



Bundesministerium
für Wirtschaft
und Energie



MITTELSTAND
GLOBAL
EXPORTINITIATIVE ENERGIE

Erfahrungsbericht Sri Lanka

Ingenieurdienstleistungen in Sri Lanka und
Windenergie in neuen Märkten

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Wind Energie



Content

- Company
- Lahmeyer experience in Sri Lanka
- Experience with wind energy in new markets
- Conclusion

Company

Lahmeyer Group: Since December 2014 Lahmeyer belongs to TRACTEBEL (Belgium), a company of ENGIE (former GDF SUEZ)

Foundation: 1966

Headquarter: Bad Vilbel, Germany

Activity: Technical and economic planning and consulting services

Fields of Activity:

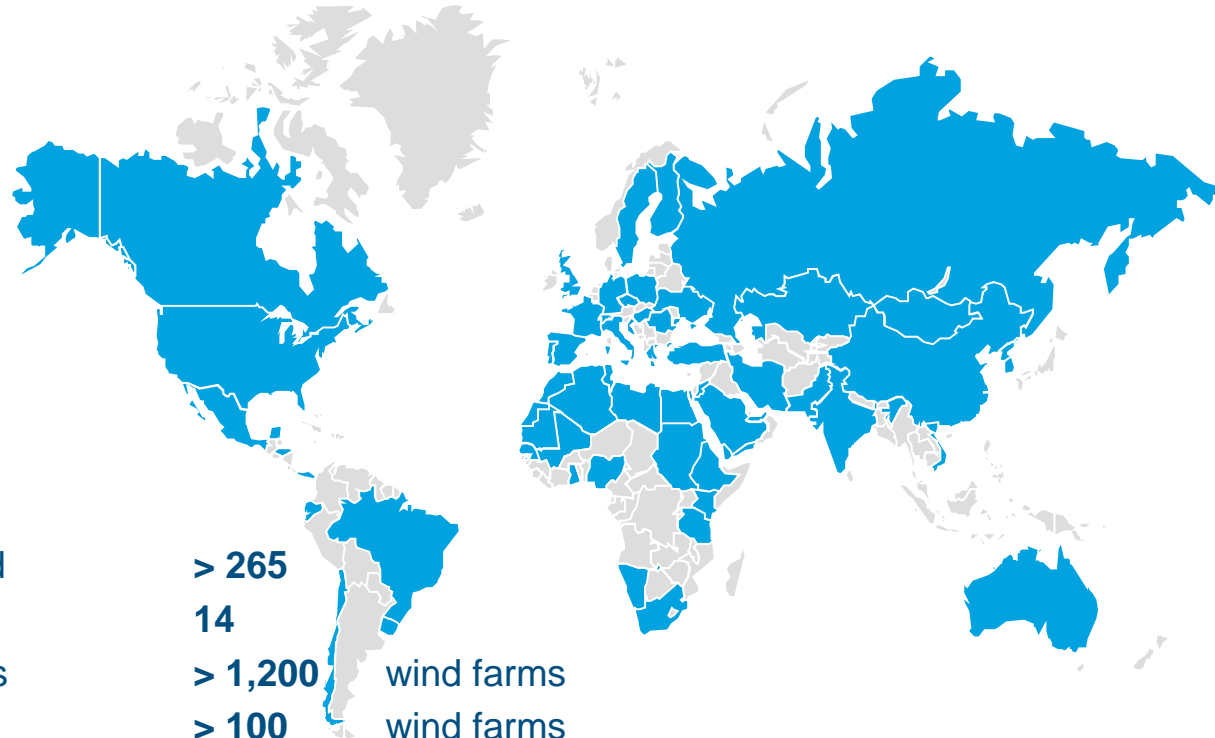
Energy

Hydropower &
Water Resources

Building &
Transport

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Key Wind Energy References



Wind measurement masts installed	> 265	
Country wide wind mappings	14	
WAsP Wind resource assessments	> 1,200	wind farms
CFD wind studies	> 100	wind farms
Feasibility studies	> 165	wind farms (> 8,900 MW)
Due diligence studies	> 965	wind farms (> 28,500 MW)
Construction supervision	> 110	wind farms (> 3,600 MW)
Operation and maintenance supervision	> 90	wind farms (> 2,500 MW)

Lahmeyer Experience in Sri Lanka

Lahmeyer Experience in Sri Lanka

- Project experience (>15 projects) in Sri Lanka since 1986:
- **Water:**
 - Masterplan
 - Resource development
 - Dam
 - Irrigation
 - Hydro power plant
- **Energy:**
 - Masterplan/study
 - Substations
 - Thermal power plants
 - Transmission projects
- **Local Project Office / Local Partner**

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Lahmeyer Experience in Sri Lanka

Clients:

Ministry of Mahaweli
Development and Environment

CEB

Mahaweli Authority
of Sri Lanka

Ministry of Forestry, Irrigation
and Mahaweli Development

Financiers:

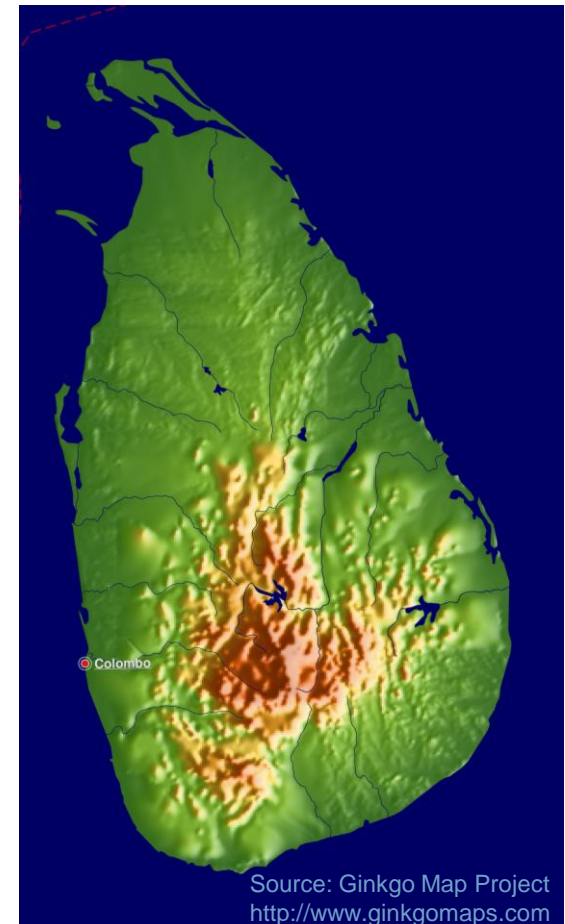
ADB

JBIC

WB

GTZ (now GIZ)

