



NaturEner

**NaturEner US:**

# **Renewables and the Transmission Markets**

**PNWER Annual Summit**

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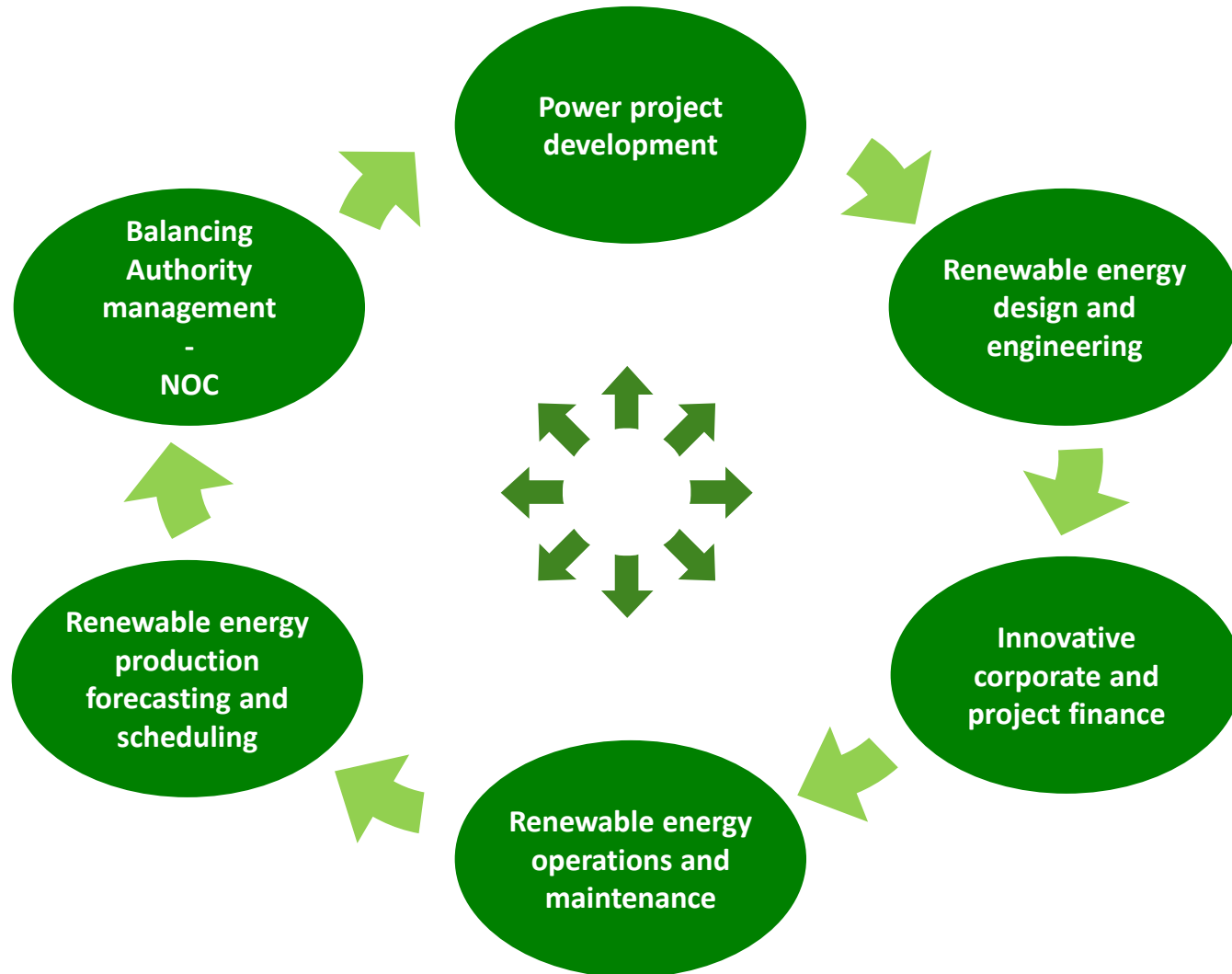


# NaturEner Overview

- NaturEner has developed and put into operation 399 MW of wind assets in MT, representing more than a billion dollars of capital deployment
  - Glacier 1: 106.5 MW
  - Glacier 2: 103.5 MW
  - Rim Rock: 189 MW
- NaturEner is also the anchor tenant on the MATL line, and owns all Northbound capacity on the line. This is the primary revenue stream required for that asset to proceed
- Project portfolio represents real incremental value to the State and to the local communities where the projects are present
- Our projects production, in conjunction with energy associated with our BA activities and energy movement associated with our MATL position, represent a significant increase to overall power flows through the region



