



USFWS Wind Energy Guidelines: The Tiered Approach

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What is the Tiered Approach?

- An iterative decision process guiding the collection of information in increasing detail, in order to evaluate risk and improve siting and operations through mitigation
- Mitigation = Avoiding or minimizing significant adverse impacts, and when appropriate, compensating for unavoidable significant adverse impacts

The Five Tiers

1. Preliminary Site Evaluation
2. Site Characterization
3. (Quantitative) Field Studies to Document Wildlife and Habitat and Predict Project Impacts
4. Post-construction Studies to Estimate Impacts
(a. Fatalities and b. Habitat)
5. Other Post-construction Studies

Tiered Approach and ‘Species of Concern’

Any species that is 1) either listed as an endangered, threatened or candidate species under the ESA, subject to the MBTA or BGEPA, is designated by law, regulation or other formal process for protection and/or management by the relevant agency or other authority; or shown to be significantly adversely affected by wind energy development, and 2) is determined to be possibly affected by the project

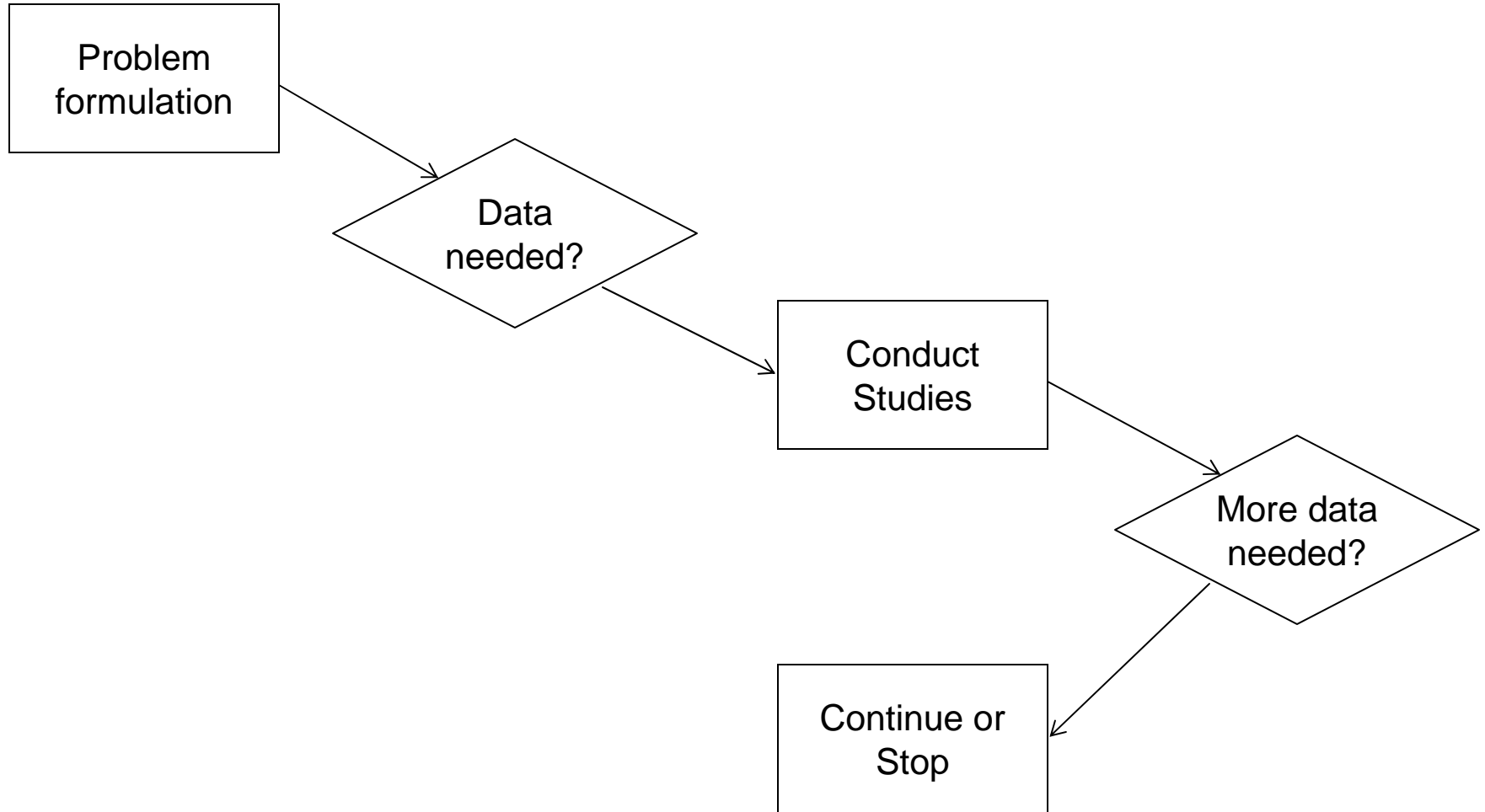
Species of Habitat Fragmentation Concern