Kuwait Fund



Electricity Supply Masterplan (1986-1989)

Client Ceylon Electricity Board (CEB) and GIZ (former GTZ)

Main data

- Study of Sri Lanka's hydro potential long term development plan for power generation and HV transmission system
- Long term demand forecast, pre-feasibility studies thermal plant catalogue, power system operation and expansion studies

Our Mission

- Electricity demand forecast
- Development of hydropower
- Economic, financial, social and ecological studies

Kukule Hydro Power Plant (1991-2003)

Client Ceylon Electricity Board (CEB)

Main data

- Storage power plant
- Powerhouse cavern: 16/29/52 m (w/h/l)
- Installed capacity: 78 MW
2 Francis turbines
- Design head: 180 m

Our Mission

- Review of previous studies
- Feasibility studies
- Tender design & documents
- Construction design
- Supervision of works
- Erection and commissioning of the plant

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Kerawalapitiya-Kotugoda Transmission Project (2007-2009)

Client Ceylon Electricity Board (CEB)

Main data

- Two new Substations 245 kV with seven (7) bays (one Air/one GIS)
- Control/substation Buildings with all required facilities
- Replacement of 245 kV outdoor equipment

Our Mission

- Assistance in evaluation of Bid Documents and preparation of Evaluation Report in accordance with the Guidelines for Procurement under JBIC ODA Loans
- Checking and approval of technical design and drawings for the substations to be submitted by the Contractors
- Assistance in supervision of site construction/erection works (electrical + civil works)
- Assistance in the equipment factory acceptance routine test and site acceptance test

Mahaweli Water Security Investment Program (2015-2020)

Client Ministry of Mahaweli Development
and Environment (financed by ADB)

Main data

- Irrigation (103,000 ha) and drinking water for northern dry zone
- Food and water security in former conflict zones
- Increase cropping intensity and water productivity in the dry season
- Capacity building for irrigation / agriculture agencies and farmers

Our Mission

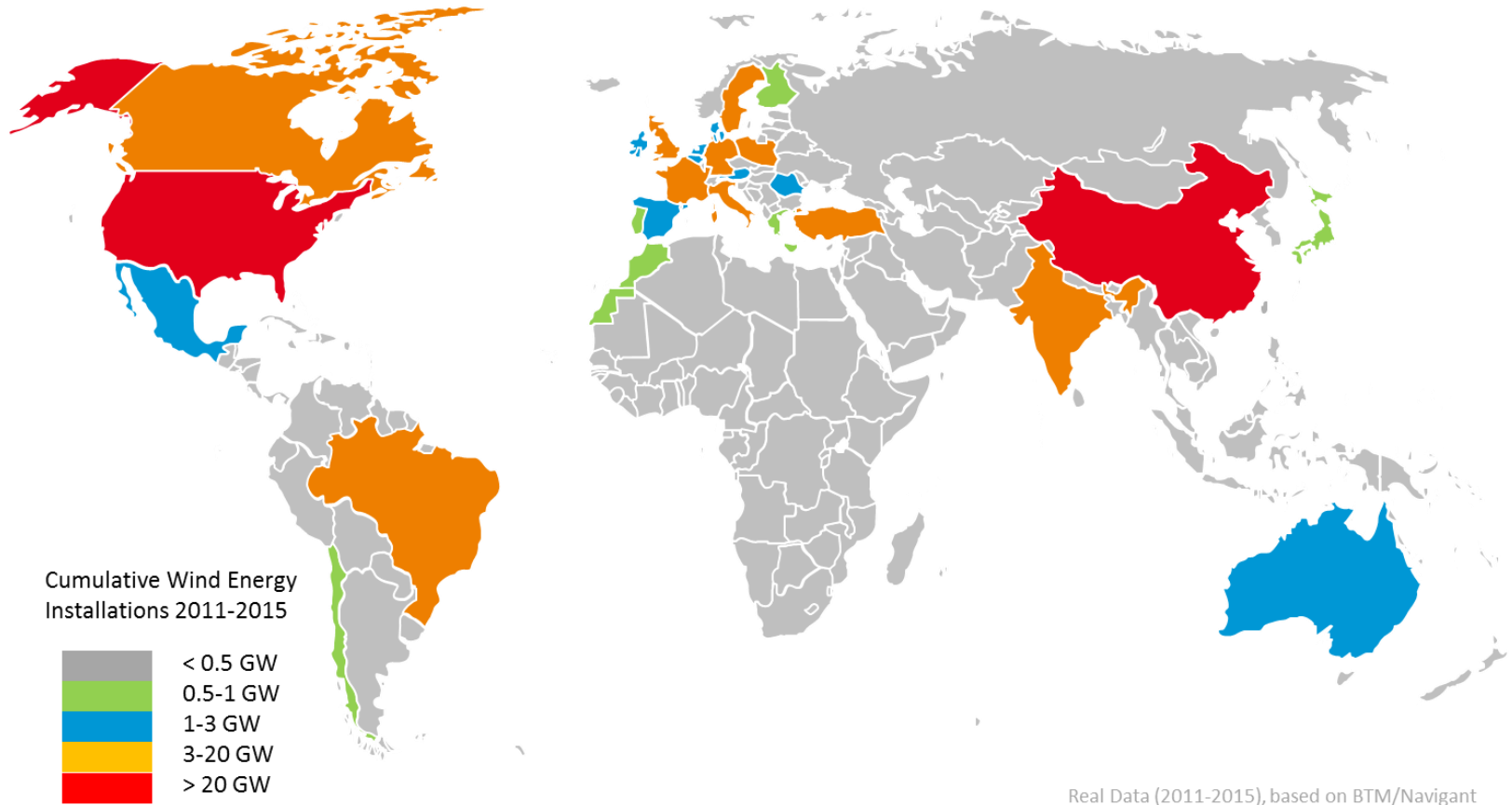
- Engineering planning, detailed design and tender documents
- Construction supervision, contract & program management
- Institutional development / training
- Strategic environmental assessment
- Project preparation and preliminary designs for Phase 2



