

## DOCKETED

<b>Docket Number:</b>	15-RETI-02
<b>Project Title:</b>	Renewable Energy Transmission Initiative 2.0
<b>TN #:</b>	212871
<b>Document Title:</b>	Panel 3 presentation - Sandeep Arora
<b>Description:</b>	RETI 2.0 Western Outreach Project: Portland Workshop 8-12-16
<b>Filer:</b>	Misa Milliron
<b>Organization:</b>	Bringing Energy Forward
<b>Submitter Role:</b>	Public Agency
<b>Submission Date:</b>	8/19/2016 10:52:01 AM
<b>Docketed Date:</b>	8/19/2016

# LS Power



## Southwest Intertie Project (SWIP) North

RETI 2.0 Western Outreach

Portland Workshop

Aug 12 2016



*Bringing Energy Forward*



- LS Power is a power generation and transmission group

## Power Generation

- Over 32,000 MW of development, construction, or operations experience
- Active development of renewable and fossil generation resources

## Transmission

- Over 470 miles of 345-500kV development, construction or operations experience
- Rate regulated transmission utility in the State of Texas
- Active development of high-voltage transmission throughout North America

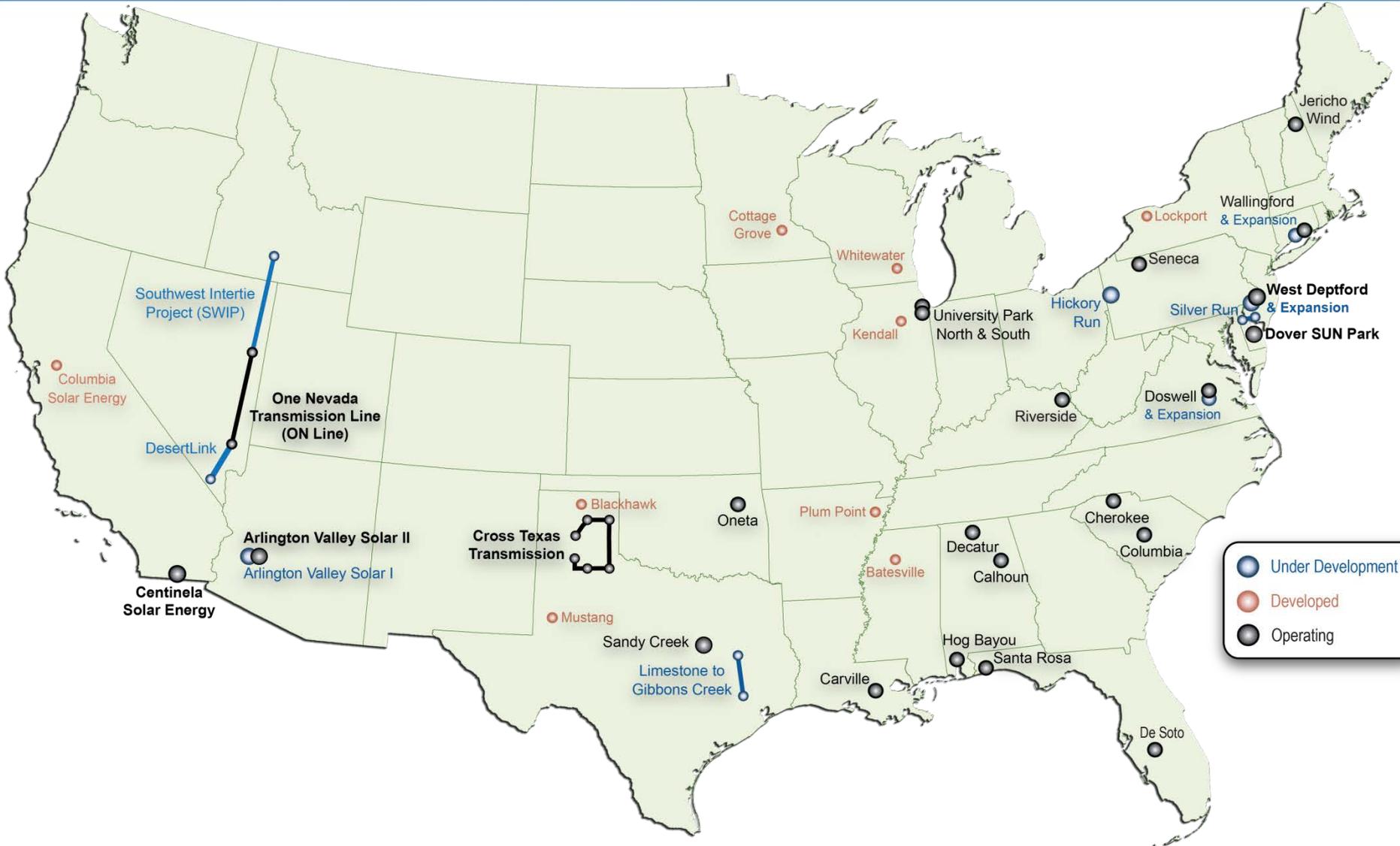
## Acquisition

- Over \$6 billion in private equity capital dedicated to energy sector
- Acquired over 20,000 MW of power generation

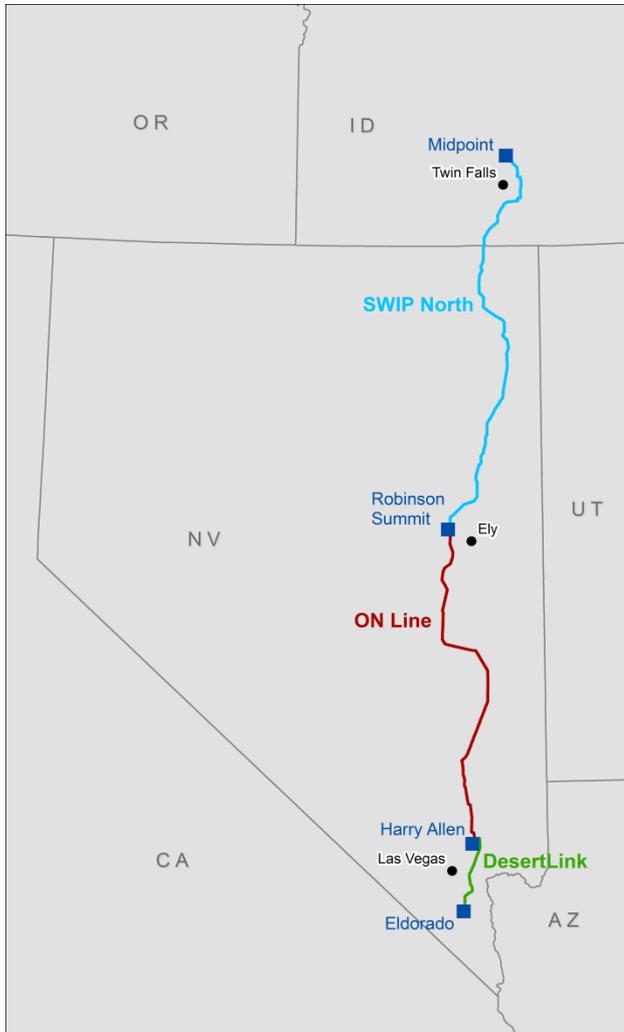
## Functional Expertise

Functional Expertise			
Project Development	Transmission	Licensing & Environmental	Project Finance & Execution
Regulatory, Legal & Compliance	Power Marketing & Energy Management	Engineering & Construction	Operations Management

