

NorthernLights Transmission

October, 2005



NorthernLights
Transmission

The logo features the text "NorthernLights" in a black serif font, with "Northern" and "Lights" joined together. Below it, the word "Transmission" is written in a smaller, italicized, olive-green serif font. A decorative horizontal line consisting of two parallel lines is positioned above the text, with a vertical line extending downwards from its center to the top of the letter "L" in "NorthernLights".

NorthernLights

NorthernLights
Transmission

- The transmission division of TransCanada Corp
- TransCanada, a North America wide energy transportation and power services Company
- US\$17 billion of premium pipe and power assets
- NYSE listed with large US Shareholder base
- US operations include Northern Border, Great Lakes, Iroquois, GTN, Alaska Pipe ROW, 2000 MW Generation
- Expertise in developing interstate linear projects

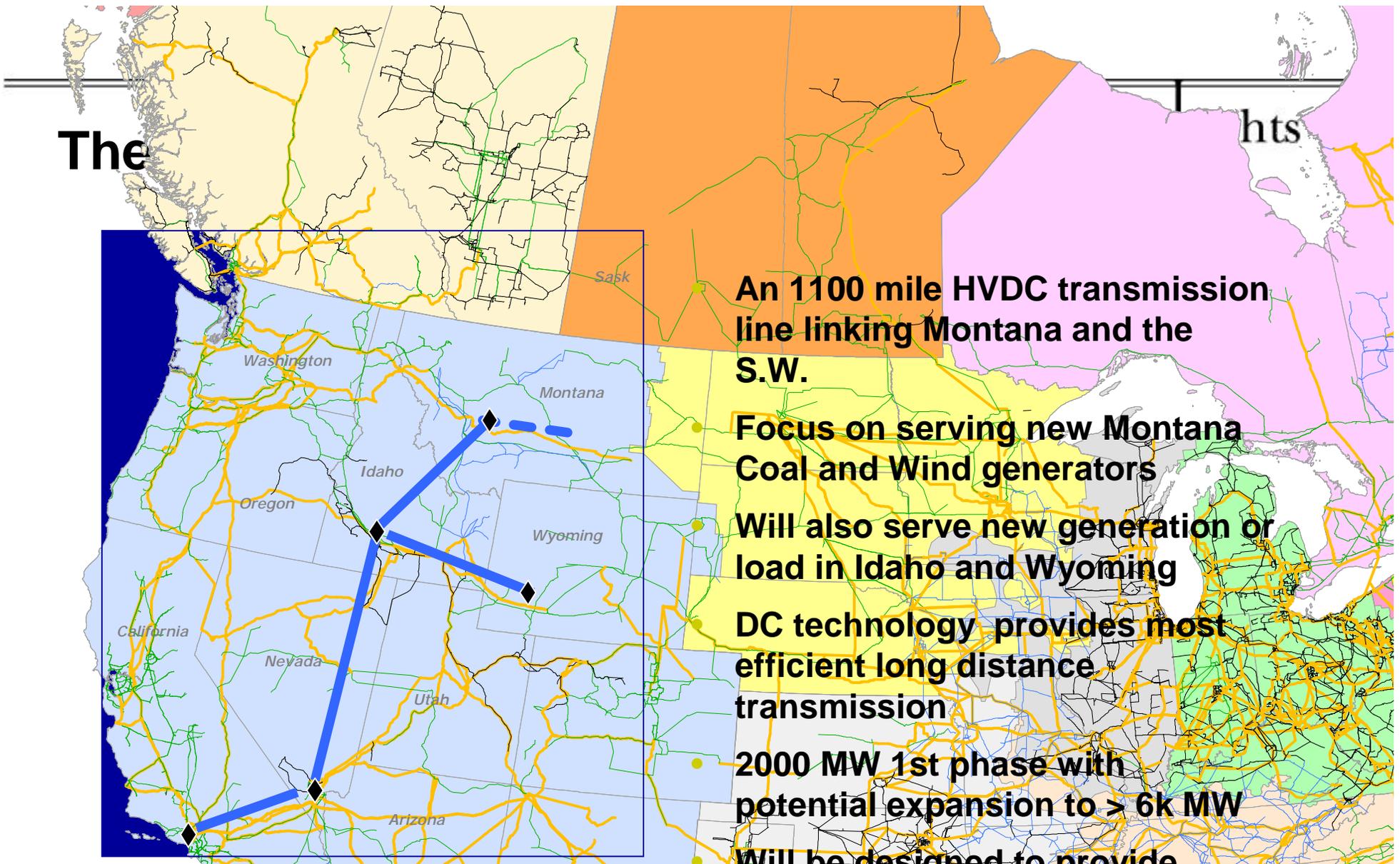


The NorthernLights Vision

- The Issue
 - Bulk Transmission grid reached operational limits years ago
 - Existing grid can't be economically upgraded to facilitate long distance bulk transmission
 - Without new transmission, new generation won't get developed
- The NorthernLights Vision
 - Creation of a multi state HVDC grid. "An Electron Freeway"
 - Would connect Montana, Idaho and Wyoming to growing markets in Nevada and California
 - Development focus consistent with past regional planning initiatives, RMATS, NTAC, Others



The



An 1100 mile HVDC transmission line linking Montana and the S.W.