Experience with wind energy in new markets

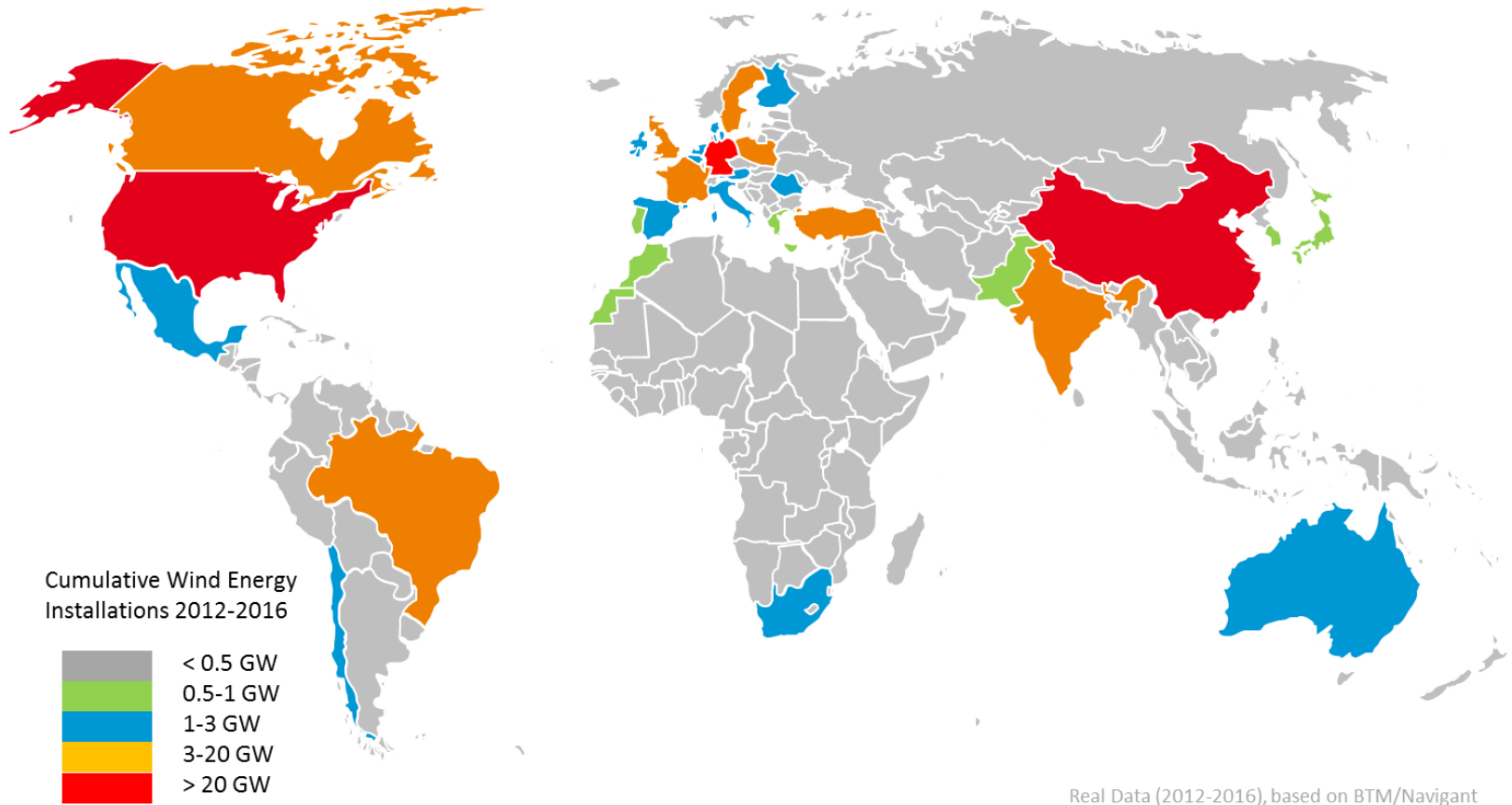
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World Wind Market Development



