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Wind Resource Comparison

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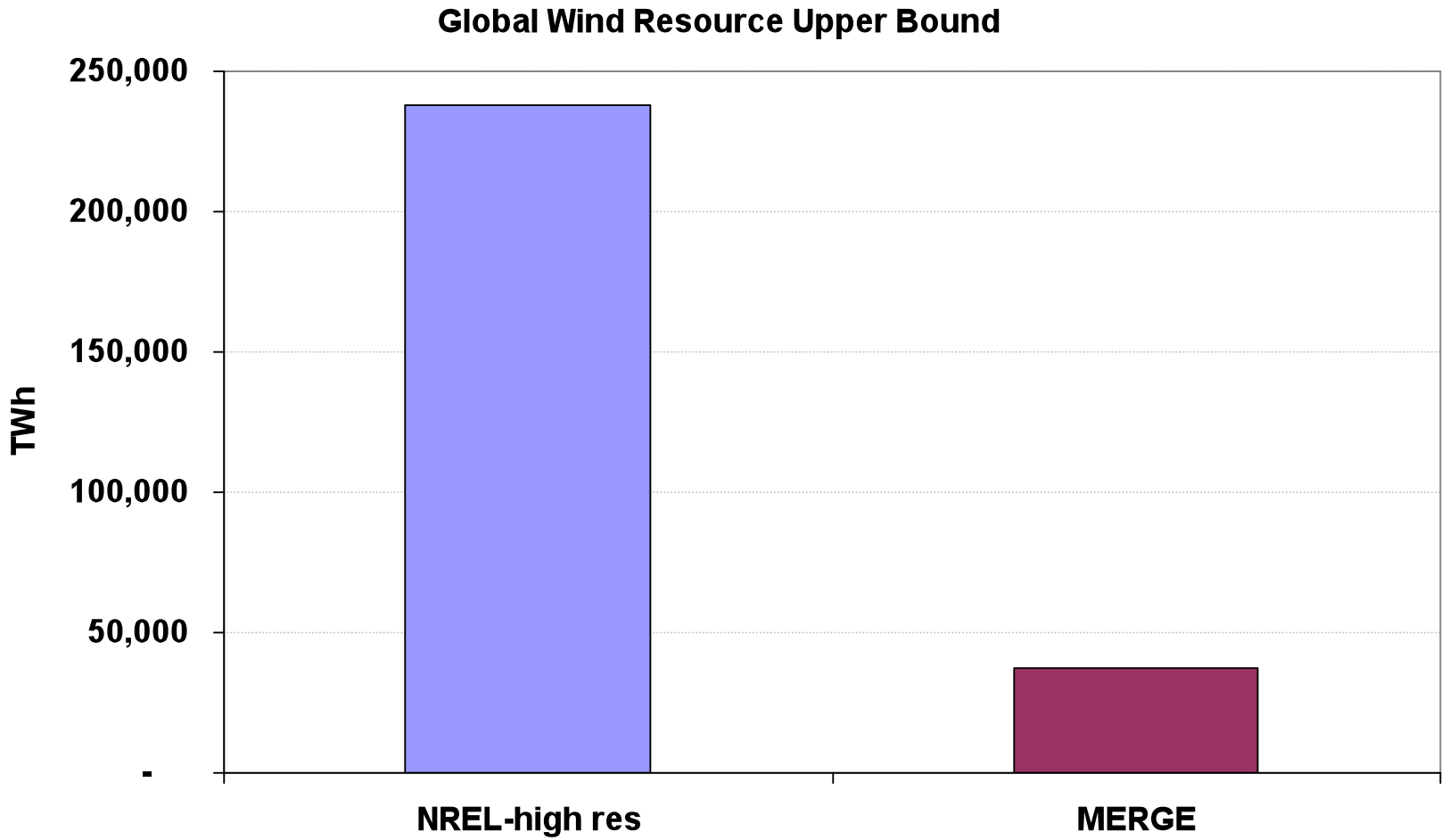
Acknowledgements

