Landowner & Community Benefits of Windfarms

Presented at the 2012 Winter Meeting
Western States Land Commissioners Association

Who is BP Alternative Energy?

BP Alternative energy is a wholly owned subsidiary of BP and consists of:

- Wind – One of the leading developers of wind generation in the US.
- Biofuels – One of the leading investors in biofuels technology that can convert energy stored in plants into useful fuel products.
- Emerging Business and Ventures - Investing in future opportunities with $130 million in 25 companies.

Since it's formation in Nov. of 2005, BP Wind Energy's accomplishments include:

- Ownership Interests in 13 wind farms.
- Plans to build 610 MW's of new wind farms in 2012
- Annual plans to build 400-600 MW's

How much land is needed for a wind Farm?

- Each individual turbine foundation occupies approximately ¾ to 1 acres (including the access road).
- Normally, each turbine is spaced apart to minimize the wake effects. Wake effects are caused when one wind turbine “blocks” the wind from other down-wind turbines, which reduces the productivity of the downwind turbines.
- Due to these spacing requirements, typically 1 turbine is placed on every 100 acres of land.
- Since only ¾ to 1 acre is used for each wind turbine, most of the land (approx. 99%) remains available for farming or ranching activities.

Investment Characteristics of Wind Farms

- Capital Intensive (has ranged from $1,500 to $2,000 per kW in the past).
- Rural Locations (Located in areas with very few opportunities for economic development).
  - Benefits Farmers / Ranchers
  - Small rural Communities
- Produces electricity without consumption of water nor creation of any emissions or effluent.

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Demand for Wind Power is growing ….

The increasing use of renewable energy is driven by….

- Rising fuel prices for conventional sources of electricity.
- Desire to increase domestic energy independence.
- Air quality issues around many U.S. cities.
- Growing regional economy.

Siting / Micrositing requirements

- Wind farms are located in areas where there is:
  - Good wind resources / topographic features
  - Excess transmission
  - Market Demand
- Once a site is selected, turbines are located in areas of highest production that avoids:
  - Set-backs requirements from property lines / roads
  - Homes / existing structures
  - Existing rights of ways
  - Sensitive environmental areas (wetlands, raptor nests, endangered animal habitat)
  - Sensitive archaeological areas
  - Wake effects from other turbines
- The process of selecting a location for each wind turbine on a wind farm is referred to as micro-siting.

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Challenges for Wind Farms

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- Insufficient transmission impairs commercialization of the wind.
  - New transmission lines (particularly interstate / regional lines have many challenges i.e. requirement to demonstrate need to several State PUC's, cost allocation, etc.)
  - 7-10 year lead time for transmission projects vs. 3-5 year lead time for wind projects.
- Wildlife Interactions
- Production Tax Credit ("PTC") Support
- Viewshed Concerns

Wind Energy is a Good Business

- Benefits Communities
  - Zero water use needed for operations
  - Generates no emissions compared to other generation technologies
  - Provides increased tax base for counties, school and hospital districts
  - Creates jobs and boosts economic activity
- Positively Impacts Landowners
  - Over 98% of wind projects in US are installed on private land, providing income to landowners
  - Landowners are often farmers and ranchers, in rural sections of the country
  - Allows many farmers and ranchers to continue their way of life, supplementing their income through lease payments and royalty payments, even allowing them to operate in the black
- Fuel is free
- Provides stability to the grid during extreme weather situations
  - Wind power played key role in two recent emergency situations in Texas – one during the winter, one during the hot summer

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Cedar Creek 1 and 2 – Turbine Layout

