Wind Energy Projects on BLM Land
Effective Use of the Resource
Responsible Multiple Use of Land

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Some Background on Oak Creek Energy

Pioneer Wind Farm Developer From Early 1982
- One of the Originators of the Wind Farm Concept

Successful Early Turnaround Bootstrapped 1988 - 1991
- AWEA Technical Achievement Award 1991
- AWEA Windsmith Award 1996
- AWEA Lifetime Achievement Award 2006
- UWIG Transmission Award 2009

Oak Creek & GREP Teams Come Together 2005
- Balanced Team: 3,500+ WTG; 2,500+ MW Track Record

Created First Multi GW Wind Project - Tehachapi
- 4,500 MW TRTP Transmission – Largest in Construction
- 1,550 MW PPA with SCE, CPUC Approved – Largest Ever

Marubeni in as Controlling Shareholder January 2008
- 26,000 MW IPP Generation Worldwide

Pipeline – Emphasize GW+ Projects – Cost Effective Energy
- Currently: Desert SW (CA NV AZ); East Central Midwest
- Working To Achieve: Offshore Capacity Factor Onshore

Oak Creek Energy Cooperation with BLM

- Oak Creek Site 160 Acres BLM Land of 1,400 Acre Site
  - Successful Operation on BLM Land Since 1984 (25 Years)

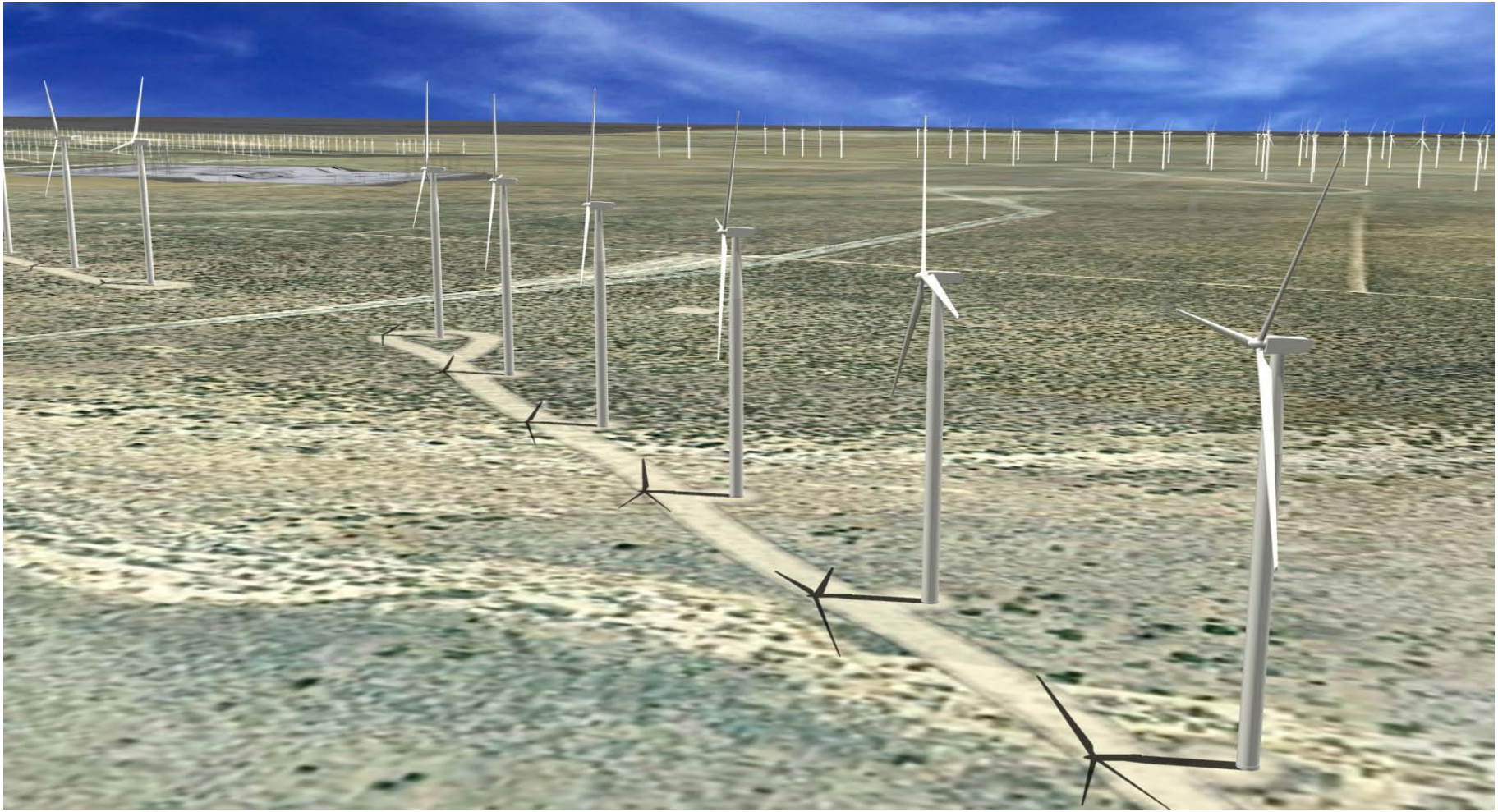
- Tehachapi Area Beyond Oak Creek
  - Successful Restoration of Two Abandoned Sites
  - BLM Land to be Significant Part of Future