- Geoff Blanford
- Victor Niemeyer

Global resource comparison: NREL, MERGE



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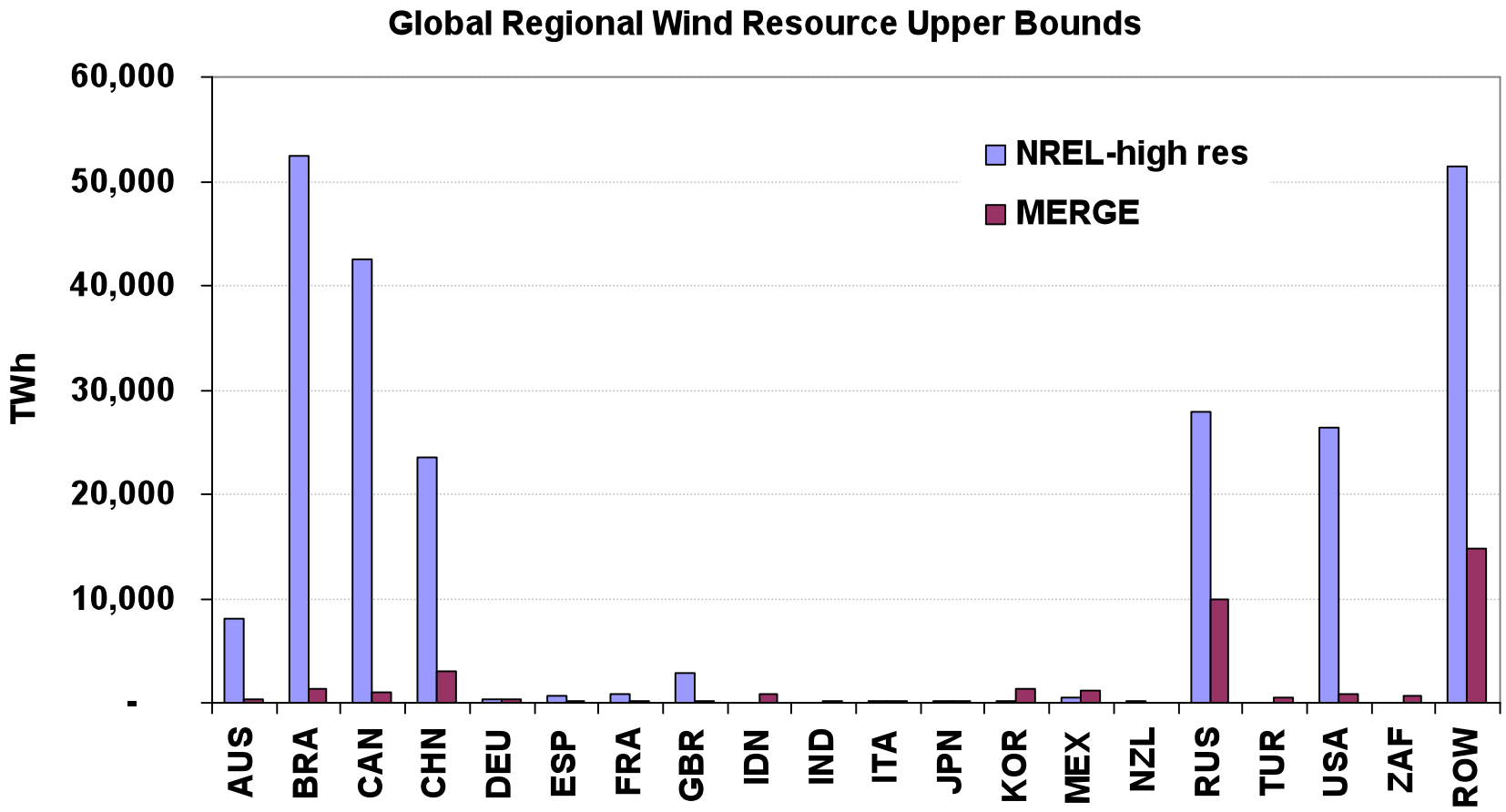
