

Wind Energy for Mexico and California Challenges and Opportunities

Dr. Vanesa Magar

GEMlab: Geophysical Fluid Dynamics and Environmental Modelling Lab
Departamento de Oceanografía Física
Centro de Investigación Científica y Educación Superior de Ensenada
Carretera Ensenada-Tijuana 3918
Ensenada BC 22860
MEXICO

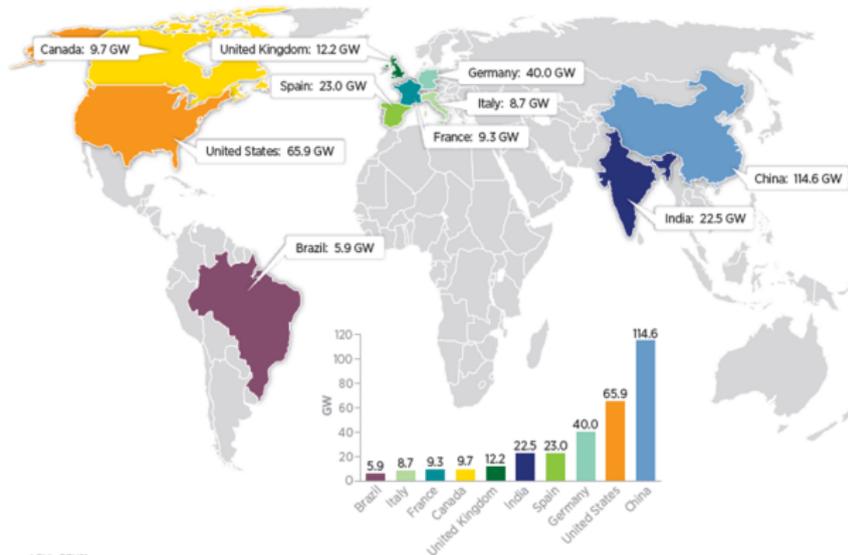
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- ▶ Results and Benefits
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World Wind Energy



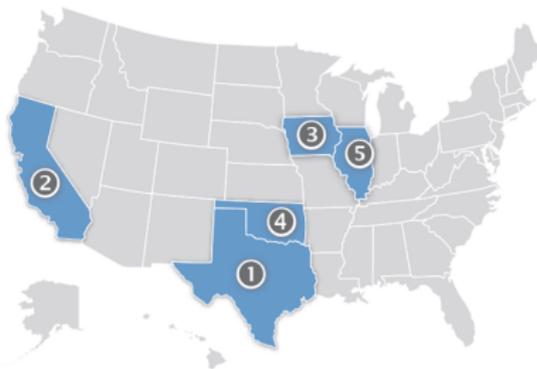
Wind | November 2015

Figure 1: Countries with highest Cumulative Wind electricity Capacity by 2014 (DoE Databook, 2015)

US Wind Energy



Top US States for Cumulative Wind Electricity Installed Capacity (2014)



	Wind	MW
①	Texas	14098
②	California	5917
③	Iowa	5688
④	Oklahoma	3782
⑤	Illinois	3569

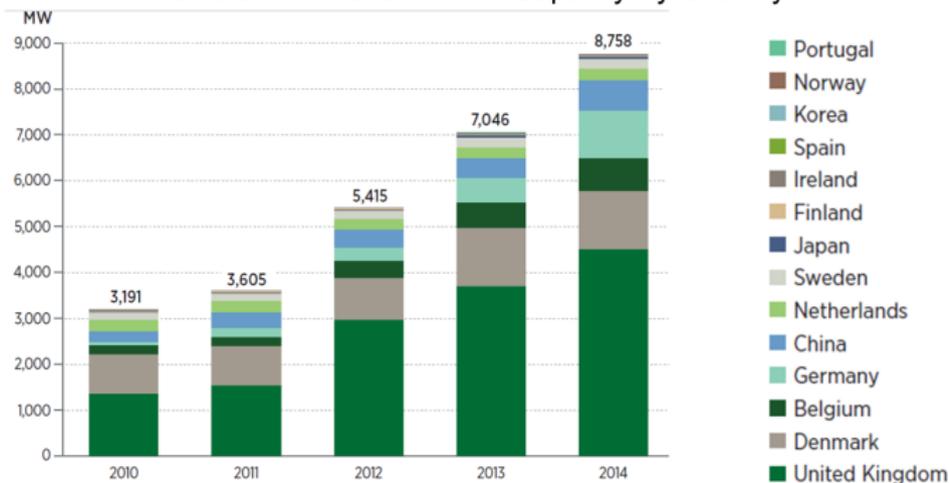
Sources: EIA, LBNL, SEIA/GTM

Figure 2: US States with highest Cumulative Wind electricity Capacity by 2014 (DoE, 2015)

