Energy Promotion and Development Division

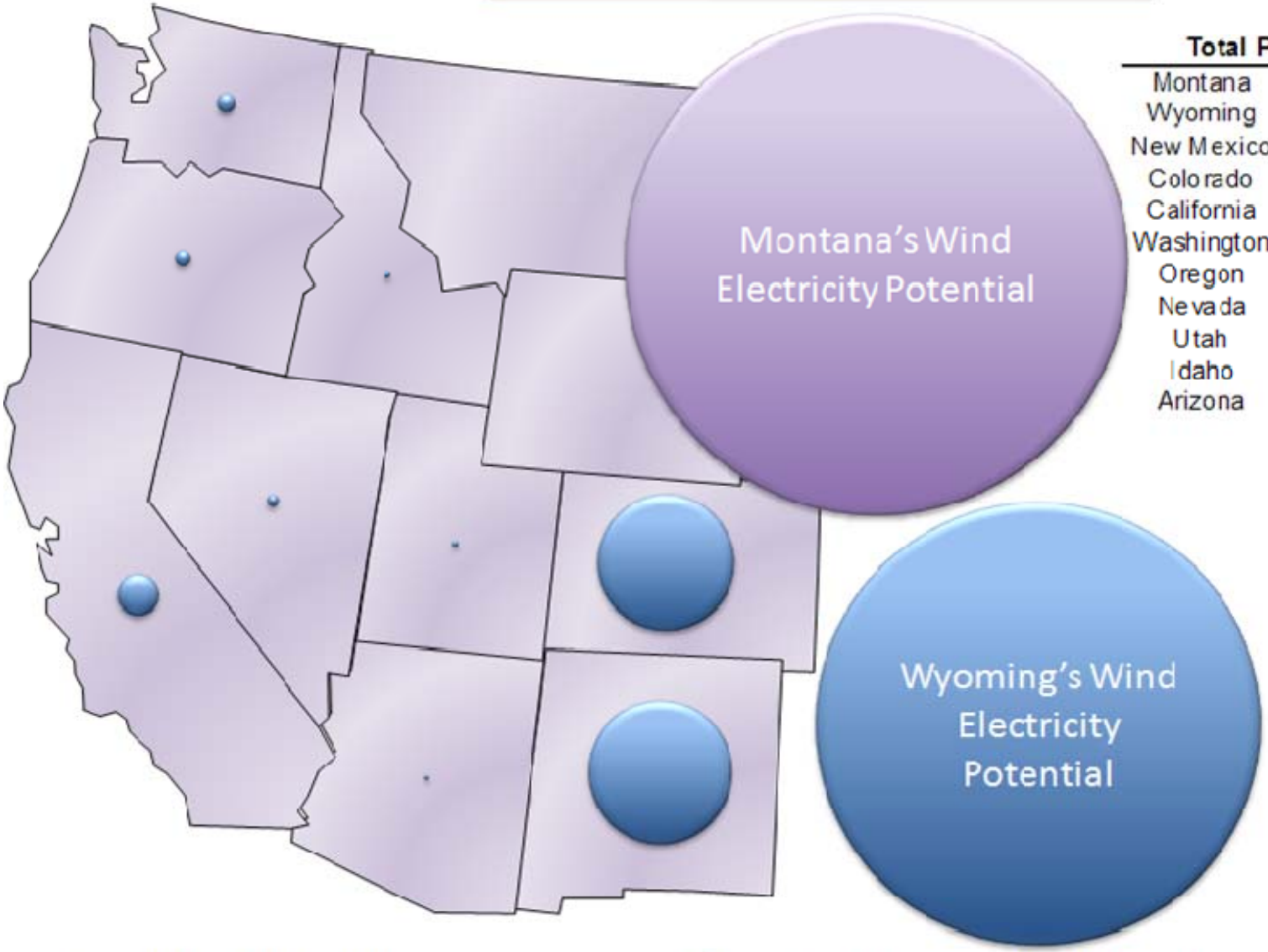
Montana Department of Commerce

Transmission in Montana

Energy and Telecommunications Interim Committee

July 29, 2010

Wind Electricity Potential (GWh/yr) Class 4-7



Total Potential (GWh/yr)	
Montana	830,504
Wyoming	733,350
New Mexico	208,090
Colorado	198,197
California	60,068
Washington	27,172
Oregon	20,572
Nevada	17,589
Utah	9,908
Idaho	9,748
Arizona	7,268