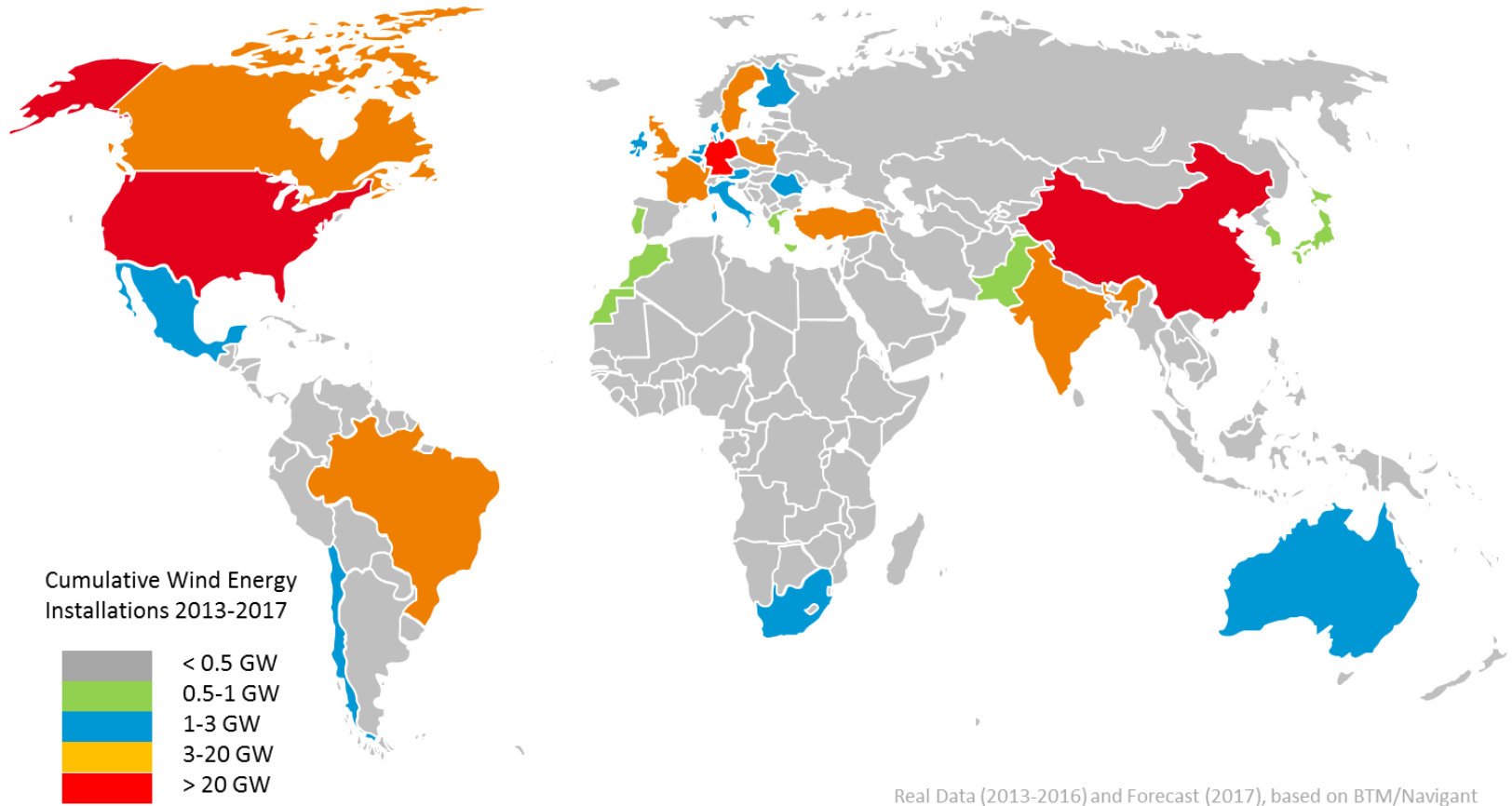
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World Wind Market Development



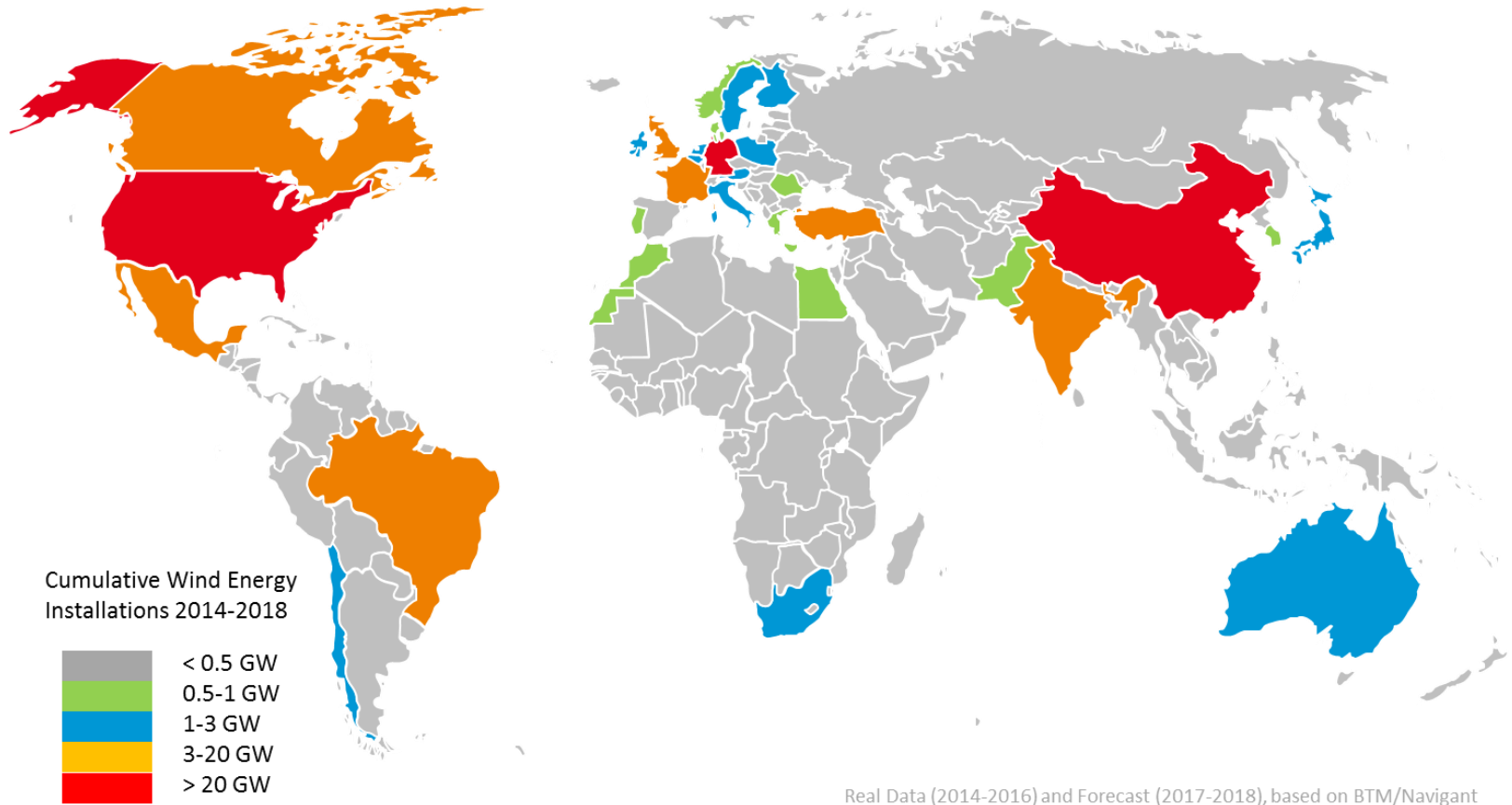
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World Wind Market Development