World Wind Energy - Offshore



Cumulative Offshore Wind Capacity by Country



Global Wind Energy Council (GWEC)

Figure 3: Cumulative Offshore Wind Capacity by Country (Source: GWEC; in DoE Databook, 2015)

US Wind Energy - Offshore

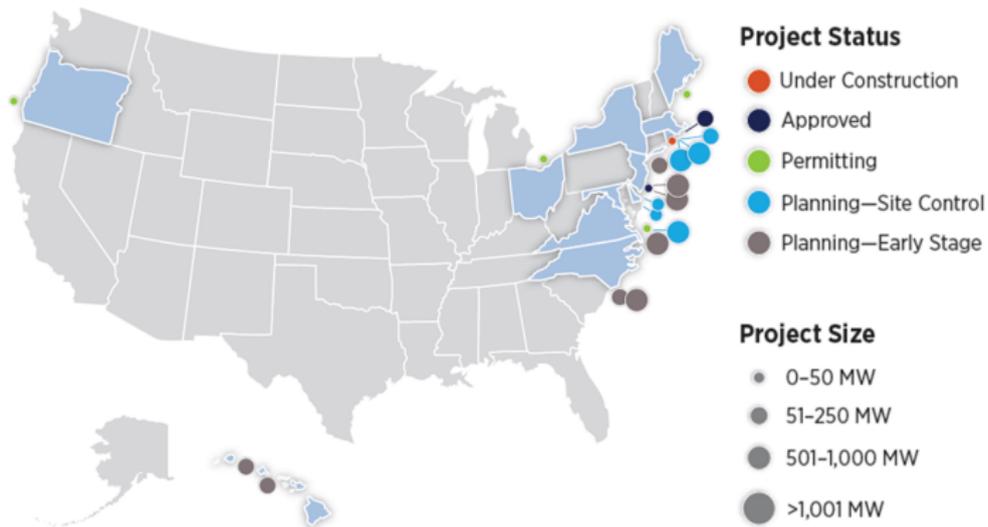
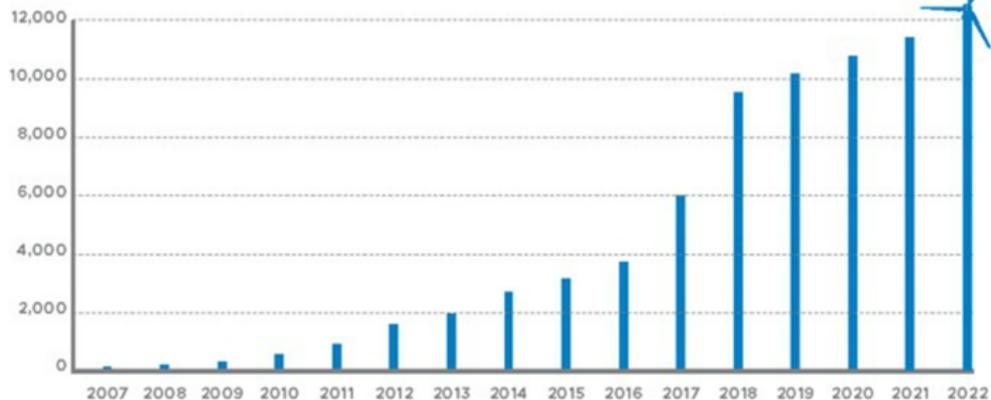


Figure 4: US Offshore Wind Proposed Projects by 2014 (Source: NREL; in DoE Databook, 2015)

Mexico Wind Energy - Installed capacity



INSTALLED CAPACITY DEVELOPMENT AND OUTLOOK (MW)