- Great Basin Nevada – Accelerated Project
  - Up to 70 BLM Sites; Up to 90 Private Land Sites
  - NEPA Process Underway

- Greater Searchlight – Tehachapi Scale Project Potential
  - ~ 800+ Sites; Mostly BLM Land; Southern Tip NV, CA, AZ
  - Important Wind Energy Potential on Lower Wind Land

Large Turbines Provide Efficient Land Use

- Projects Look Good, Use Land Well
- Minimize Surface Disturbance, Minimize Footprint
- Maximum Use of Existing Roads, Disturbed Areas
- Typical <2% Land Use, Avoid Sensitive Resources
- Higher Energy Yield with Reduced Land Impact



Wind Turbines Supply Cement Plant Load

- 3 MW Turbines Form 24 MW Project
- Land is Part of Plant's Natural Resource
- Project Increases Plant's Economics

Evaluation of the Wind Resource

- Met Towers are Essential Part of Good Assessment
- MESO Technique Advances Give Great Start, Less Met
- Faster Assessment; Lighter Footprint; Better Choices

Gaining Higher Energy Yield

- From 37 GWH to 100 GWH to 250 GWH
- Optimal Rotor Placement Makes a Difference

Early Wind Turbines Find Long Term Home

- Original Operation on OCES Site 1983
- Four Turbines Now Power Tehachapi STP
- Reconditioned and Modified for STP Conditions
- Long Term Life is Expected, 50+ Years Likely
- Significant Ongoing Economic Value

