What is a Critical Issues Analysis?

- An early stage analysis and report of major factors that govern site suitability for wind energy development
- Documents current site conditions and outlines process necessary to complete development
- Used to determine whether to proceed with site development
- Basis for early conceptual project schedules and budgets
- Helpful to potential investors
- Assists developers in approaching governmental agencies to understanding of regulatory requirements
Critical Issues Analysis Should Include:

- Major Factors that Govern Site Suitability
  - Wind
  - Transmission and interconnection
  - Property rights acquisition
  - Environmental and land use constraints and other factors
  - Engineering, transportation, and constructability constraints and factors
  - Public and governmental acceptability
Wind

- Early wind considerations include:
  - Wind speed
  - Wind direction
  - Roughness of terrain
  - Seasonal cycles
  - Air pressure
  - Temperature

- At least one full year of site specific data collection needed for accurate assessment

- Multiple years of data collection are more predictive
Wind

- Collect site-specific wind speed and direction data
  - Visual inspections of site
  - Wind resource maps compiled by governmental authorities
    - Vary in accuracy
    - Suitable for screening level analysis only
  - Wind resource maps from meteorological firms
  - Wind speed and direction data from nearby sites
    - Airports
    - Public meteorological stations
  - Computer program models

- If preliminary indications look good, retain meteorological firm to begin site specific wind measurement
Transmission and Interconnection

- Transmission lines under consideration for interconnection
  - Distance from proposed site
  - Voltage and ownership
  - Available additional capacity
  - Competing projects for connection to lines
  - Locations of future transmission lines

- Detailed description of interconnection permission process

- Regulatory requirements

- Listing of transmission/interconnection fees

- Plan and schedule for subsequent studies required

- Potential concerns
Transmission and Interconnection

- Determine if it is possible for proposed wind facility to interconnect with transmission line
- Assess whether transmission line has adequate capacity
- Identify potential system reliability impacts
- Determine necessary interconnection facilities
- Determine needed system upgrades and who will fund them
Environmental and Land Use

- Should identify three types of information:
  1. Significant existing environmental, cultural or other socio-economic resources
  2. Environmental or regulatory constraints on development
  3. Identification of permitting requirements and associated processes
Environmental and Land Use

1. Environmental, cultural or other socio-economic resources identification:
   - Wildlife – especially bats and birds, but include all special status animals and plants
   - Critical habitat
   - Wetlands and surface waters
   - Groundwater resources
   - Cultural resources – archeological and historic structures
   - Visual resources
   - Agricultural resources
   - Recreational resources
   - Communications resources
   - Aeronautical resources
   - Land uses
   - Contamination
   - Sociological factors

Studies typically conducted using desktop resources
Environmental and Land Use

2. Constraint Mapping

- Sensitive buildings – residences, schools, hospitals and religious buildings
- Outbuildings – barns, garages, hunting camps
- Roads, trails and recreational areas
- Transmission lines, oil & gas wells and/or transmission, gathering and service lines, sub-surface mining operations
- Non-participating parcel boundaries
- Wetlands, surface waters & regulatory buffers
- Cultural resources & regulatory boundaries
- Location of special status and/or critical habitat and wildlife
- Areas of known geotechnical instability
- Fresnel zones or other communication/radar related constraints
- Areas impacted by air traffic

Include land and engineering constraints
Environmental and Land Use

3. Identification of permitting requirements and associated processes
   • Provide list of permits, authorizations and consultations required to construct and operate wind farm
Preliminary assessment of aspects that will affect wind project engineering and transportation

Identify any significant concerns

- Steep slopes
- Rough terrain
- Unstable geotechnical conditions
- Presence of subsurface mining, oil & gas extraction well and pipeline infrastructure
- Any barriers to transporting wind turbines to the site

Note type and general extent of public road improvement necessary
Sometimes: “If they don’t want it, you can’t build it.”

Analyze the following:

- Attitude of local population and officials
- Renewable energy policy statements or goals
- Local economic climate
- Residential density
- Compatibility of surrounding land uses
- Number of second homes or vacation spots in project area
- Proximity to important viewsheds, historical sites or other culturally sensitive locations
- Proximity to rare, threatened or endangered wildlife
Public & Governmental Acceptability

- Concerns of local community
  - Property values
  - Viewshed impacts
  - Noise impacts
  - Shadow flicker impacts
  - Avian/bat mortality

- Strengths and benefits of project
  - Local economic benefits
  - Local job creation
  - Environmental benefits of green energy
  - Homeland security benefits of green energy
  - Consumer benefits of green energy
Cost and Schedule

- Critical Issues Analysis is quick and cost effective
- Critical Issues Analysis usually represents 5-10% of overall permitting costs
- Identifies critical path(s) and prevents likelihood of delays
- Initiative review as early as possible in site selection process
Key Take Away Points

- Critical Issues Analysis is a valuable tool and provides up-front information needed for siting, financing and permitting wind farm locations.

- Critical Issues Analysis results ensure:
  - Accurate budget development and schedule
  - Cost effective siting
  - Expedited permitting schedules
  - Educated and reasoned financing decisions
Questions?