GWEC
GLOBAL WIND ENERGY COUNCIL

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Global Wind Market & GWEC/IRENA Policy Project Update

Steve Sawyer, Secretary General

ACEF 2012, Manila

7 June 2012

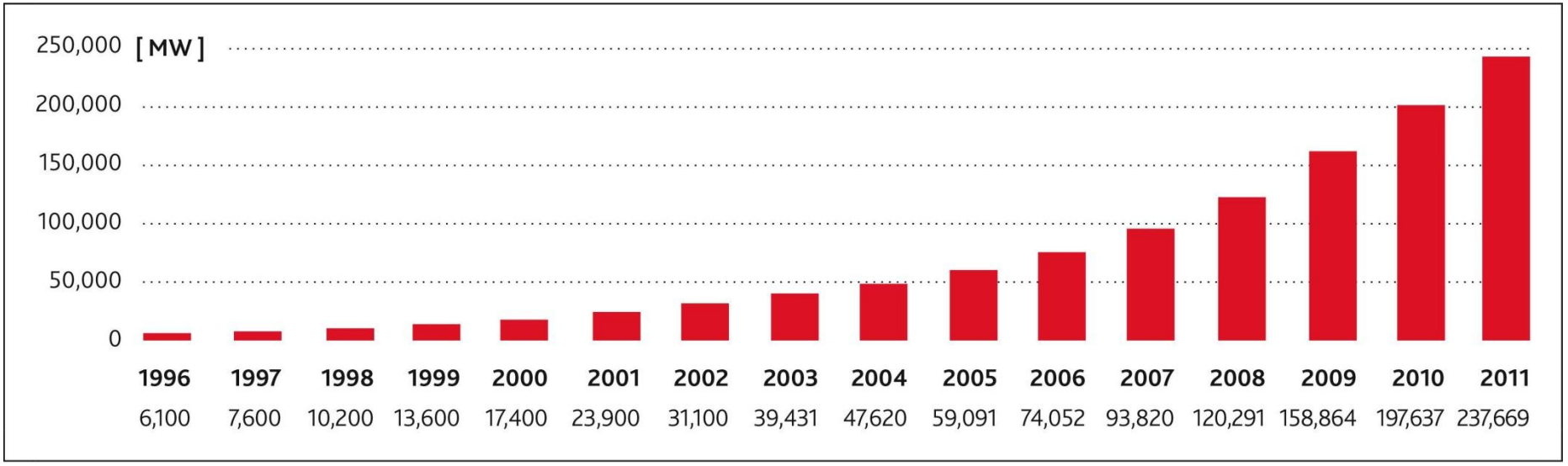
C0 Members

C1 and C2 Members

Associations


2011 growth: 20.3%

Global Cumulative Installed Wind Capacity 1996-2011

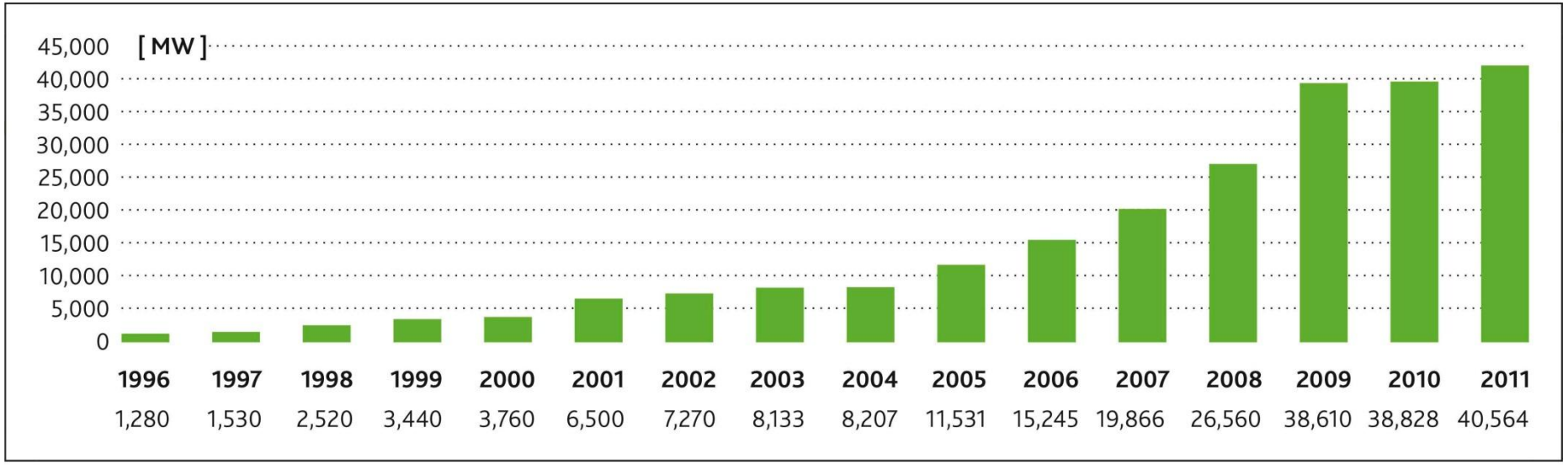


Source: GWEC

15 yr avg growth: 27.7%

2011 growth: 6%