# Project Portfolio

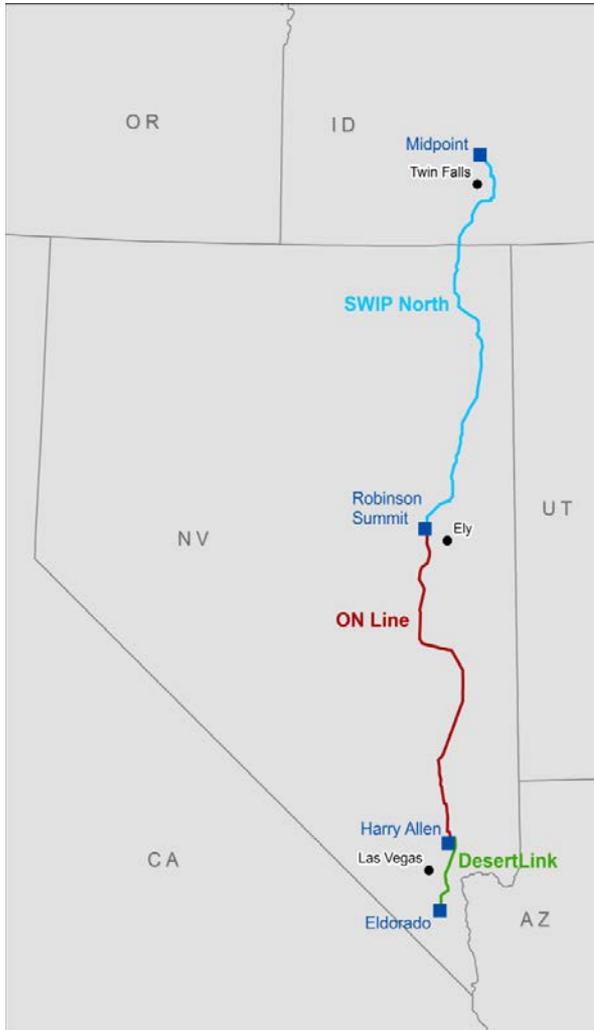


# Southwest Intertie Project



- **SWIP-North:** Midpoint to Robinson Summit 500 kV line
  - ~275 miles
  - NEPA complete
  - BLM issued Notice to Proceed
  - 24 months Construction
  - Target In-service 2021
- **ON Line:** Robinson Summit to Harry Allen 500 kV line
  - ~231 miles
  - Currently In service
  - 100% capacity NVE until SWIP North completion, capacity sharing thereafter
- **DesertLink (for CAISO):** Harry Allen to Eldorado 500 kV line
  - ~60 miles
  - FERC Order 1000 competitive project
  - In service by 2020

# SWIP Capacity and Cost Allocation



## Phase 1 - ON Line (231 miles Robinson to Harry Allen)

- Co-ownership NVE and an LS Power affiliate
- 100% of cost related to ON Line borne by NVE
- 100% capacity to NVE, under NVE OATT

## Phase 2 – SWIP North (275 miles, Midpoint to Robinson)

- New path from Midpoint to Robinson Summit
- Uprate of ON Line path
- Owned 100% by LS Power affiliate
- 100% of cost related to SWIP North borne by LS Power
- Capacity exchange on both segments, estimated to be:

	NVE Capacity (MW)	LSP Capacity (MW)
SWIP-N (Midpoint-Robinson)	700	1,000
ON Line (Robinson-Harry Allen)	1,000	1,000

*(actual value will be function of path rating, other factors)*

# SWIP North Development Status



- Federal Approvals
  - Federal NEPA process complete
  - BLM Rights-of-Way secured
  - Construction, Operation and Maintenance Plan Approved
  - Conditional Notice to Proceed with Construction Issued
- State and Local Approvals
  - White Pine County Special Use Permit and Development Agreement Approved
  - Key permits to be obtained
    - Elko County Special Use Permit
    - Public Utilities Commission of Nevada UEPA Permit
- Transmission Interconnection Requests Filed
  - Midpoint Substation – Idaho Power
  - Robinson Substation – NV Energy
- WECC Path Rating - Phase II draft report stage
- Inter Regional Planning review – CAISO, NTTG, WestConnect

# Key Benefits of SWIP North



SWIP North is a “least regrets” transmission solution which is an advanced development project that can provide benefits as early as 2021 to support 40% CA RPS in 2024 and subsequently 50% CA RPS in 2030:

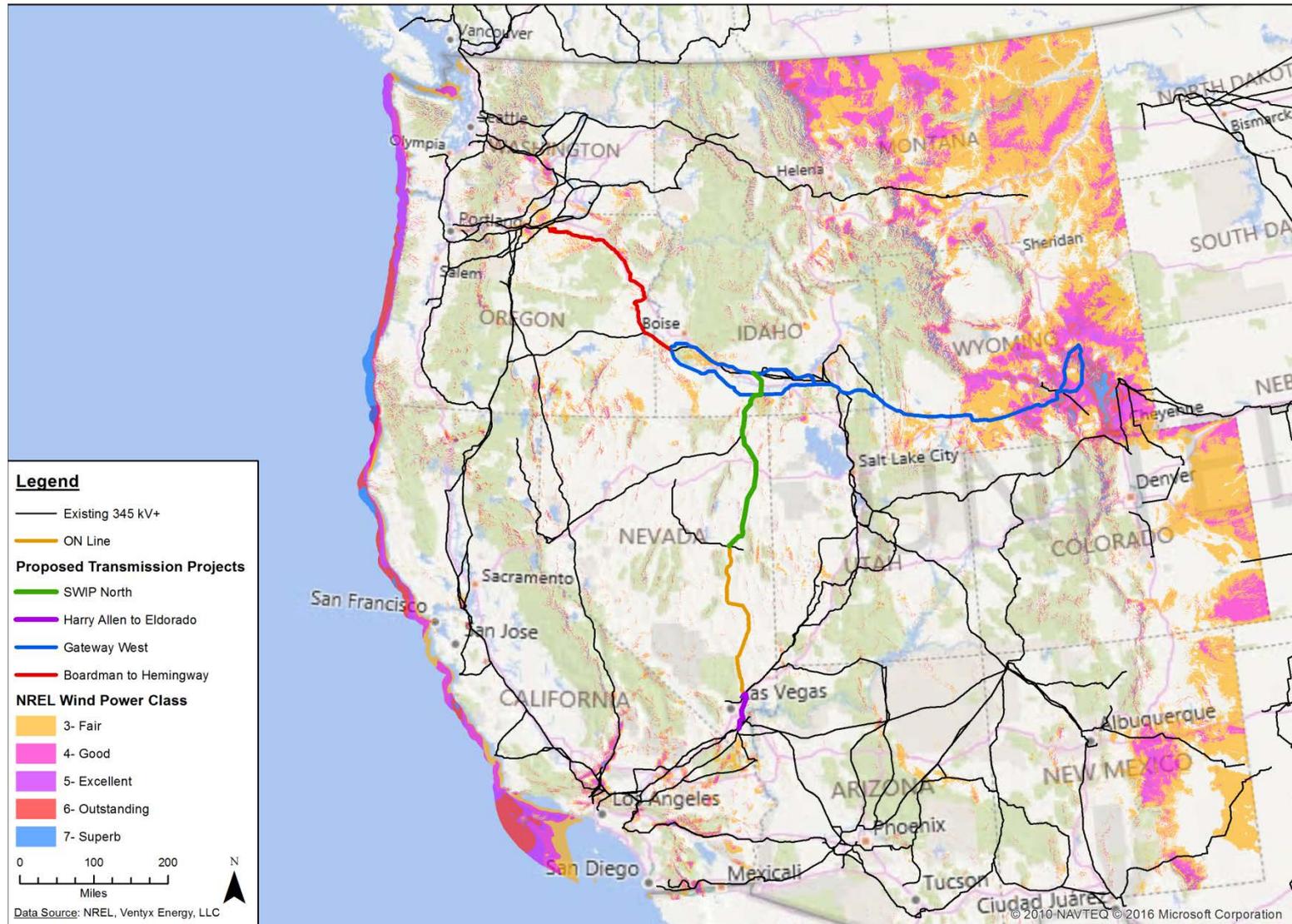
- Access to high capacity Wyoming wind resources
- Access to Montana, Idaho & Nevada renewables including good wind, solar, geothermal and stored hydro
- Access to existing and new resources from Pacific Northwest (Oregon) into California via existing COI corridor – SWIP N reduces COI and Path 26 North to South flows by upto 400 MW
- Direct pathway to deliver to CA via ON Line and DesertLink
- 1,000 MW of transmission capacity reserved for CA across 500+ miles – potentially allows CA to access over 2000 MW of Full Capacity deliverability from out of state wind resources
- Network facility - not resource specific generator tie line, helps balance major path flows in the WECC donut

