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Power Company of Wyoming LLC

Wyoming Wind Energy Projects and Characteristics

March 16, 2016

California Renewable Energy Transmission Initiative Workshop 2.0

Ryan J. Jacobson, PE

Presentation Agenda

- Typical Wyoming Wind Characteristics
- Review of Wyoming Wind Development Areas
- Overview of the Chokecherry and Sierra Madre Wind Energy Project

Typical Wyoming Wind Characteristics

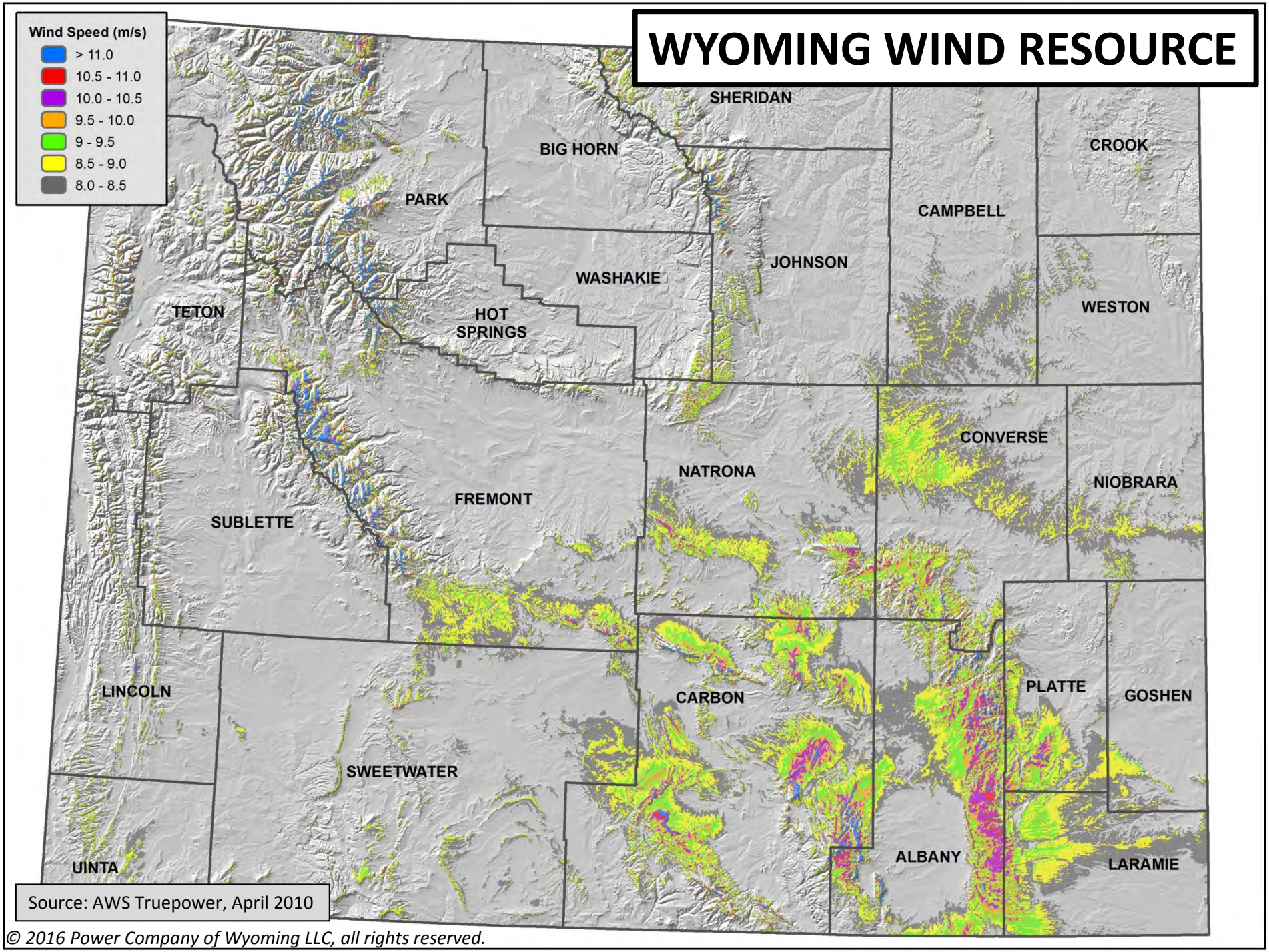
- Highest Capacity Factor Options Available

