

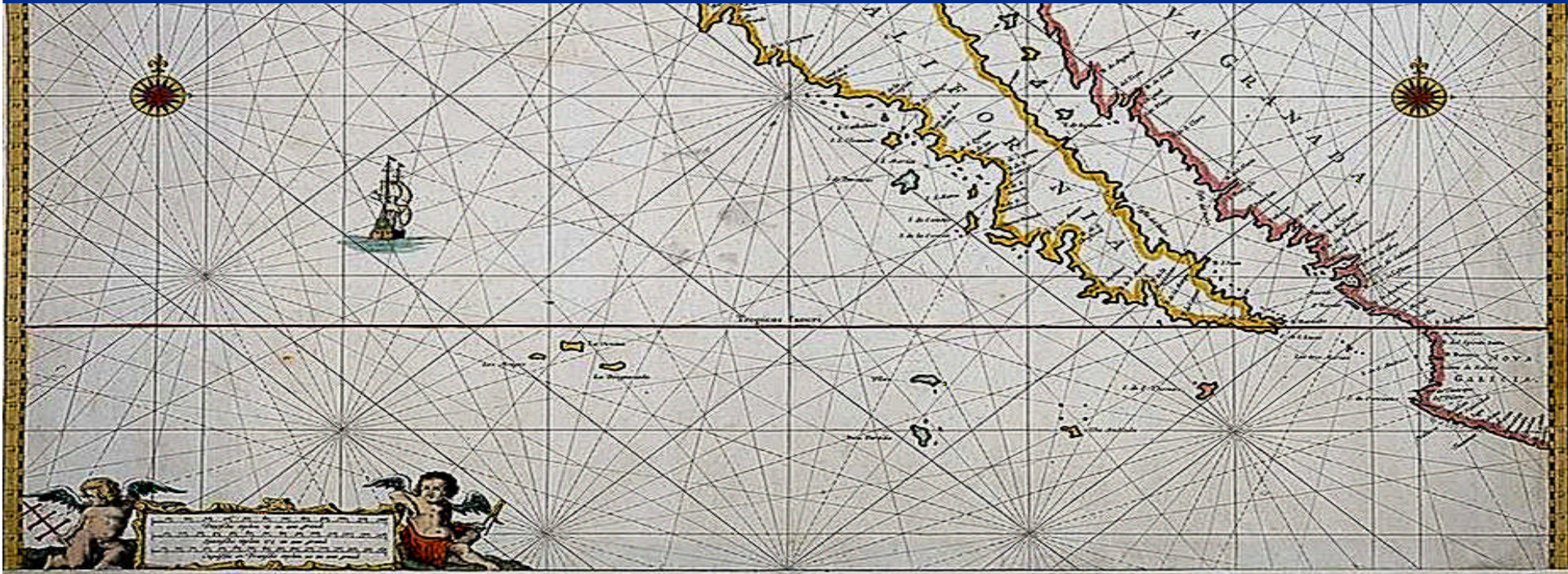
Utility Energy Forum

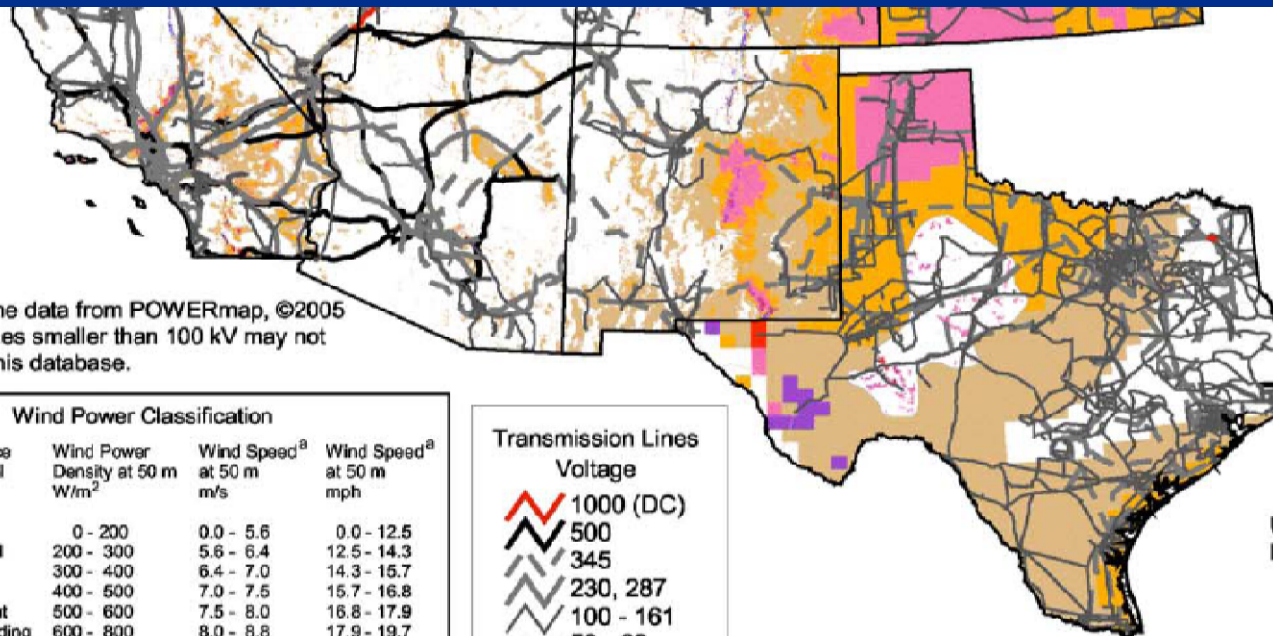
David Maul
President
Maul Energy Advisors

- Value of energy efficiency
- Carbon risk management

- CEC policy and standards
- CPUC regulation and ratemaking
- Implementation studies/recc.

- Goal: implement all cost effective EE
- Goal: renewables 33% by 2020
- NG is the cap for all new power generation emissions including imports
- Reg Framework addresses NG and electric sectors





Transmission line data from POWERmap, ©2005 Platts. Many lines smaller than 100 kV may not be included in this database.

Wind Power Classification				
Wind Power Class	Resource Potential	Wind Power Density at 50 m W/m ²	Wind Speed ^a at 50 m m/s	Wind Speed ^a at 50 m mph
1	Poor	0 - 200	0.0 - 5.6	0.0 - 12.5
2	Marginal	200 - 300	5.6 - 6.4	12.5 - 14.3
3	Fair	300 - 400	6.4 - 7.0	14.3 - 15.7
4	Good	400 - 500	7.0 - 7.5	15.7 - 16.8
5	Excellent	500 - 600	7.5 - 8.0	16.8 - 17.9
6	Outstanding	600 - 800	8.0 - 8.8	17.9 - 19.7