A Perspective on Turbine Size -

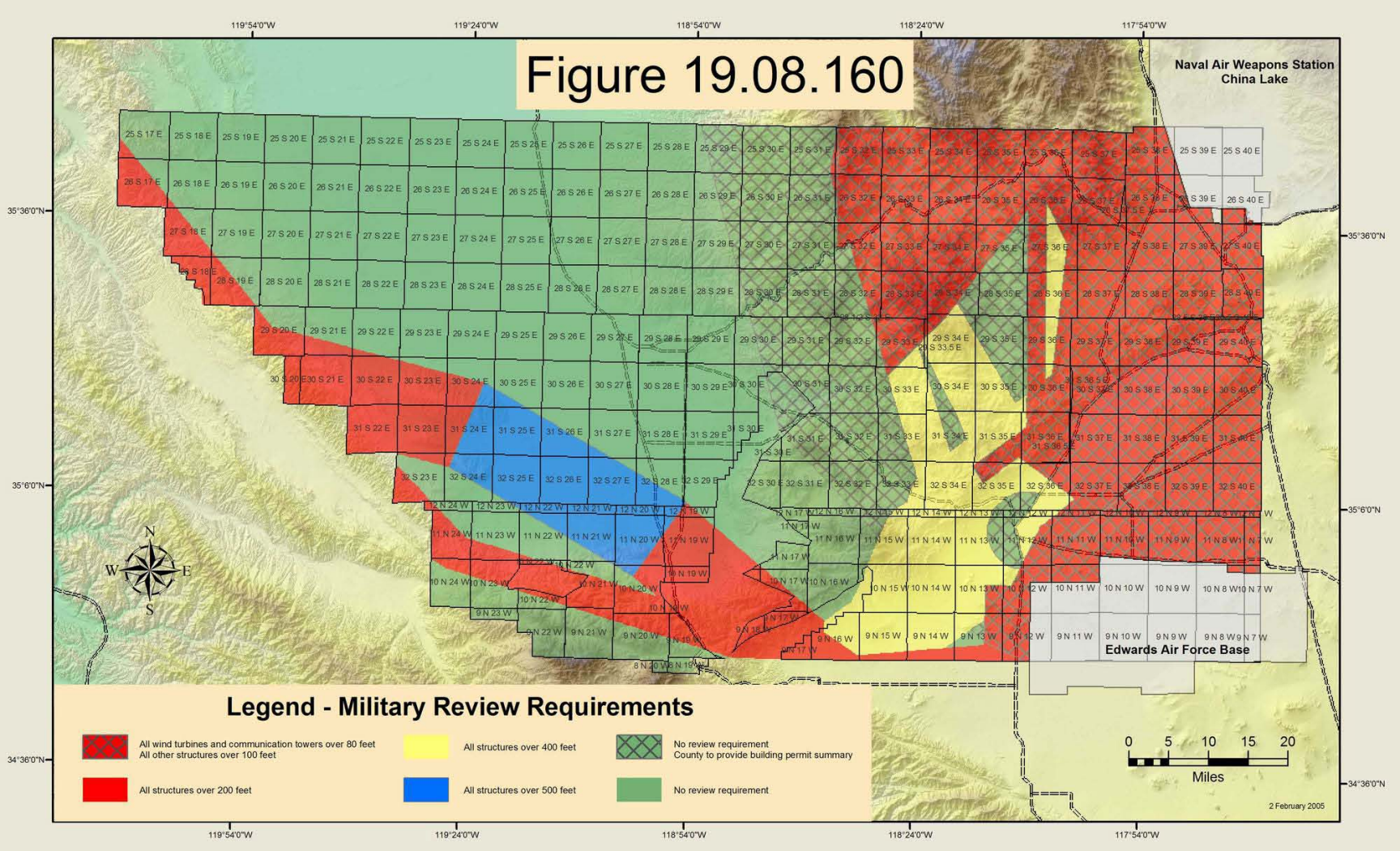
- **Larger Size & Value – Sophisticated Ops**
- **Larger Scale: Cost Effective Projects**