State	2013-2015 Actual Average CF*	RPS Calculator Average CF	RPS Calculator Projects Above 38%
California	25.2%	35.4%	690 MW
New Mexico	30.7%	38.1%	7,300 MW
Wyoming	**33.5%**	**43.3%**	**12,000 MW**

- Time of Day Characteristics Fit CA Needs
  - Summer winds tend to ramp slowly during day, peak in late afternoon and early evening, then slowly ramp down
  - Winter winds tend to stay very constant for long periods (often several days)
  - Timing fundamentally different from CA wind and solar characteristics
  - Lessens flexible capacity requirements

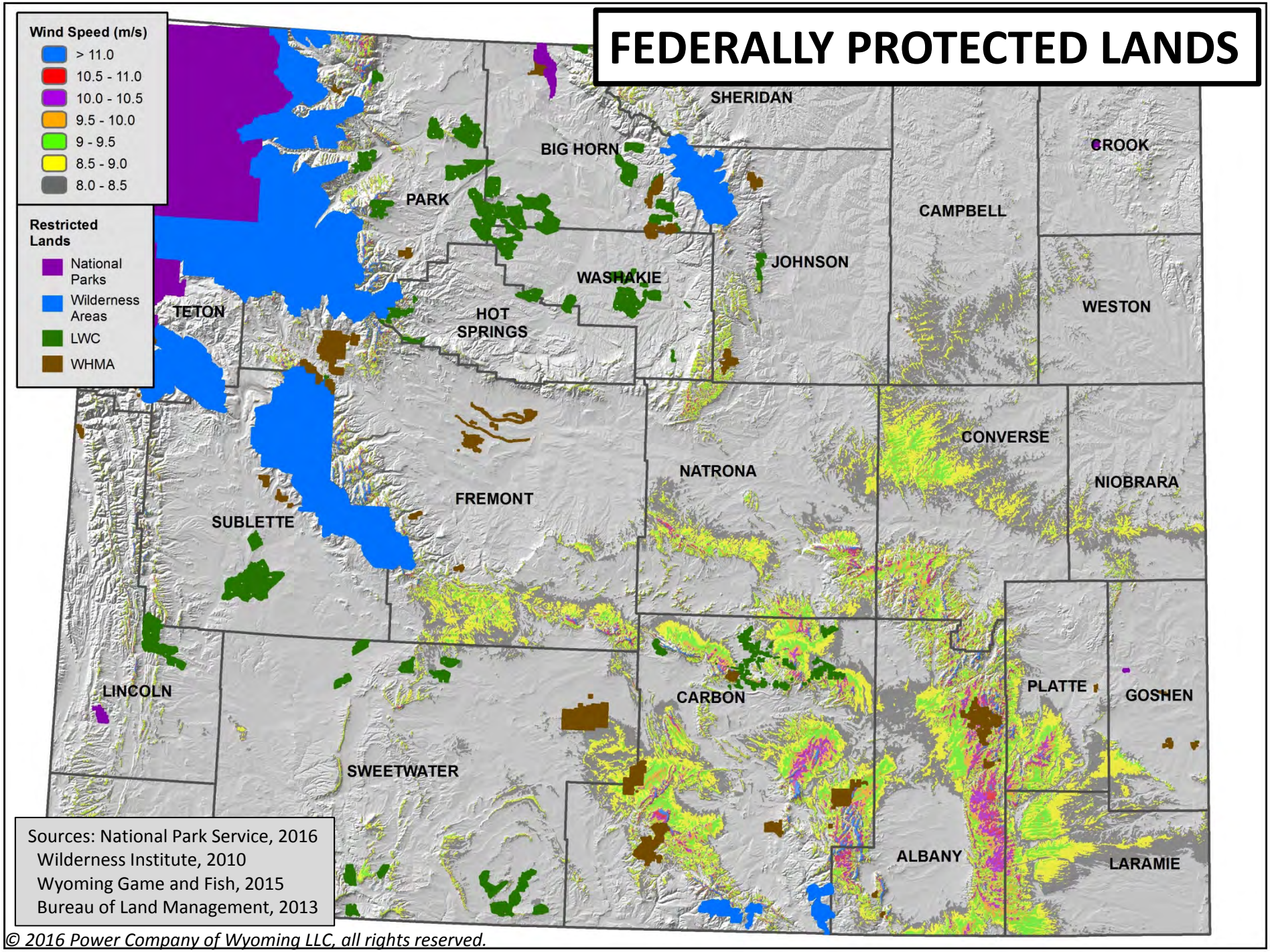
*Source: SNL

