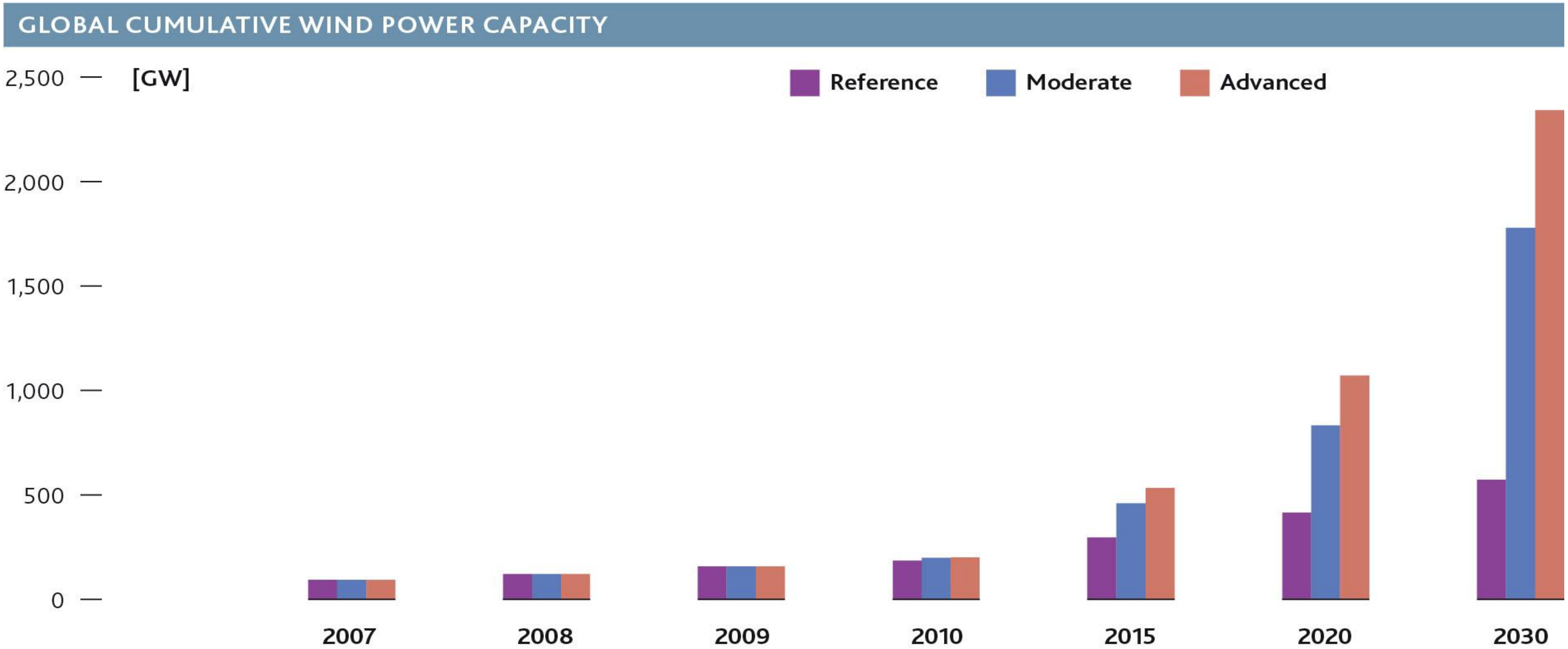

	2007	2008	2009	2010	2015	2020	2030
Reference [MW]	93,864	120,297	158,505	185,258	295,783	415,433	572,733
[TWh]	206	263	347	406	725	1,019	1,405
Moderate [MW]	93,864	120,297	158,505	198,717	460,364	832,251	1,777,550
[TWh]	206	263	347	435	1,129	2,041	4,360
Advanced [MW]	93,864	120,297	158,505	201,657	533,233	1,071,415	2,341,984
[TWh]	206	263	347	442	1,308	2,628	5,429

