



Viridis Eolia Wind Energy Development Master Plan

PROPOSED BY VIRIDIS EOLIA, LLC.

PRESENTED TO THE WYOMING LEGISLATURE REVENUE COMMITTEE

Project Overview

Shirley Basin in Carbon County, Wyoming

Phased wind project on 98,381 acres

9 Phases – 2017 to 2023

Total Investment \$ 3.2 billion

Final capacity of 1,870 MW

Separated into nine phases

- All A Phases on State of Wyoming land (1A, 1A2, 2A, 3A, 4A)
- All B Phases on Bureau of Land Management (BLM) land (1B, 2B, 3B, 4B)
- Full project buildout dependent on success of initial phases

Multiple transmission connections available

- PacifiCorp, High Plains Power, Western Area Power Administration (WAPA), TransWest Express & LS Power (through PacifiCorp's Gateway)



Viridis Eolia LLC's Benefits to the State of Wyoming

Benefits to the State: Tax Base



- **Tax Revenues to The State of Wyoming:** Assuming full build-out of the Project, **estimated tax revenues will exceed \$500,000,000**
 - **Property Taxes: \$234,000,000** pursuant to the projected cost of the Project and the mill levy provided for infrastructure located in Carbon County Tax Districts 0202 & 0203;
 - **Sales Taxes: \$144,000,000** pursuant to Title 39 of Wyoming's State Statutes;
 - **Wind Generation Taxes: \$130,000,000** pursuant to W.S. 39-22-103.