WYOMING WIND RESOURCE



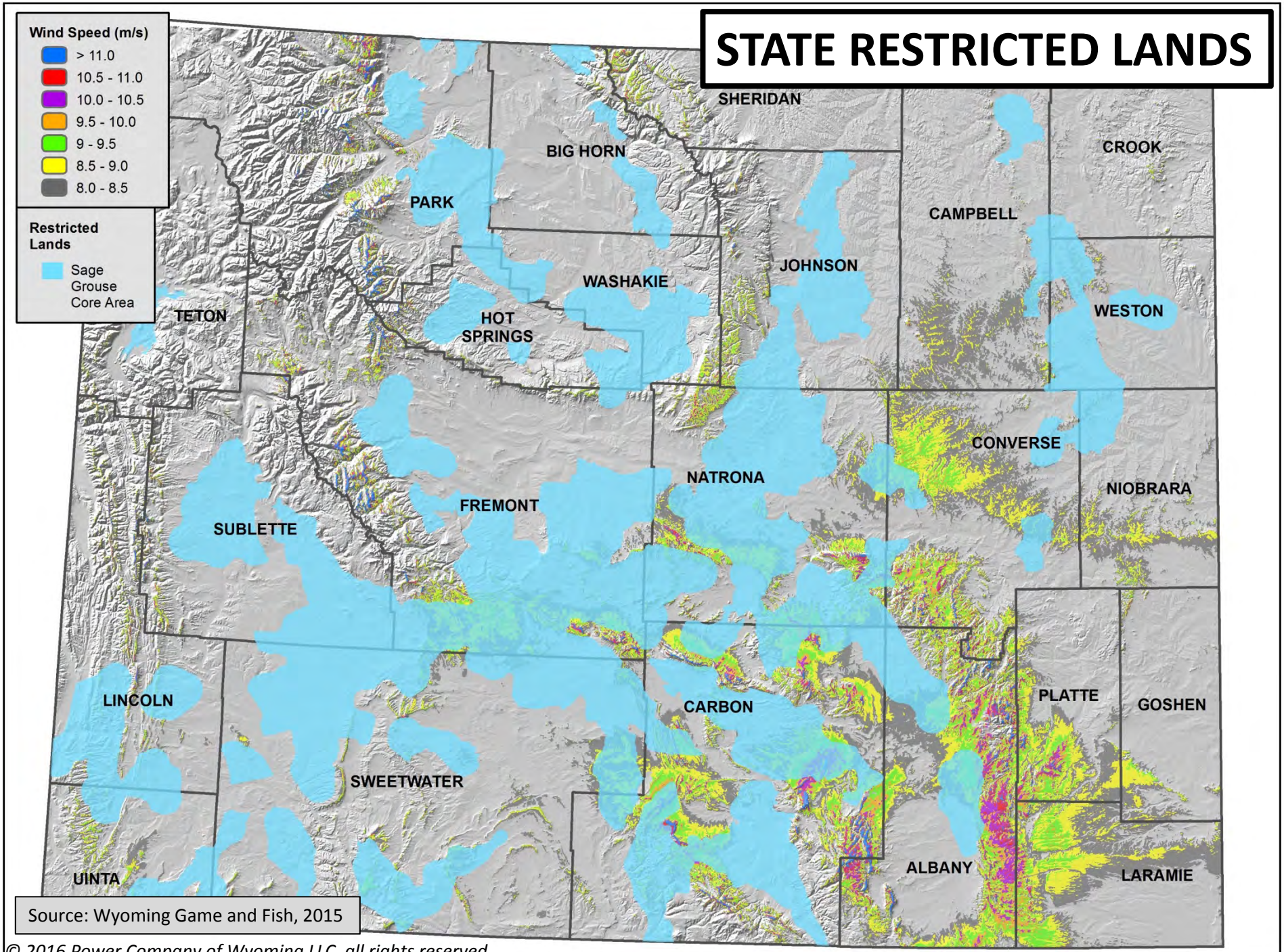
Source: AWS Truepower, April 2010

FEDERALLY PROTECTED LANDS



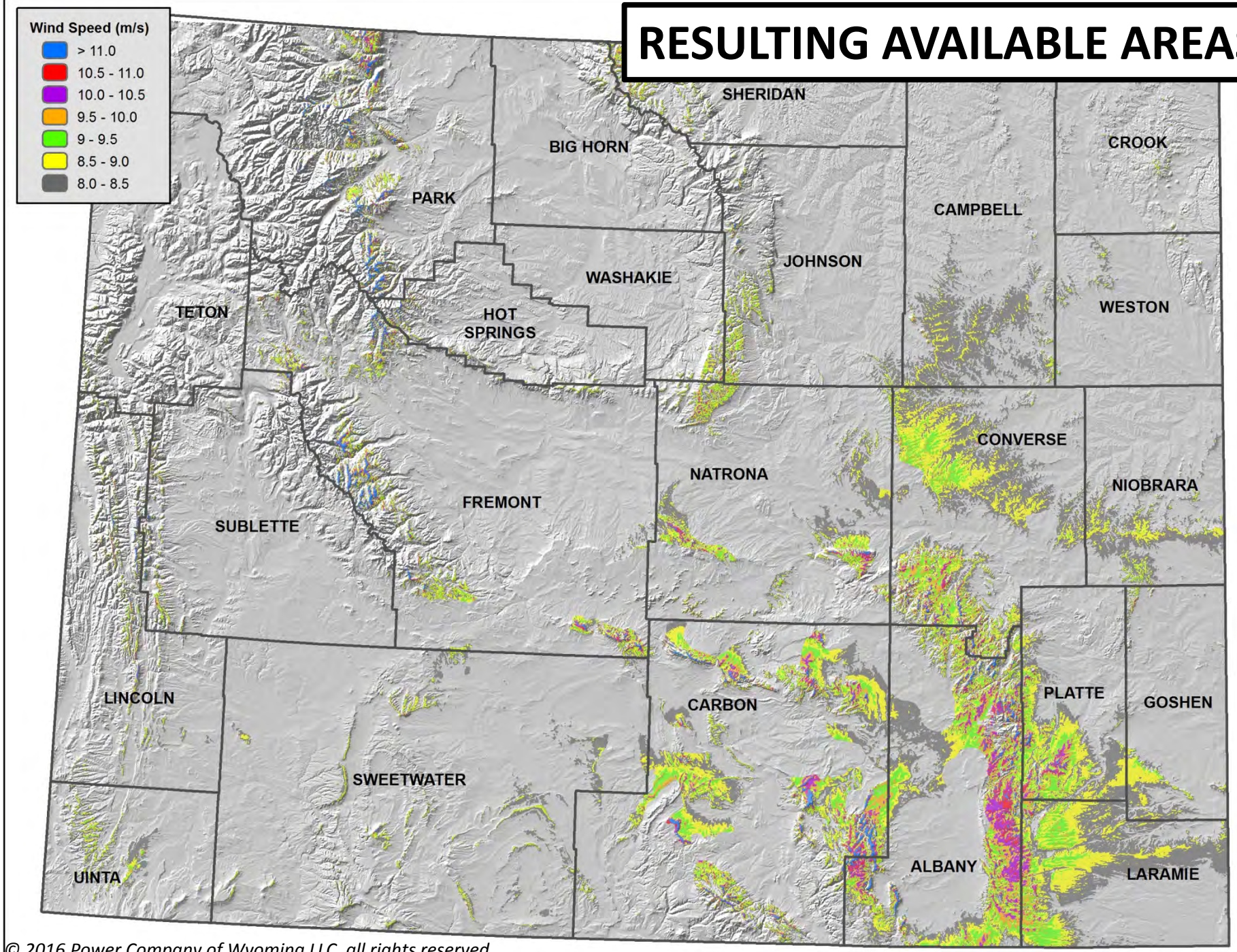
Sources: National Park Service, 2016
Wilderness Institute, 2010
Wyoming Game and Fish, 2015
Bureau of Land Management, 2013

