

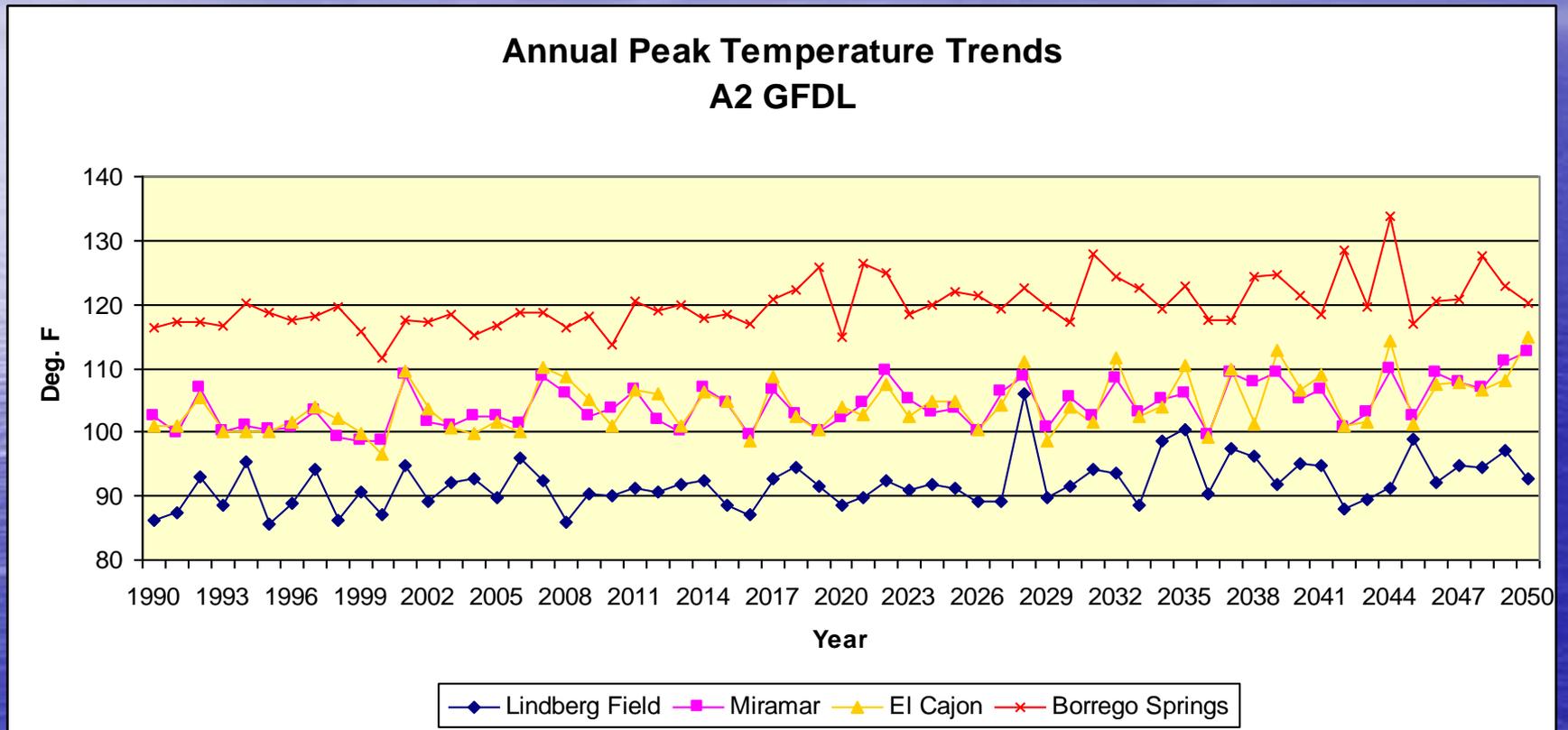
Energy-Related Climate Change Impacts

John Westerman