Focus on serving new Montana Coal and Wind generators

Will also serve new generation or load in Idaho and Wyoming

DC technology provides most efficient long distance transmission

- **2000 MW 1st phase with potential expansion to > 6k MW**

- **Will be designed to provide assistance to AC grid**



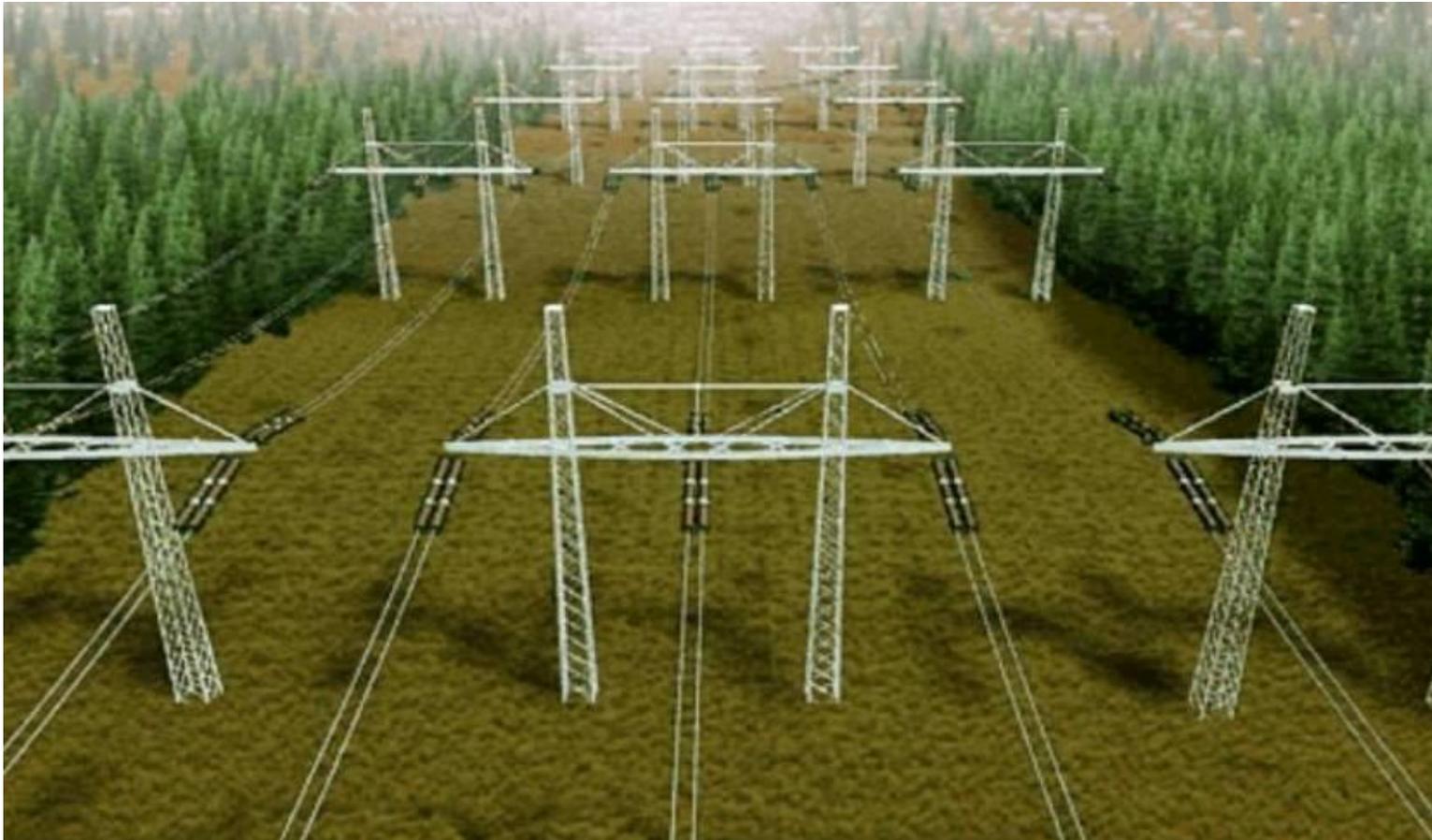


Why HVDC?

- HVDC technology improvements over the past 20 years
 - Lower costs, higher performance
- Economies of Scale: Can economically transfer large blocks of power over long distances.
 - Lower losses, better economics for generators
- Smaller footprint
 - Shorter towers, narrower right of way, fewer lines
- Much easier to integrate with underlying AC systems