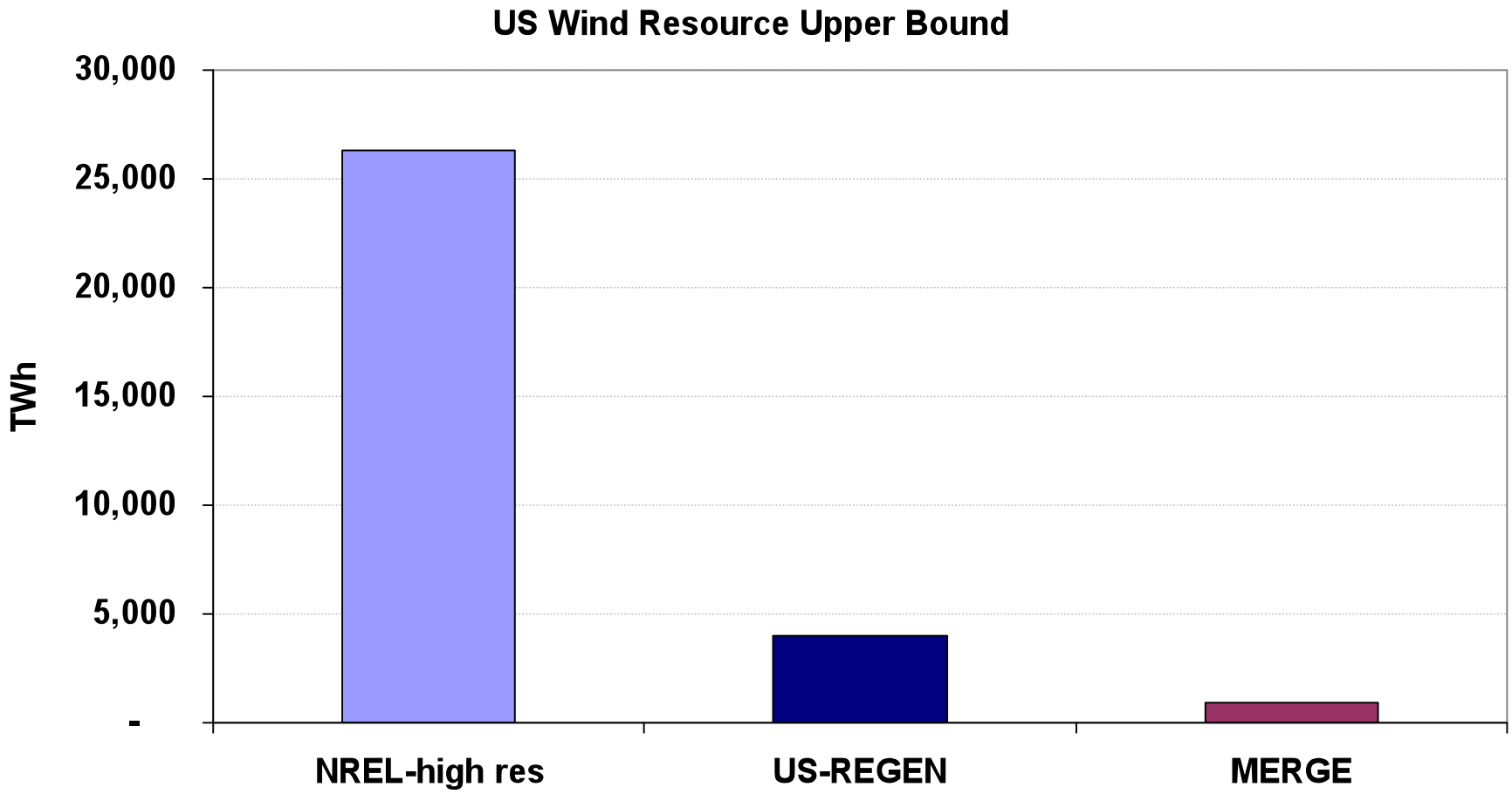
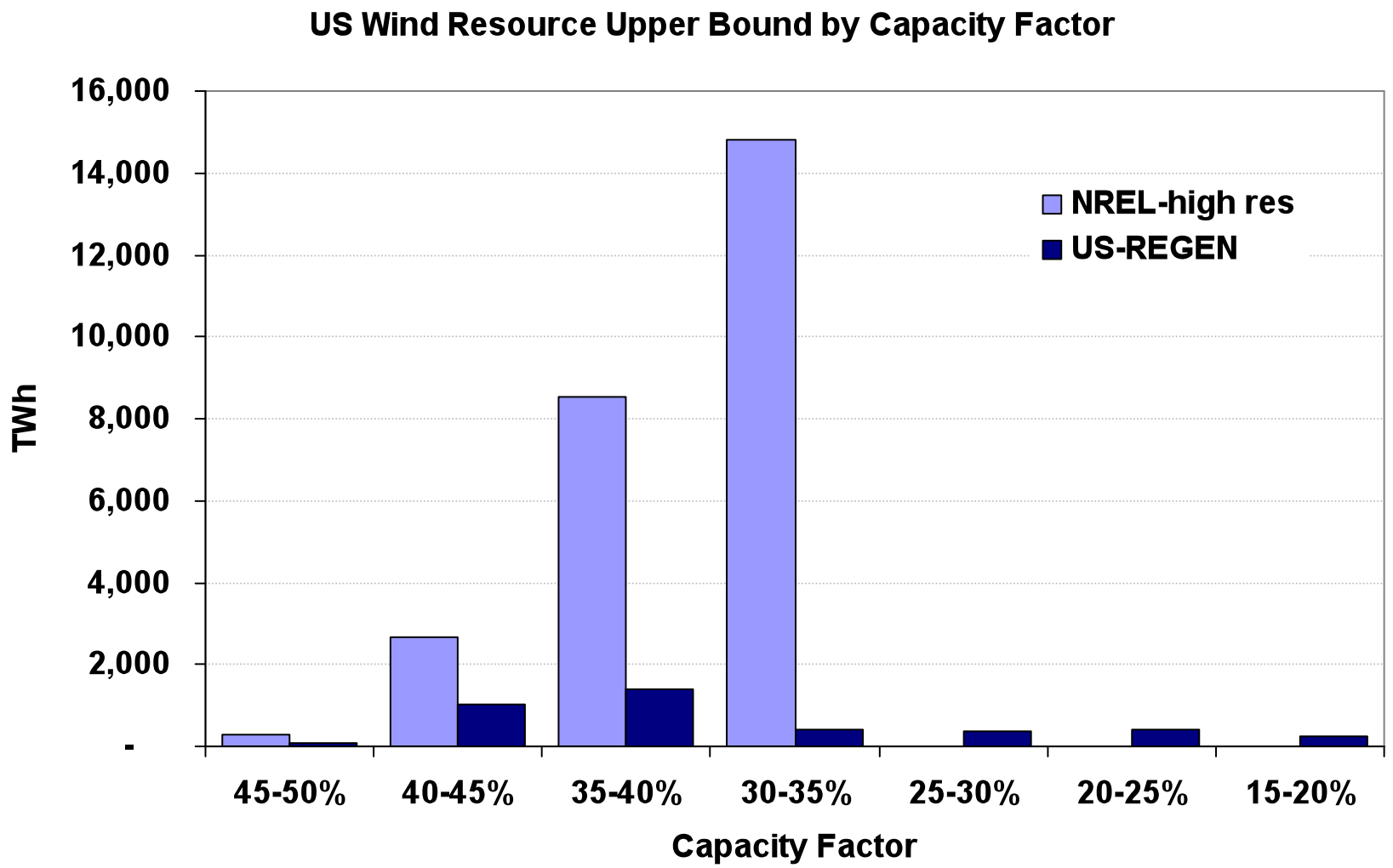


