Transmission Planning

Independent Developer Perspective

Orijit Ghoshal 5/23/2019

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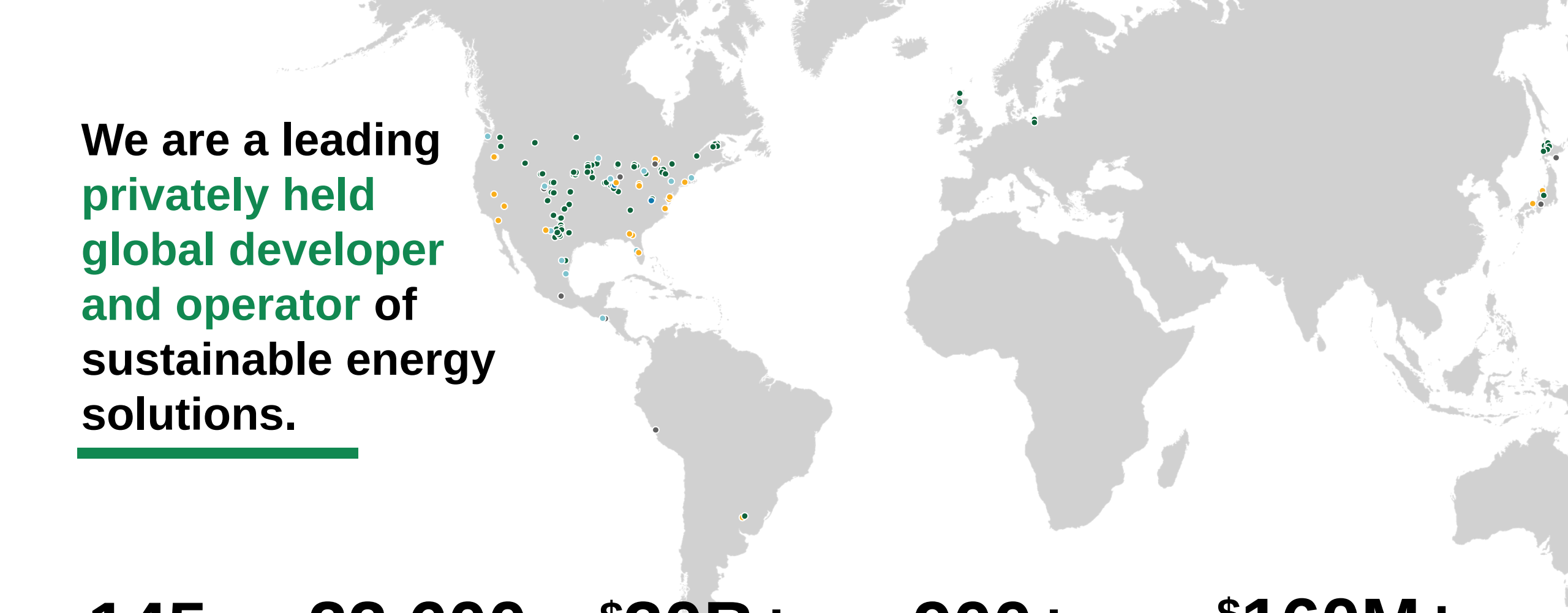

We are a leading privately held global developer and operator of sustainable energy solutions.