AC Transmission Line Corridor

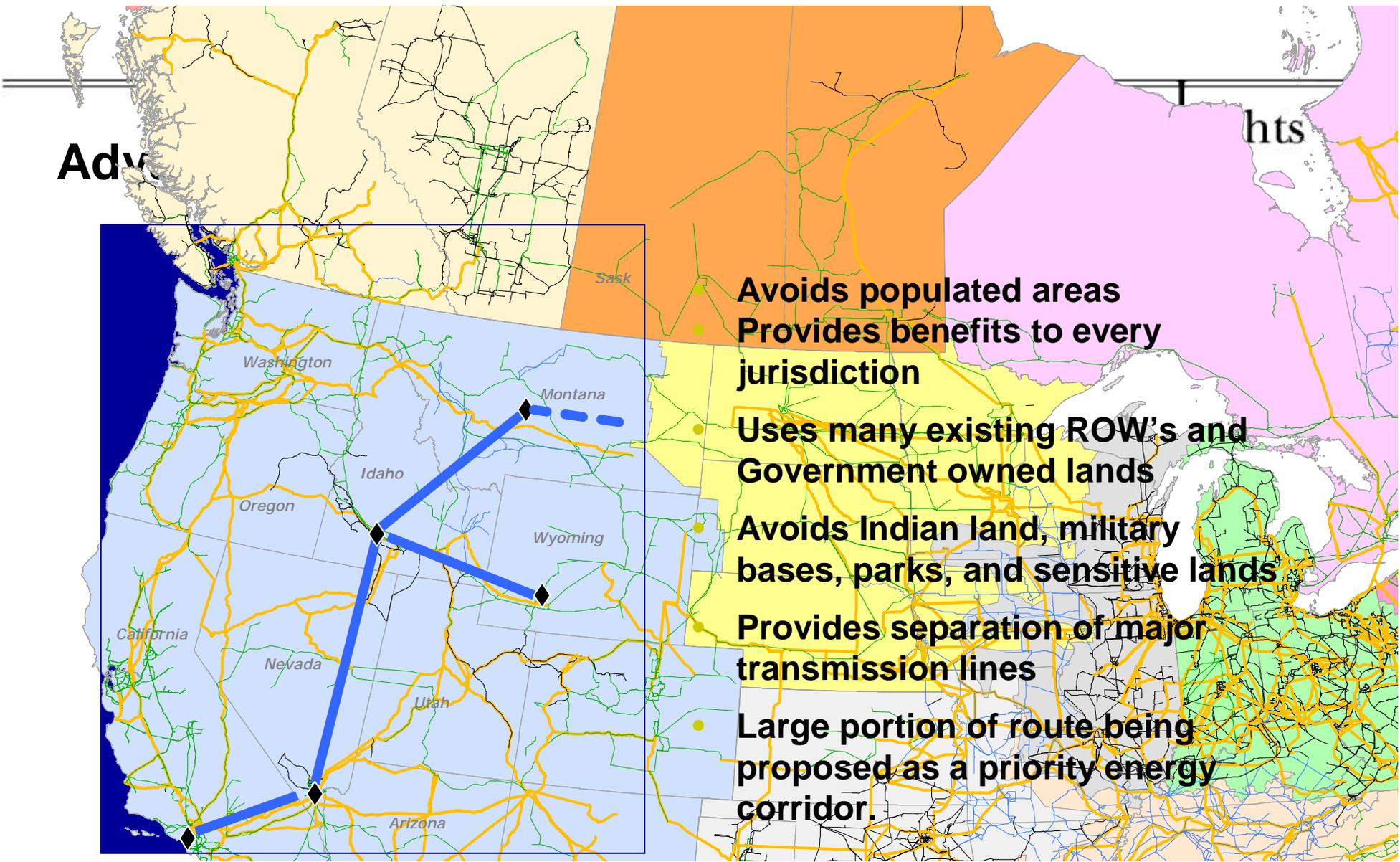
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DC Transmission Line Corridor



Adv



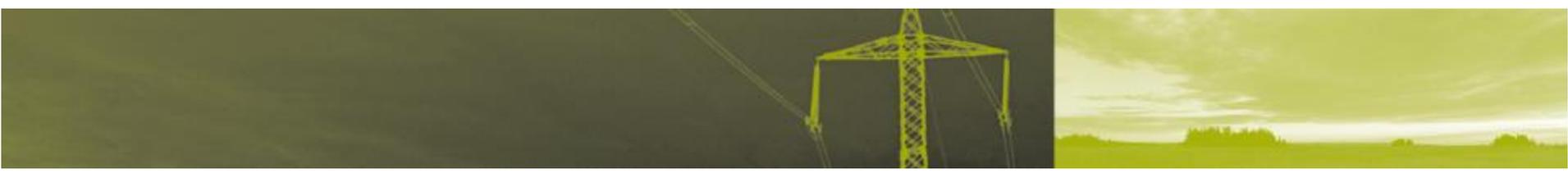
- Avoids populated areas
- Provides benefits to every jurisdiction

