IFC International Finance Corporation
World Bank Group

The Importance of Resource Mapping for the Private Sector

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IFC at a Glance: Private Sector Arm of World Bank

- Our activities:
  - World's largest multilateral source of financing for the private sector in emerging markets with a US$55 billion portfolio
  - Provide up to 35% of a project's financing in debt/equity

- Our work in renewable energy:
  - Over half of IFC's power sector portfolio exposure is in renewable energy projects
  - Invested more than US$600 million in 1,600 Megawatts of wind projects in 15 projects in 9 countries
  - Invested almost $100 million in two global wind OEMs

What Makes for Successful Wind Development?

- The ultimate objective for wind development:
  - You want good developers putting good turbines in good places for a good price
- What do these good developers look for?
  - Certainty, certainty, certainty, certainty, certainty …
- So … the "name of the game" is to reduce risk:
  - Four types of risk: Technology risk, credit risk, interconnection risk, production risk
  - High risk = low certainty = high finance cost = high power price
  - Low risk = high certainty = low finance cost = low power price
  - Production risk has proven to be a huge challenge …

A Brief History of Wind Resource Estimation

- The bad news:
  - Industry has historically overestimated energy yields
  - Off-takers and financiers have not been demanding enough
  - Modelers have had difficulty with complex terrain etc.
- The good news:
  - Developers have learned that it pays to do it right
  - Off-takers and banks are more demanding
  - Models are much better than they were before

How to Reduce Production Risk?

- At prospecting stage, good data is critical:
  - High-quality, accessible, country-level mesoscale wind maps help good developers identify good sites
  - The more data the better: GIS files on protected areas, flora & fauna, land registry, geotechnical, slope etc.
- Sends important signal to private sector:
  - Shows that countries are serious about wind development
  - Provides comfort to private sector
  - Provides a level playing field

So, all you need is a good mesoscale model, right?

- No!
  - Mesoscale models (~ 5 km) tell you where wind farms should go
  - Micro-siting (< 100 m) tells you where wind turbines should go
- What to look for in good micro-siting:
  - Need on-site, top-quality, calibrated instrumentation set up by experienced people
  - Need at least one year of data at various heights (good to have nearby long-term correlation too)
  - Need wind resource assessments done by experienced people
- What this will give you:
  - Low risks on production = no surprises

Summary

- Country-level mesoscale maps are very important …
  - Critical if you want to attract good developers building good projects in good places
  - More is better: it helps to provide other GIS data
- … but you still need micro-siting …
  - Be demanding!
  - Go with experience
- … because it's all about certainty!