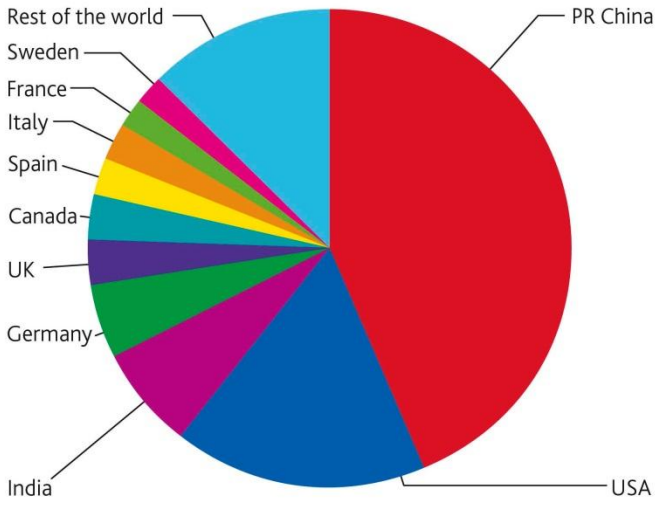
Global Annual Installed Wind Capacity 1996-2011



Source: GWEC

15 yr avg growth: 27.5%

Top 10 new installed capacity Jan-Dec 2011

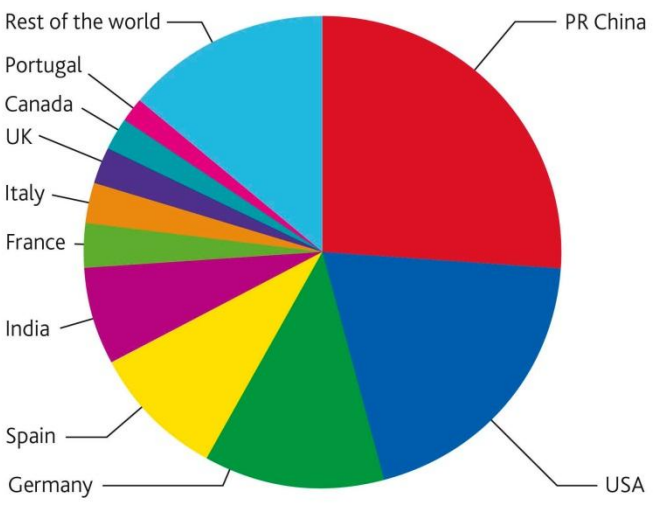


Country	MW	% SHARE
PR China	17,631	43
USA	6,810	17
India	3,019	7
Germany	2,086	5
UK	1,293	3.2
Canada	1,267	3.1
Spain	1,050	2.6
Italy	950	2.3
France**	830	2.0
Sweden	763	1.9
Rest of the world	4,865	12.0
Total TOP 10	35,699	88
World Total	**40,564**	**100.0**