145
Projects

22,600
Megawatts

$30B+
in Completed Transactions

900+
Employees

$160M+
Annual Local Economic Investment

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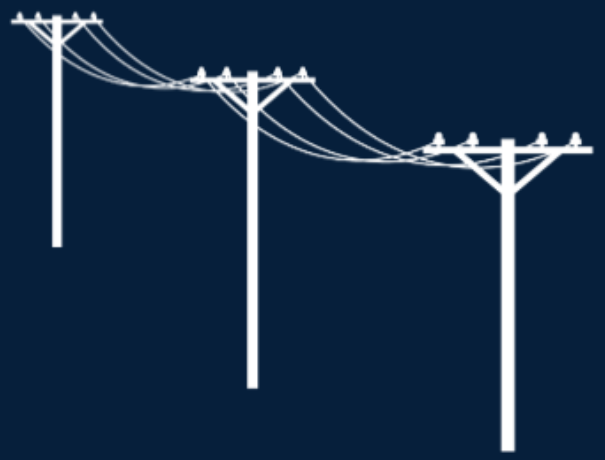
Surrey
Victoria
Everett
Seattle
Tacoma
Olympia
WASHINGTON
COLVILLE RESERVATION
Spokane
Yakima
YAKAMA INDIAN RESERVATION
Kennewick
Portland
Salem
Eugene
Bend
OREGON
Medford
Kootenai National Forest
BLACKFEET INDIAN RESERVATION
Flathead National Forest
FLATHEAD RESERVATION
Great Falls
FORT PECK INDIAN RESERVATION
Missoula
Helena
MONTANA
Miles City
Nez Perce – Clearwater National Forests
Butte
Bozeman
Billings
CROW RESERVATION
Payette National Forest
Beaverhead-Deerlodge National Forest
Salmon - Challis National Forest
Yellowstone National Park
Shoshone National Forest
Boise
Nampa
IDAHO
Idaho Falls
Jackson
Pocatello
Twin Falls
WYOMING
Casper

Invenergy Transmission Experience

400 Miles
Transmission line constructed

230 Miles
Transmission line operated



2,000 Miles
Distribution line operated, connecting end users to clean electricity

80
GSU transformers built

60
Substations built

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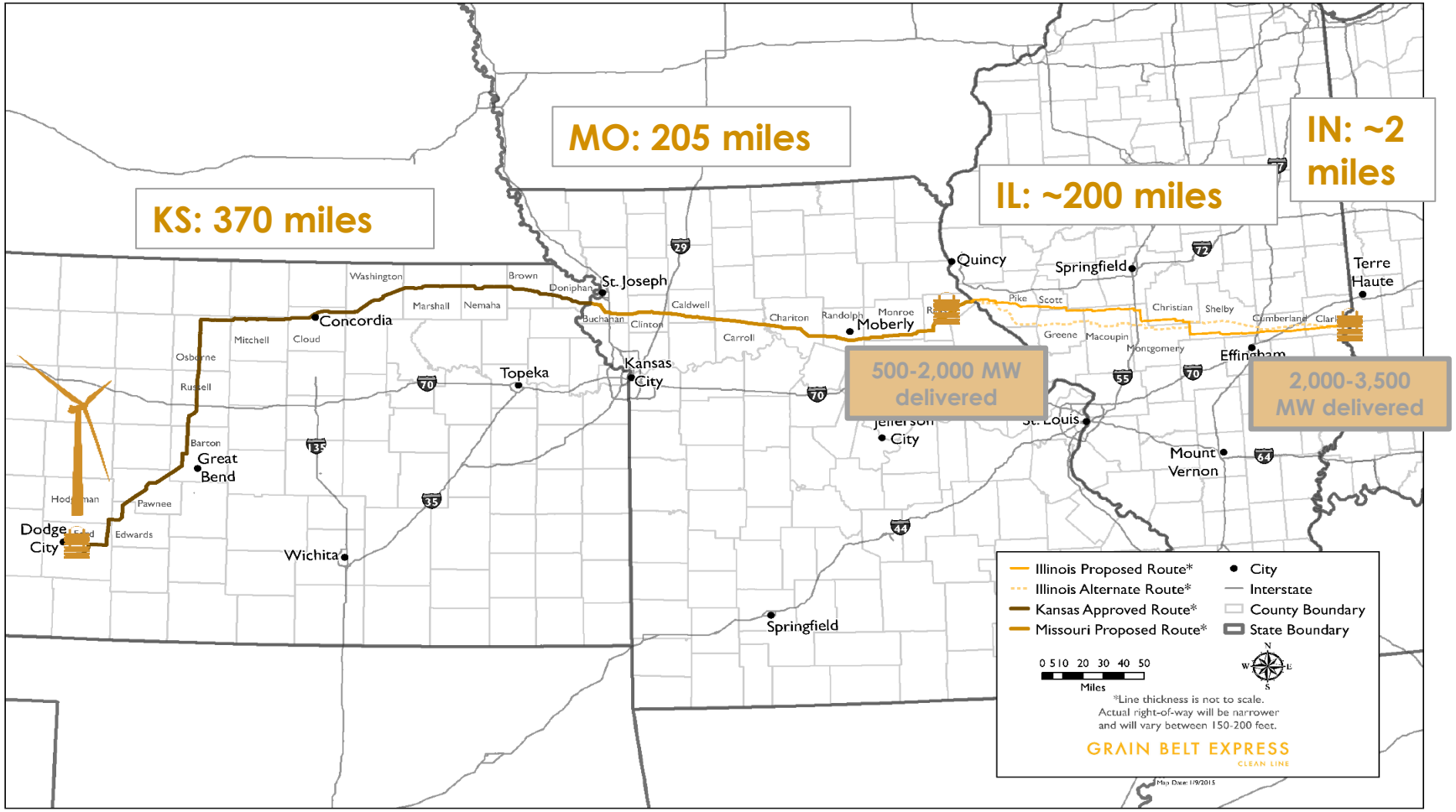
Grain Belt Overview Map