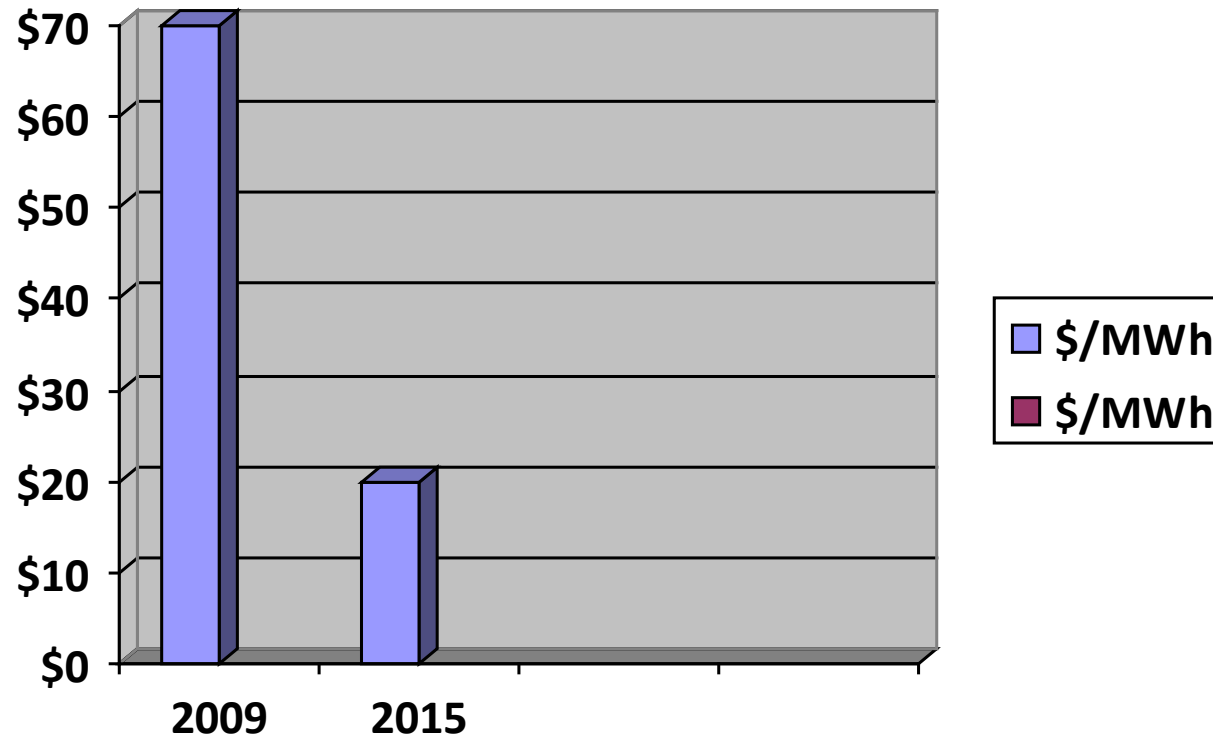
Benefits to the State: Jobs

- **Jobs Generation:** The Little Medicine Bow Wind Energy Development (LMB) will create approximately
 - **67 permanent, full-time operations and maintenance jobs.**
 - **168 permanent indirect jobs**
 - According to the U.S. Bureau of Labor Statics, wind turbine service technicians **earn a mean hourly wage of \$24.55 or \$51,050 annually.**
- **Construction Jobs:** The number of direct construction jobs will vary as the LMB Project enters each of the phases of the construction process.
 - **Direct jobs created annually over the seven-year period 330 to 680 workers.**