** *Provisional Figure*

Source: GWEC

Top 10 cumulative capacity Dec 2011

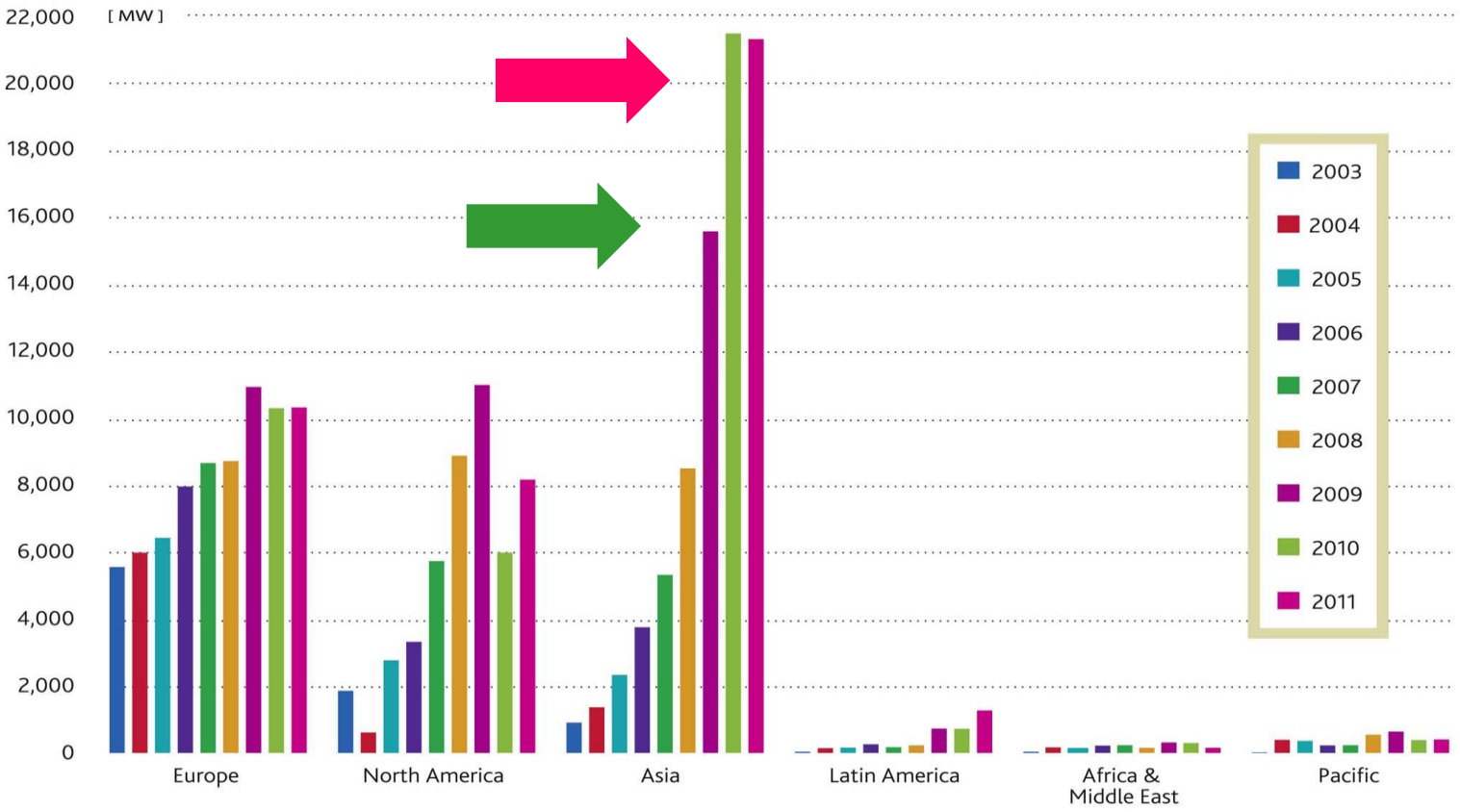


Country	MW	% SHARE
PR China	62,364	26.2
USA	46,919	19.7
Germany	29,060	12.2
Spain	21,674	9.1
India	16,084	6.8
France**	6,800	2.9
Italy	6,737	2.8
UK	6,540	2.7
Canada	5,265	2.2
Portugal	4,083	1.7
Rest of the world	32,143	13.5
Total TOP 10	205,526	86.5
World Total	**237,669**	**100.0**