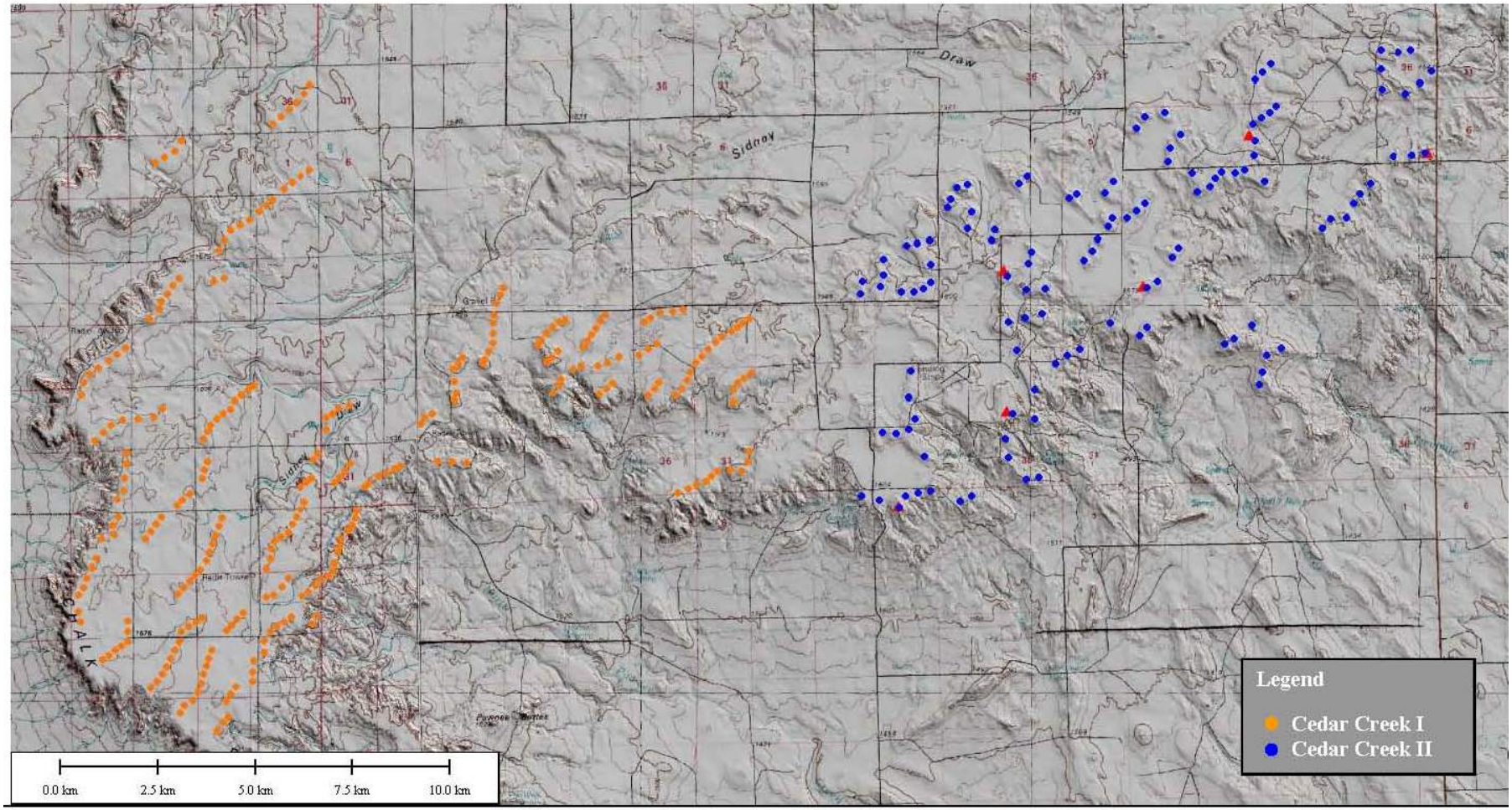

Figure 1 Map of the Cedar Creek I and II Wind Farm layouts.

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Cedar Creek 1 & 2 - Wind Farm Statistics

- **Project Size**:

  Cedar Creek 1: 300.5 MW's produced from 274 turbines.

  Cedar Creek 2: 250.8 MW's produced from 123 turbines

- **Acreage:**

  Cedar Creek 1: 32,000 acres (approx. 43 private & state land owners).

  Cedar Creek 2: 26,000 acres (approx. 26 private & state landowners)

- **Turbine Height:**

  Mitusubishi turbines are 323 ft. tall (CC1)

  GE Turbines are 385 ft. tall (CC1 & CC2)

  Nordex Turbines 410 ft. tall (CC2)

- **Investment:**

  Cedar Creek 1 & 2 (combined): Over $1 Billion invested

- **Employment:**

  During construction, each wind farm employed approx. 250 people. During commercial operations, approx. 12-14 people will be employed.

Safety:

Over 600,000 hours of construction without a lost time injury.