Focus on US and US-REGEN

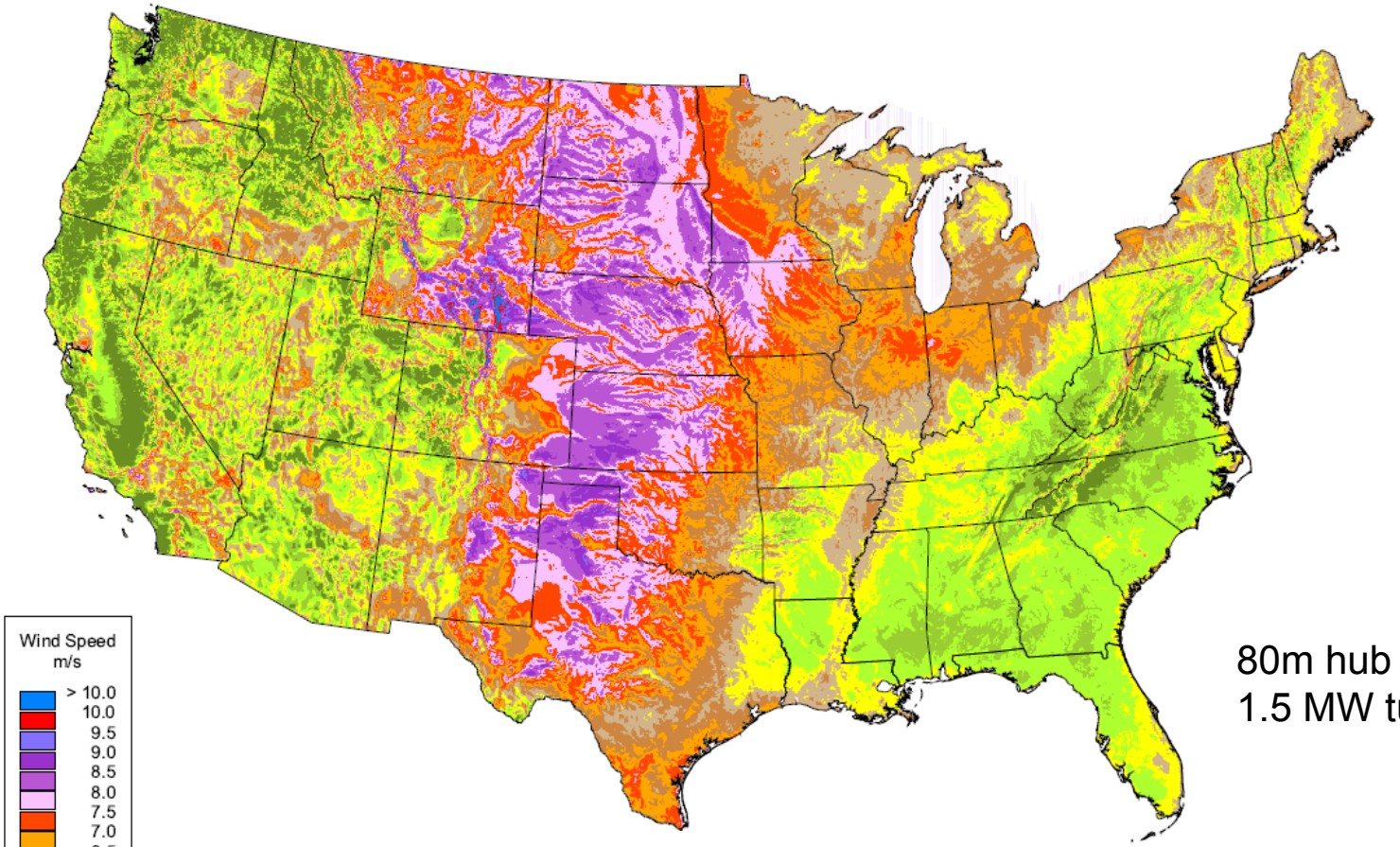
US resource comparison: NREL, US-REGEN, MERGE