Two Year Post Operation Bird Study

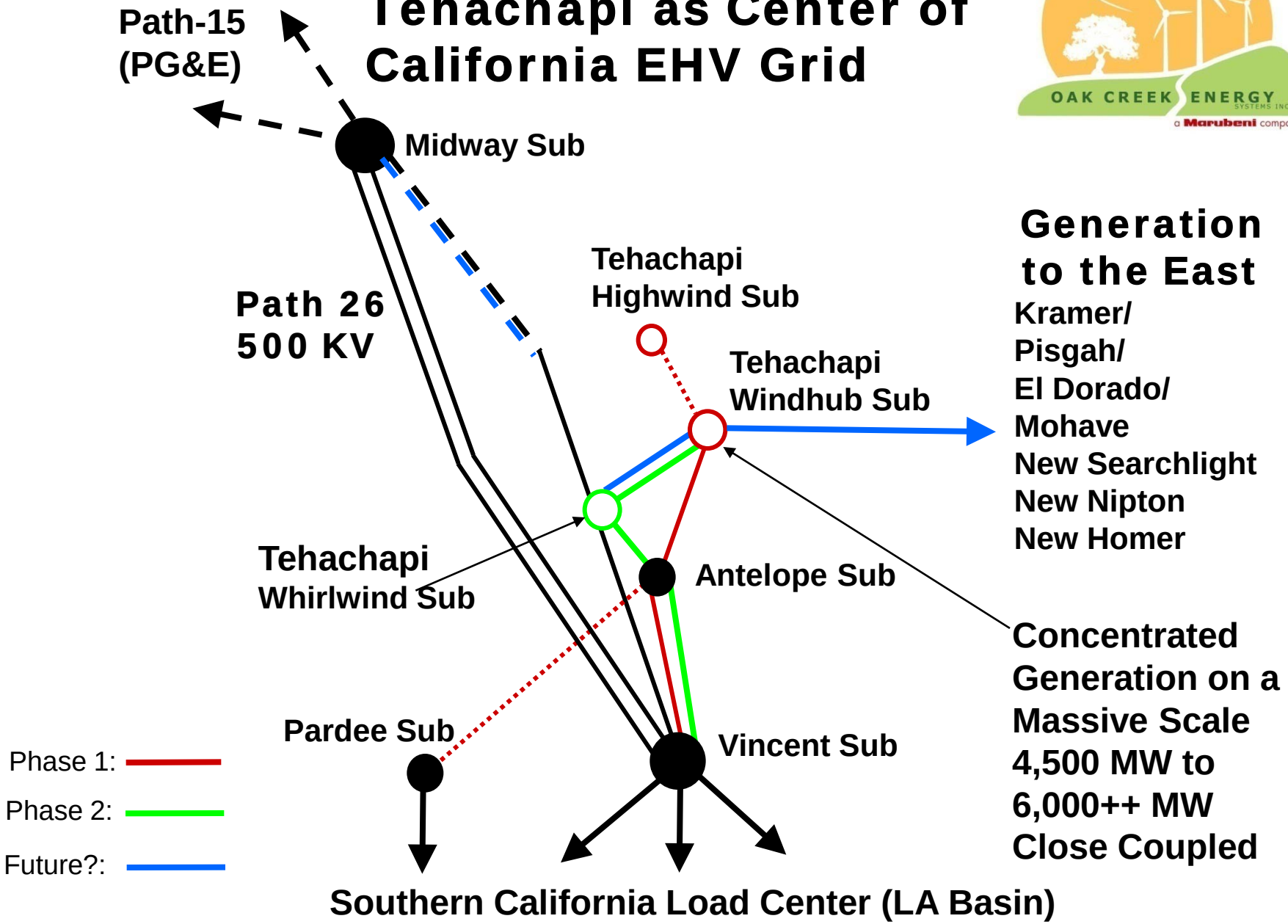
- Heavy Bird Population on Lake
- Stringent Study Protocol; No Chance of Predator Removal
- Result of Study = No Bird Deaths Over Two Years
- Supports Benefit of Rotor Placement >30 Meters AGL

Airspace Use Compromise Kern County

- Red – Yellow – Green in Place Since 2005
- Yellow Area Raised from 400 Feet to 500 Feet
- Map is a Guide – Specific Site Consideration May Ease
- Approach Has Worked on a Practical Basis