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Economic Impact – BP Wind Energy's Investments

- $4.5 Billion invested by the end of 2012
- $6.25 million per year in lease payments to landowners
- $8 million per year in taxes
- 4,000 construction jobs
- 200 permanent, good paying jobs

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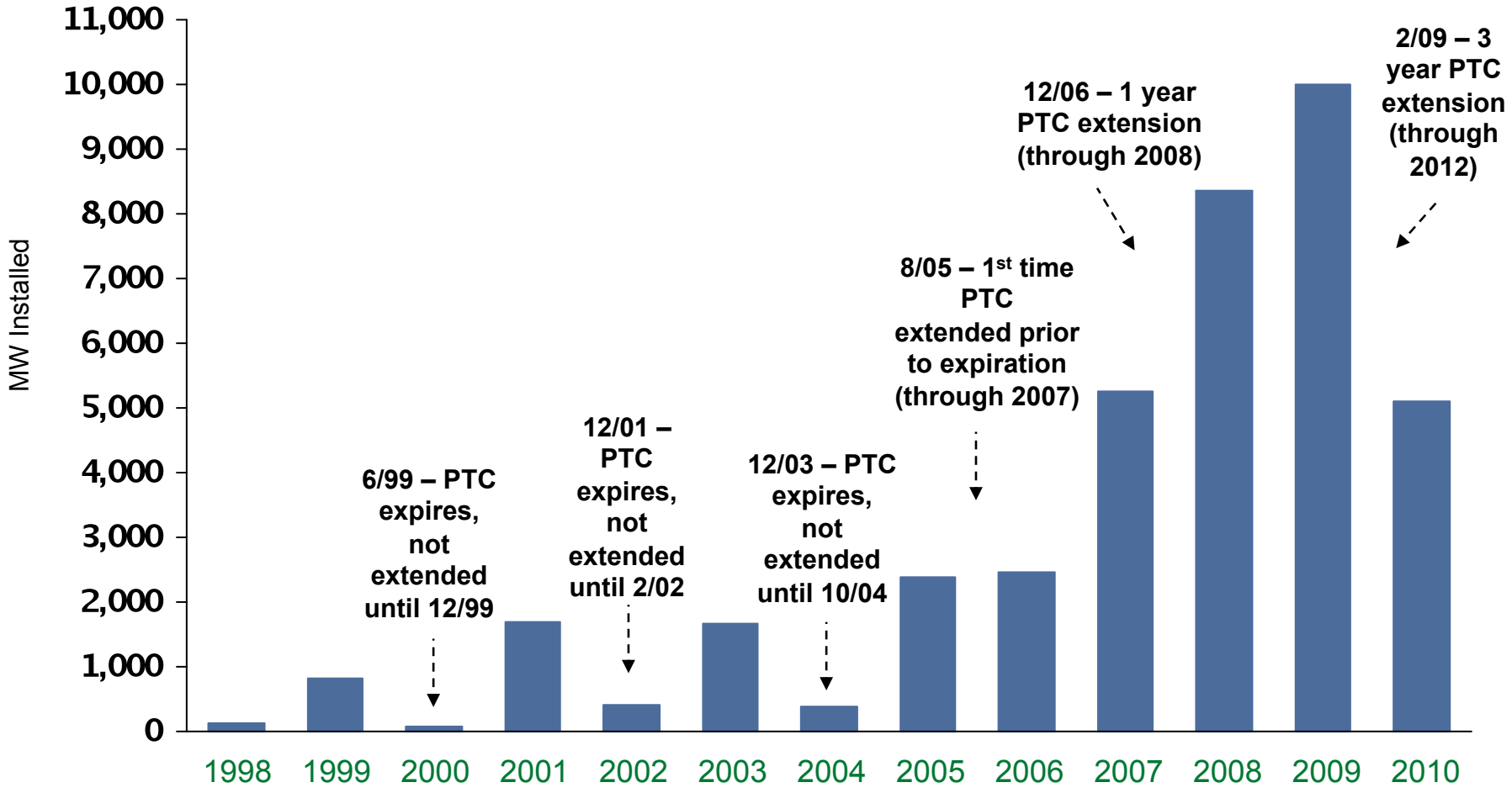
PTC Extension Has a High Priority

- US wind energy development is driven by the certainty of predictable government policies that attract investors, and by the Production Tax Credit (PTC) in particular.
- Wind prices continue to decline but the PTC remains a major component of industry economics. Congress and the public must be educated that while the industry can stand on its own eventually, failure to provide support now for a limited period will cause the industry to decline precipitously.
  - Turbine efficiency has improved
  - Turbine costs per MW have declined
  - Getting closer to grid parity
- In the past, uncertainty over PTC extension resulted in dramatic declines in wind farm installations.

Historical US Wind Installations



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