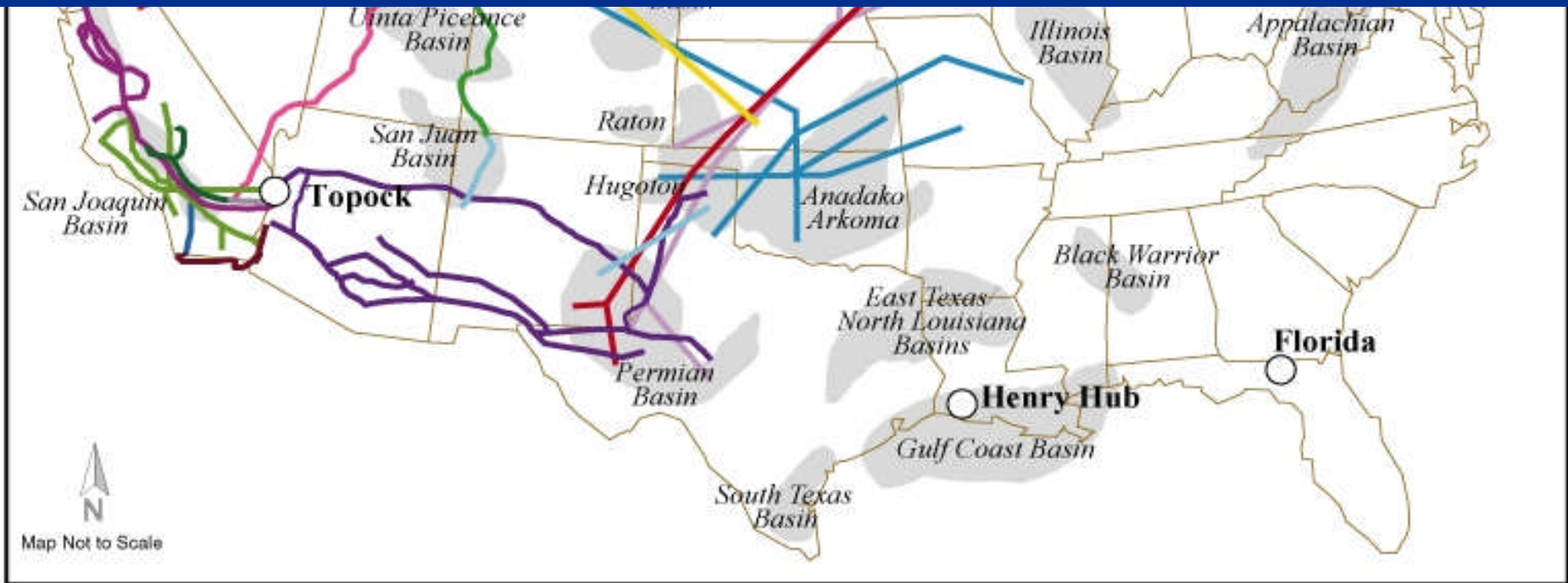
^aWind speeds are based on a Weibull k value of 2.0

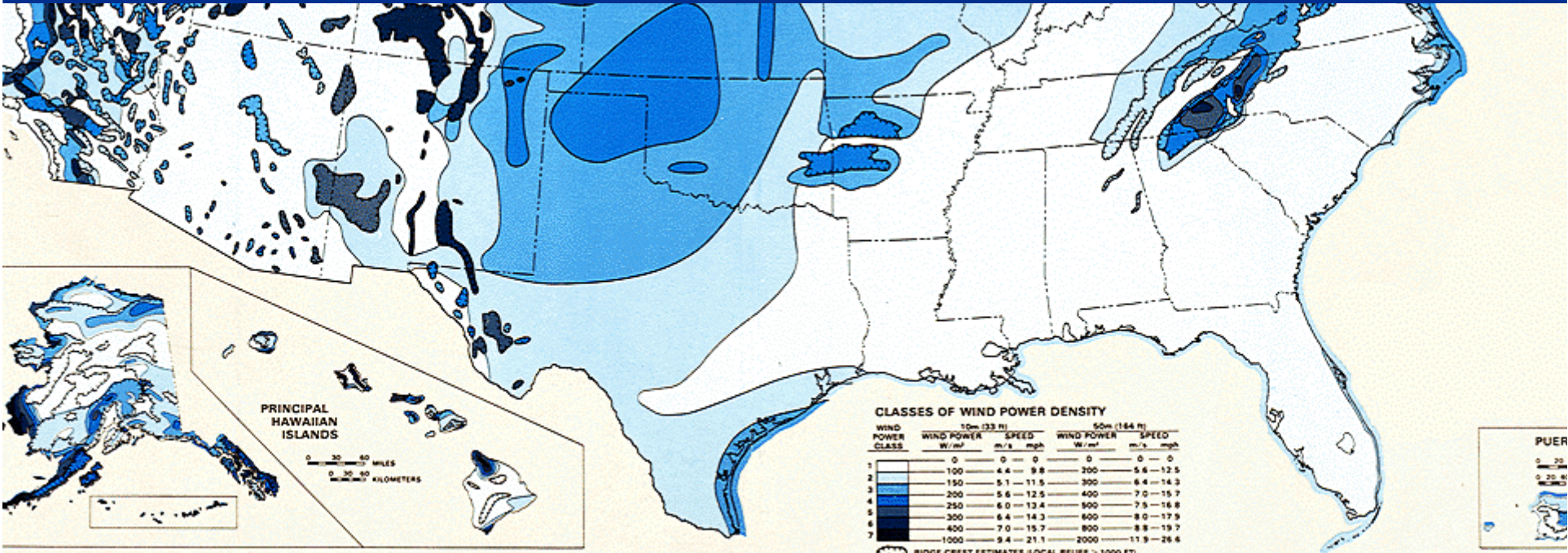
Transmission Lines Voltage	
	1000 (DC)
	500
	345
	230, 287
	100 - 161
	50 - 69