Create A New Approach - Tehachapi as Center of California EHV Grid



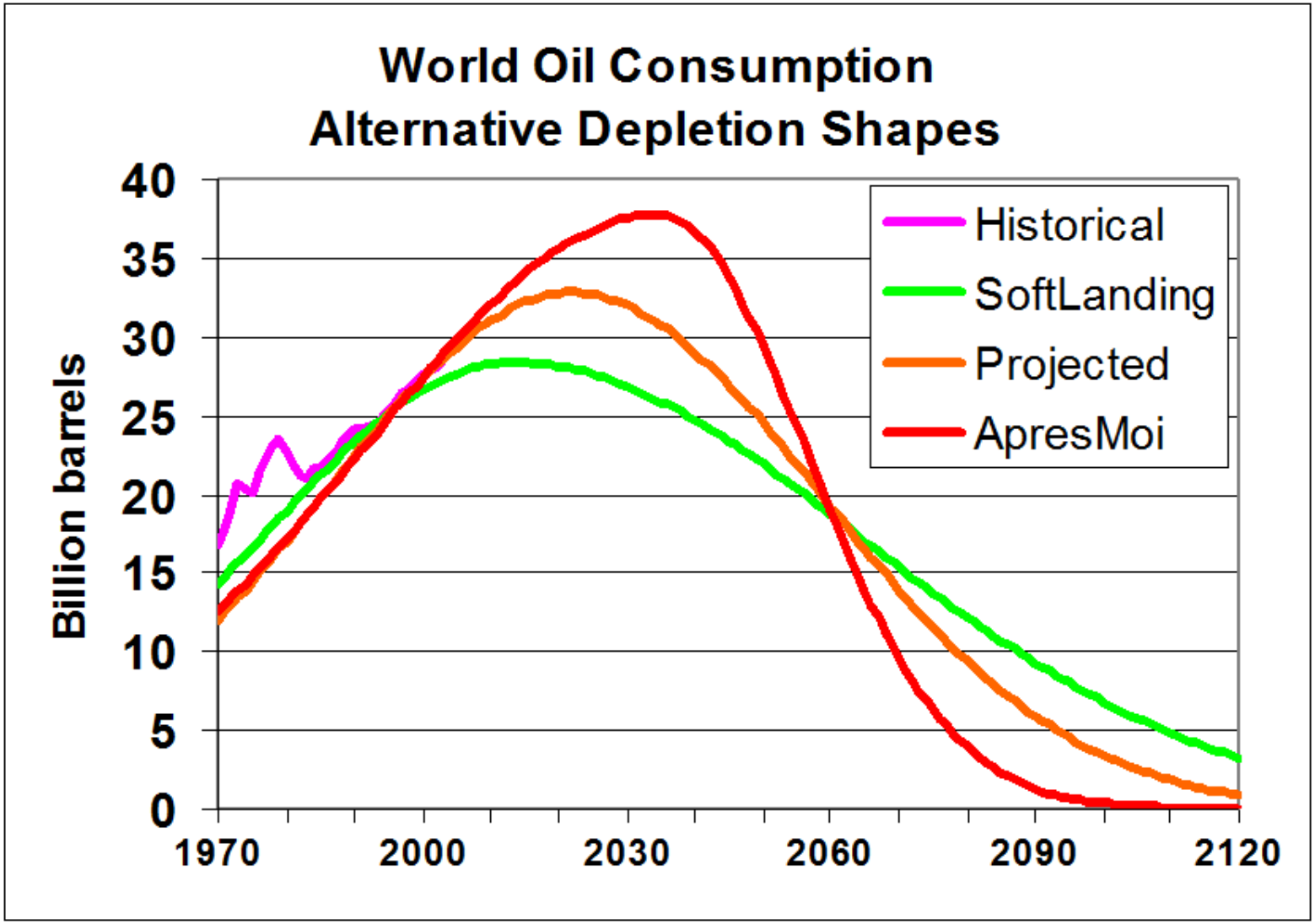
Successful Turnaround of Erosion Problems