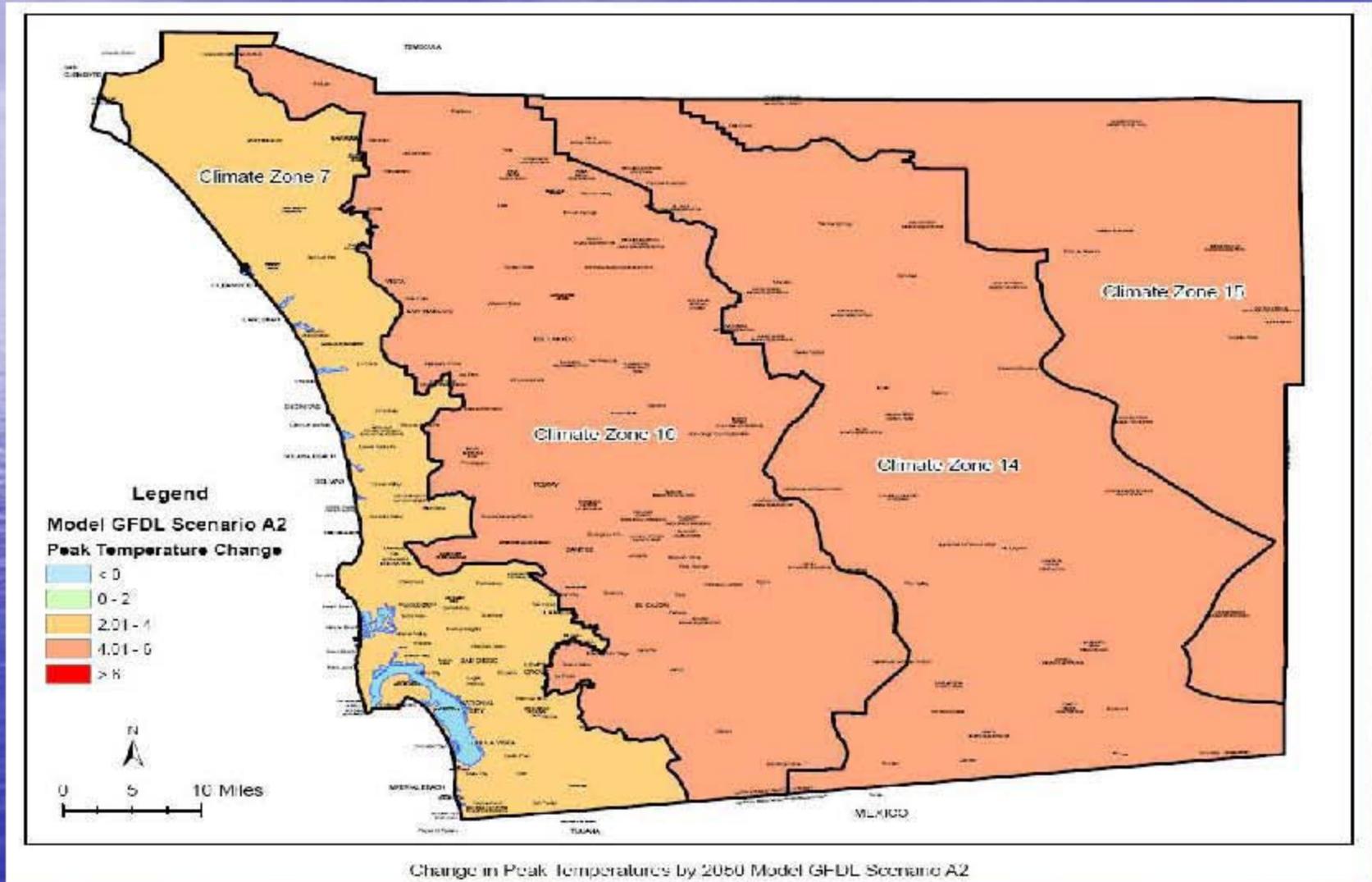
Vice President

Horizon Energy Group

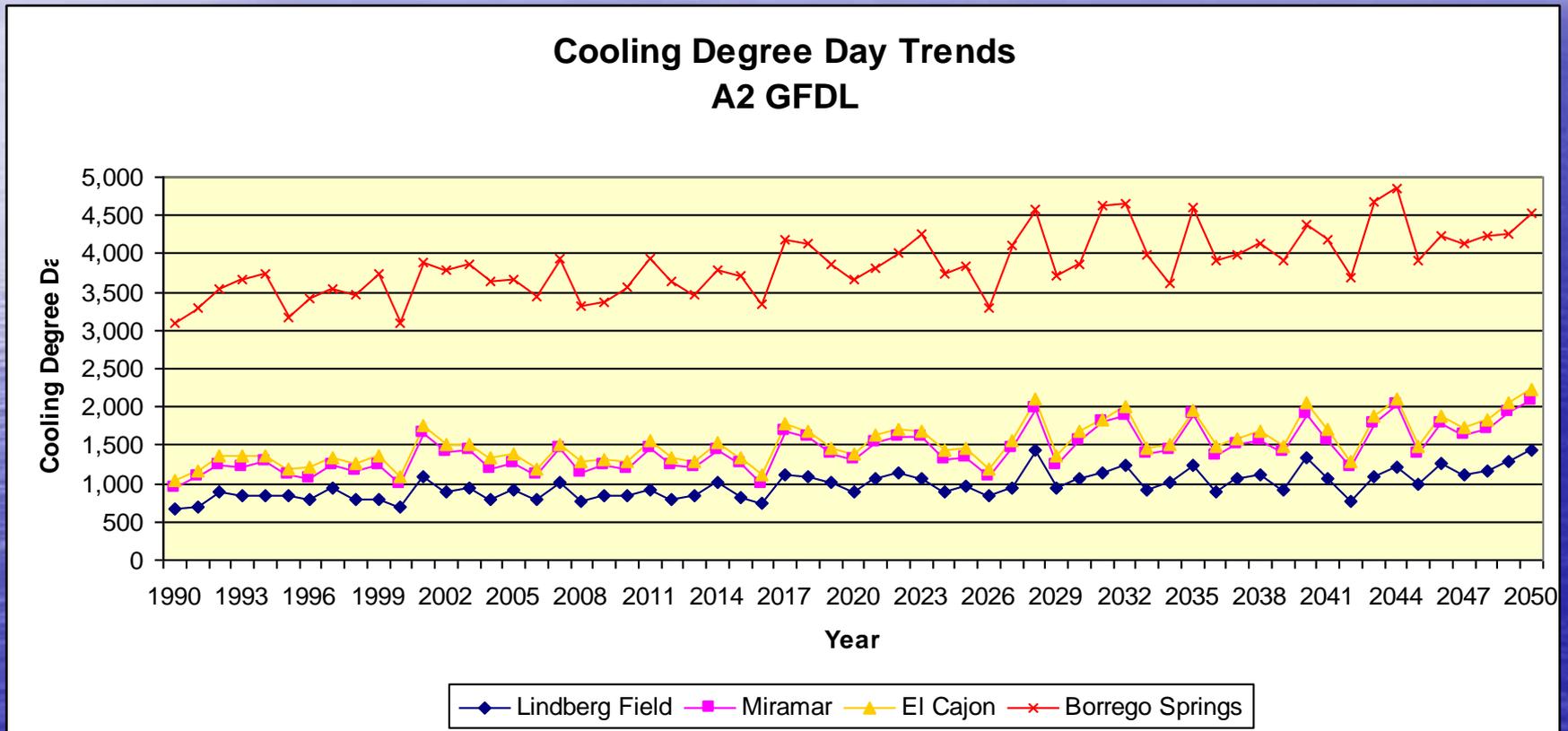