 - **The indirect construction jobs created an estimated total of 825 to 1,700 annual jobs during the seven (7) year construction period.**
 - Local workers are estimated to represent up to 25 percent of the construction workforce.

Project Economics:
Power Purchase Agreements have declined
substantially since 2009 when Wyoming
began taxing wind

Project Economics: PPA Decline

Wind PPA Power Prices were 350% higher in 2009 than today



The cost of producing electricity via wind power is expected to fall 24-30 percent by 2030 and 35-41 percent by 2050—NREL 9/13/16

WY Taxation on Wind

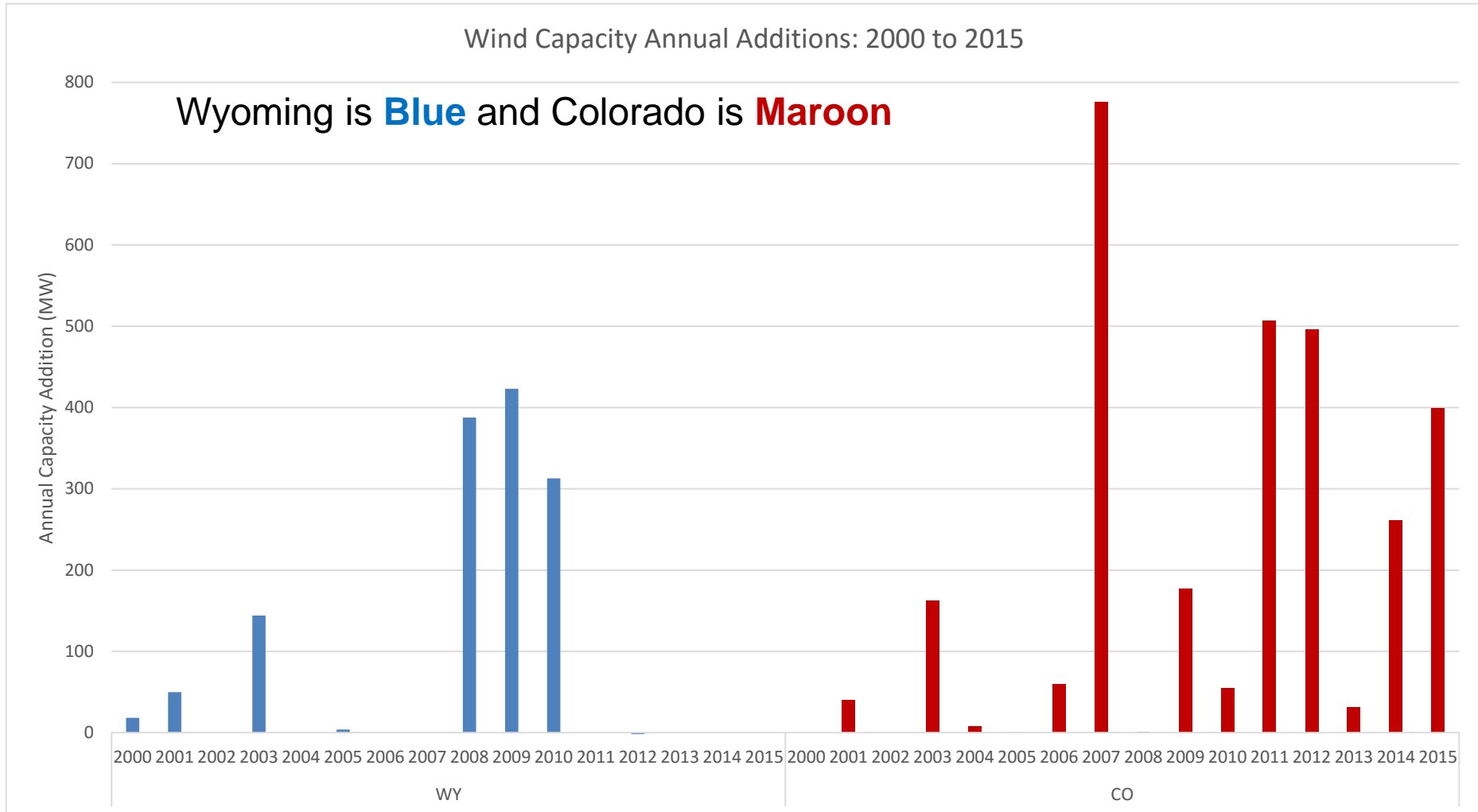
No Growth: Wind DOES PAY TAXES IN WY

Wyoming wind development has disappeared since 2010 when taxation on wind came in place:

1. The existing Property tax;
2. The expiration of the 6 % Sales tax exemption on wind equipment in 2009; and
3. The \$1/MWh Excise Generation tax imposed in 2010.

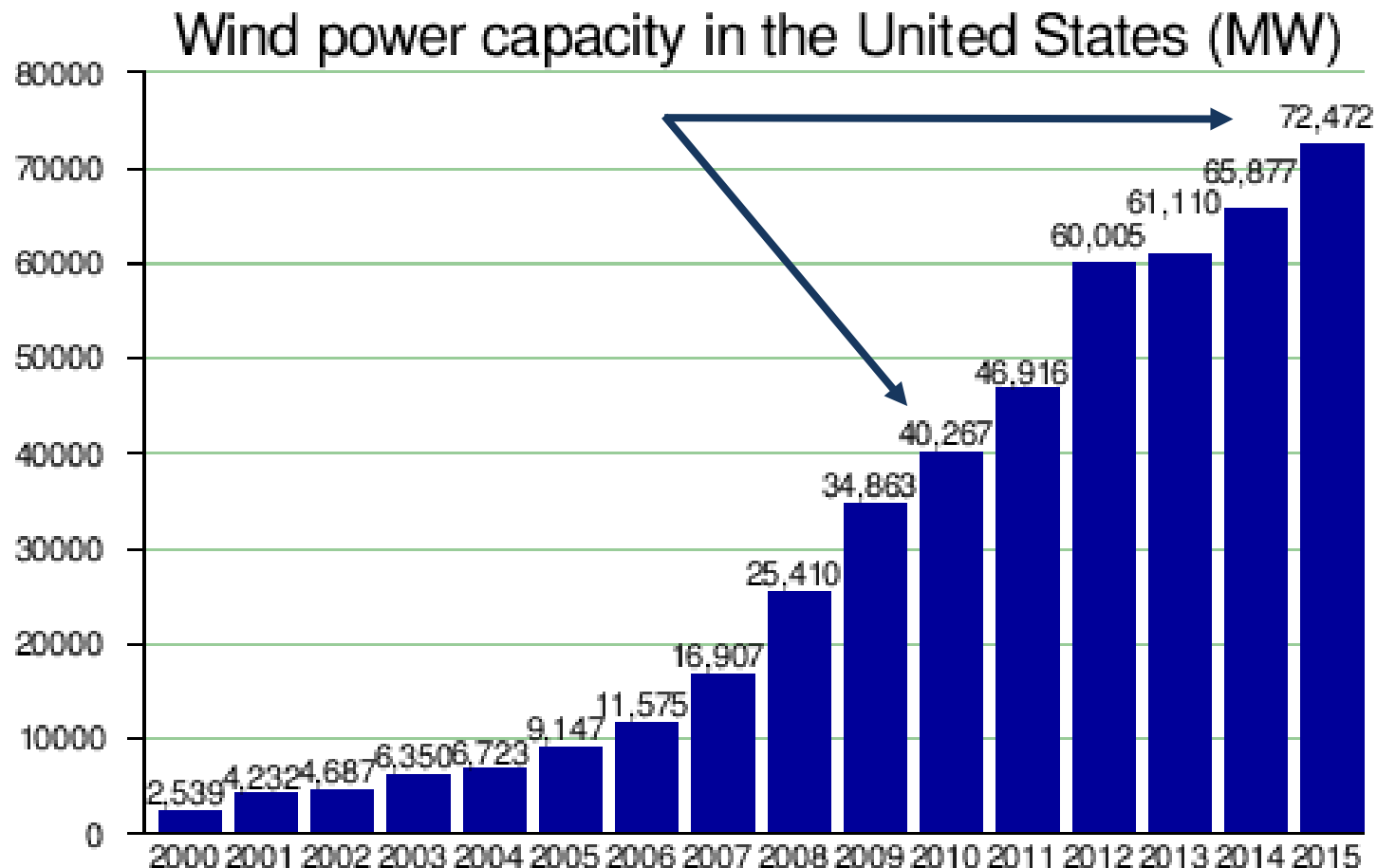
Wind in WY: No Growth

Wyoming wind development has disappeared since 2010



Wind in US: Positive Growth

Even though no wind development occurred in WY from 2010 thru 2015, over 32,000 MW of wind was installed in other areas of the US



