Renewable Energy Symposium
2011.9.13

Wind Power

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Kinderdijk, Netherland, from UNESCO Website


Noon on September 9, 2011
Photographer: Chuichi
ARAKAWA


Evening on September 9, 2011
Photographer: Chuichi
ARAKAWA

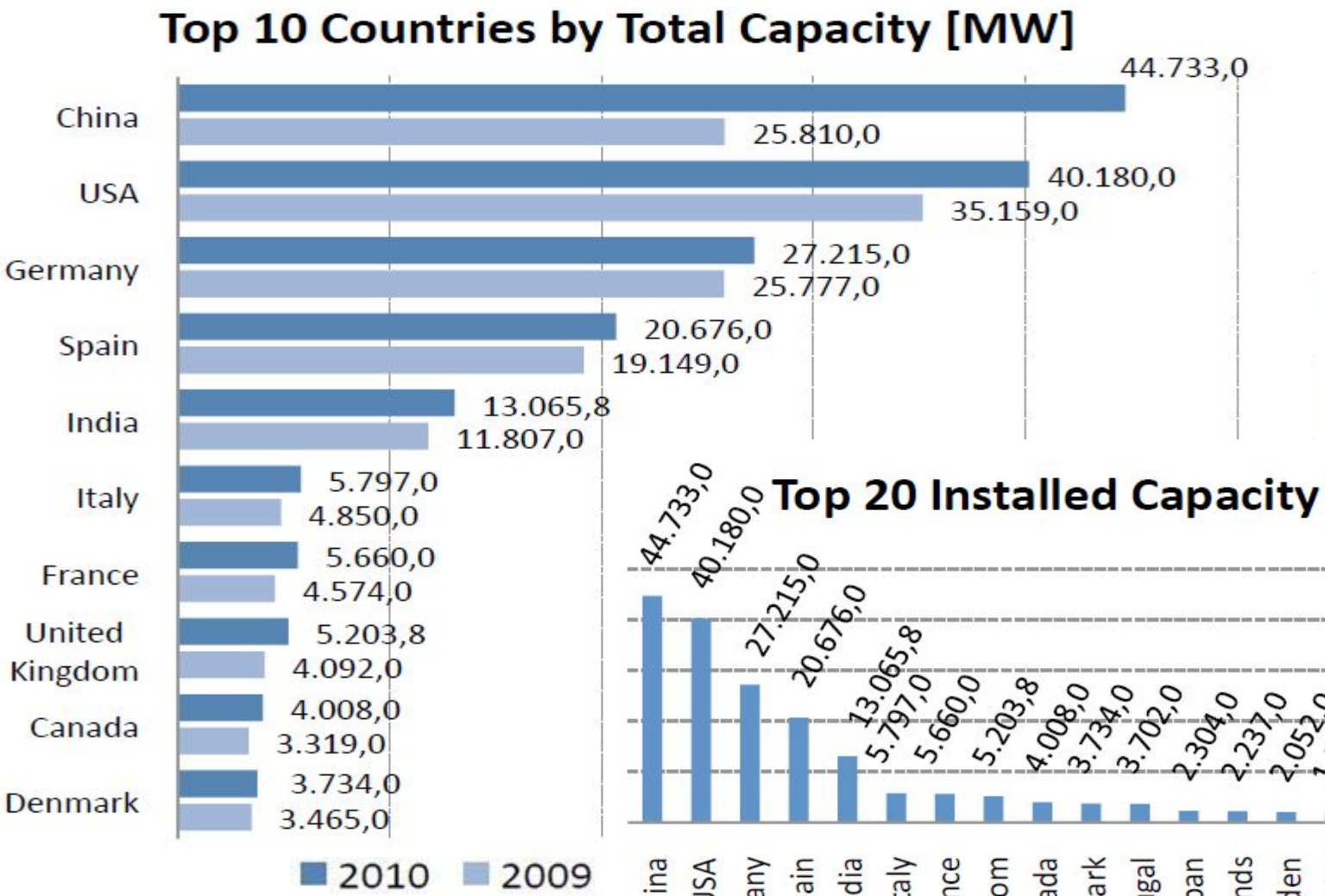

Noon on September 10, 2011
Photographer: Chuichi
ARAKAWA

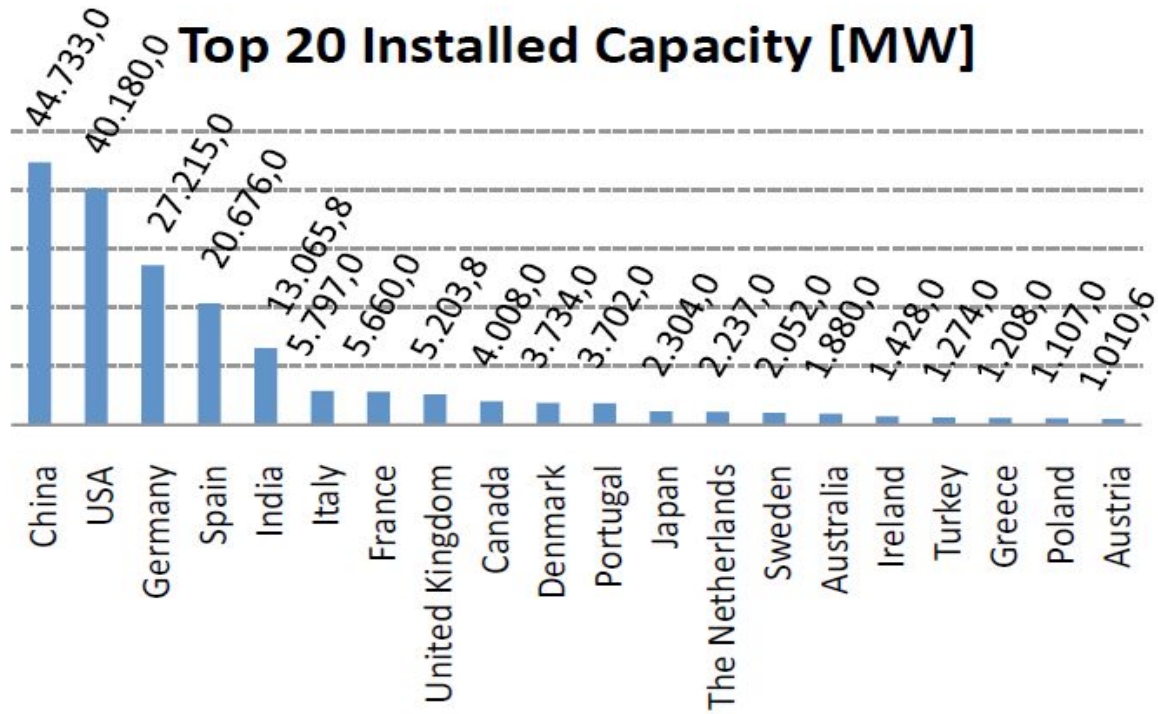
Wind Power Plant of Near-Shore in Tokyo

- Vernacular to Tokyo
- Light-up with Tokyo style
- Internet access
- Education of environment