- Brittle Land Experience
- Development & Operation on Brittle Land is Different

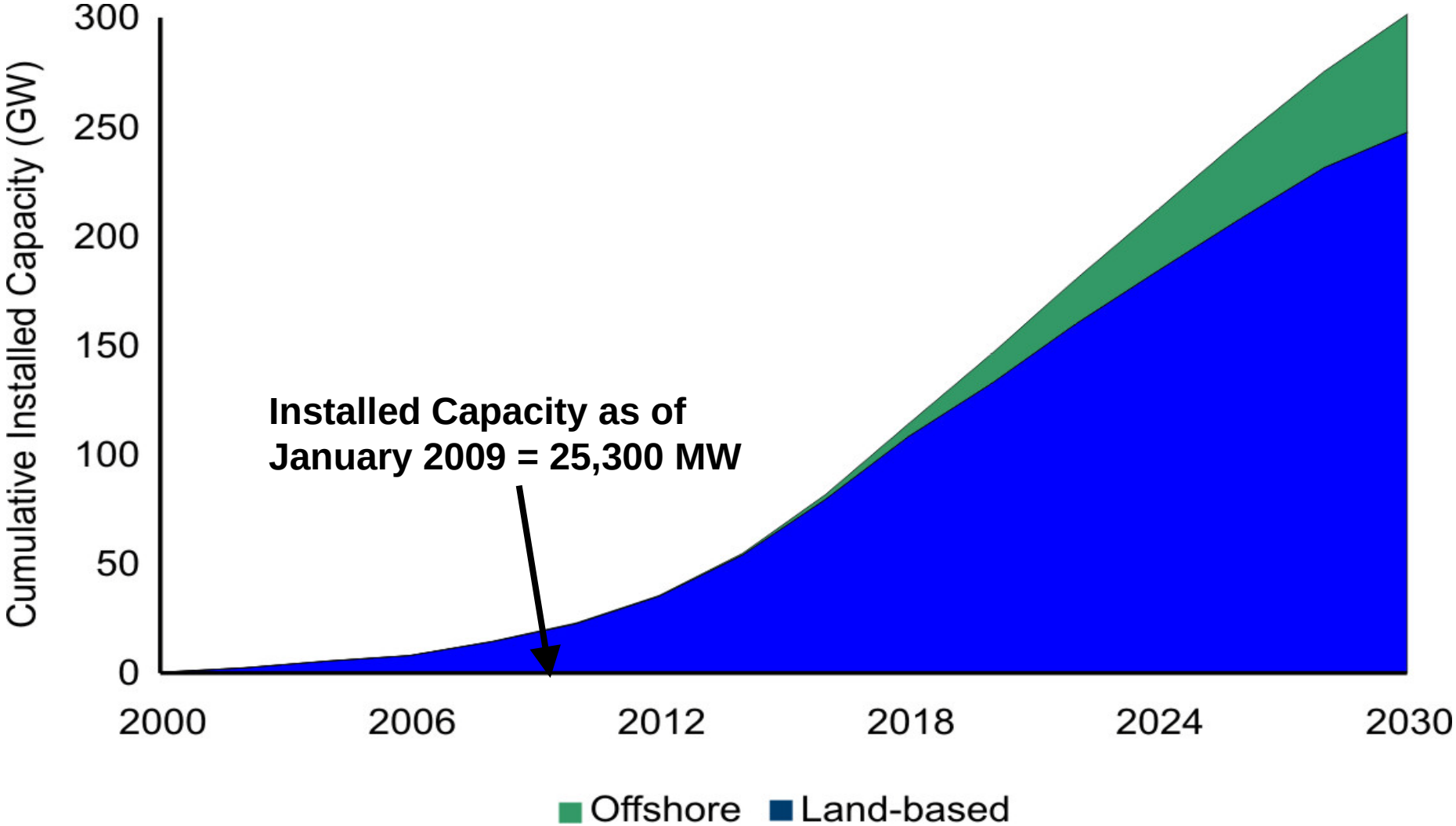
Successful Restoration of Brittle Land

- Post Use Land Successfully Restored to Vital Land
- Major Use of Land for Erosion Control; Water Manage

Sooner or Later:
A Sustainable Transition Must Occur
Delay will Come at a Very High Price



An Emerging Pipeline to Fill an Energy Need

Project: 20% of US Electric Supply by 2030

Serious Portion of the US Energy Mix