Prepared by Energy Strategies, LLC

= scale of wind resources relative to Montana's

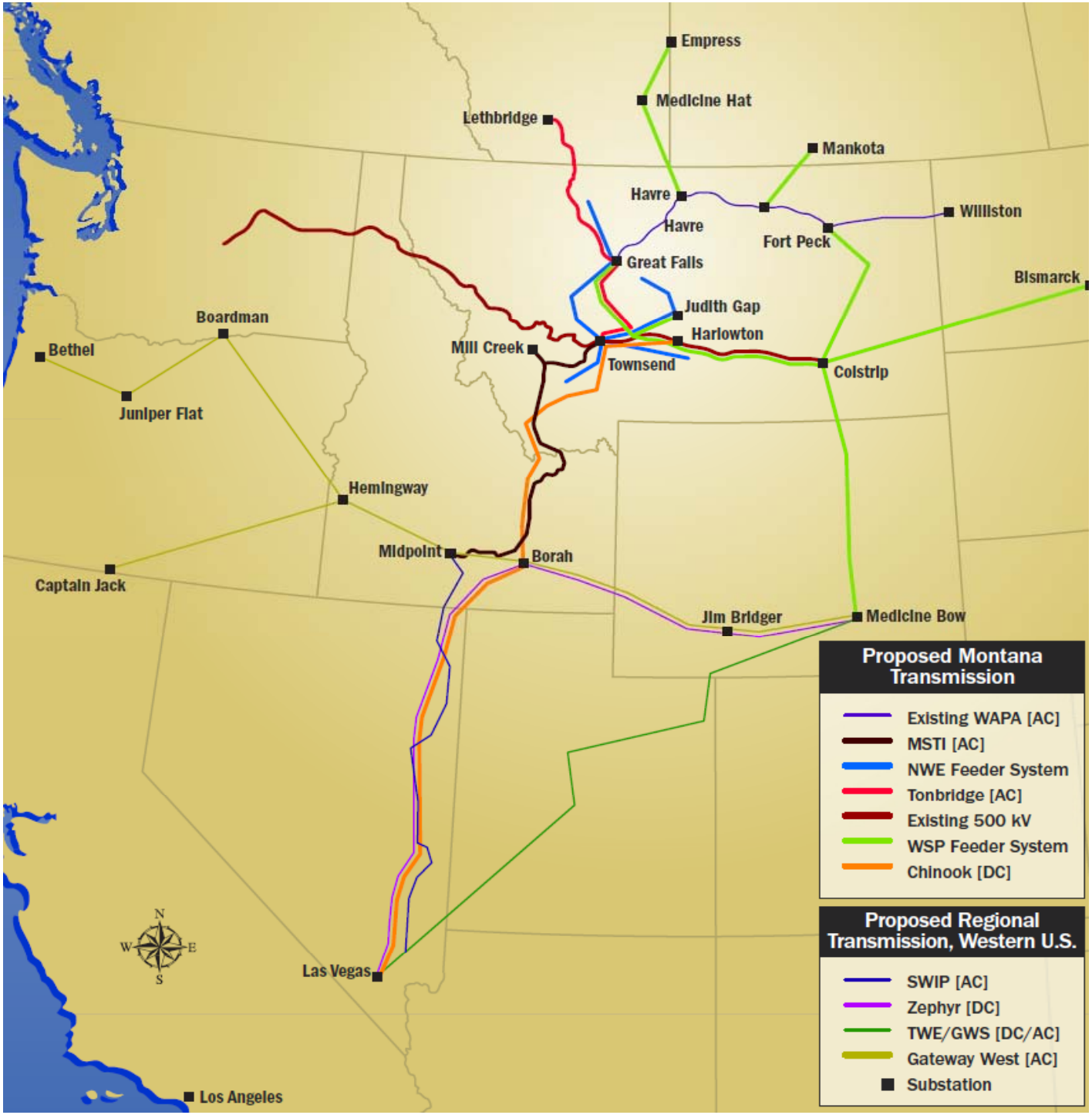
Montana Transmission for America

High-capacity, high-voltage interstate lines

- Montana Alberta Tie Line
- Mountain States Transmission Intertie
- Chinook
- Wind Spirit

Wind Collector Systems

- NorthWestern Energy
- Wind Spirit



WIND SPIRIT PROJECT

Grasslands Renewable Energy's Wind Spirit Project is an integrated transmission solution for large-scale development of renewable energy in Montana and the Northern Plains.

- collect a minimum of 3,000 megawatts of wind and other renewable energy sources
- 230 kV AC and HVDC transmission collector lines
- geographically dispersed areas, firming with one or more energy storage applications
- a unified marketing entity for the involved renewable energy projects
- manage intermittent wind resource to deliver 1,000 MW of consistent power
- feed into and be complimentary with other trunk line transmission projects in the region
- Currently in regulatory phase

MONTANA ALBERTA TIE LTD
A TONBRIDGE POWER COMPANY

Montana Alberta Tie Ltd. (MATL) is a fully permitted and financed 214-mile, 230 kV transmission line that will interconnect the electricity markets of Alberta and Montana. It will be the first power transmission line between Alberta and Montana and is permitted to carry 300 MW of power in each direction. It is expected to be in operation by the end of 2011.