Focus 2050 Study Temperature Forecast



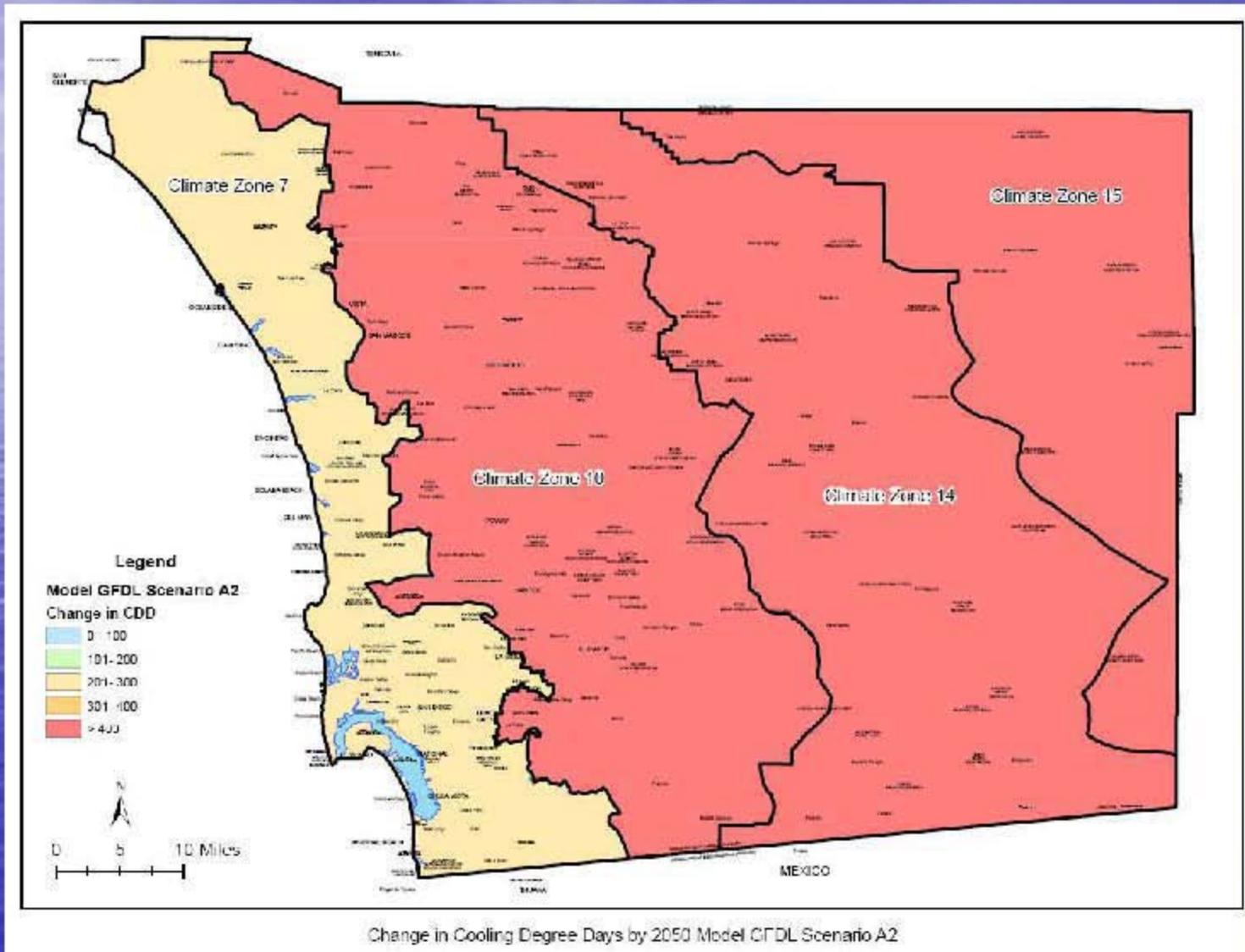
Focus 2050 Study Temperature Forecast