Wind's share of global power supply

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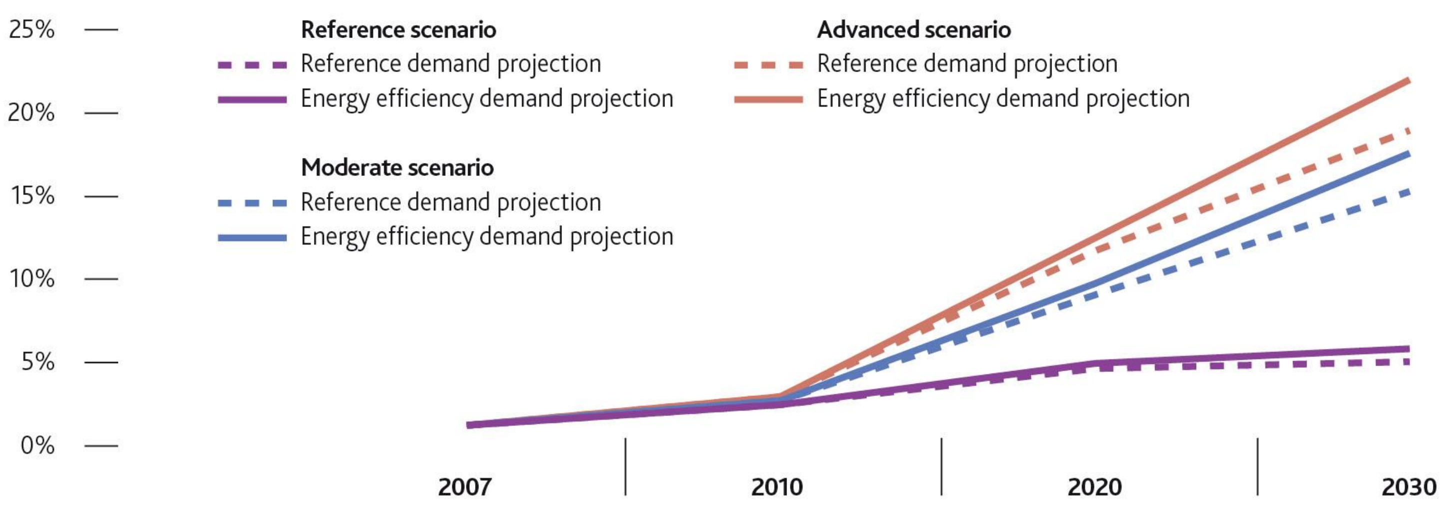
WIND POWER SHARE OF GLOBAL ELECTRICITY DEMAND



	2007	2010	2020	2030
Reference scenario				
Reference demand projection	1.1%	2.3%	4.5%	4.9%
Energy efficiency demand projection	1.1%	2.3%	4.8%	5.6%
Moderate scenario				
Reference demand projection	1.1%	2.4%	8.9%	15.1%
Energy efficiency demand projection	1.1%	2.5%	9.5%	17.5%
Advanced scenario				
Reference demand projection	1.1%	2.5%	11.5%	18.8%
Energy efficiency demand projection	1.1%	2.5%	12.3%	21.8%