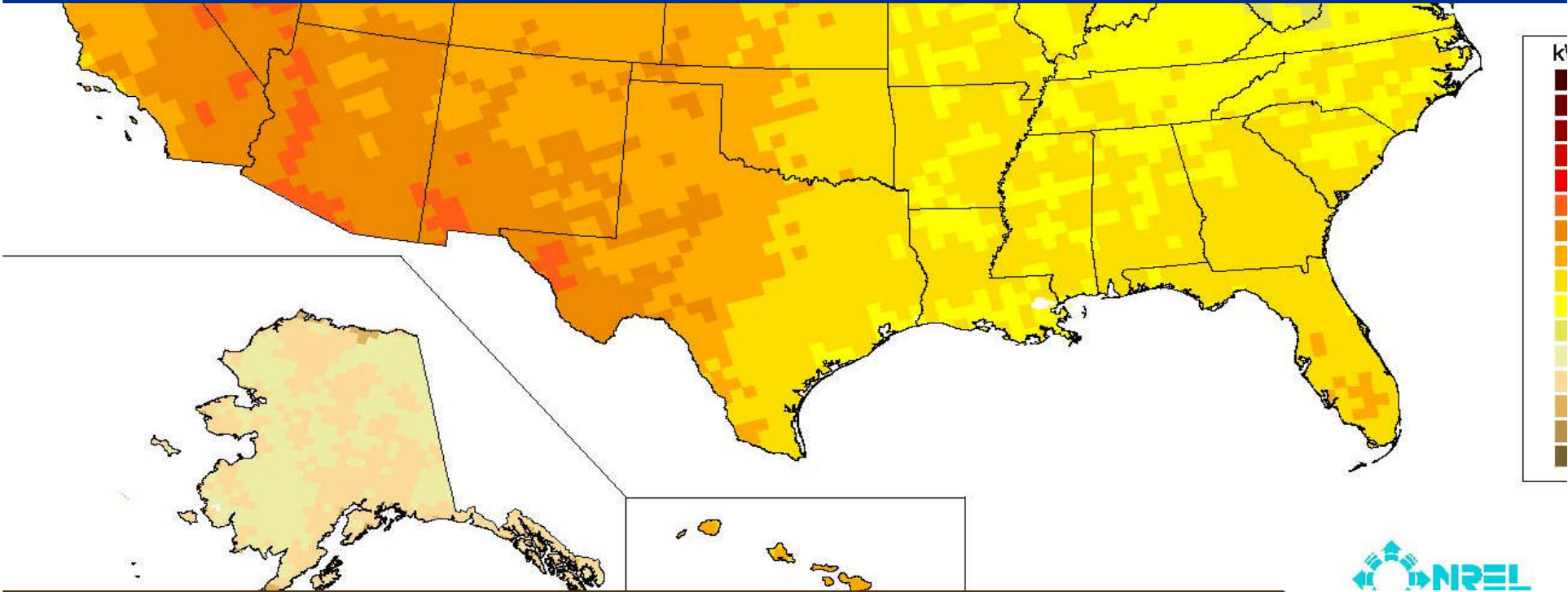
The remaining wind resource assessments were conducted on a state-by-state basis from 1999 to 2004. Over that time, the methodology and resolution of the data varied due to changes in the assessment process. Also, the fine resolution of these assessments may prevent many good resource areas from appearing when viewed at this scale.

