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, 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!