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Power Grid Pressed by Udall For the Pacific Coast Region

Continued From Page 1, Col. 4

clude that the project would become highly controversial.

The committee recommendation contained three alternative plans, with construction costs ranging from $138,000,000 to $342,000,000.

In a press release Mr. Udall asserted that the transmission system would be "self-liquidating" and that the "tangible dollar benefits to the combined regions each year would be at least double the annual cost" of the project. He said that the project would serve four important purposes, in key details as follows:

1. By sending power back and forth along the coast it would help each region to meet its peak load needs. California's needs reach their peak in the summer, the Northwest's in the winter.
2. It would help the Northwest to sell $9,000,000 to $15,000,000 worth of surplus secondary power per year, displacing steam-generated power in California.
3. By moving a relatively small amount of off-peak California steam power to the north it should increase the amount of power constantly available in the Northwest, regardless of generating conditions, by 200,000 to 400,000 kilowatts.
4. By providing a market for surplus power of the big Northwest dams it would postpone the need to build new steam plants in the Pacific Southwest for peak demands there.

Group recommended three alternative plans for a power connection between Northwest and Southwest.

Technological Gains Cited

Details of Plan

The plan calls for four long-distance and three interconnecting ultra-high voltage lines to serve 11 western states with power from the Pacific Northwest. The lines would be constructed by the federal government and public utilities at a cost of $697 million. The Federal Government's share would be $208 million.