Species of concern for which a relevant federal, state, tribal, and/or local agency has found that separation of their habitats into smaller blocks reduces connectivity such that the individuals in the remaining habitat segments may suffer from effects such as decreased survival, reproduction, distribution, or use of the area. Habitat fragmentation from a wind energy project may create significant barriers for such species

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Tiered Approach – Basic Framework



Tiered Approach – Decision Process

Pre-construction Tiers

1. Site(s) not suitable for development
2. Site(s) suitable for development; no more information needed
3. Insufficient information (high uncertainty) to make a decision; proceed to next Tier

Tiered Approach: Tier 1

Preliminary Site Evaluation

- Internal, preliminary wildlife/landscape evaluation of potential sites by the developer. Tier 1 can be used to:
 - Identify regions where wind energy development poses substantial risks to species of concern or their habitats, including through habitat fragmentation
 - Screen a landscape or multiple sites to avoid those with highest habitat value
 - Begin to determine if a single site poses serious risk to species of concern or their habitats
- Suitable sites?
 - YES? Proceed to Tier 2.
 - NO? Look for another site.
 - Need more info to decide? Continue with Tier 1 or 2.

Tiered Approach: Tier 2

Site characterization – site specific evaluation

- Narrow consideration down to individual sites
- If tiered approach starts here instead of Tier 1, all Tier 1 questions are answered in Tier 2 in addition to Tier 2 questions
- Begin to systematically and comprehensively characterize risk to species of concern and their habitats
- Site visits & contact with USFWS and states are required
- Decision process: more information needed or sufficient to make a decision



Tiered Approach: Tier 3

Field studies to document site wildlife conditions and predict project impacts

- Quantitative, scientifically rigorous studies to:



- Further evaluate site: develop or abandon?
- Design and operate site to avoid or minimize impacts
- Develop compensatory mitigation measures
- Evaluate level of effort for post-construction studies
- Provide pre-construction component of post-construction studies

Tier 3 (cont'd)