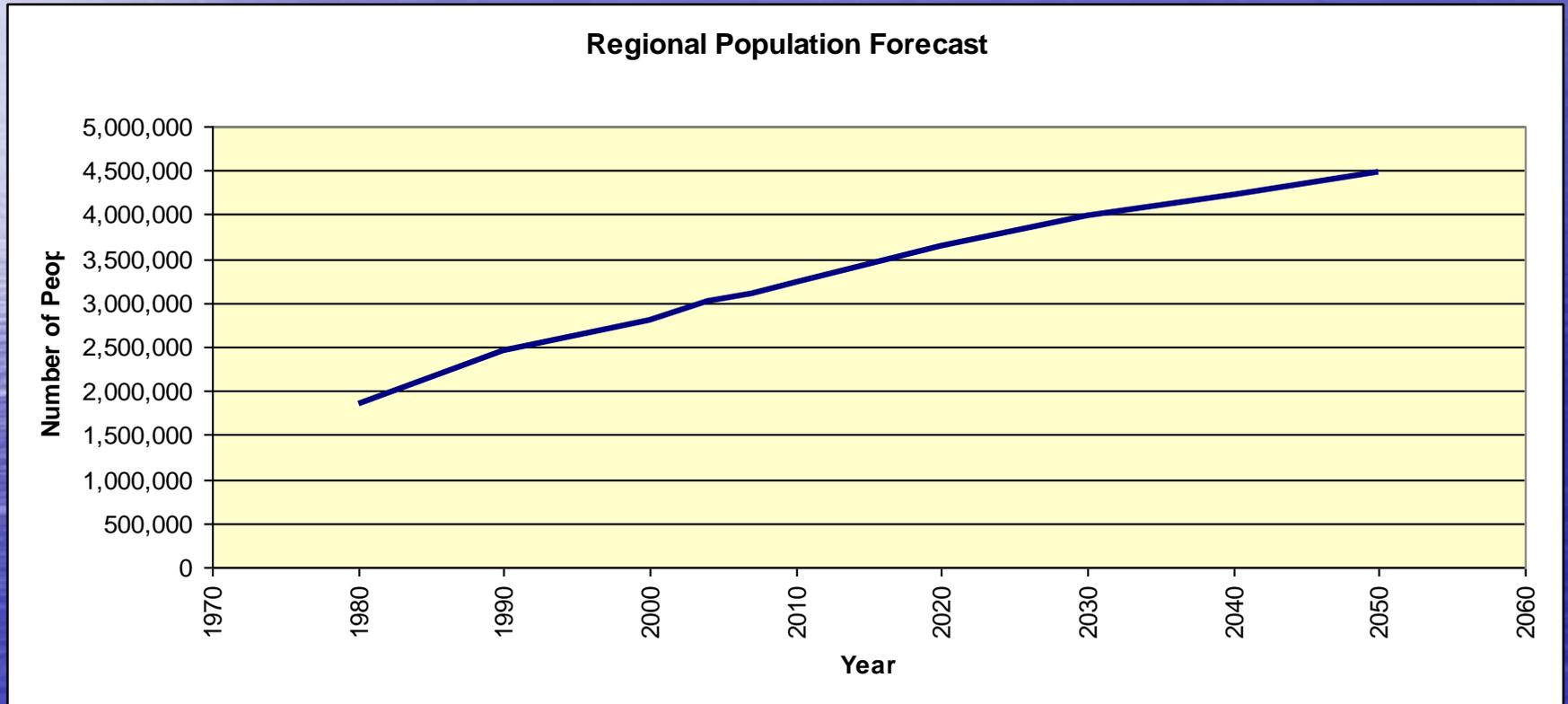
Cooling Degree Day Forecast



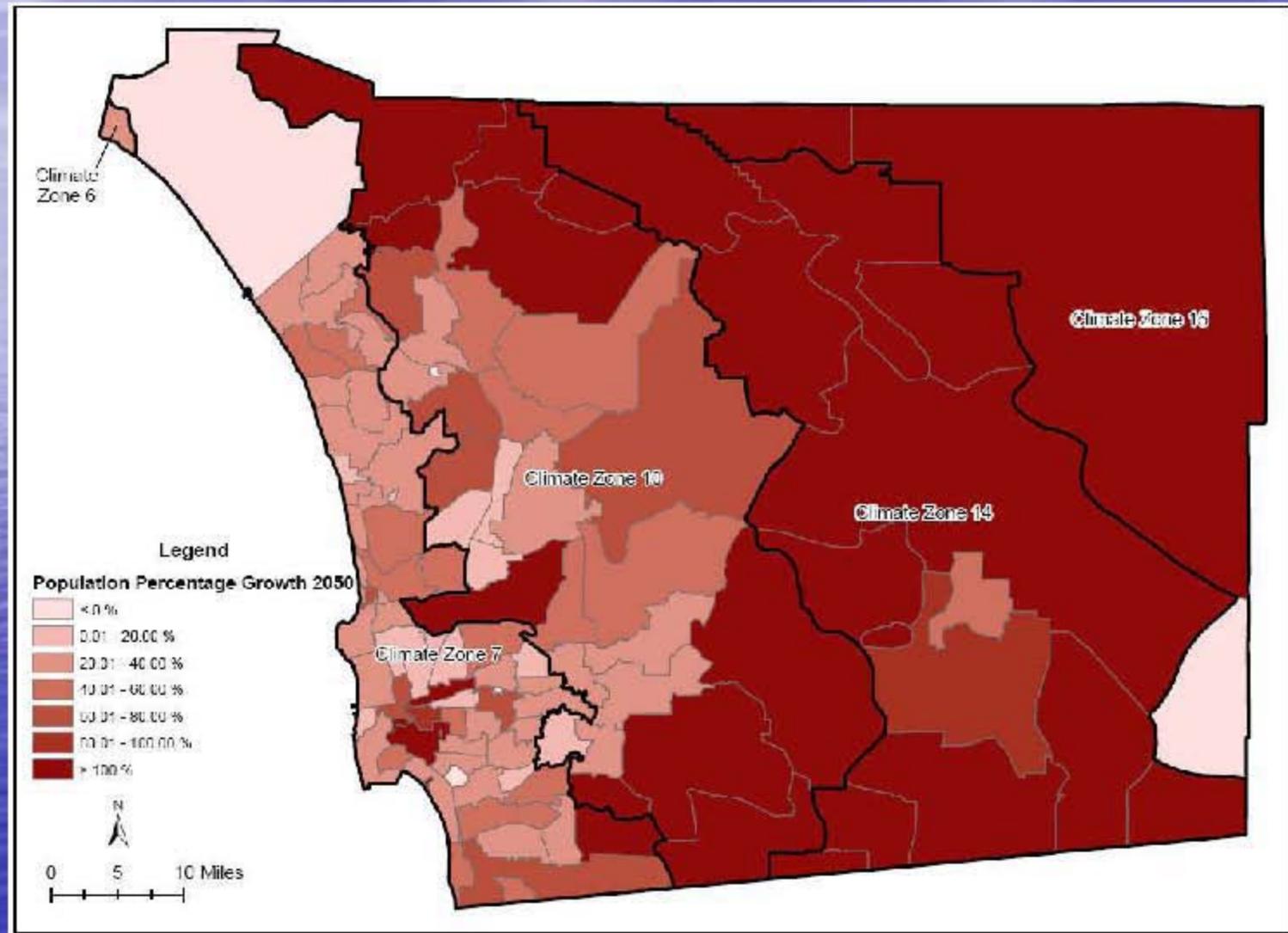