# Deep, Multi-Functional Expertise





# Transmission Overview

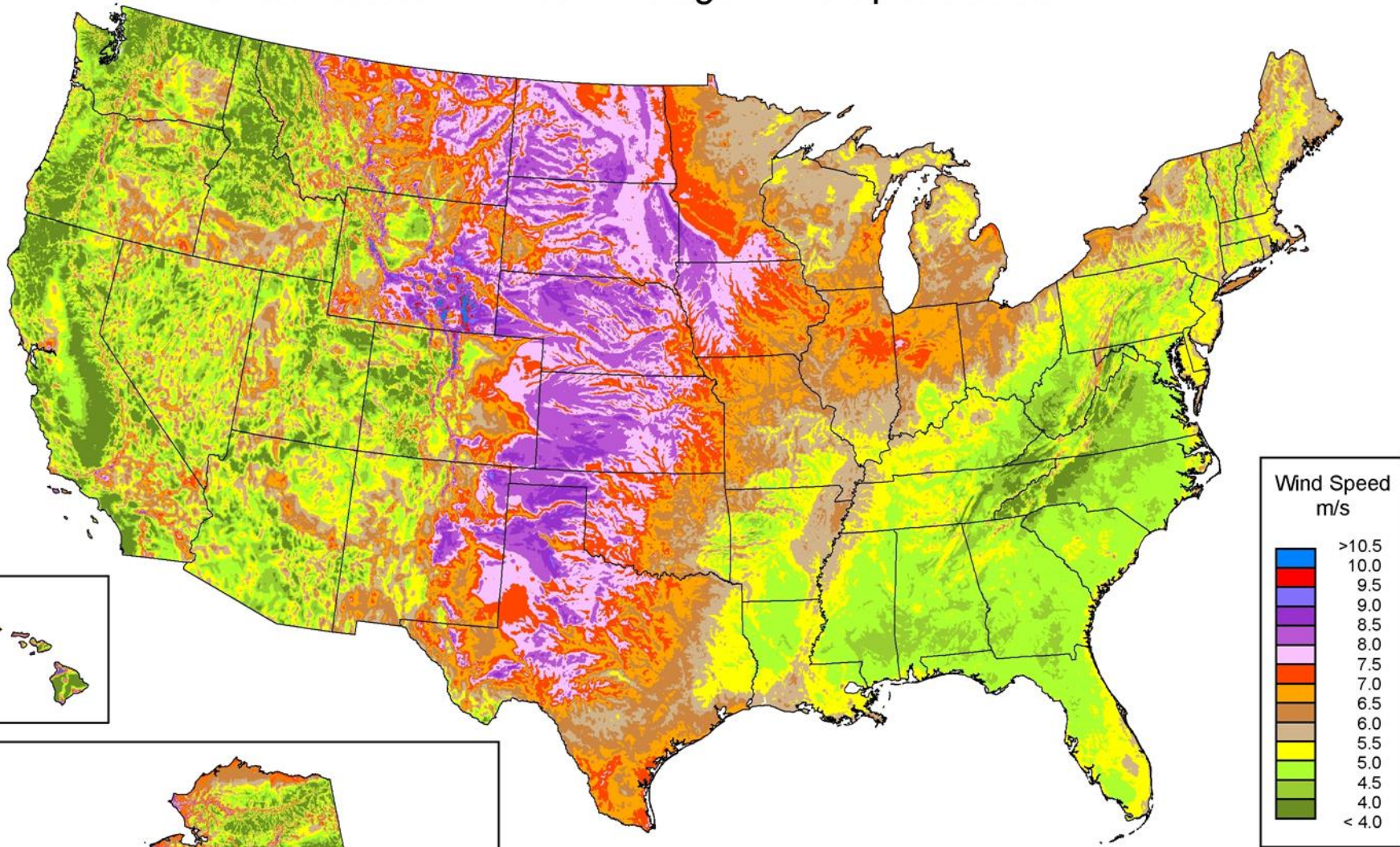
- Regional transmission markets are clear and open marketplaces
- Transmission is becoming increasingly capacity constrained
- Different scheduling horizons and protocols create seams issue when flowing through the region
  
- **Markets:**
  - **MidC:** Bi lateral marketplace, diverse portfolio of products and pricing structures
  - **Alberta:** Centrally cleared, difficult scheduling windows and protocols
  - **Others:** California, transmission scarcity, distance exposes flows to increased curtailment



# Transmission in MT: Renewables

- **Available Capacity Limited**
  - Short term purchases of firm and non-firm transmission limited
- **Difficult economics to support Long Term Firm purchases and to underpin new builds**
  - Intermittent nature of wind production makes buying 7x24 transmission expensive
  - Anchor tenancy positions for new builds are difficult
    - ◆ Intense economics pressures
    - ◆ COD Uncertainty
    - ◆ Collateral requirements
- **Integration Services**
  - Difficult and expensive service
  - Financing requires stable term service provisions
- **Lack of liquidity in the Intra Hour transmission market**

# United States - Annual Average Wind Speed at 80 m



Source: Wind resource estimates developed by AWS Truepower, LLC for windNavigator®. Web: <http://www.windnavigator.com> | <http://www.awstruepower.com>. Spatial resolution of wind resource data: 2.5 km. Projection: Albers Equal Area WGS84.



# Future Growth