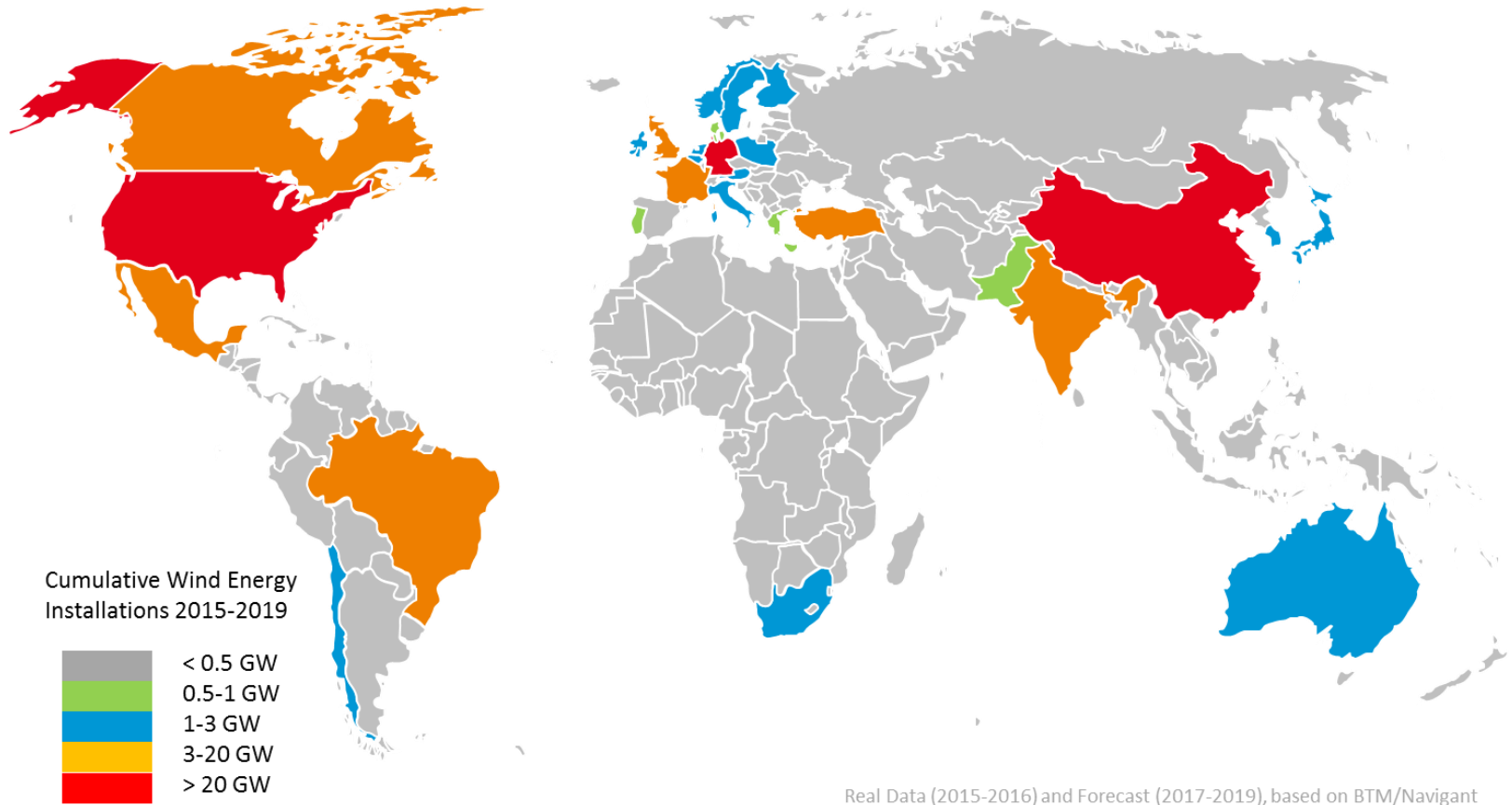
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World Wind Market Development