U.S. Department of Energy
National Renewable Energy Laboratory

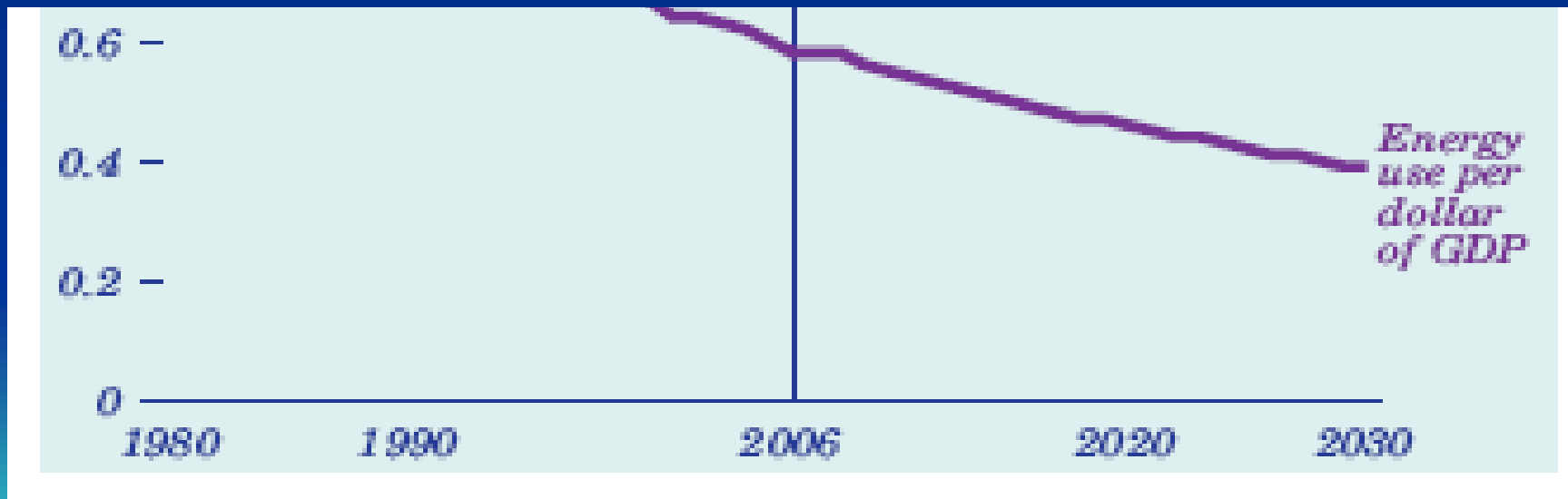




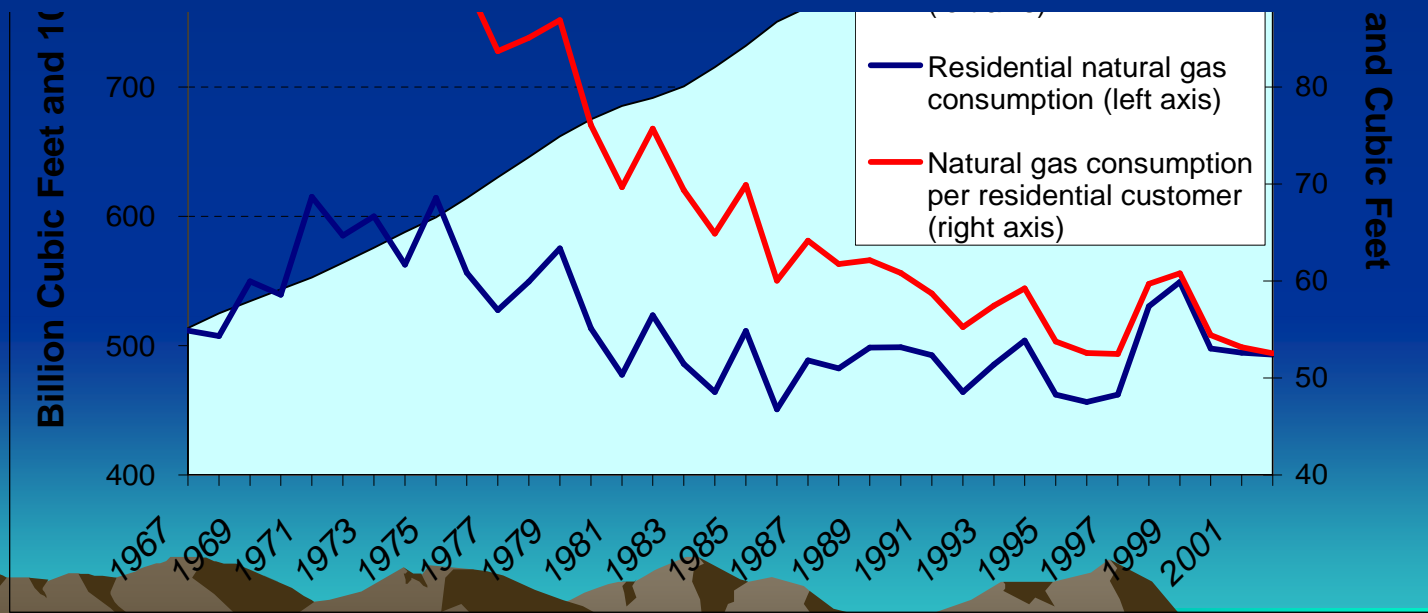


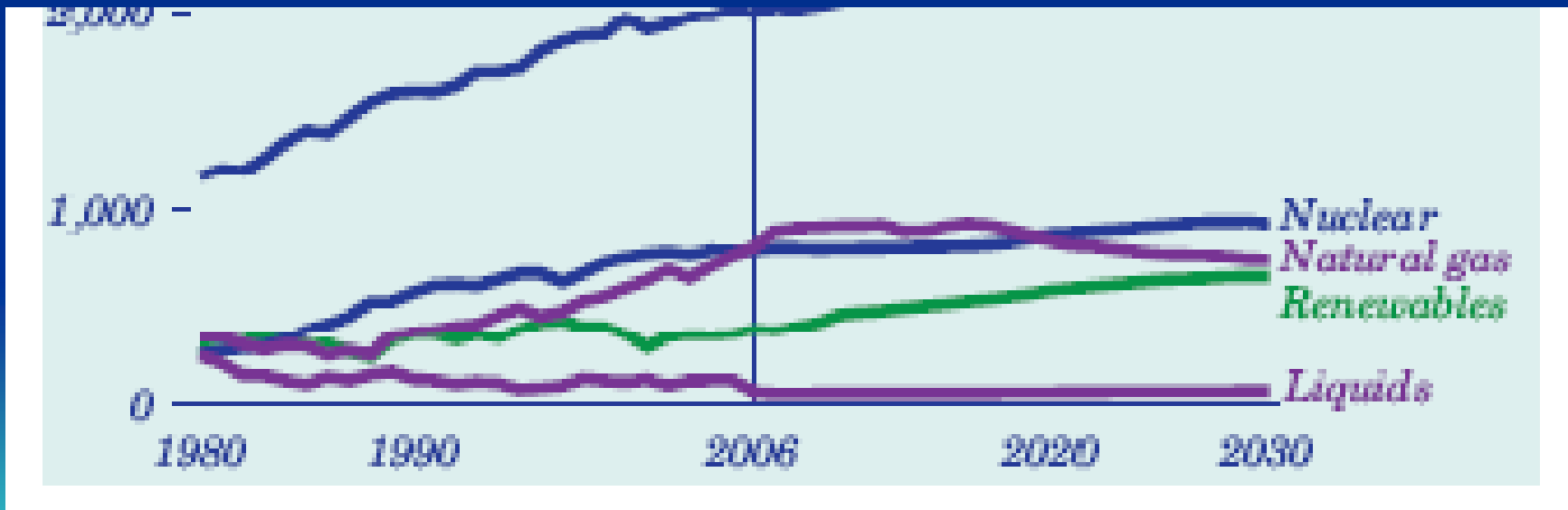