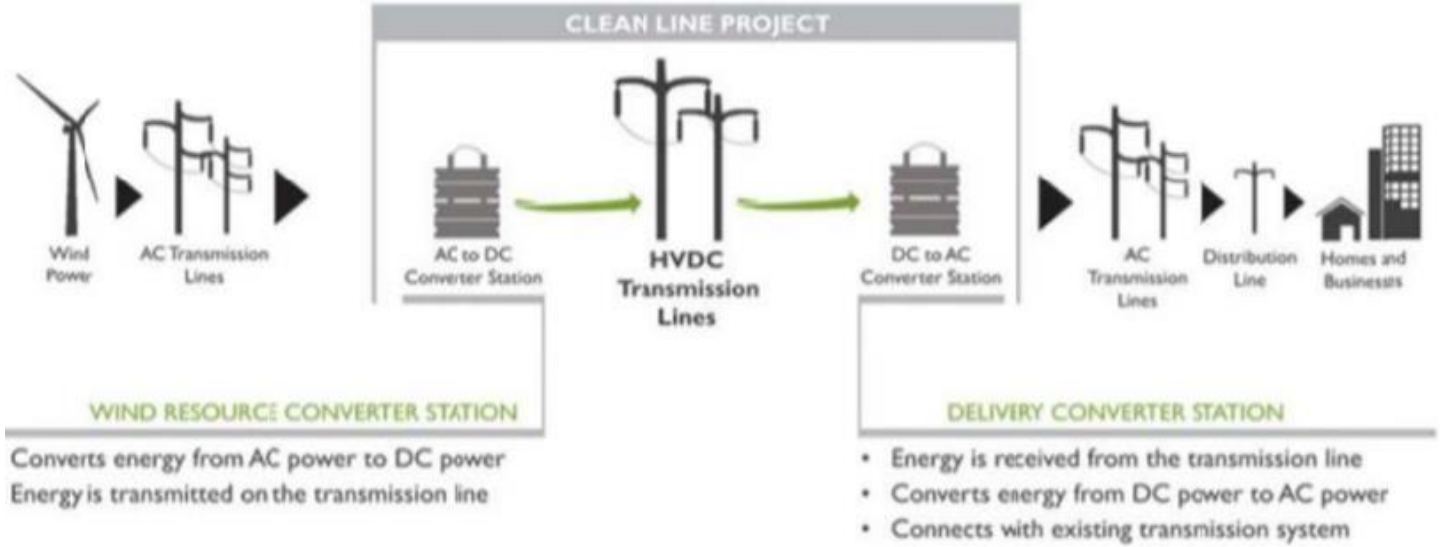
"This will be the biggest step forward that this nation has taken in this field," Secretary of the Interior Stewart L. Udall said in announcing the project. "It will place the United States in a position of world leadership in electric transmission technology."

The proposal to link the Pacific Northwest and Southwest appeared certain to face a political fight. The Senate Appropriations Committee will hold hearings next Wednesday and Thursday on the project. However, Secretary Udall told a news conference today that he had the "impression of overwhelming public support" and "broad support in Congress" but acknowledged some opposition from what he called the "hard core minority."

NYT
Russell Baker
William Blair
1961 and 1964

Grain Belt Commercial Overview

- Enables up to 4GW of wind development from one of the best wind resources in North America.
- Like road-building, lengthy, high-voltage transmission can bring economic benefits to host communities. If built independently, they must be cost-effective to make it to completion.
- Wholesale merchant offtake to generators and wholesale customers
- Construction costs = Construction Loan + Invenergy equity + Potentially other equity
- O&M costs = Term Loan + Offtaker revenues (long-term transmission service or capacity)



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Grain Belt Regulatory Overview

Kansas:
- **Transmission Utility CPCN and Siting Permit Granted in 2011 and 2013**
- **Acquisition Approval:** Case underway with settlement provisions extending Siting Approval. Expect decision June-July
- **Siting Approval:** Schedule stayed pending Acquisition Approval. Will likely take 60 days once Acquisition Approval is finalized.

Missouri:
- **CPCN Granted on April 19, 2019**
- **Acquisition Approval**: Hearing concluded and expect a decision by June 2019

Illinois:
- **CPCN Granted in 2015, overturned by Appellate Court in 2018, following Supreme Court decision in Rock Island**
- No filings pending at this time.

Indiana:
- **CPCN Granted in**
- **Acquisition Approval**: To be filed upon conclusion of KS/MO proceedings

FERC:
- **Negotiated Rate Authority Granted in 2014 governing interconnection and service sales**

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Independent versus Utility Transmission Development

	Independent	Utility
Planning	Can participate in Order 1000 process	IRPs, Order 1000
Marketing	Necessary for landowners, customers	Unnecessary
Siting/Permitting	No significant difference, except length of typical lines	
Cost Recovery	Customers, right-sizing	Regulatory/ratepayers
Construction	Cannot necessarily condemn	Easier path to condemnation
Operation	No significant difference	

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Considerations for Multi-System/State Projects

- **Regulatory Approvals**
  - Timing
  - Showing
  - Implications
- **Water Crossings**
  - Construction
  - Regulatory
- **Utility/Incumbent Plans**
  - Congestion
  - Generation
  - Load
- **Tax Incentives / Local Requirements**

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Which Projects are Best Fit for Independent Development?

WECC Project Database

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