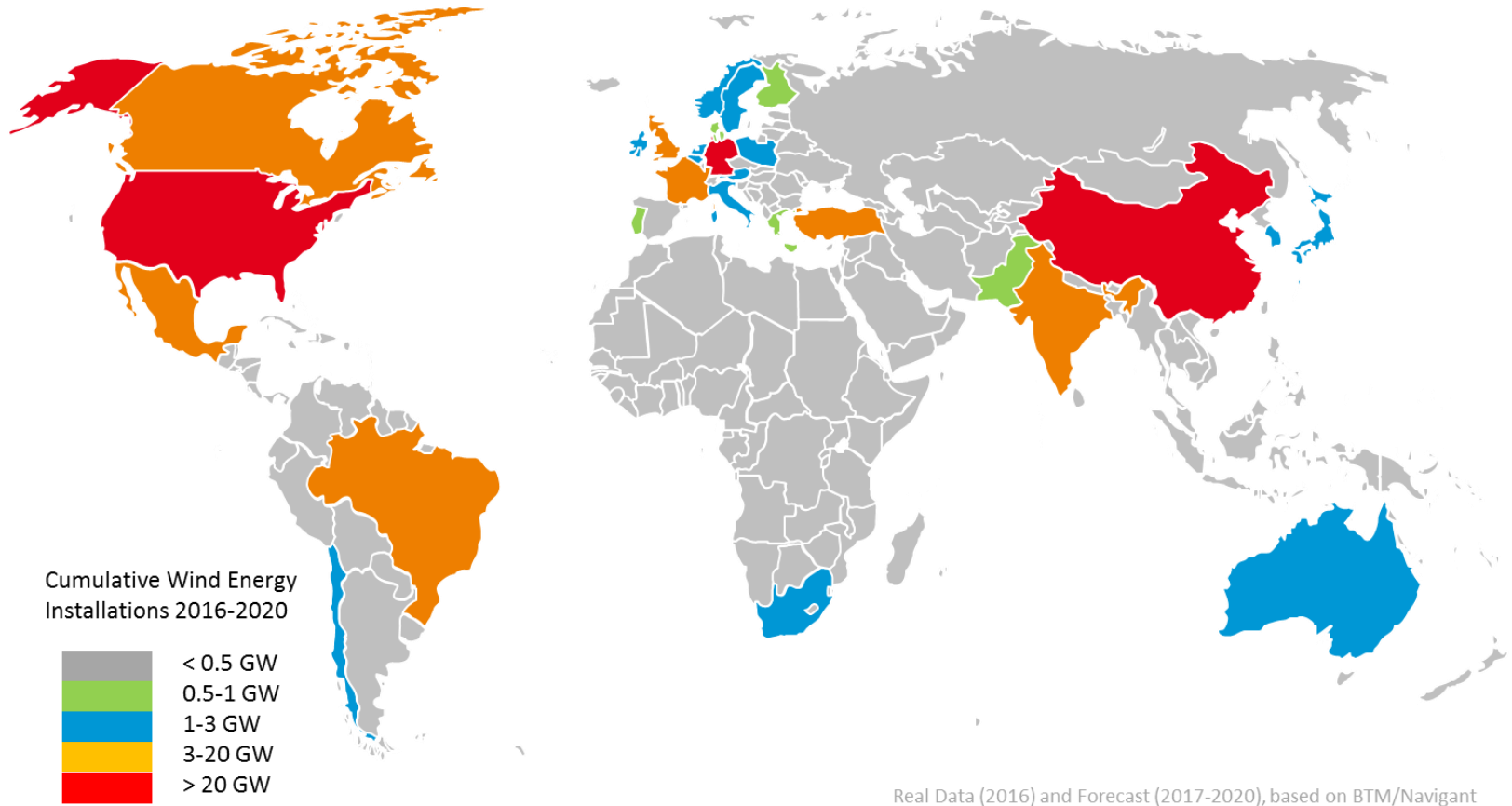
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World Wind Market Development



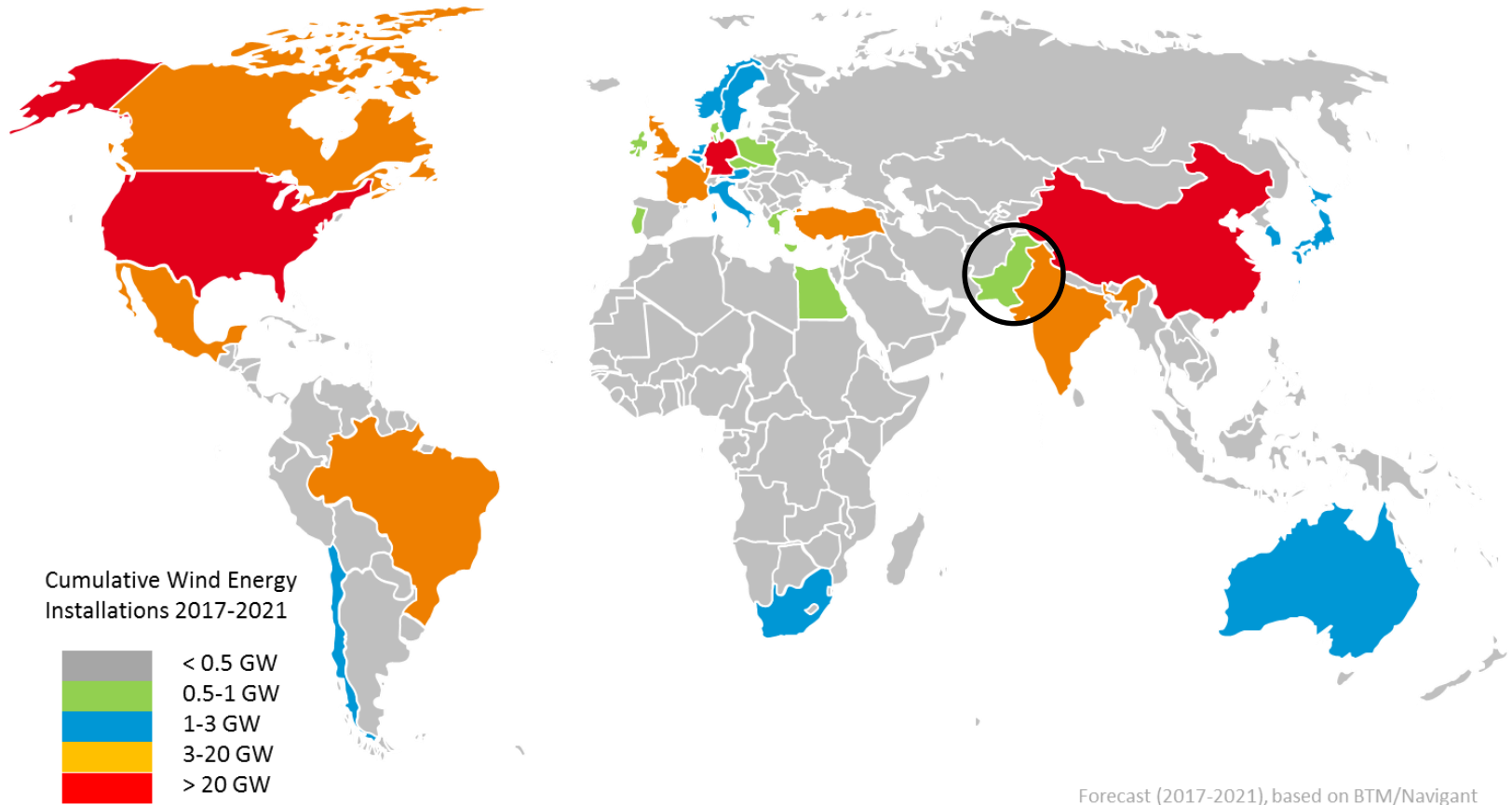
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World Wind Market Development