US resource comparison: NREL, US-REGEN



AWS Truepower provided resource base data



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

AWS Truewind

80m hub height
1.5 MW turbine

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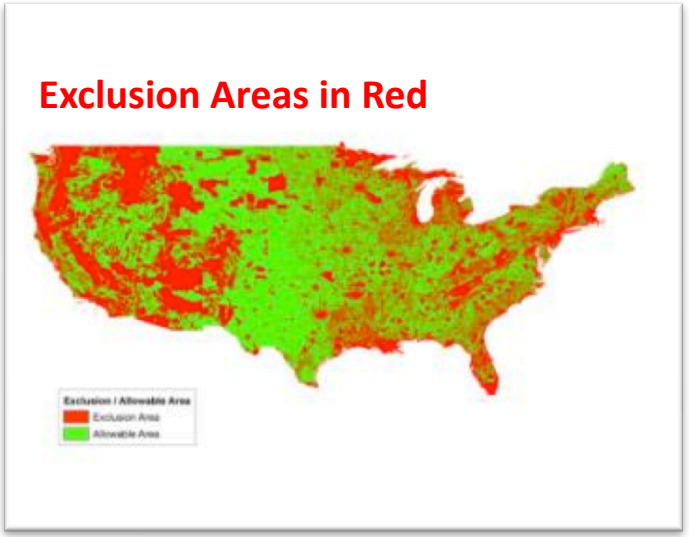
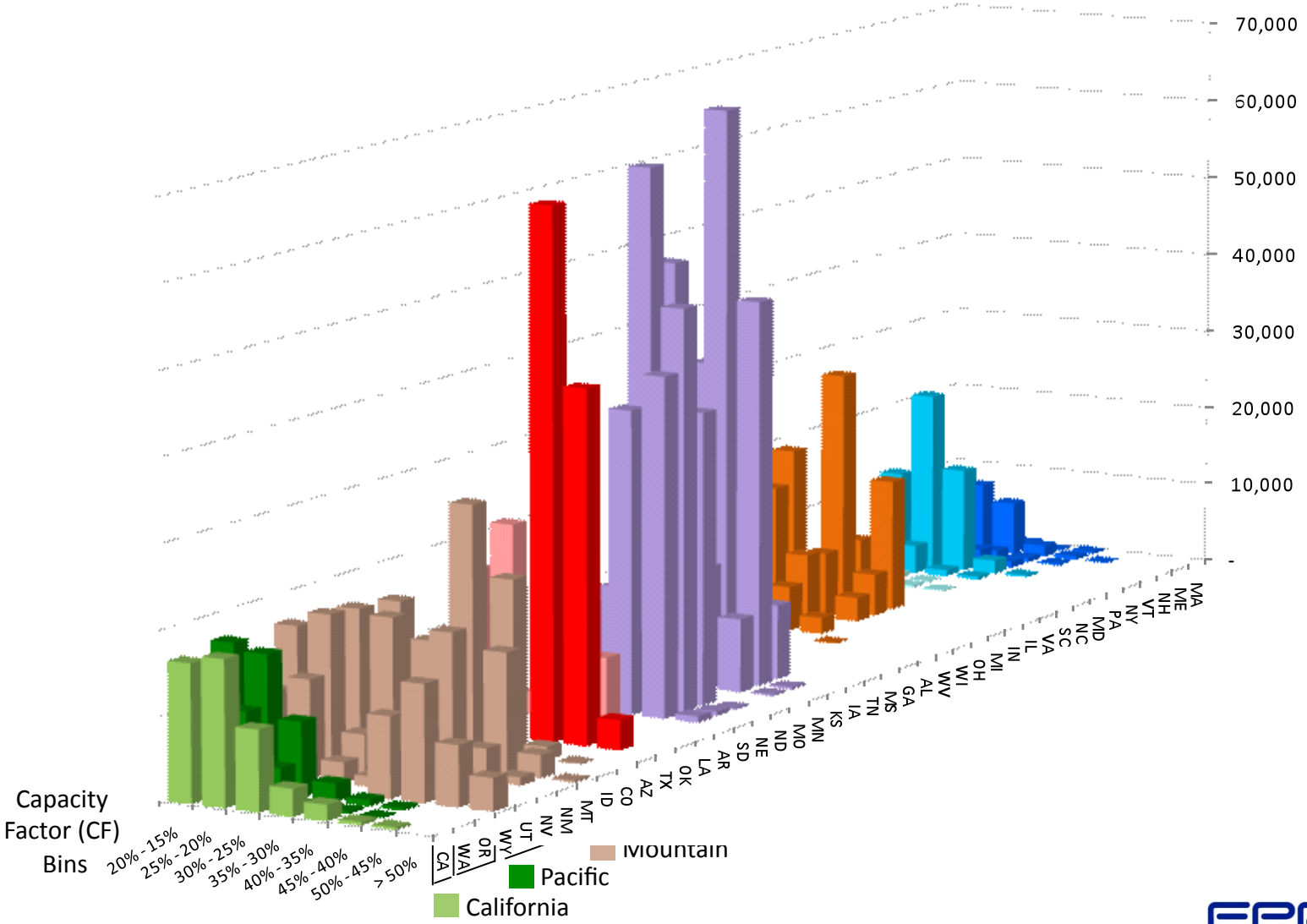
Exhaustive Site Selection