Learning from Past Experience:
In 2008, Wyoming was poised to be the 1st
Wind Generation State in the
Country.....BUT

Wind Development & Transmission Summary Wyoming 2008 to 2016:

- Total Wind Projects U/D in 2008 **25,600+ MEGAWATTS**
- Total Transmission Projects U/D in 2008 **19,300+ MEGAWATTS**

- 2008 Wind Projects still U/D 2016 4,389 MEGAWATTS
- 2008 Transmission Projects U/D 2016 6,000 MEGAWATTS

- Projects Built 2008 – 2016 (Dunlap – PAC) 111 MEGAWATTS
- New Projects under Development After 2010 2,020 MEGAWATTS
- **Total Active Wind Development WY 2016 6,409 MEGAWATTS**

Reasons why no new wind has been built in Wyoming since 2010:

- **Taxation on Wind Energy:** CONFIDENCE CRISIS – Wyoming is the only State in the country taxing wind production;
- **Transmission:** No new transmission has been permitted/built since 2010 – **WIND ENERGY PULLS TRANSMISSION AND NOT THE OTHER WAY AROUND !!;**
- **Permitting Process:** The substantial amount of federal lands in the state makes the NEPA permitting & siting challenging and time consuming for wind and transmission developers;
- **Environmental Regulations:** Mounting land restrictions for in-state environmental regulations like the Sage Grouse Core Area.

New Transmission Infrastructure for Wind
Energy increase transmission capacity for
other energy generation sources

Transmission For All E Sources

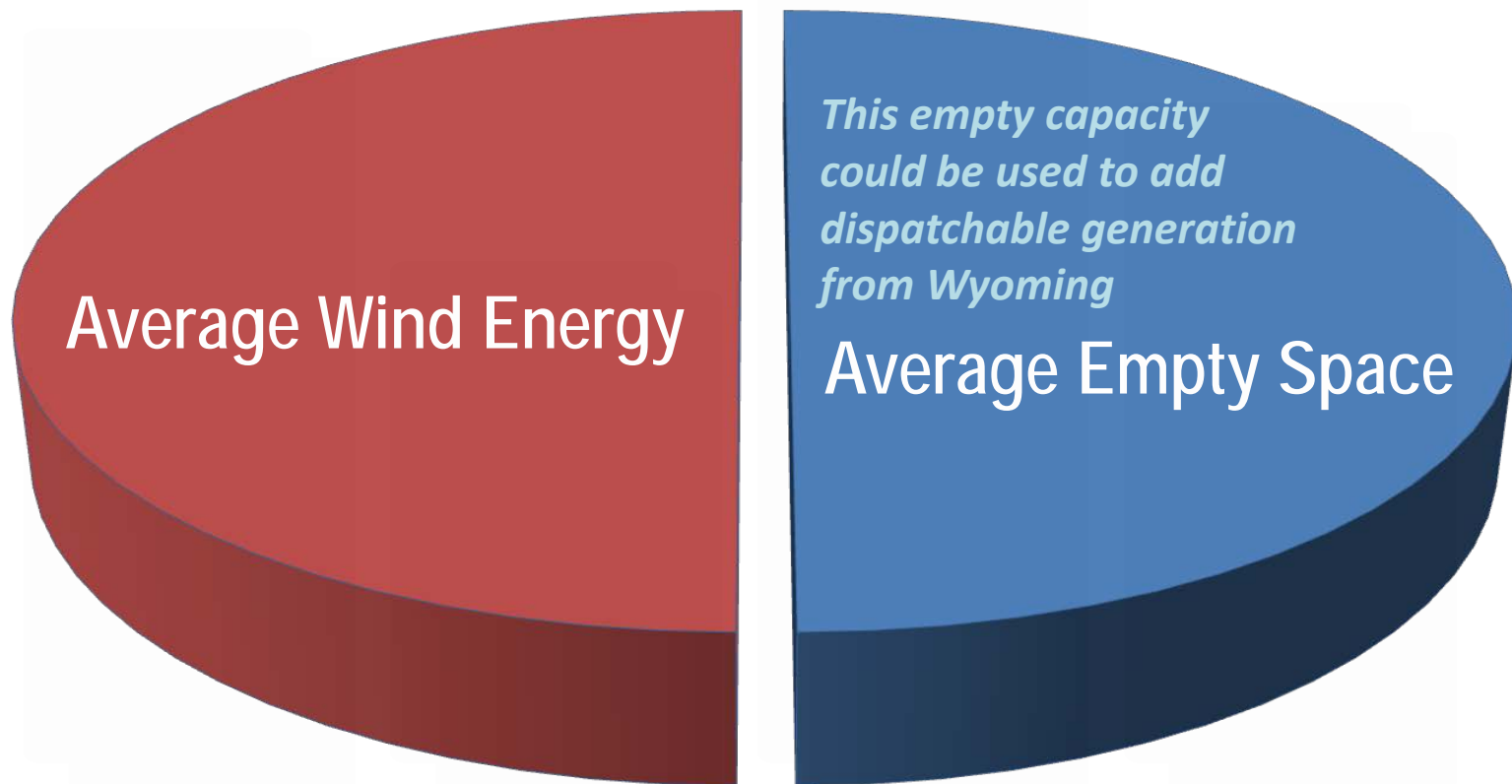
New transmission developed in Wyoming for wind creates an asset* to Wyoming since over 50% of the capacity, on average, can be utilized for other dispatchable generation