Source: AMDEE

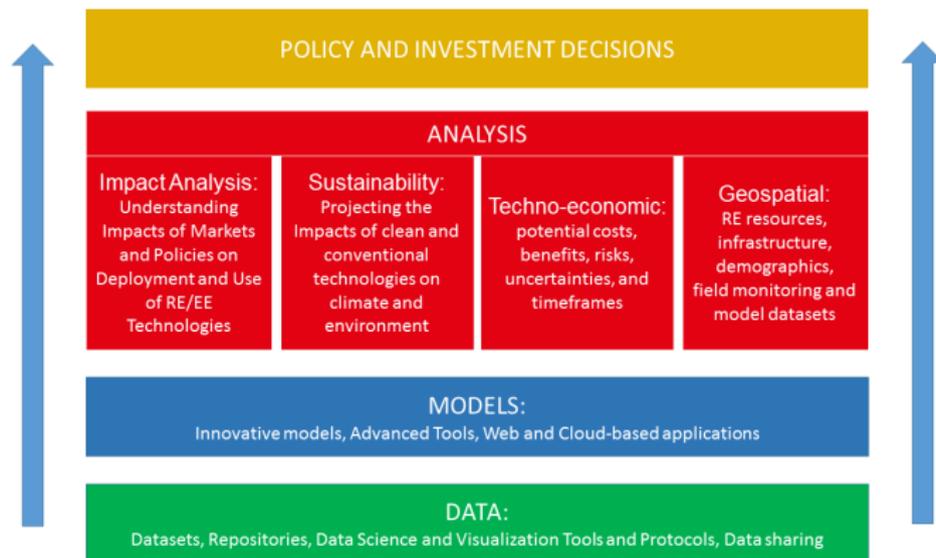
Figure 5: Installed capacity development and projections (Source: AMDEE; in MXESR, 2016)

Mexico Wind Energy - Baja California



Figure 6: Installed capacity in Baja California (Source: MXESR, 2016)

Challenges and Opportunities



Based on the NREL capabilities Graphic

Figure 7: NREL Capabilities Infographic (based on NRELs graphic, 2016)

Efforts: Resource Characterization

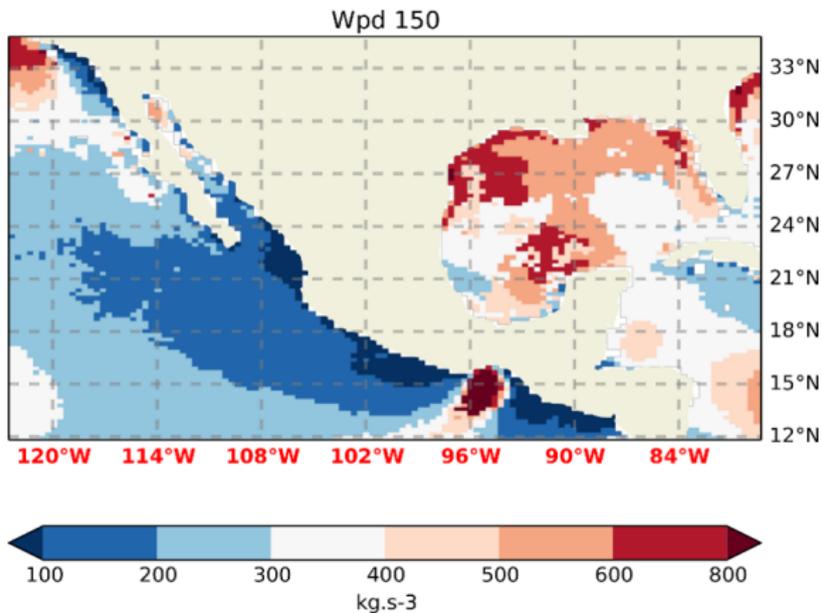


Figure 8: WPD 150m above MSL

Strategies to address them



- ▶ Academia-Industry-Government collaborations
- ▶ Data Science and Model development
- ▶ Technological Assimilation and Innovation
- ▶ Courses, workshops, postgraduate programs
- ▶ Public and Private funding sources

Potential Results and Benefits



- ▶ RD&D with Industry
- ▶ Socio-economic development
- ▶ Technical and managerial workforce generation
- ▶ Reach climate change mitigation targets
- ▶ Enable improved conservation programs

Next steps?



- ▶ Binational research and training programs
- ▶ Analyse different funding strategies
- ▶ Academia-Industry links (training, consultancy, JVs)