- Searched a national survey grid @ 200 m for potential sites
  - Exclusion areas applied
  - 100 MW minimum
  - Terrain / wake effects included
  - Distance to grid recorded



- Exhaustive? Algorithm designed to identify ***all*** potential sites
  - Highest capacity factor sites selected first
  - Cut-off capacity factor lower for states with poor resource

Location of wind resource by state and CF bin



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MW)

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55 Active Region-CF Bins in Model

Potential Wind Capacity in MW by Capacity Factor Bin

	> 50%	50% - 45%	45% - 40%	40% - 35%	35% - 30%	30% - 25%	25% - 20%	20% - 15%
New England	-	-	112	964	2,873	10,137	11,762	-
Mid-Atlantic	-	-	-	235	2,082	13,782	25,753	12,605
S-Atlantic	-	-	-	-	102	790	2,396	1,492
Florida	-	-	-	-	-	-	-	-
NE-Central	-	-	-	101	26,492	61,343	44,380	-
SE-Central	-	-	-	-	-	232	1,776	14,790
NW-Central	-	1,945	190,947	252,222	102,237	28,100	-	-
SW-Central	-	-	9,780	21,133	-	2,530	24,716	21,904
Texas	-	3,594	42,698	63,942	-	-	-	-
Mountain	4,202	11,226	33,834	79,908	11,289	15,293	57,976	59,300
Pacific	-	-	420	1,070	2,575	13,255	26,802	32,550
California	-	319	430	1,916	3,281	9,670	17,380	16,438

Concluding remarks

- Overall, NREL high resolution wind resource estimates significantly higher

- Differences for the U.S. could be due to…
  - Data source
  - 80 m height
  - Search resolution (200 m)
  - 100 MW minimum
  - State capacity factor cut-offs
  - Off-shore? Have for REGEN (but not in #'s presented).

Thank you