- *Natural gas-fired generation*
- *Clean coal-fired generation*
- *Small nuclear generation*
- *Other feedstocks*

(*) Transmission lines are a 50 year+ asset

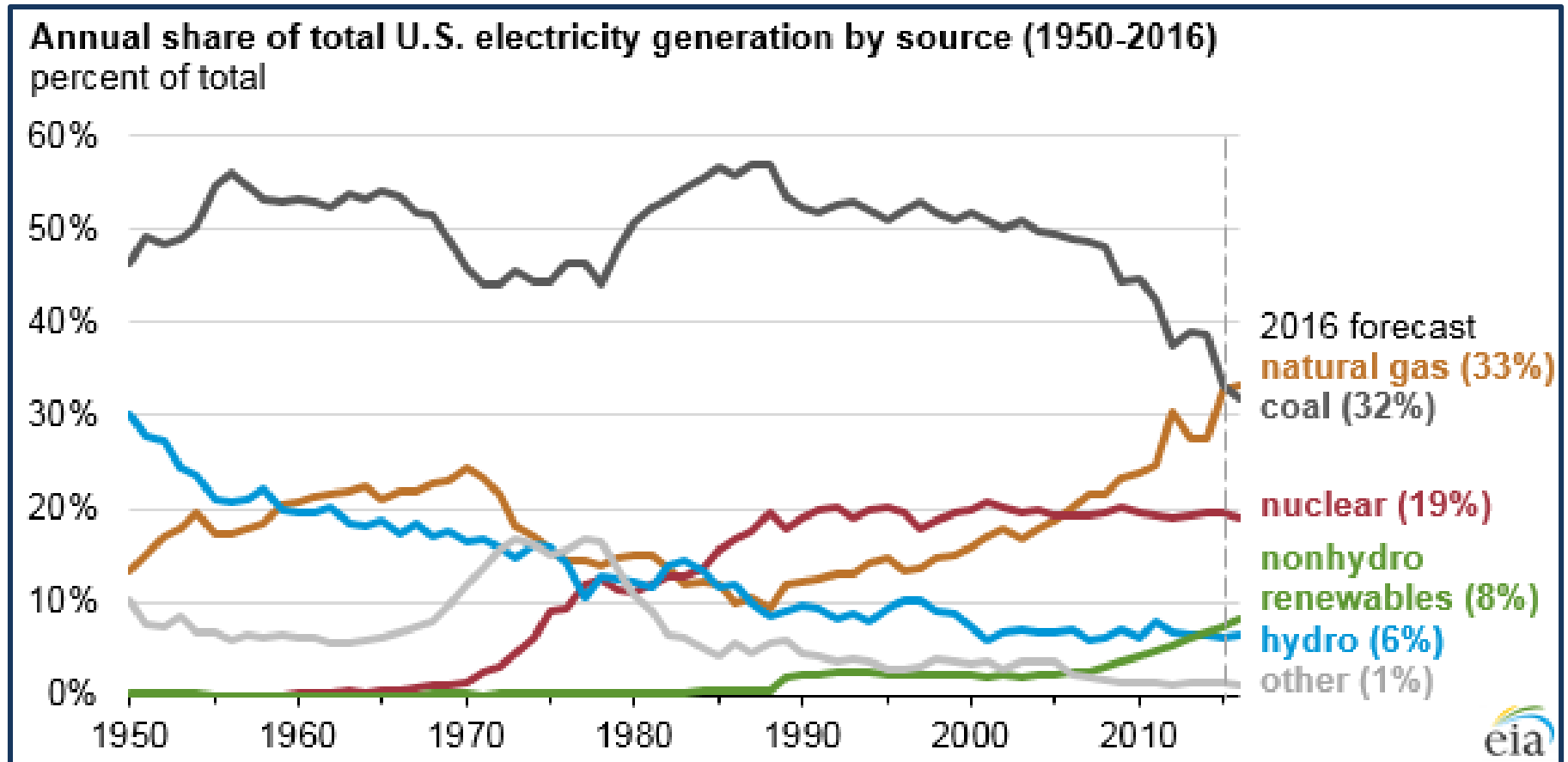
Transmission For All E Sources

Transmission Capacity relative to Transmission from Wyoming to California



Natural gas, not renewables, is the primary resource replacing coal-fired generation to date

Natural Gas is Replacing Coal





PLAN B: The Wyoming Wind Initiative

Wyoming Wind Initiative

Vision

- Promote substantial economic diversification of the State's Economy and its Revenue Base;
- New wind energy production would provide:
 - Increased Tax Revenues for the State
 - Increased Transmission Capacity for all energy sources
 - The creation of new quality jobs
- Make Wyoming a Renewable Energy Leader
- Create CONFIDENCE by creating a STABLE business environment

Wyoming Wind Initiative

Strategy

- Adding 12,000 MW of wind energy infrastructure to the State over the next decade
- Resulting in:
 - Approximately \$ 20 billion in additional tax base in the form of new wind project CAPEX investments;
 - 12,000 MW of additional new long-term transmission infrastructure representing a minimum of \$ 3 billion CAPEX investment;
 - Providing substantial tax revenues to the state in excess of \$ 3.2 billion over a 20 year period

Wyoming Wind Initiative

Strategy (cont.)

- **Jobs:** Creating over 450 new permanent jobs; over 1,000 indirect permanent jobs; and nearly 6,000 construction jobs;
- **Education:** Resulting in the ability to retain more of the State's college educated students within Wyoming;
- **In-State Wind Related New Manufacture:** Attracting new manufacturing facilities which will offer components within the wind energy development supply chain;
- **In-State Added Value New Manufacture:** Creating added value within the State for new manufacturing and investment into other energy related and/or new industries.

Wyoming Wind Initiative

¿What is needed from the State to implement this plan?

CONFIDENCE

Wyoming Wind Initiative

For Consideration by the State

- The need to create a **stable business environment** for wind development which will encourage and enable new business investments;
- The need for **long term commitment** by the State Officials and Policy Makers to assure the existing tax structure for wind development in Wyoming remain unchanged in order to **give confidence** for these substantial long term investments to occur;
- Such a commitment will require **long term policies** to allow **economic viability and market competitiveness** for Wyoming Wind (generation + transmission) to be sold to Western RPS Markets;
- Active **assistance in mitigating the permitting and siting procedures** on federal and state lands.

Wyoming Wind Initiative

The Future

- According to NREL & AWS Truepower, Wyoming has a potential for over 200,000 MW's of developable wind at a gross capacity factor of 45% at 100 meter hub height;
- At present, Wyoming has only developed 1,400 MW of wind projects, less than 3 % of its optimal potential;
- The 12,000 tranche of wind development can be replicated beyond the first decade;
- The energy market will require up to 50% or more of its total power demand to be in the form of renewable energy. **THIS MARKET OPPORTUNITY IS FINITE IN TIME**

If no wind, then What's Plan C

New Taxes KILL The Future

- Current Excise tax on wind generation represents 5+ % of GROSS REVENUE at current \$ 20+ per MWhr PPA prices. Increasing this tax totally erases IRR on ANY wind energy project in WY, thus KILLING THE PROJECT;
- New taxation affecting Production Tax Credit monetization / cash flow would prevent from obtaining financing from Tax Equity Investors (40 % to 60 % of financing) for ANY wind energy project in Wyoming or anywhere within the continental US.
- **If no new wind energy development occurs, then what is “Plan C” for additional tax base and revenue to WY??**

Thank you



Simulation from Highway 487 of Phase 1A.

Contact Information

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