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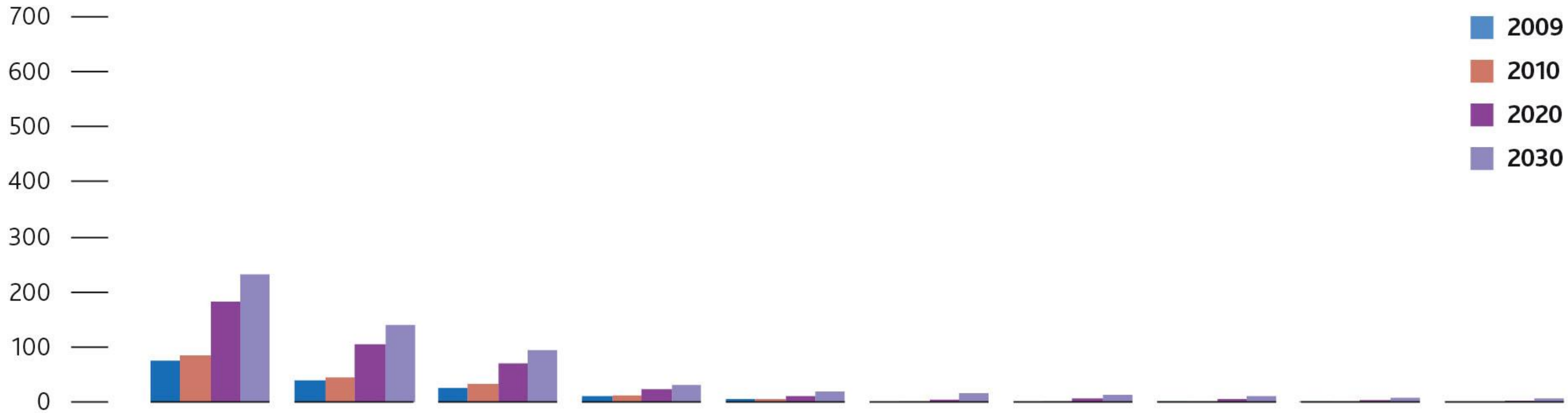
Regional breakdown: Reference

REGIONAL BREAKDOWN: REFERENCE SCENARIO



[GW]	OECD Europe	OECD North America	China	India	OECD Pacific	Non-OECD Asia	Eastern Europe/ Eurasia	Latin America	Africa	Middle East
2009	76	39	26	11	5	0,5	0,4	1	0,8	0,1
2010	86	45	33	12	5	0,6	0,9	2	1	0,1
2020	184	106	70	24	11	4	6	5	3	2
2030	234	141	95	31	19	16	13	11	8	6

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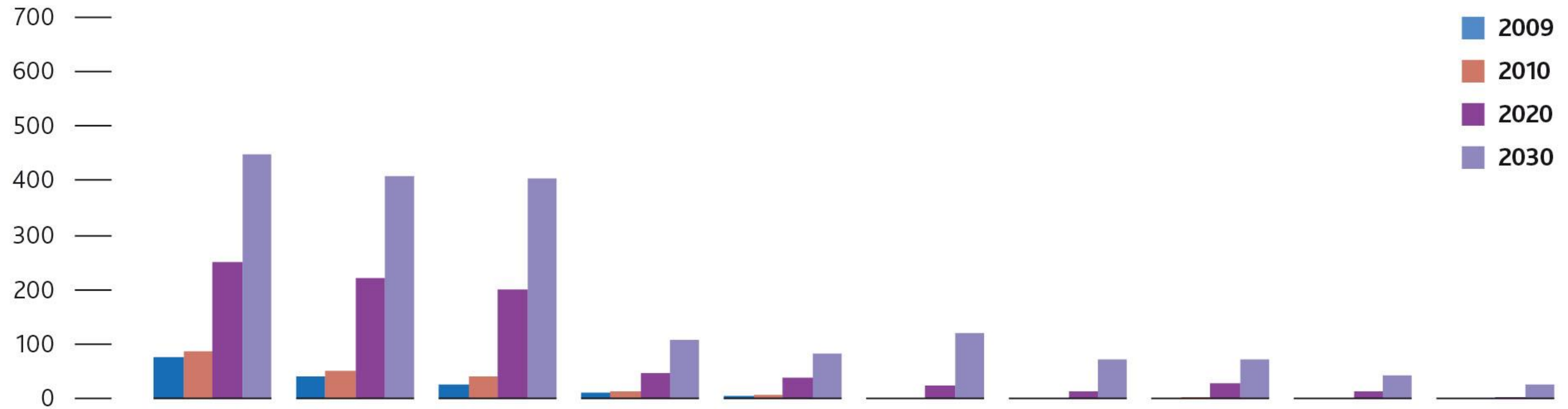
Regional breakdown: Moderate

REGIONAL BREAKDOWN: MODERATE SCENARIO



[GW]	OECD Europe	OECD North America	China	India	OECD Pacific	Non-OECD Asia	Eastern Europe/ Eurasia	Latin America	Africa	Middle East
2009	76	39	26	11	5	0,5	0,5	1	0,8	0,1
2010	87	50	40	13	6	0,7	0,9	2	1	0,1
2020	251	220	200	46	37	24	12	28	12	2
2030	447	407	404	108	81	120	71	72	42	25