Cooling Degree Day Forecast



Population Forecast

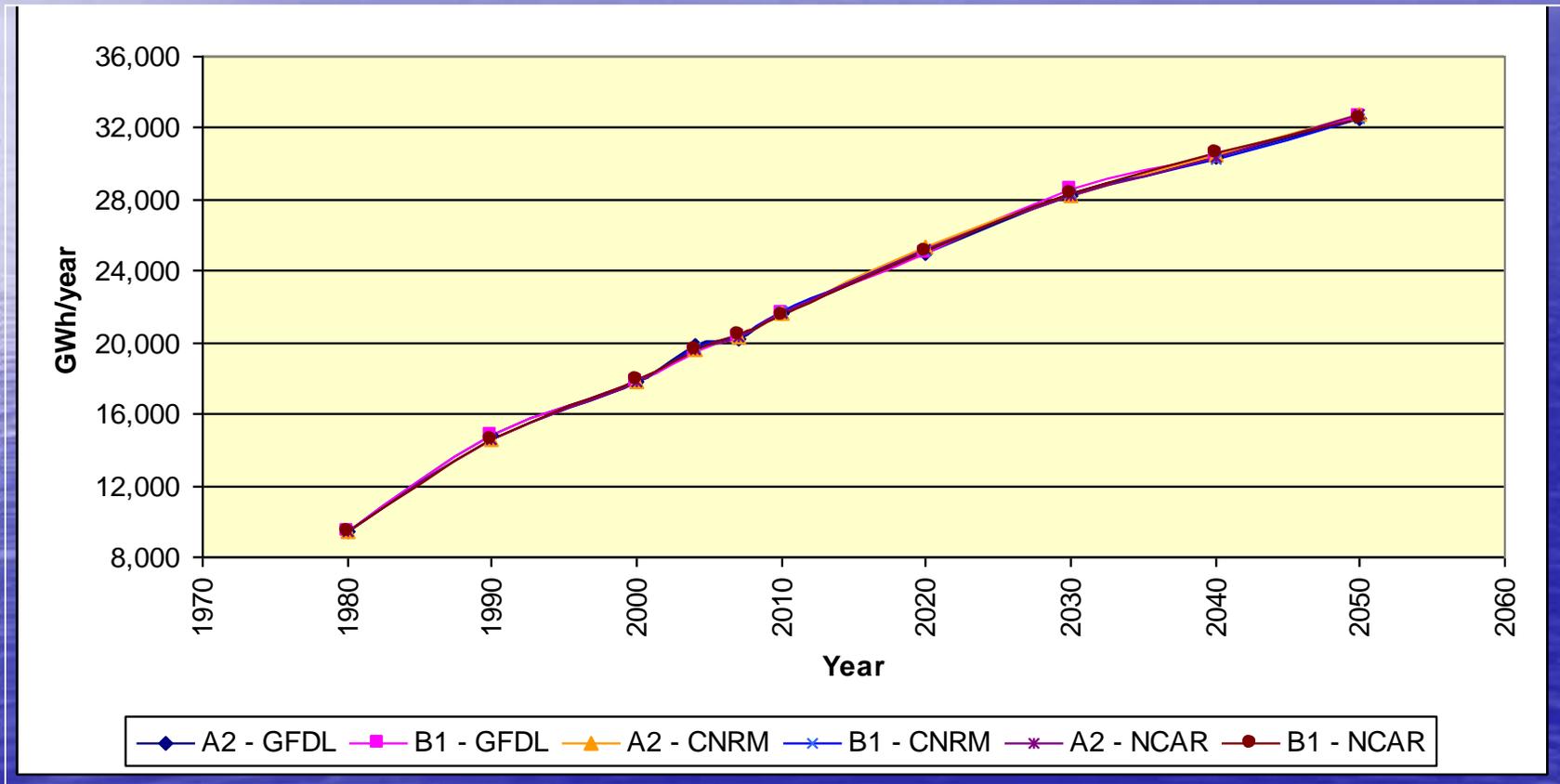


Population Forecast (% Change)