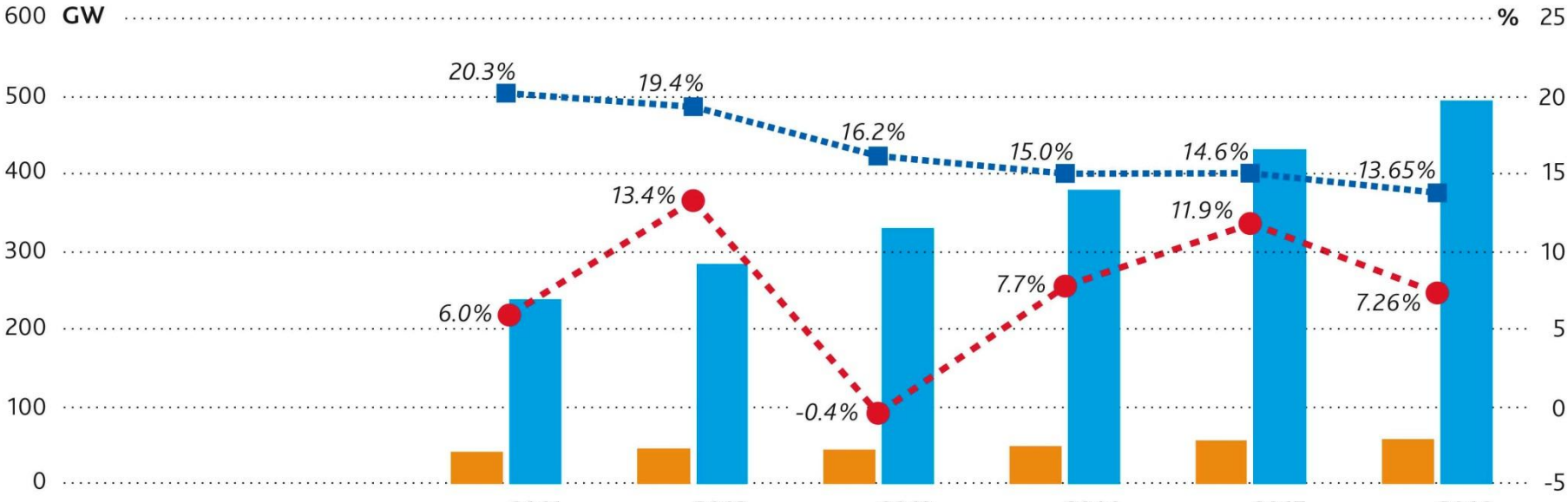
** *Provisional Figure*

Source: GWEC

ANNUAL INSTALLED CAPACITY BY REGION 2003-2011



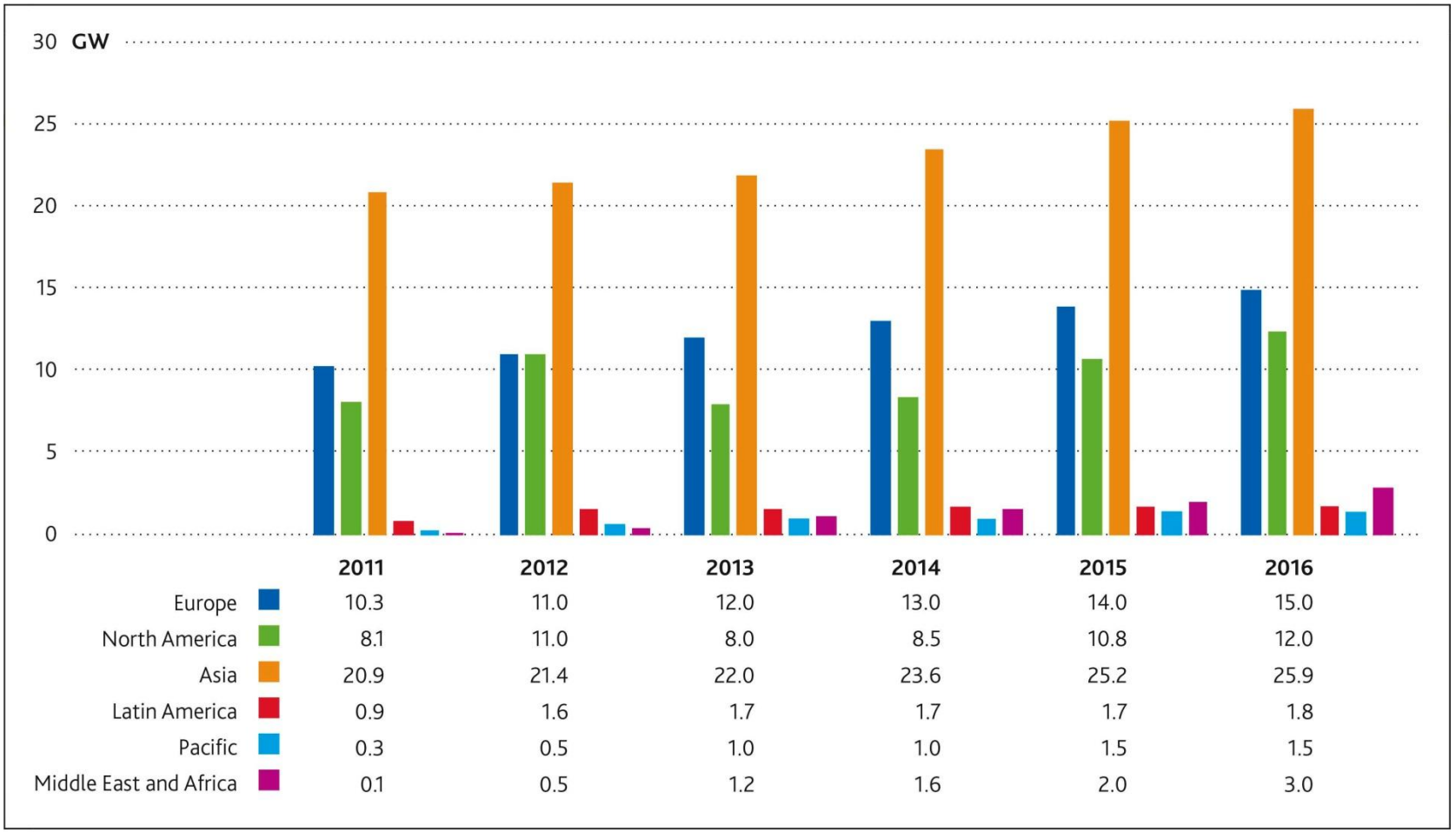
Market Forecast 2012-2016



	2011	2012	2013	2014	2015	2016
Annual installed capacity [GW]	40.6	46.0	45.8	49.4	55.2	59.24
Cumulative capacity [GW]	237.7	283.7	329.5	378.9	434.1	493.33
Annual installed capacity growth rate [%]	6.0%	13.4%	-0.4%	7.7%	11.9%	7.26%
Cumulative capacity growth rate [%]	20.3%	19.4%	16.2%	15.0%	14.6%	13.65%

