

Global Wind Energy Research Infrastructures: Grassroots Initiatives

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Wind Energy: World Installed Capacity



Country	Installed in 2011 (MW)	Total Capacity (MW)
China	18 000	62 733
United States	6 810	46 919
Germany	2 007	29 075
Spain	1 050	21 673
India	2 700	15 800
Italy	950	6 747
France	980	6 640
(9) Canada	1 267	5 265
Total	42 175 (+21%)	238 604

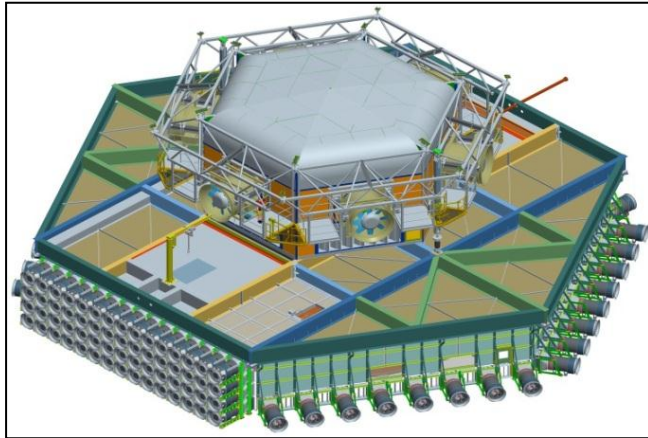
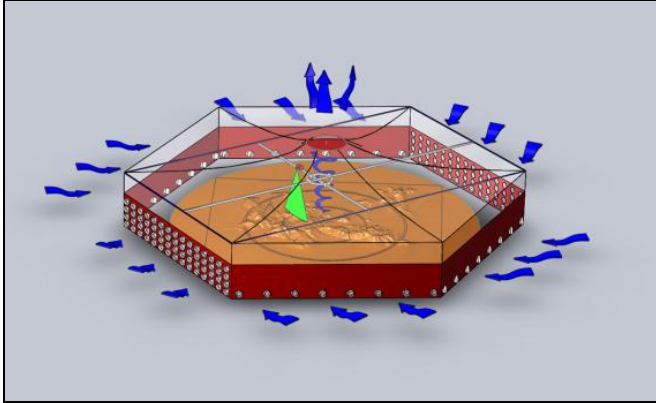
Source: Global Wind Energy Council (GWEC), Global Wind Report Annual Market Update 2012



- **(Wind) Energy is MULTIFACETED (1)**
 - One Infrastructure **CANNOT** tackle all
- **GLOBAL Infrastructures (2)**
 - Unique and Versatile
- **REQUIREMENTS (3)**
 - Global Access
 - Global Support



- **Opposite Stressors:**
 - **Improve Predictions:** siting, terrain and array effects
 - **Mitigate Damage: Local storms** > 65% of damage in interior North America
- **Tools Interfacing: Experimental vs. Numerical**
- **Cohabitation of Energy Forms**
- **Grid Connectivity**
- **Risk, Economic, Decision, Policy**



- Example: WindEEE Dome
Western University, Canada
- Unique:
 - World's first 3D wind chamber
 - Can produce any type of wind system
- Versatile:
 - city blocks, wind farms, complex configurations
 - transmission lines, solar & wind devices



- **Qualifier as Global RI?**
 - Usually Large National Investments
 - Unique + Versatile
- **Open Science**
 - Open to Global Research Community
 - Open to Global Industrial Partners
- **International Funding Mechanisms?**
 - Horizon 2020