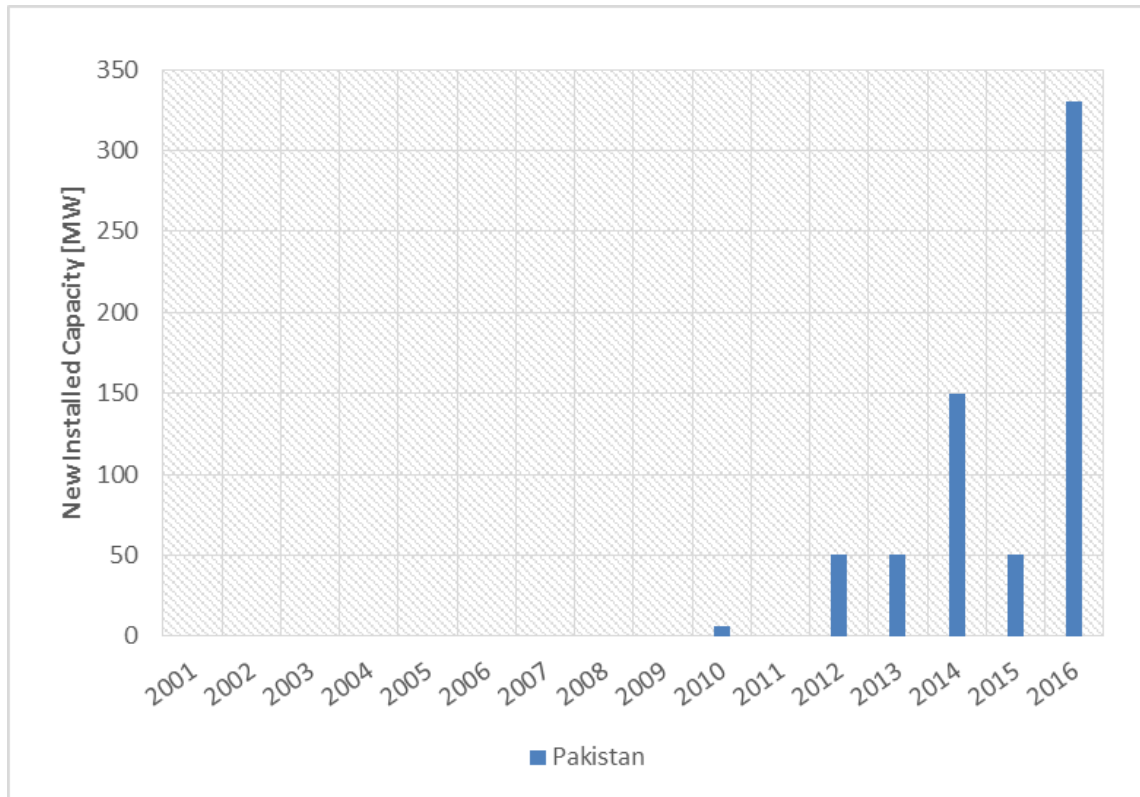
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Development in Pakistan



Pakistan

2003

Establishment of Alternative Energy Development Board (AEDB)

2006

Announcement of Policy for Development of RE for power generation (Cost-plus-tariff, wind risk guarantee)

