BIRD AND BAT MONITORING: EXPERIENCES FROM A PRIVATE WIND POWER PRODUCER

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AGENDA

- GME
- GENERAL RESULTS
- EXPERIENCES

Globeleq Mesoamerica Energy

- GME is Central America's leading wind energy company
  - **243 MW** Installed capacity
  - **80 MW** under construction
  - **300 MW** in the pipeline
  - 2004 GME completed its first transaction with the acquisition of a 23MW operating wind farm in Costa Rica.
  - Since then, the company has closed on financing of 7 additional wind projects
  - Main focus: greenfield development. But will pursue the acquisition of operating and development projects as the opportunities present themselves.

Globeleq Mesoamerica Energy

> Shareholders:

mesoamerica

Founder. Owns 30%

GLOBELEQ
Generating Power for Emerging Markets

Acquired 70% in 2010.

PROJECTS

CDH (126 MW)
-One of the largest wind farms in CA.
-CO: December 2011

PESRL (23 MW)
-First utility scale wind generation plant in LA.
-CO: 1996

EOLO (44 MW)
-CO: December 2012

ALISIOS (80 MW)
-Const: Dec 2015

OROSI (50 MW)
-CO: September 2015

GENERAL RESULTS

- 2 full years of monitoring in wind farm “A”
- In 2015 more than 50 complete rounds of searching have been conducted in wind farms “A”, ‘B” and ‘C”
- In wind farms “A” and “B” bat mortality is higher than bird mortality
- In wind farm “A”:
  - Consultants concluded that mortality events involving insectivorous bats could be predictable: occur on nights with low winds, roughly two months after a period with heavy rains.
  - Observed bird mortality was higher among migrants, than among residents
  - The majority (94%) of migrant casualties in 2014 were nocturnal migrants
- **NO strike victims of migrant raptors have been found in any of the wind farms.**

EXPERIENCIES: METHOD

- Unsafe terrain and low visibility due to vegetation

METHOD

- Monitoring only the gravel roads and turbine pads by applying a novel, anisotropic density-weighted area correction factor.
  - The model is founded on International standard methodology (Strickland et al 2011) for statistical estimation of fatalities, along with innovative area correction components based on recent scientific advances (Huso et al 2014, Rabie et al 2014).
  - Uses the actual spatial distribution of carcasses discovered at the site. It effectively models anisotropic carcass distributions (i.e. not radially symmetric around the turbine), that arise when there is a strong prevailing wind pattern at a wind facility.

METHOD

- Restricted search effort minimizes error due to high searcher efficiency and also maximizes search effort efficiency by eliminating searching on substrates with low searchability such as the tall pasture grass.

- Enables a single person to search all of the turbines at the sites in a single, full day of effort (search time per turbine: 15 min).
  - Search all turbines at each facility once per week

- Twice per quarter: searcher efficiency experiments are conducted

CHALLENGES

- Very limited publicly available data and publications
  - Limited understanding of triggers for mitigation measures, mitigation effectiveness and cumulative impacts.
- Lack of local legislation in Central America in regards to wind farms impacts on birds and bats
  - Sometimes local requirements are based on personal opinions and understandings and not on best practices
- The industry needs to share more information to reduce risks associated with bad decisions based on limited data.

FUTURE CHALLENGES

- Measure/monitor the impact of mitigation measures
- Make more information public

Globeleq Mesoamerica Energy

Thank you!