- Energy efficiency is critical
- Renewables are critical
- Coal vs. NG contest

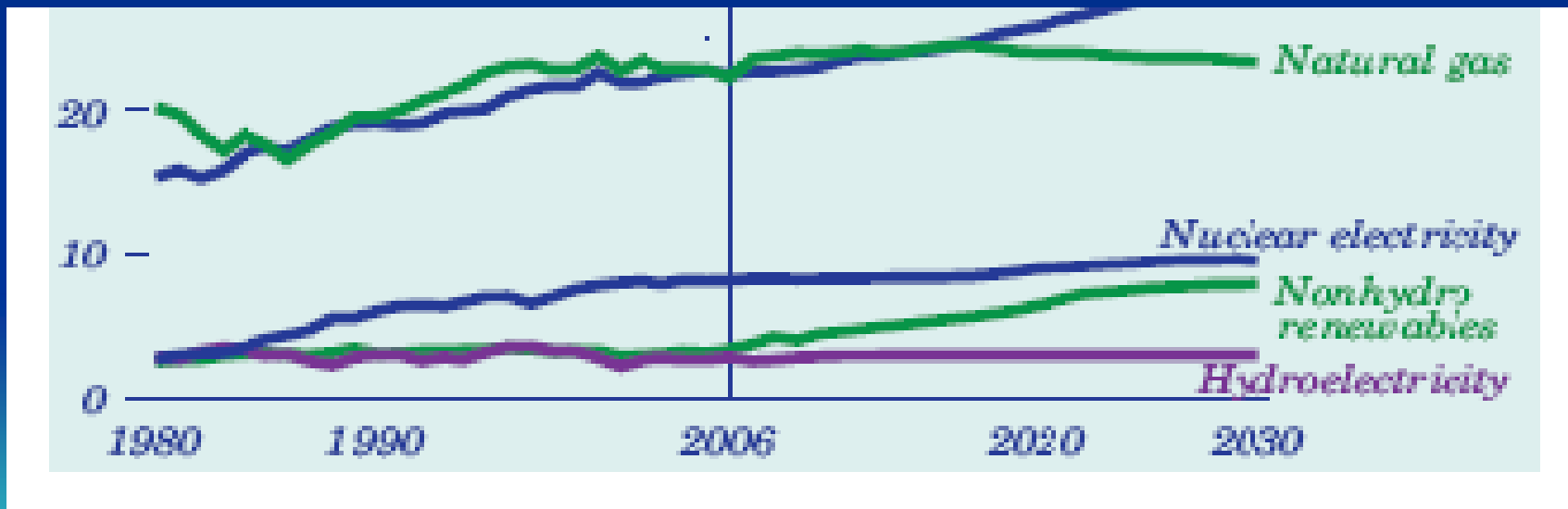


U.S. EIA, 2008 Annual Energy Outlook