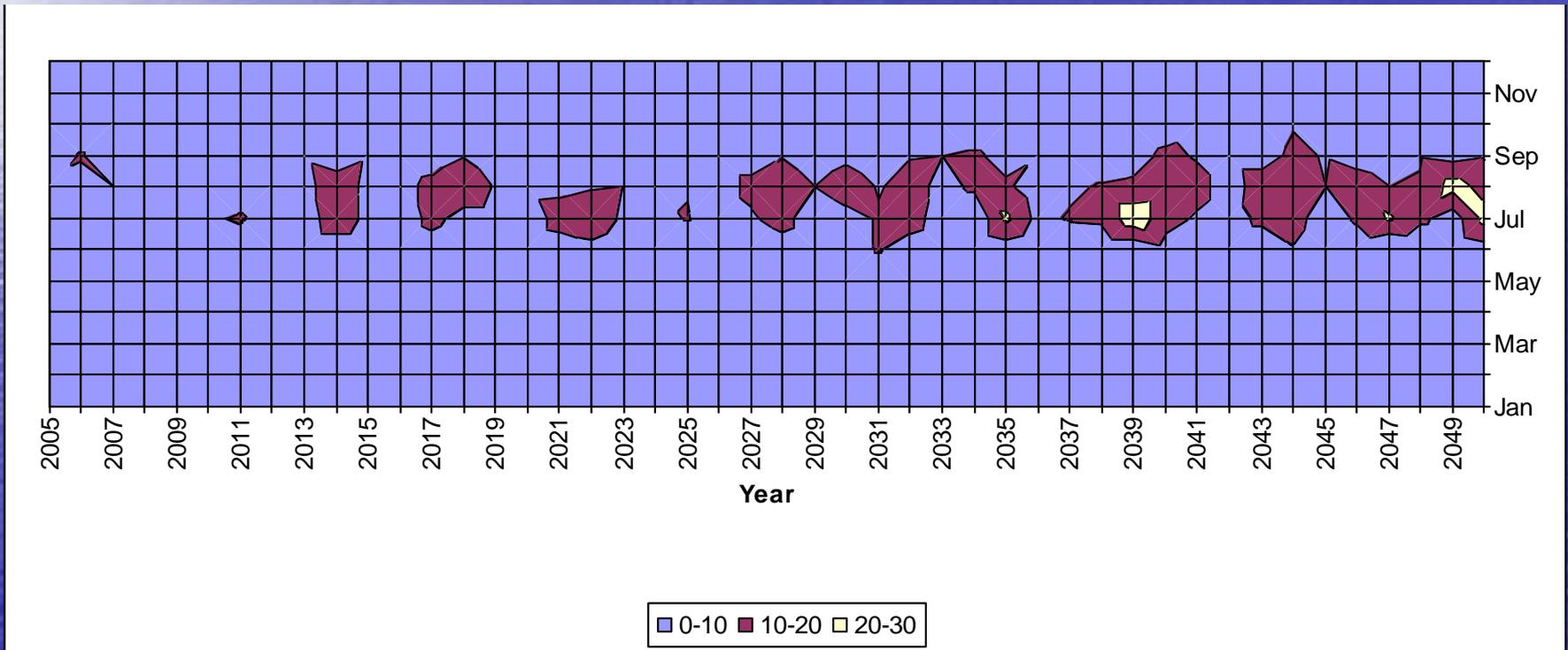
Percentage Population Growth in San Diego County, California from 2007 - 2050