Regional breakdown: Advanced

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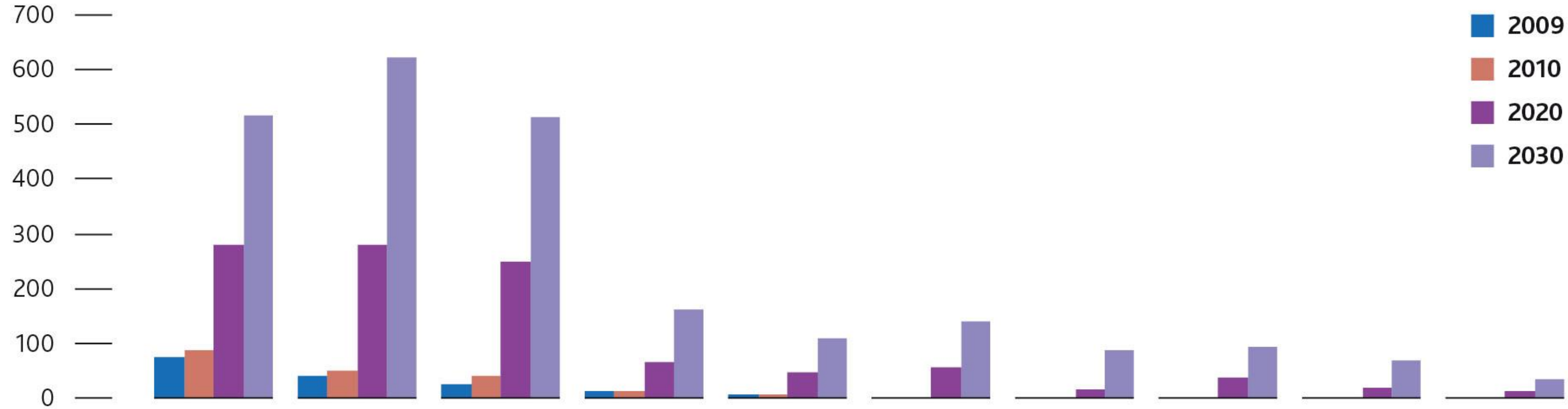
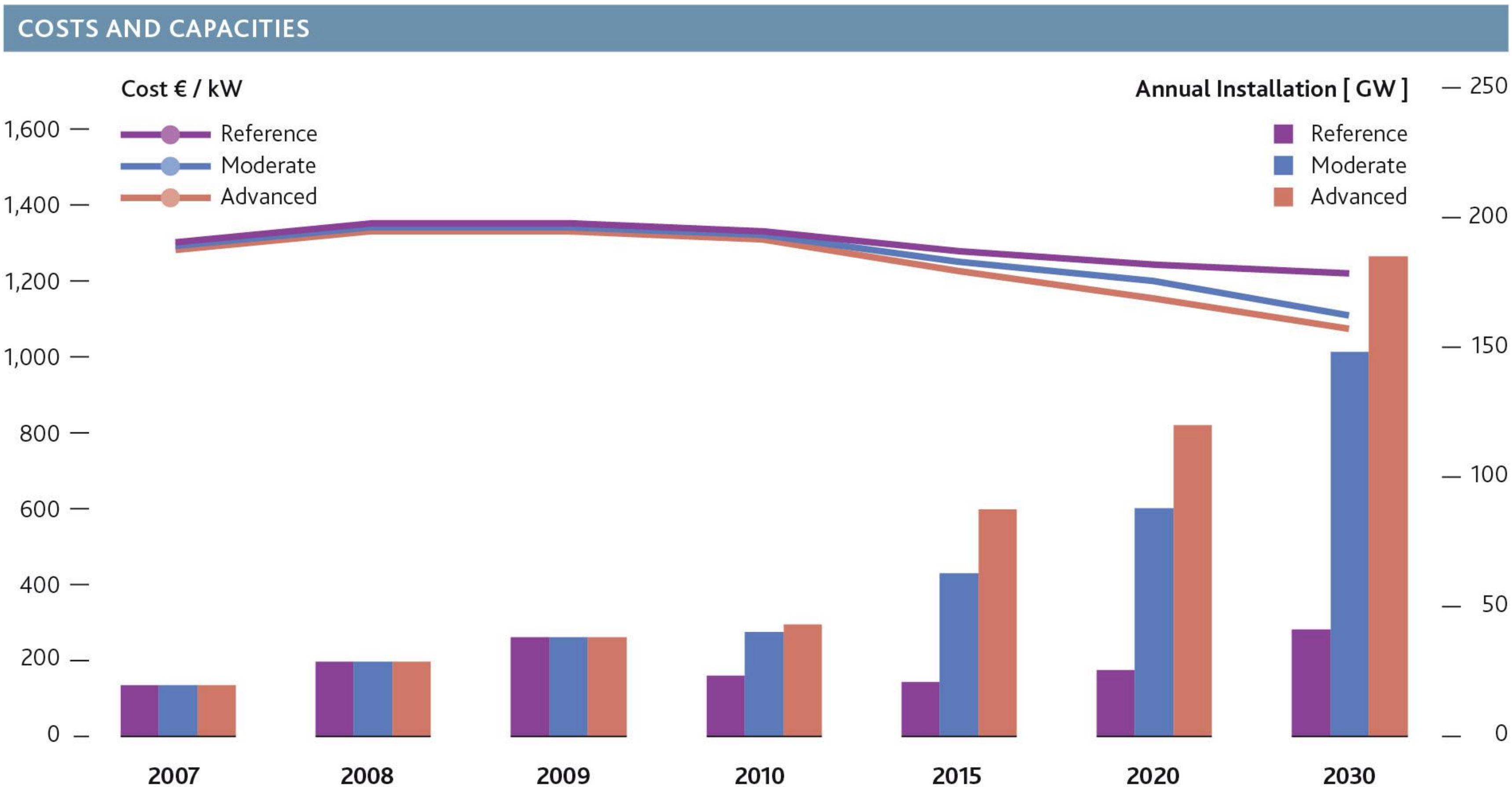
REGIONAL BREAKDOWN: ADVANCED SCENARIO