U.S. EIA < 2008 Annual Energy Outlook



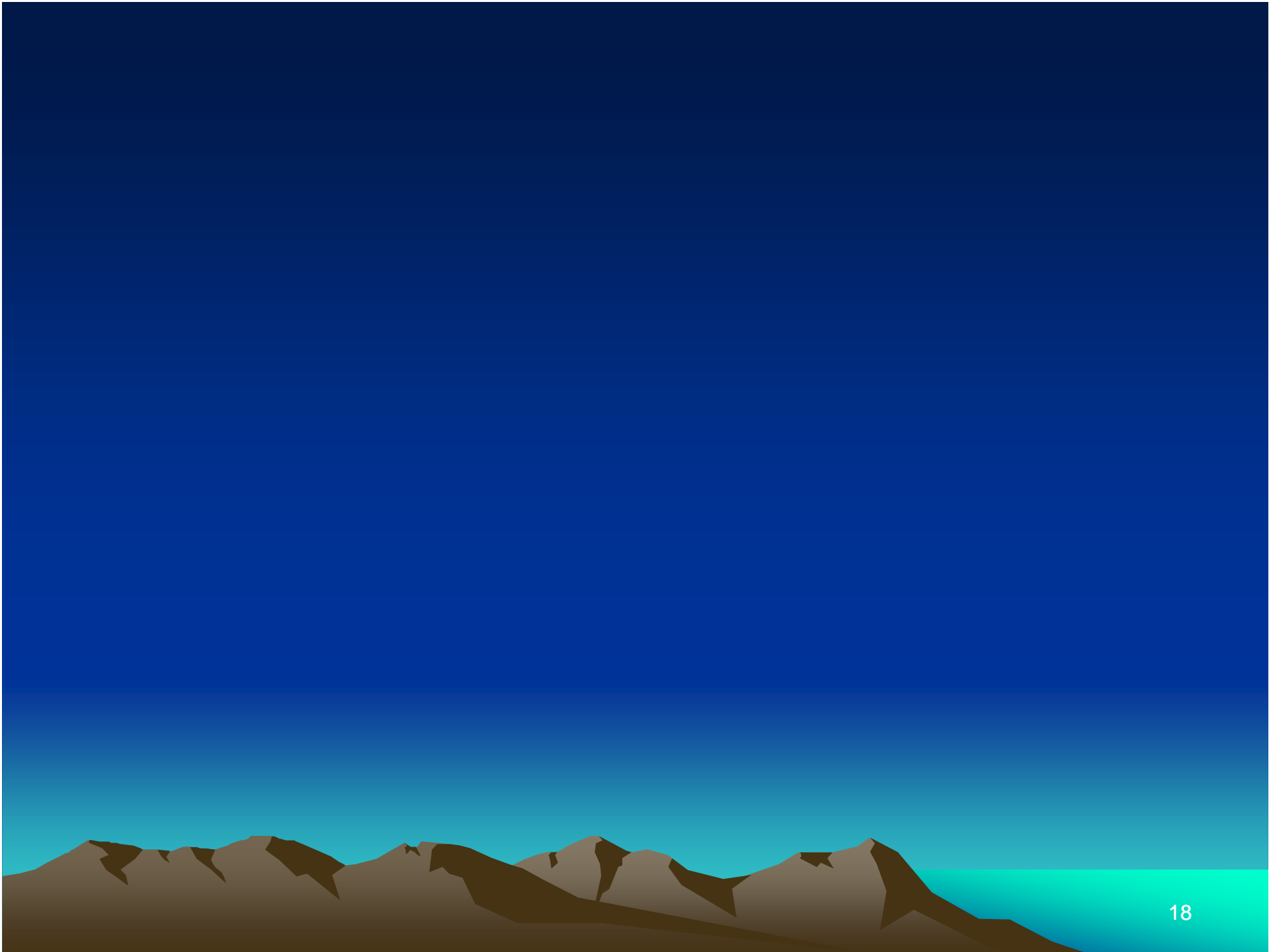
U.S. EIA, 2008, Annual Energy Outlook

- Need for greater diversity
- Value of NG to enable renewables and displace coal

NEW WIND = 0 LBS CO₂/MWH

- New energy efficiency = 0 lbs CO₂/MWh

- Renewables
- Transmission lines
- Natural gas



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