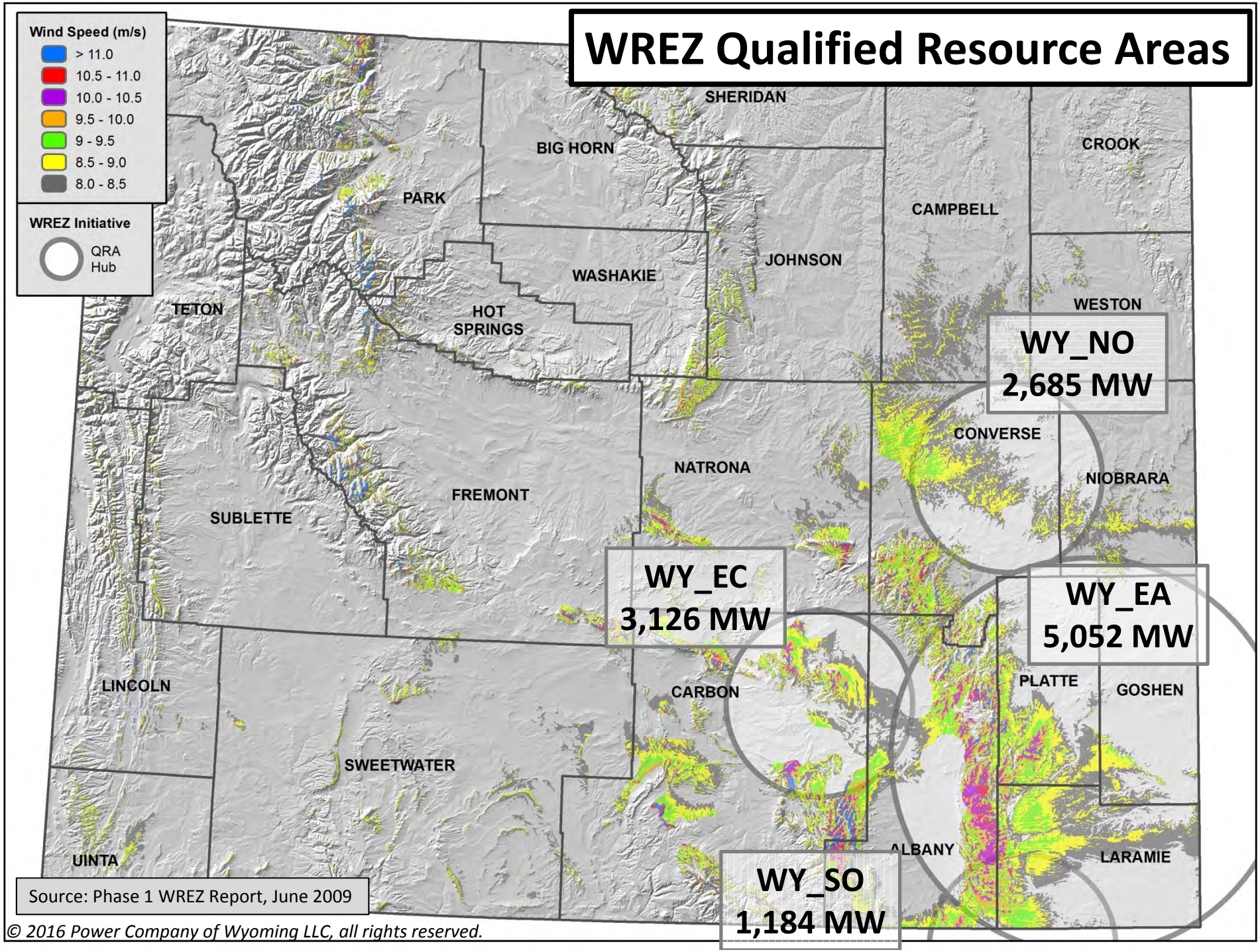
STATE RESTRICTED LANDS



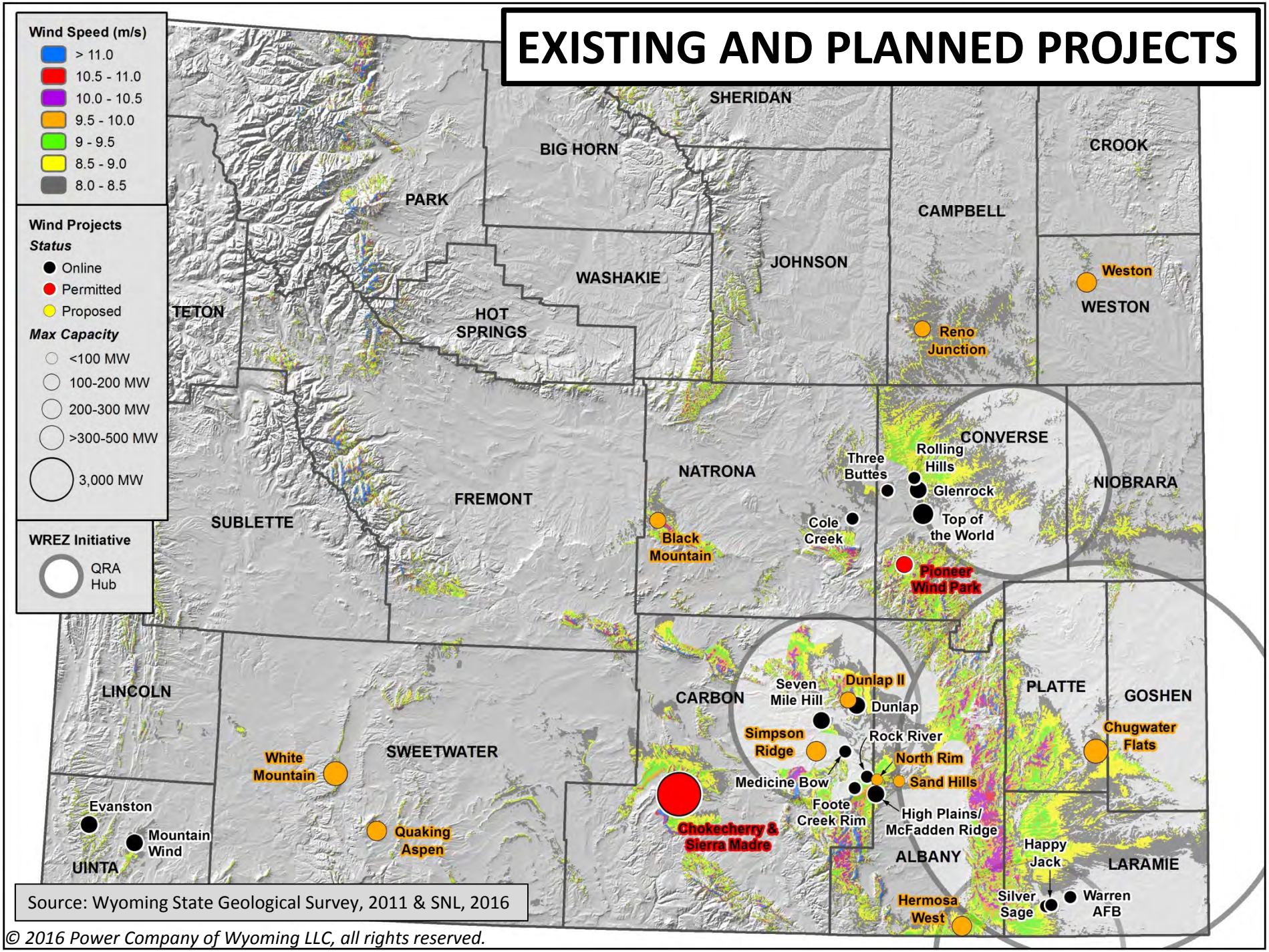
Source: Wyoming Game and Fish, 2015

RESULTING AVAILABLE AREAS





EXISTING AND PLANNED PROJECTS

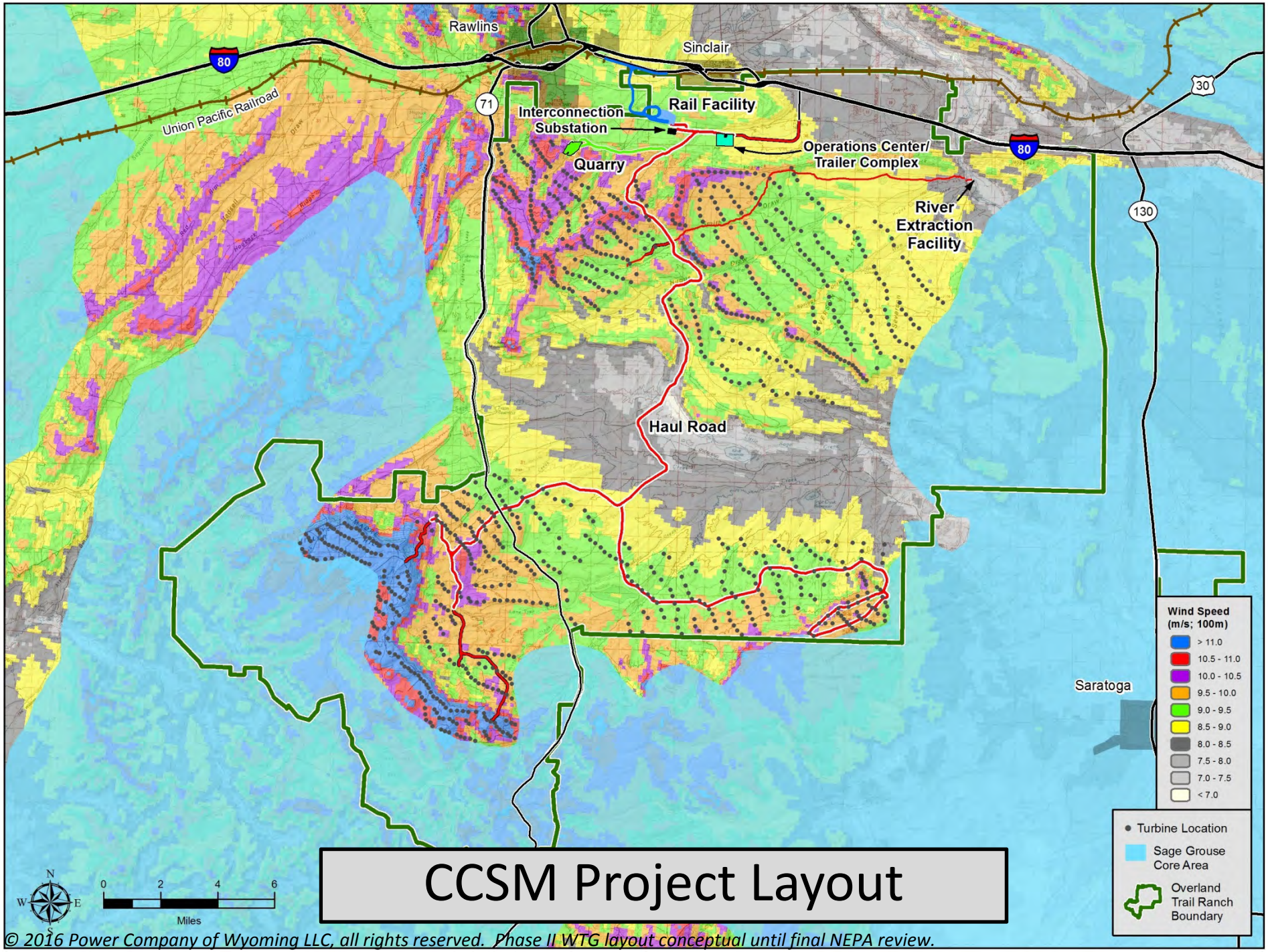


Source: Wyoming State Geological Survey, 2011 & SNL, 2016

Chokecherry and Sierra Madre Wind Energy Project

- 1,000 turbine wind energy project
- Designed to deliver over 12,000 GWh/yr in phases to CA/NV/AZ market via long-distance transmission and/or regional markets
- Can have turbines on-line as soon as 2019
- CEC pre-certified eligible for CA RPS
- Conforms to RETI assumptions for Wyoming wind projects