J-POWER 提供

Total Capacity of Wind Power



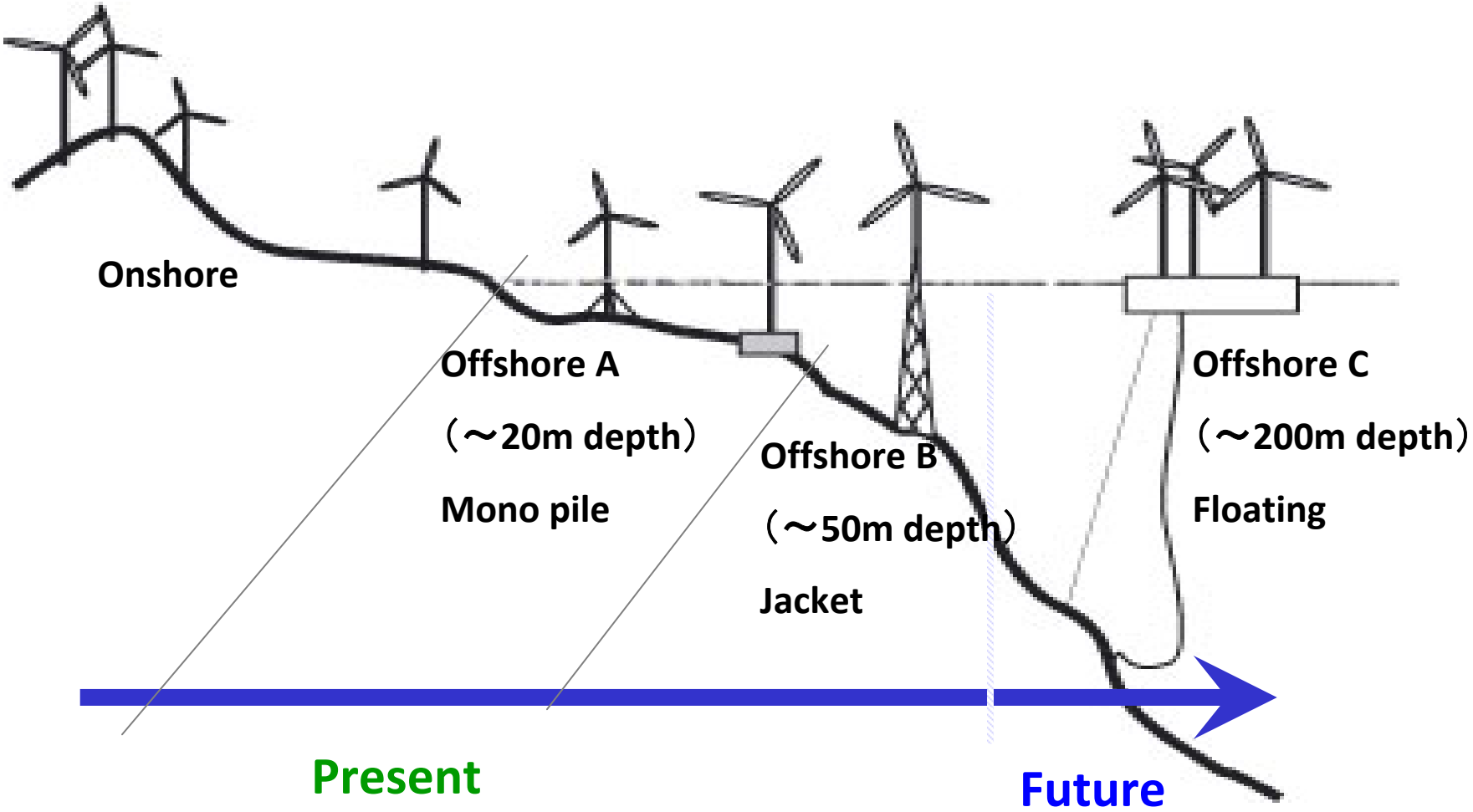


From WWEA Annual Report

Offshore Wind

Middelgrunden, Copenhagen / 2MW x 20

Schematic View of Offshore Wind



Deep Offshore (1) : Alpha Ventus

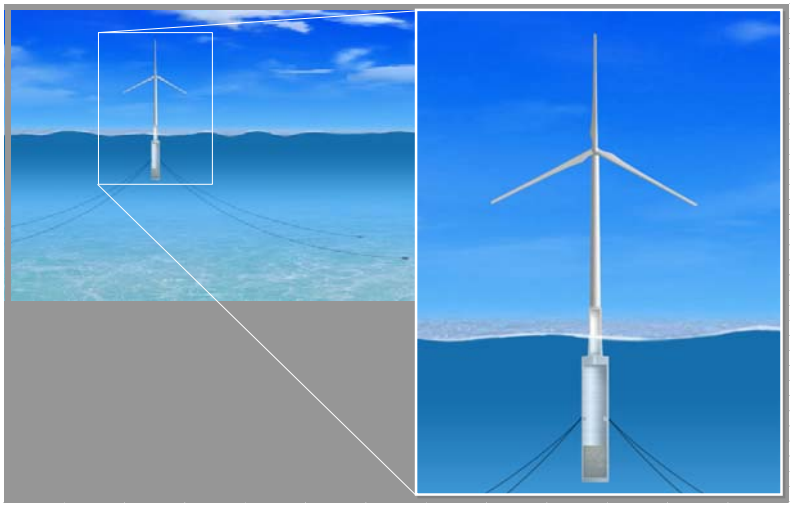
Germany, 30m depth, 12units of 5MW

Deep Offshore (2): Hywind

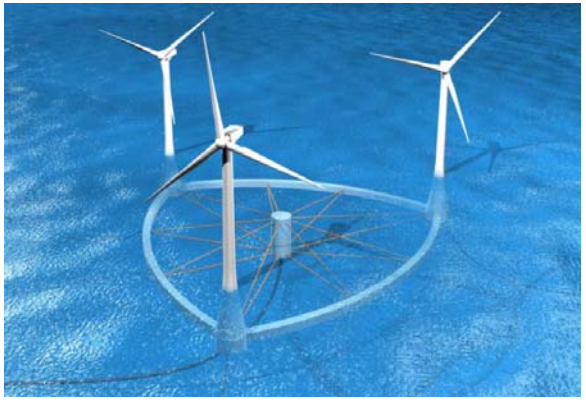
Norway; the most advanced; floating type; 2009
Depth; 200m（120－700m）, Spar ; 100m length , Turbine 2.4 MW


Photo: Øyvind Hagen / Statoil

Domestic Project of Deep Offshore

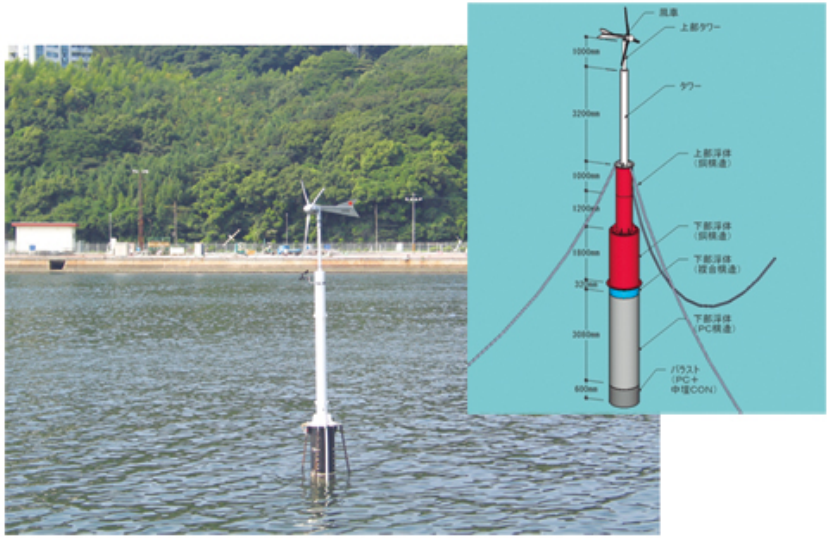


Spar type ; Prof. Suzuki in Uni. of Tokyo



Semi-sub type ; Prof. Ishihara in Uni. of Tokyo, TEPC O, etc

Sailing type ; Environment Institute & Prof. Kinoshita in Uni. of Tokyo



Scale model of Spar type: Prof. Utsunomiya in Kyoto Uni. , Toda-Kensetsu, etc

Wind Power "Kamisu" Semi-Offshore

- 7 units of 2MW Wind Turbine
- This wind farm withstood Tsunami on 3.11
- Being developed as private sector for future such as more 7 units and Giga-watt farm

Kamisu, Japan / 2MW x 7

Potential Map of Wind Power in Japan

- Report of investigation for renewable energy in Ministry of Environment in 2011
- 280 GW for onshore, 1600 GW for offshore as potenial value
- 273 GW for onshore , 141 GW for offshore under some scenario such as half-price