

## Zephyr & Chinook:

*"How can we create the capability to rapidly increase transmission capacity from areas of large amounts of renewable resources?"*

**CREPC San Diego**

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**TransCanada**

*In business to deliver*

*“How can we create the capability to rapidly increase transmission capacity from areas of large amounts of renewable resources?”*



**Connecting wind resources in WY & MT to the desert SW and CA**

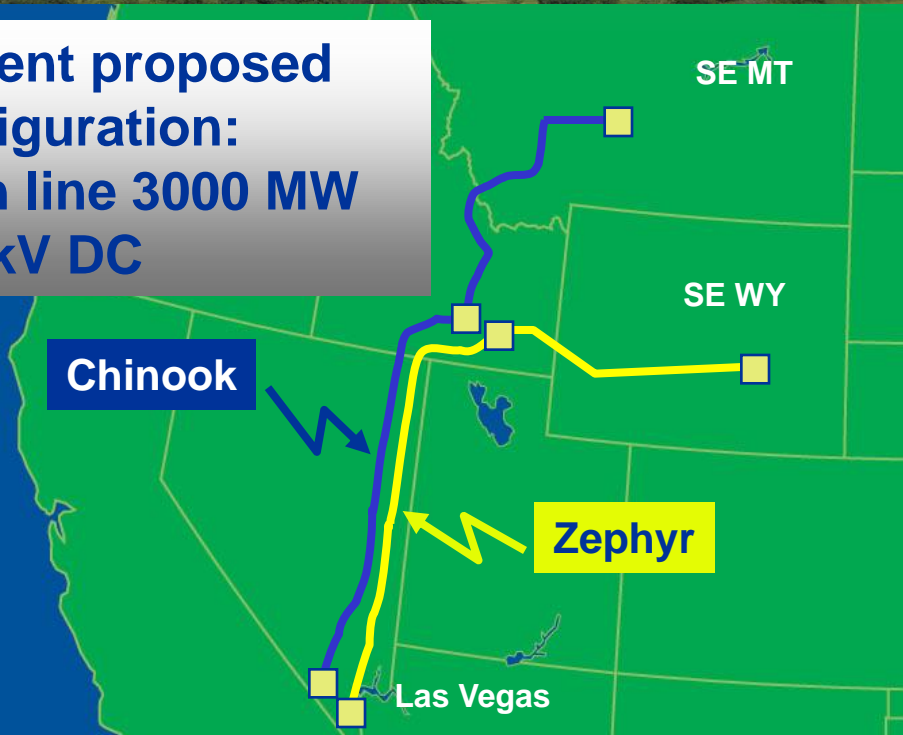
## Zephyr and Chinook

- **Two, separate, but complementary, 3000 MW 500 kV DC lines**
- **Converter stations (750 MW) on each line at Borah, Idaho to connect to Pacific NW and Idaho wind resources**
- **Merchant lines: Precedent setting FERC approval**
  - **Negotiated rate authority**
  - **Anchor shipper concept**
  - **1500 MW pre-subscribed with wind on each line**
- **Cost borne by shippers**
- **Est. capital cost: \$3B/line**
- **Open Season: Spring / 09**
- **ISD: late 2014**

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**Current proposed configuration:  
Each line 3000 MW  
500 kV DC**



**Our upcoming Open Season will test commercial viability**

## Zephyr and Chinook

### Observations:

- There is often a natural tendency to focus on problems rather than solutions
- Perfect project doesn't exist

### Supersize now?

- Current limit into the Southwest is 3000 MW based on NERC/WECC reliability criteria
- At 3000 MW we are supersized
- Changing the limit – a major challenge that will take years

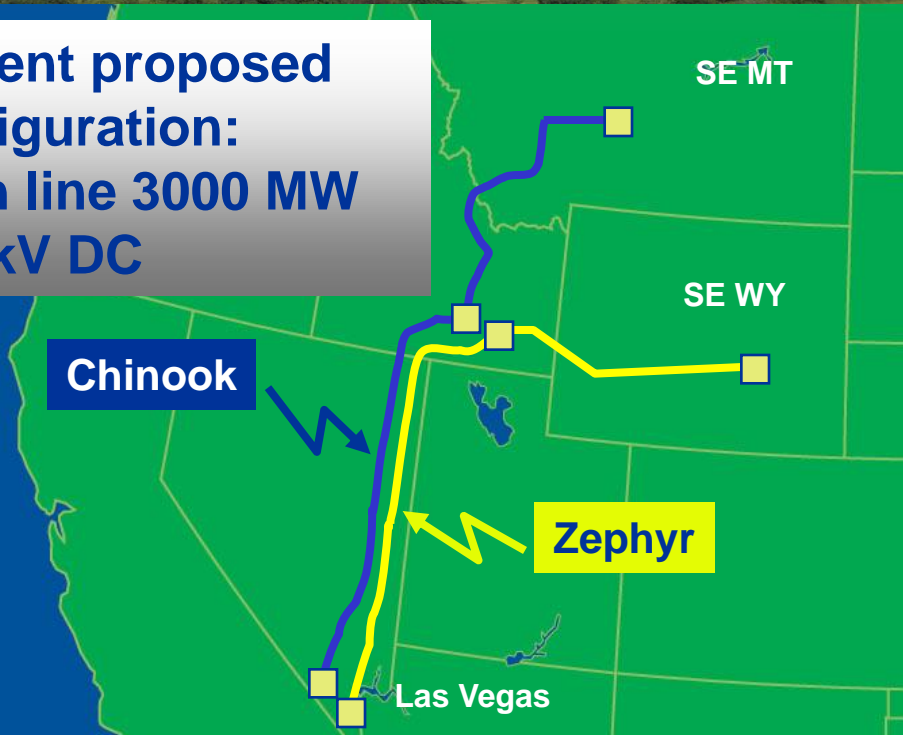
### Set up to Supersize?

- 6000 MW 800 kV DC
- Up front cost: Higher voltage line (\$500+ Million/line)
- Future cost: Converter station expansion (\$1+ Billion/line)
- Increased cost to shippers imperils financial viability of \$3B project
- WAPA SOI: Propose that WAPA fund study

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**The West should support commercially viable projects**

## Zephyr and Chinook

### Financing obstacles?

- Lack of certainty for shippers and transmission providers
- Greatly diminished number of credit-worthy prospective shippers
- Zephyr & Chinook’s parent has the capability to finance our projects

### Regulatory / Permitting obstacles?

- Uncoordinated and inefficient permitting process
- New initiatives or policies that:
  - Make uneconomic projects viable
  - Delay or introduce project uncertainty to viable projects

### “DO NO HARM”

- Disconnected WECC reliability and permitting conventions