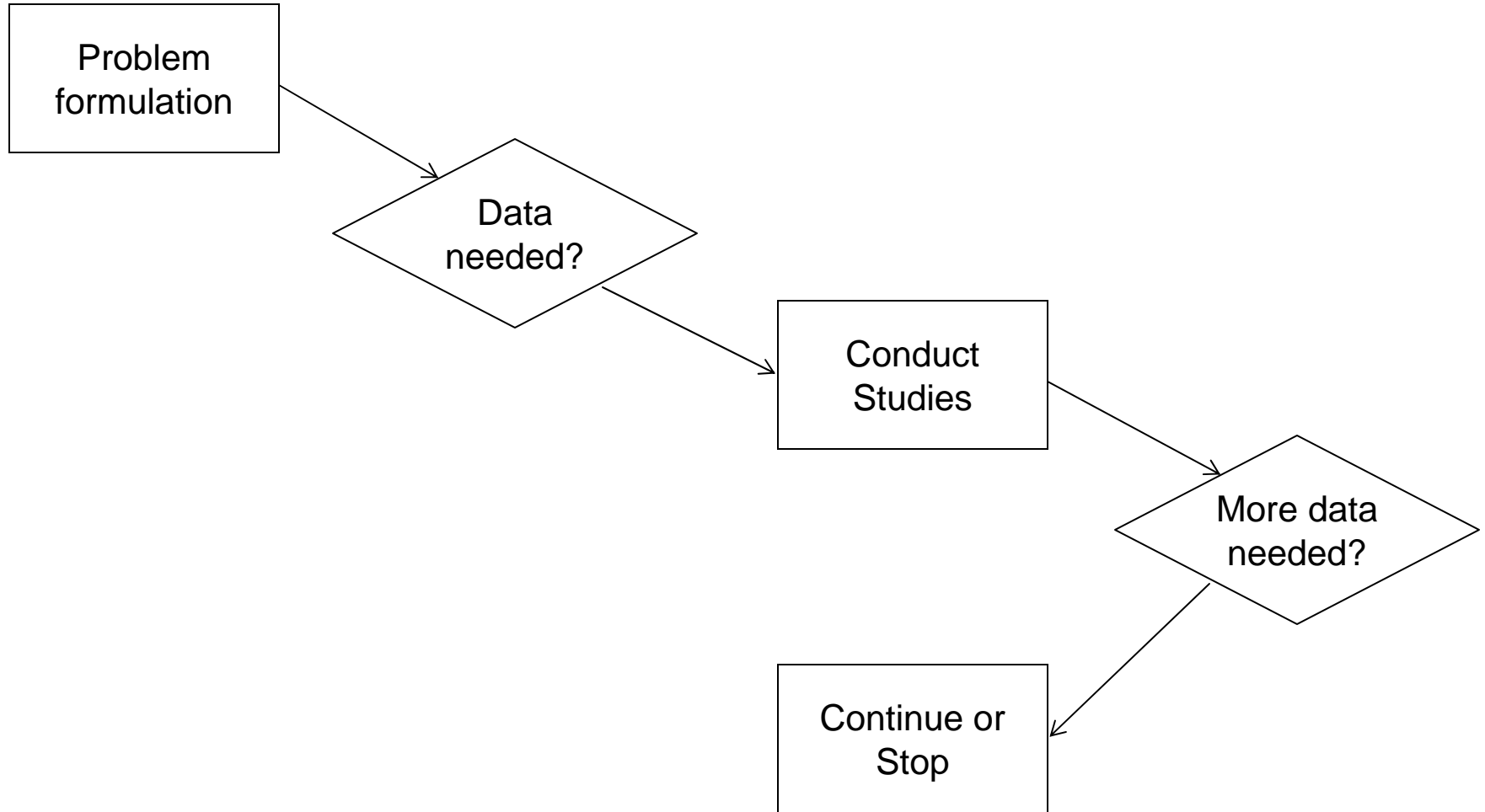
- Studies designed to accommodate local and regional characteristics
- Specific study protocols will depend on the questions to be addressed, or the species or ecological communities being studied
- Decision Points:
 - Low probability of impact: Adequate information available to satisfy permitting
 - Moderate or high probability of impact, which can be adequately mitigated
 - Design appropriate post-construction studies (Tier 4 and 5)
 - High probability of impact that cannot be adequately mitigated - delay or abandon development of the site

Tiered Approach – General Considerations

1. Collect sufficient information to obtain necessary certainty for making a development decision
2. Not necessary to complete every tier at each project
3. Need for information (data) drives the process
4. What is learned at the previous tier informs studies at subsequent tier(s)
5. An adaptive, risk-based framework

Post-Construction Tiers

Tiered Approach – Basic Framework



Tiered Approach: Tier 4

Post-construction Studies to Estimate Impacts

- Evaluate pre-construction predictions of impact
- Tier 4a – Fatality studies
- Tier 4b - Assessing direct and indirect impacts of habitat loss, degradation, and fragmentation
- Minimum of one year of fatality monitoring expected
- Decision framework guides duration and need for further study (e.g., Tier 5)



Tiered Approach: Tier 5

Other post-construction studies

- Less frequent, more complex studies
- Direct and indirect effects predicted from Tier 3 (and assessed at Tier 4) greater than predicted
 - Fatalities higher than predicted
 - Direct and indirect habitat effects greater than predicted
- Evaluate effectiveness of measures to avoid, minimize, and mitigate
- Assess potential demographic effects