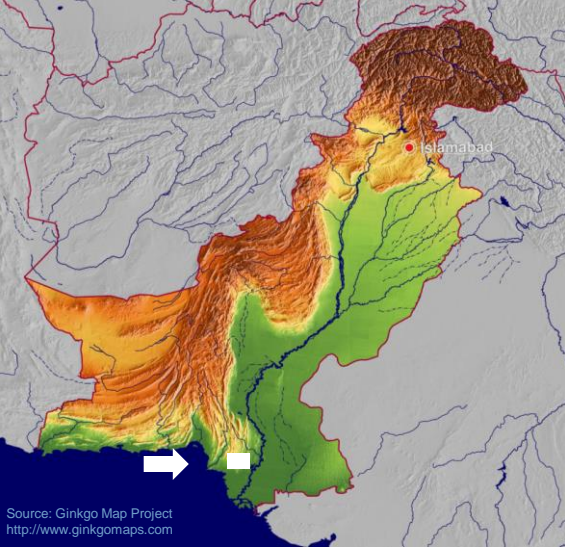
2011, 2014

Up-Front-tariff (FIT) announcement, revision

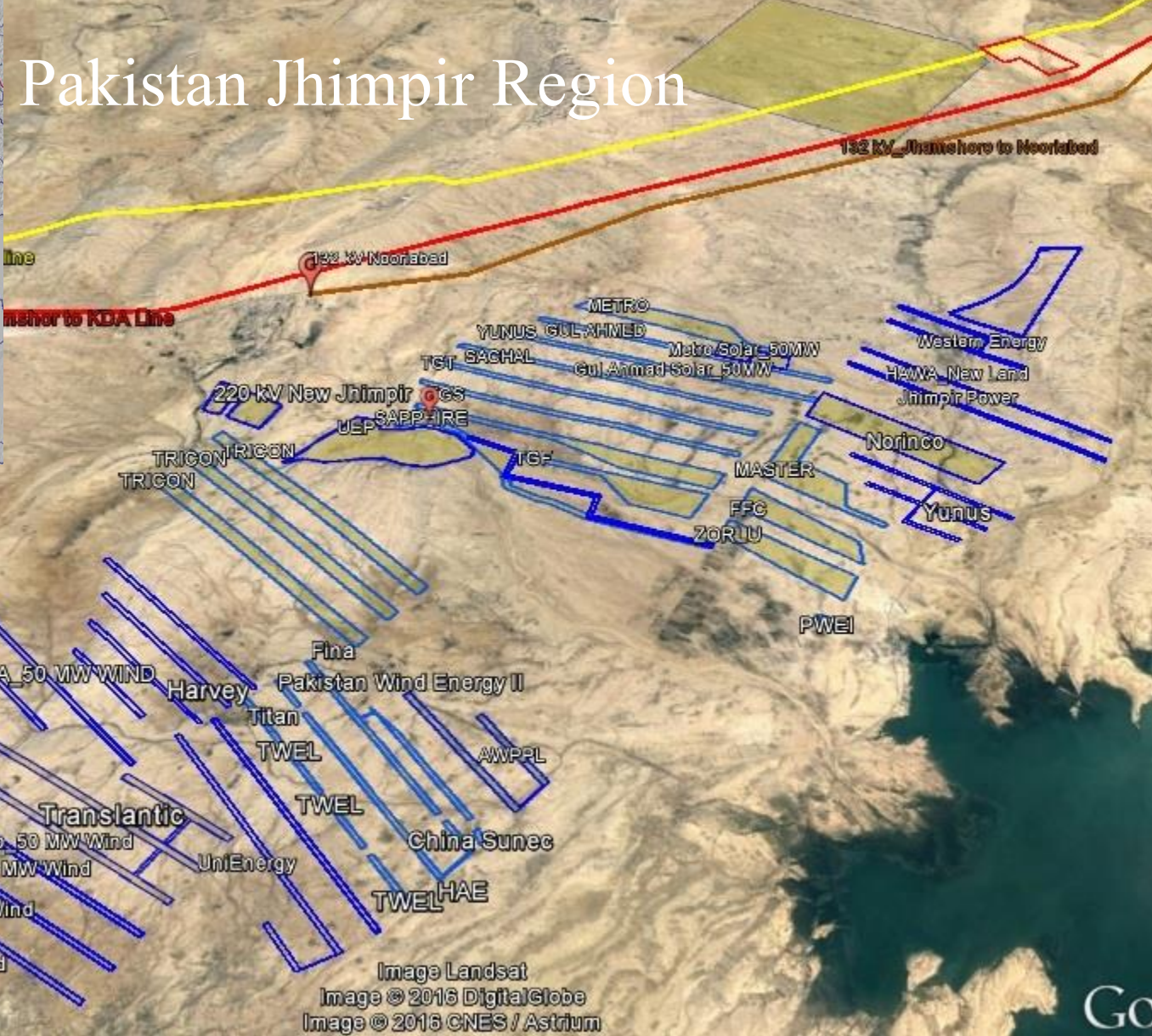
2016

Tariff under revision

Pakistan Jhimpir Region



Source: Ginkgo Map Project
<http://www.ginkgomaps.com>



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Current Impressions from Projects in Pakistan

- Pakistan has a good potential based on technical parameters.
- Enhancement of interconnection infrastructure is important to take benefit of this potential.
- So far the projects are concentrated mainly in one region, the projects influencing each other (additional wake effects), efforts in establishing further project areas could facilitate further implementations
- The tariff is under evaluation and the scheme is announced to be changed to an auctioning system. As long as the new scheme is clarified, this leads to uncertainties for the project developer
- So far the market has attracted increasing more interest. The current uncertainties might reduce this attraction

Conclusion

Significant experiences in Sri Lanka for public projects, often financed by IFI

Increasing number of countries, also in Asia, are interested in using RE

Success Factors for Development of RE Sector



By OsvaldoGago and GDJ (from Wikimedia)

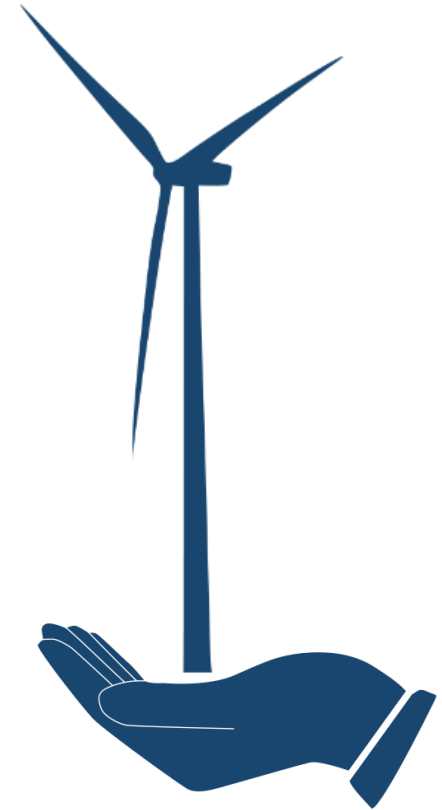
Conclusion

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Success Factors for Development of RE Sector

- Good resource conditions
- Clear permitting processes
- Well balanced tariff
- Stable grid connection possibilities
- Execute professional wind farm planning
- Stable Conditions attract investors



By OsvaldoGago and GDJ (from Wikimedia)

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