Source: GWEC

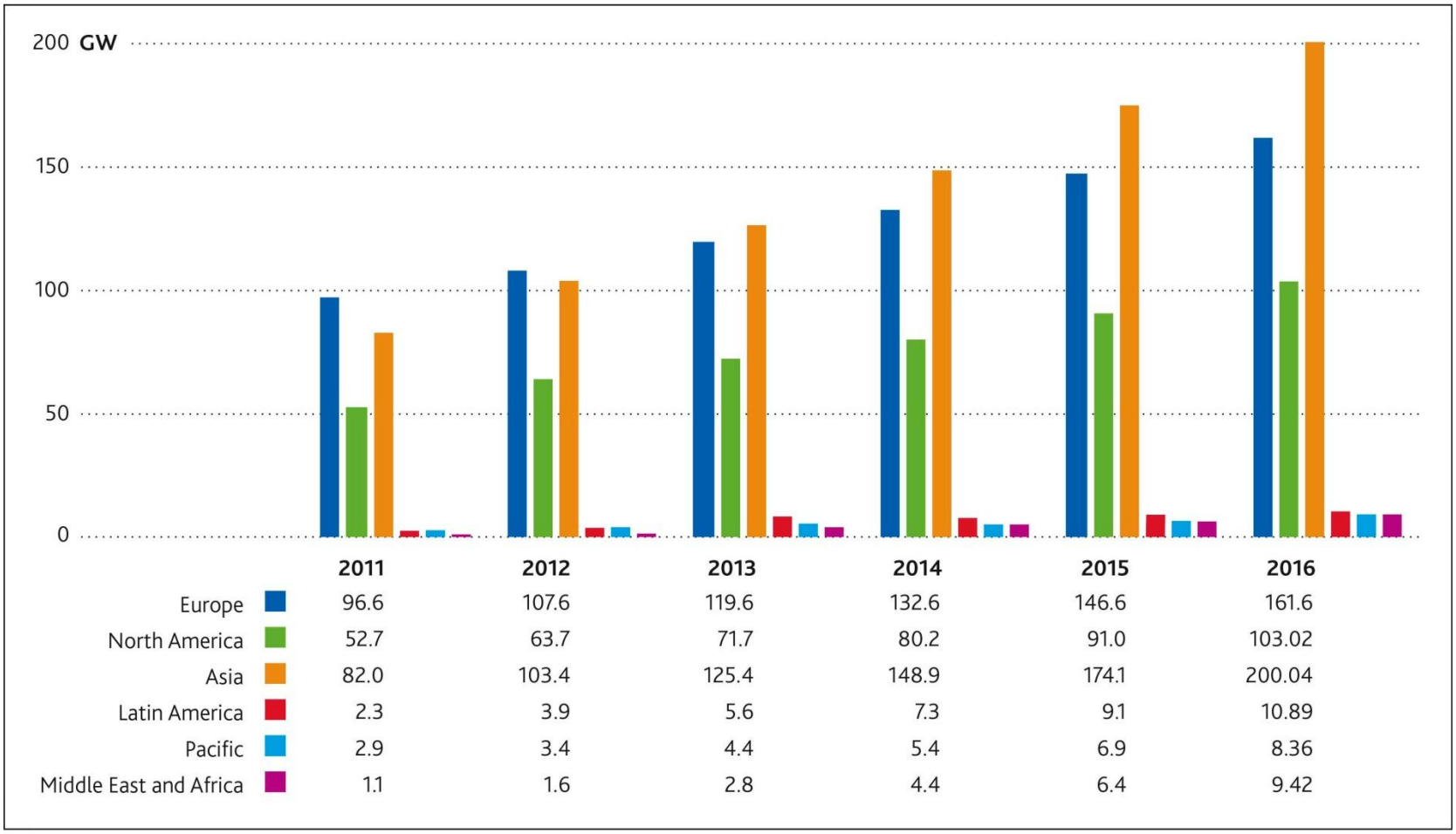
Annual Market Forecast by Region 2012-2016