- Only major wind project in Wyoming already nearly permitted

- www.powercompanyofwyoming.com



CCSM Project Layout

CCSM Project Compared to RPS Calculator Inputs

- Conforms well to RPS Calculator inputs for WY_EC QRA
  - ✓ Estimated at about 3,100 MW
  - ✓ Average Capital Cost at $1,850/MW
  - ✓ Deliver Over 12,000 GWh/yr
- CCSM values based on real and detailed information
  - Rigorous met program: 8 years, 32 towers, SODAR unit
  - Production estimates on statistical and hourly bases
  - Turbine costs from actual bids from multiple vendors
  - Balance of plant costs based on detailed engineering, offers from multiple contractors

Federal Permitting Process Nearly Complete

Federal land: Environmental Impact Statement (EIS) completed by BLM

- Oct. 9, 2012: Project-wide Record of Decision approved wind development at the site
- Dec. 23, 2014: BLM issues Decision Record on First EA approving infrastructure
- March 9, 2016: BLM issues Draft Decision Record on Second EA approving 500 wind turbines
- 2016 BLM anticipated to grant Phase I rights-of-way

Federal wildlife: EIS being prepared by U.S. Fish and Wildlife Service for Phase I Programmatic Eagle Permit application

- Feb. 4, 2014: 60-day public scoping period completed
- March 2016: Release of Draft EIS anticipated
- 2016: EIS anticipated to be completed