Developing a Solar Project
March 24, 2015
Iberdrola Renewables, LLC

A collection of exceptional assets...

#2 owner of wind projects in the U.S. with more than 5.7 GWs owned and contracted

$9.5 billion of U.S. assets at over 50 installed plants

750+ employees at the end of 2014, compared with 12 in 1999

636 MW of CCGT & peaking capacity on the strategic CA-OR border

Represents 39% of Iberdrola S.A.'s global wind capacity

US Renewables

Wind

Power

Solar & Biomass

5,700+ MW

536 MW CCGT

100 MW peaking

50 MW Solar

55 MW Biomass

And clean gas generation

...focused on operational excellence and selective growth
U.S. Power Assets & Customers (by NERC region)

1. Klondike IIIa, 76.5 MW owned by PG&E
2. Hay Canyon, 100.8 MW owned by Snohomish PUD
3. Klondike, 24 MW owned by BPA
4. Klondike III, 223.6 MW owned by PG&E, PSE, BPA, EWEB
5. Star Point, 99 MW owned by MID
6. Klondike II, 75 MW owned by PGE
7. Big Horn, 199.5 MW owned by MID, Santa Clara, Redding
8. Big Horn II, 50 MW owned by MID, Santa Clara, Redding
9. Juniper Canyon, 151.2 MW owned by PSE
10. Pebble Springs, 98.7 MW owned by SCPA
11. Leaning Juniper II, 201.3 MW owned by BPA

Wind generation
- Klamath Cogen, 536 MW owned by PGE
- Simpson Biomass, 55 MW PPA owned by SMUD

Thermal generation
- Twin Buttes, 75 MW owned by Northern States Power (Xcel)
- Shiloh, 150 MW owned by PG&E, Palo Alto, MID

Biomass generation
- MinnDakota, 150 MW owned by Northern States Power (Xcel)
- Mingo, 51 MW owned by Northern States Power (Xcel)

Solar generation
- Twin Buttes, 81 MW owned by Public Service Co. of CO (Xcel)

Electric Power Markets
- WECC – Western Electricity Coordinating Council
- MISO – Midwestern Independent Transmission System Operator
- SPP – Southwest Power Pool
- PJM – Pennsylvania New Jersey Maryland Interconnection
- SPP – South Central Power Pool
- ERCOT – Electric Reliability Council of Texas
- NYISO – New York Independent System Operator
- NEPOOL – New England Power Pool

Assets owned by Iberdrola Renewables, LLC, except where noted as a Power Purchase Agreement (PPA)

Map-US2001, Rev. 9/16/2013
Solar project components
Solar Panels

Technology? DC to AC ratio?
Where to start

What is your strategy?

- What is your business model? Developer, operator, builder, project flipper, finder.
- How are you going to get paid for the power you produce?
- Who is your customer?
- Why are they going to buy your power or project? Price, location, other factor.
- In which balancing authority/RTO/ISO is your project located?
- How many other projects are being developed around you and are in the interconnection queue?
- Do you have the credit to support the transaction?
- Local, state and federal incentives?
What part of the property is usable?

- setback
- slope
- 3rd party ROW
- Survey and title
Interconnection and access

- With whom are you interconnecting: SRP, APS, TEP; Electric Cooperative, WAPA?
- Regulatory jurisdiction: Arizona Corporation Commission, municipality, FERC?
- Interconnection rules: data, models, costs, timeline, compliance.
- Transmission service? Do you need it, how much is it?
- Right-of-way to substation: where is your point of interconnection?
Due Diligence

Budgeting and Planning

Land
- Financeable title

Permitting
- County zoning and permits
- State permits
- Federal NEPA and ROW

Studies
- Cultural
- Biological
- Wetlands or waters of the U.S. - US Army Corps of Engineers

Engineering
- Drainage design/floodplains
- Geotechnical
- Design
- Electrical production: on site radiometer
- Site survey: contours, grade
Financing, Procurement

Who is paying for construction?

- Technology: module selection? Fixed or tracking? Energy yield?
- Procurement cycle: long-lead item purchase and delivery schedule?
- Return requirements of equity and debt?
- Bonds or grants available?
- Engaging 3rd parties for financing or project sale?
- Credit support: bond, letter of credit or cash.
- What contractual risks are your wearing and how much is it worth?
- Warranties: technology and the ones you are giving.
- Contractual conditions precedent? Exit clauses?
Construction

EPC contractor and Logistics

- federal or county plan review/permits/fees
- traffic routing
- building permits $$$
- six to nine months to build
- site clearing and grading – moving earth $$$
- install piers and panels – geotech and slope
- connect circuits
- testing and commissioning
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