	2011	2012	2013	2014	2015	2016
Europe	10.3	11.0	12.0	13.0	14.0	15.0
North America	8.1	11.0	8.0	8.5	10.8	12.0
Asia	20.9	21.4	22.0	23.6	25.2	25.9
Latin America	0.9	1.6	1.7	1.7	1.7	1.8
Pacific	0.3	0.5	1.0	1.0	1.5	1.5
Middle East and Africa	0.1	0.5	1.2	1.6	2.0	3.0

Source: GWEC

Cumulative Market Forecast by Region 2012-2016



	2011	2012	2013	2014	2015	2016
Europe	96.6	107.6	119.6	132.6	146.6	161.6
North America	52.7	63.7	71.7	80.2	91.0	103.02
Asia	82.0	103.4	125.4	148.9	174.1	200.04
Latin America	2.3	3.9	5.6	7.3	9.1	10.89
Pacific	2.9	3.4	4.4	5.4	6.9	8.36
Middle East and Africa	1.1	1.6	2.8	4.4	6.4	9.42

Source: GWEC

GWEC/IRENA Wind Policy Study: Objectives

1 - Gather **policy relevant** but not policy prescriptive information on the top wind power markets

2 - Identify the elements of the **support schemes** and **regulatory system** which have been helpful to the development of these wind markets

3 - Present these to a self-identified ‘user group’ as reference for designing their own framework and for further discussion

'Mature' markets analyzed:

Brazil, China, Denmark, Germany, Greece, India, Ireland, Italy, Portugal, Spain, UK, US

IRENA 'user group':

Colombia, Ethiopia, Mongolia, Oman, Peru, Tanzania

General Conditions for a Successful Policy and Regulatory Regime

- Expression of political commitment from government
- Effective rule of law and transparency
- A clear and effective pricing structure
- Provisions for access to the grid
- A functioning finance sector
- An industrial development and employment strategy
- Effective administrative and permitting process
- Government/industry led strategy for public acceptance

List of policy and regulatory options (including but not limited to the following)

✓ National targets (binding or indicative)	✓ Investment tax credits
✓ Feed-in tariffs	✓ Import and tax deferral incentives
✓ Auctions/tendering system	✓ Siting regulations
✓ Renewable Portfolio Standards	✓ Permitting processes
✓ Premium systems	✓ Priority access regulations
✓ Tax based production incentives	✓ Grid codes

Draft Summary Findings

A) An effective policy scheme is the outcome of a learning process:

- China – demo, tender, regional negotiation, FIT
- Brazil – FIT, then to auction

B) Different support mechanisms can/should be adapted to specific phases of market development and market conditions

- Germany – FIT/w degression – stable returns
- Portugal – FIT w/tenders for building industry
- Spain – premium targets ≥7% ROI

C) The type of support scheme depends on the market size and maturity, as well as risk/reward

- UK, Ireland – tendering not the way to start, but is useful later to lower costs;
- Italy, UK – certificates can work but at high costs
- FIT best to start, market later

D) Industrial development strategy should fit size of market

- local content – makes everything more expensive;
- smaller markets – focus on supply chain
- local R & D critical

E) Where federal and state/provincial jurisdictions overlap, try to make complementary rather than conflicting policy;

F) Early engagement with utility/regulator/TSO fundamental to success of the sector – you *will* have grid issues;

G) Community engagement – an ounce of prevention is worth a pound of cure.

Preliminary Policy Impact Analysis

FIT schemes most effective policy mechanism for wind deployment [by early 2011 nearly 64% of the global wind capacity was deployed in markets subject to a FIT regime]

Tax incentives account for 27% of wind capacity (*same period*)

Trade and quota systems offered higher margins for investors though build-out rates have been lower than in FIT markets (2%-5% wind penetration)

Poorly designed **tenders** (or too early) are a risky option as aggressive bidding poses a significant financing and deployment risk for projects – but see Brazil (and Quebec)

Conclusions

Effective policy the single most important driver for wind or other clean energy investments

Different policy schemes imply certain risks that need to be recognized in the policy design phase – *and these are now largely known*

Policy has a large, direct effect on final values for LCOE - cost of both equity and debt dependent upon risk for investors

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Thank you!

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