Model Results – Electric Consumption

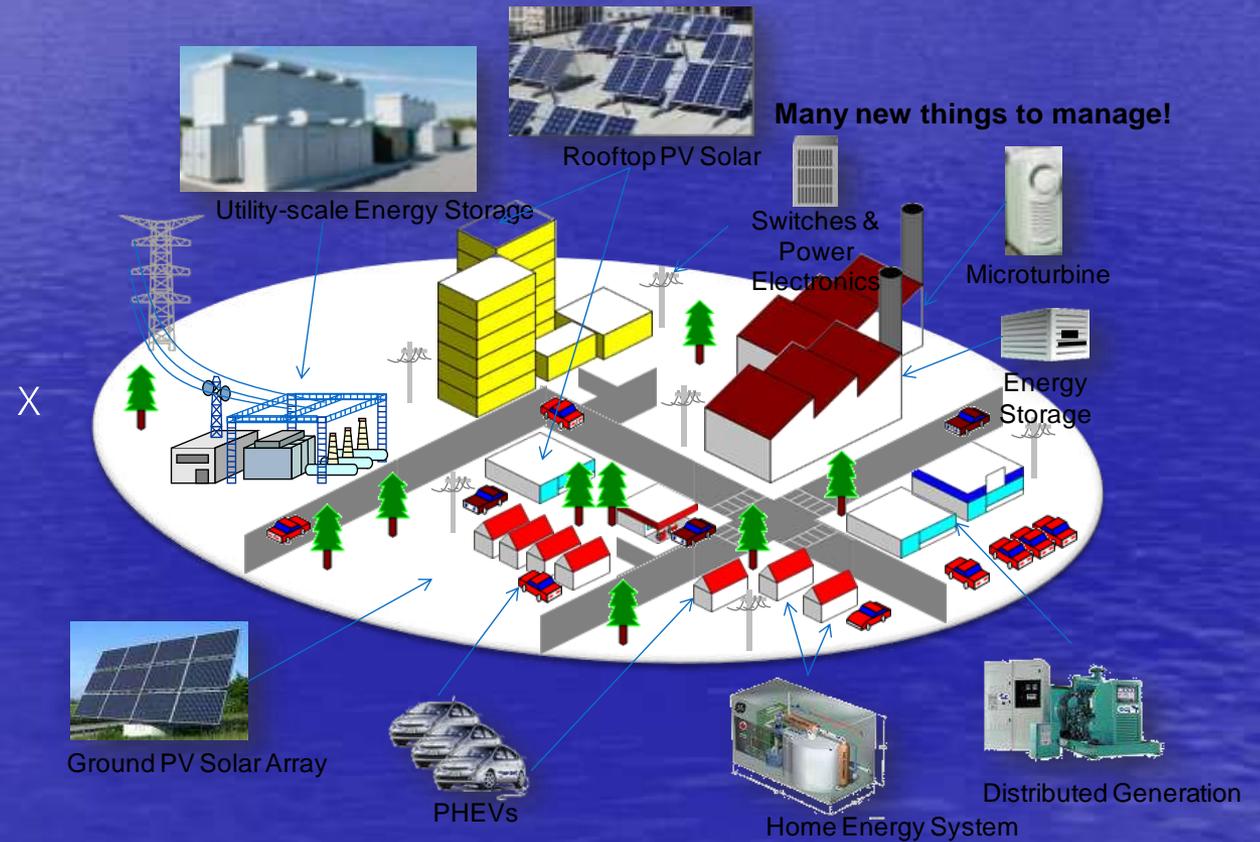


Model Results – Electric Demand Events

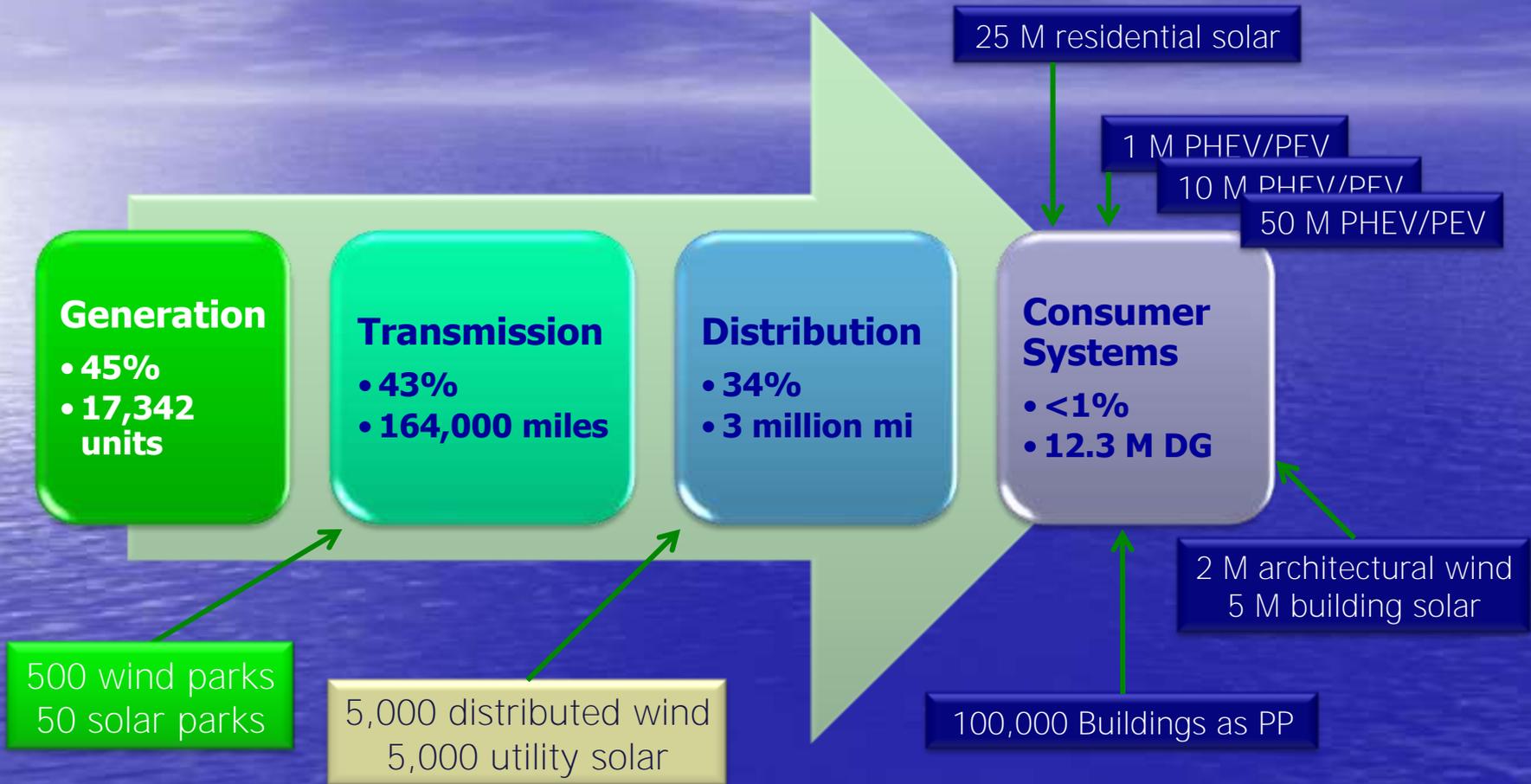
One in Ten Peak Demand Events



What is a Microgrid?



From the 20th to the 21st Century



Why Microgrids?

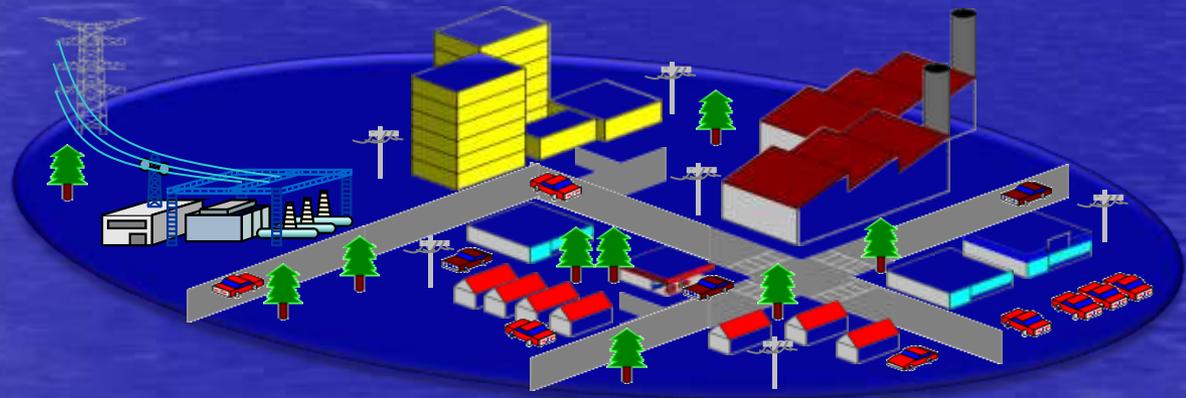
- **Savings:** The microgrid portfolio of resources is tuned to the complex to provide economic savings
- **Sustainability:** The microgrid portfolio enables a hedge against fuel cost increases
- **Stewardship:** The microgrid enables a high level of penetration of renewables
 - Emissions reduction
 - Green marketing
- **Reliability:** The microgrid actively controls the network for better reliability

Utility Network Management

Microgrid
Master Controller

SCADA System

In



Contact Info

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Horizon Energy Group is a key contractor on the DOE Smart Grid Implementation Strategy Team

Horizon Energy Group Principals are Certified Navigators for Carnegie Mellon's Software Engineering Institute's Smart Grid Maturity Model

Horizon Energy Group named in 2008 as a Company to Watch in the book, "Perfect Power" by former Motorola Chairman, Bob Galvin, and former EPRI CEO, Kurt Yeager.

Horizon listed in 2009 as one of the "Top 100 Movers and Shakers in the Smart Grid Movement" by GreenTech Media.