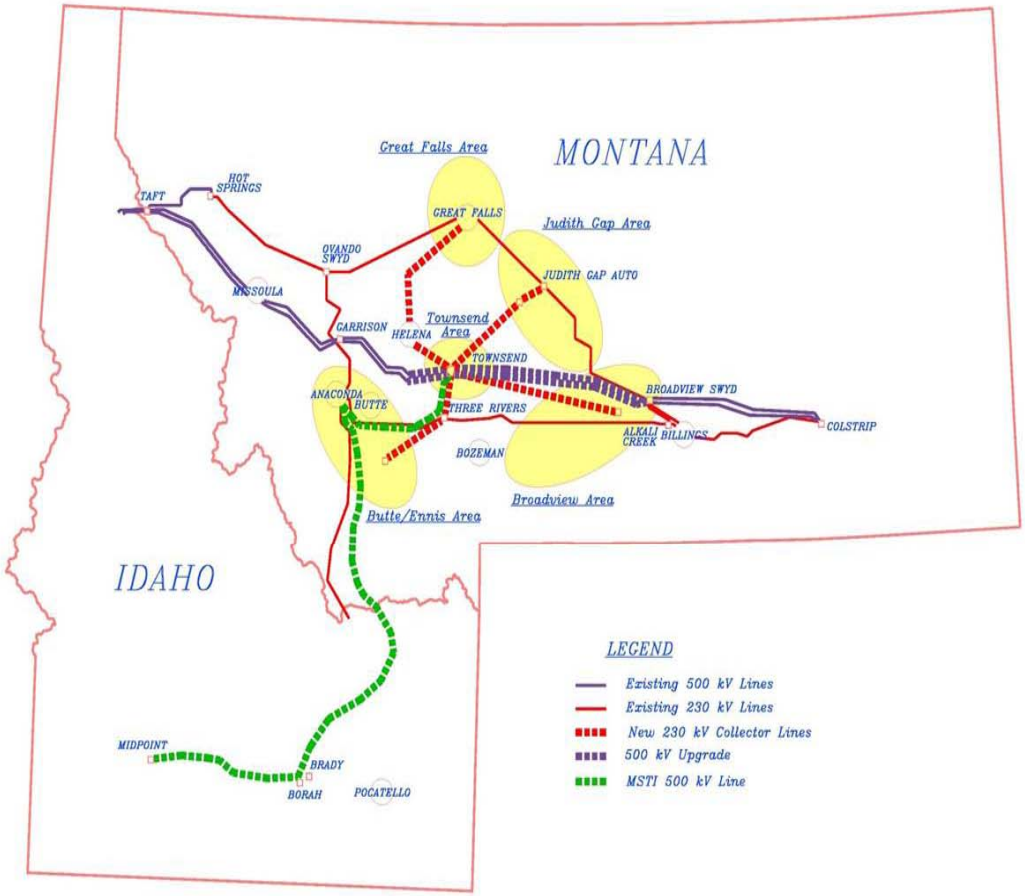
- $160 m loan from Western Area Power Administration (WAPA) - $70 m released
- Poles on the ground, ready to begin construction
- Substation near Cut Bank has started construction

Mountain States Transmission Intertie

MSTI is the proposed 500 kilovolt (kV) transmission line that will deliver new sources of renewable energy, primarily wind energy, to customers in the Western United States.

- Cost - $1 Billion
- Estimated Route Miles - 430 miles depending on final route determination
- Capacity 1,500 megawatts
- Tower Height 125 to 140 feet depending on terrain
- Tower Description Guide V towers or Monopoles (Single circuit)
- Width of Right of Way 220 feet
- Estimated Tax Benefits Annually **$15 to 37 million** in Montana

The MT-RCS project will connect the generator lead lines from five high-quality wind regions in Montana to a new sub-station south of Townsend.



Based on the current queue for transmission service, NorthWestern Energy believes that demand exists for the following five generator lead lines:

- 230 kV line- Great Falls to Townsend;
- 230 kV line -Judith Gap area to Townsend;
- 230 kV line - Belt area to Townsend
- 230 kV line - Broadview area to Townsend;
- 230 kV line - Ennis area to Townsend

TransCanada is proposing to construct two 500 kilovolt (kV) high-voltage direct current (HVDC) transmission projects (Zephyr and Chinook); each project would have a capacity of 3,000 megawatts (MW). The Zephyr project would originate in southeast Wyoming, while **the Chinook project would originate in south central Montana.** Both projects would terminate in the Eldorado Valley south of Las Vegas.

•Extended Open season to December 2010

•TransCanada - encouraged by the initial results will continue to advance the Chinook project.

Western Area Power Administration

Transmission Infrastructure Program

The American Recovery and Reinvestment Act provides Western new authority to construct transmission lines to help deliver renewable resources to market and, importantly, provides a source of funds for this activity.

Program goals are to:

•construct and/or upgrade transmission lines to help deliver renewable resources to market.

•select, study and/or build projects under this authority that are in the public interest.

•solicit public input in identifying potential projects.

•ensure projects do not adversely impact system reliability or operations, or other statutory obligations.

•ensure projects are economically feasible and are adequate to repay project costs.

•leverage borrowing authority by partnering with others

•MATL has received TIP funding

•All Montana transmission projects are pursuing an agreement to be considered for funding

TRANSMISSION INFRASTRUCTURE PROGRAM

Economic Benefits of Wind and Transmission in Montana

These transmission projects, with their combined estimated capital expenditure of nearly **$6 billion**, could result in over **20,000 direct and indirect jobs** and **$2 billion** in economic impacts. In addition, nearly **$35 million** of annual state and local taxes would add a significant boost to local counties and schools.

Full economic analysis to be completed and released within the coming months.

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