[GW]	OECD Europe	OECD North America	China	India	OECD Pacific	Non-OECD Asia	Eastern Europe/ Eurasia	Latin America	Africa	Middle East
2009	76	39	26	11	5	0,5	0,5	1	0,8	0,1
2010	87	50	41	13	6	0,7	0,9	2	1	0,1
2020	279	279	250	65	48	55	16	37	19	11
2030	515	622	513	161	109	140	87	93	67	34

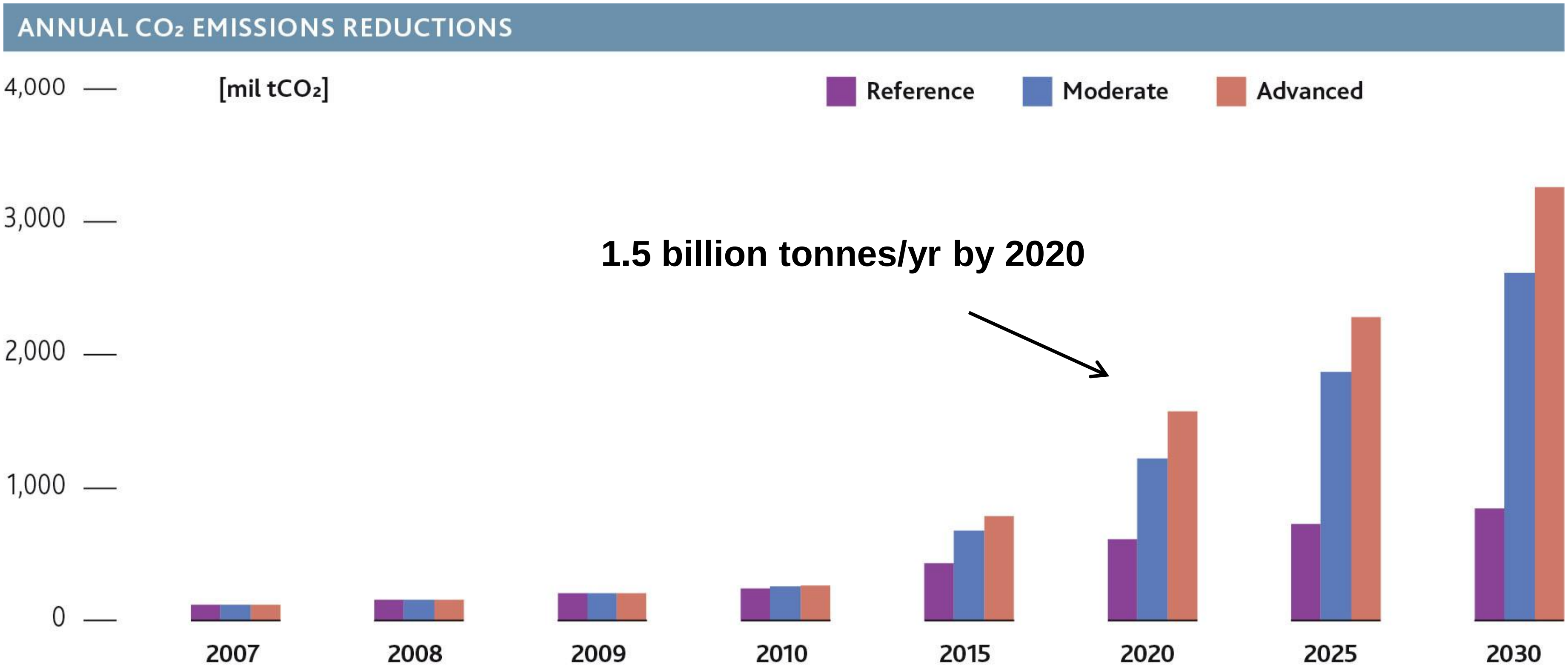
Cost developments



Investment and Employment

INVESTMENT AND EMPLOYMENT	2007	2008	2009	2010	2015	2020	2030
Reference							
Annual Installation [MW]	19,865	28,700	38,343	26,735	20,887	25,712	41,219
Cost [€ / kW]	1,300	1,350	1,350	1,327	1,276	1,240	1,216
Investment [€ million /year]	25,824	38,745	51,763	35,507	26,649	31,894	50,136
Employment [job year]	329,232	470,559	627,927	462,982	411,801	524,027	809,006
Moderate							
Annual Installation [MW]	19,865	28,700	38,343	40,212	62,887	88,133	148,416
Cost [€ / kW]	1,300	1,350	1,350	1,329	1,258	1,208	1,116
Investment [€ million /year]	25,824	38,745	51,763	53,459	79,109	106,504	165,691
Employment [job year]	329,232	470,559	627,927	629,137	1,033,721	1,422,874	2,372,911
Advanced							
Annual Installation [MW]	19,865	28,700	38,343	43,263	87,641	120,135	185,350
Cost [€ / kW]	1,300	1,350	1,350	1,328	1,245	1,172	1,093
Investment [€ million /year]	25,824	38,745	51,763	57,450	109,072	140,762	202,600
Employment [job year]	329,232	470,559	627,927	672,827	1,404,546	1,918,530	3,004,081

Carbon dioxide savings



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Conclusions

Market conditions:

- Asian market driving global growth
- European market solid and steady
- North America uncertain
- Hopeful signs in Latin America, Africa
- Downward price pressure continues
- International commodity price volatility returns with economic recovery

Market drivers all still in place, and increasingly prominent:

energy security; cost stability; macroeconomic security; local economic development and job creation; local environment and climate

Thank you

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"WHAT NATURE DELIVERS TO US IS NEVER STALE.
BECAUSE WHAT NATURE CREATES HAS ETERNITY IN IT."

For more information:
Klaus Rave
klaus.rave@ib-sh.de
www.gwec.net