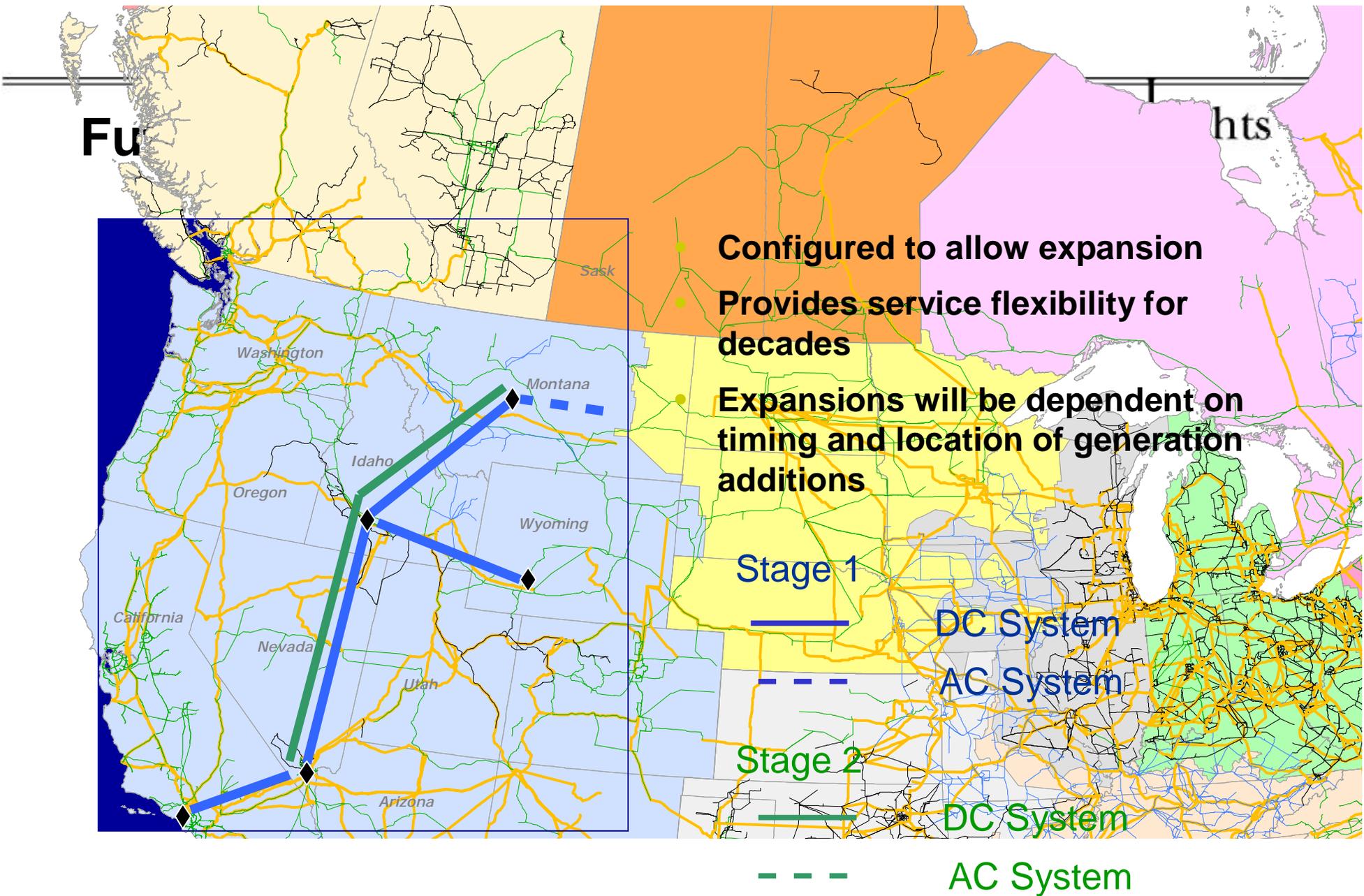
- Uses many existing ROW's and Government owned lands

- Avoids Indian land, military bases, parks, and sensitive lands

- Provides separation of major transmission lines

- Large portion of route being proposed as a priority energy corridor.





Capital Costs

Length of Line:

Inland Project

~1,100 Miles

Configuration:

500 kv DC

2,000 + MW per line

**Potential Intermediate
Terminals:**

**Idaho
Wyoming
Nevada**

Cost:

(2005\$ excl. AFUDC)

**\$1.3 to \$1.5 US
billion**



What Needs to be Done?

Remove transmission development road blocks

- Establish state facilitating group for linear projects
- Streamline approval process

Collaboration

- System operators, Government and Industry need to develop solutions
- Enter into cooperative arrangements with neighboring states

Multipurpose solutions required

- Encourage Grid operators to explore joint solutions
- Encourage regulators to support joint use concept