# Key Benefits of SWIP North ...cont'd



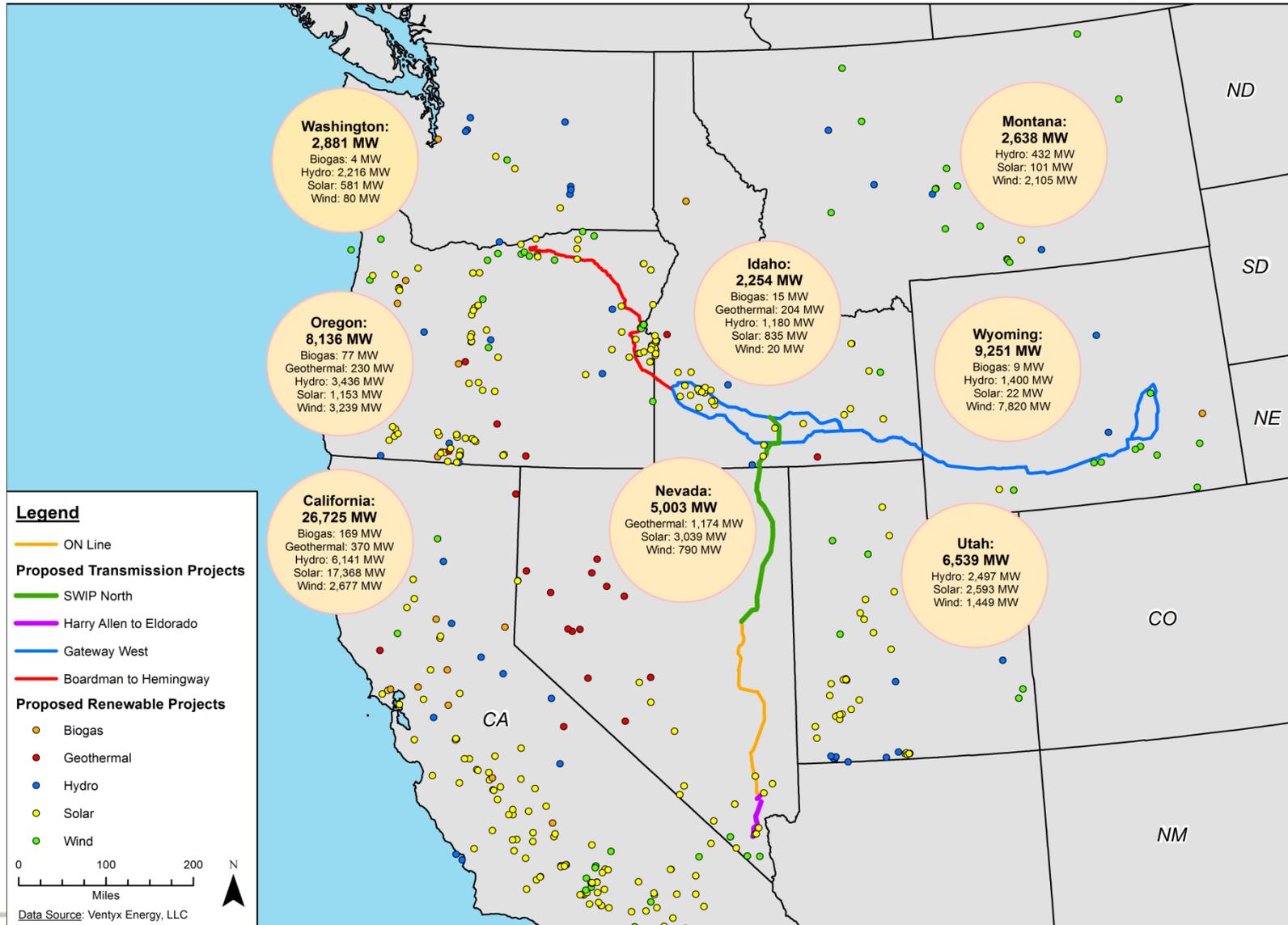
- 231 miles already constructed with costs fully allocated to Nevada ratepayers
- Benefits accrue with or without PacifiCorp integration or California regional expansion
- Significant additional economic and reliability benefits that result in real savings for ratepayers
- Insurance policy against major disturbances

# Wyoming Wind Resources





# Proposed Renewables & Transmission



# CEERT/NREL Study



- Conducted by Center for Energy Efficiency and Renewable Technologies (CEERT) and National Renewable Energy Laboratory (NREL)
- Extension of the 2015 Low Carbon Grid Study ([www.lowcarbongrid2030.org](http://www.lowcarbongrid2030.org))
- 50% RPS in California
- 2,725 MW of wind in Wyoming
- Limited to production cost benefits only
- Results
  - Base Case ~\$65 million (2014\$) annual benefits by adding SWIP-North
  - Sensitivity Case ~\$107 million (2014\$) annual benefits by adding SWIP-North with no Gateway South
  - Gateway South sensitivity was included to examine the impact of any potential delays in the timing of construction of Gateway South.
  - Congestion reduction on California Oregon Interface & WECC Path 26
  - Allocation of benefits among the regions would require additional study
  - Capacity and reliability benefits were not quantified
  - PacifiCorp/CAISO integration would result in increased benefits from SWIP-North

# The Brattle Group Study



- Results

Brattle identified numerous categories of benefits, some of which were quantified in the study, resulting in the following estimates (in 2030 dollars).

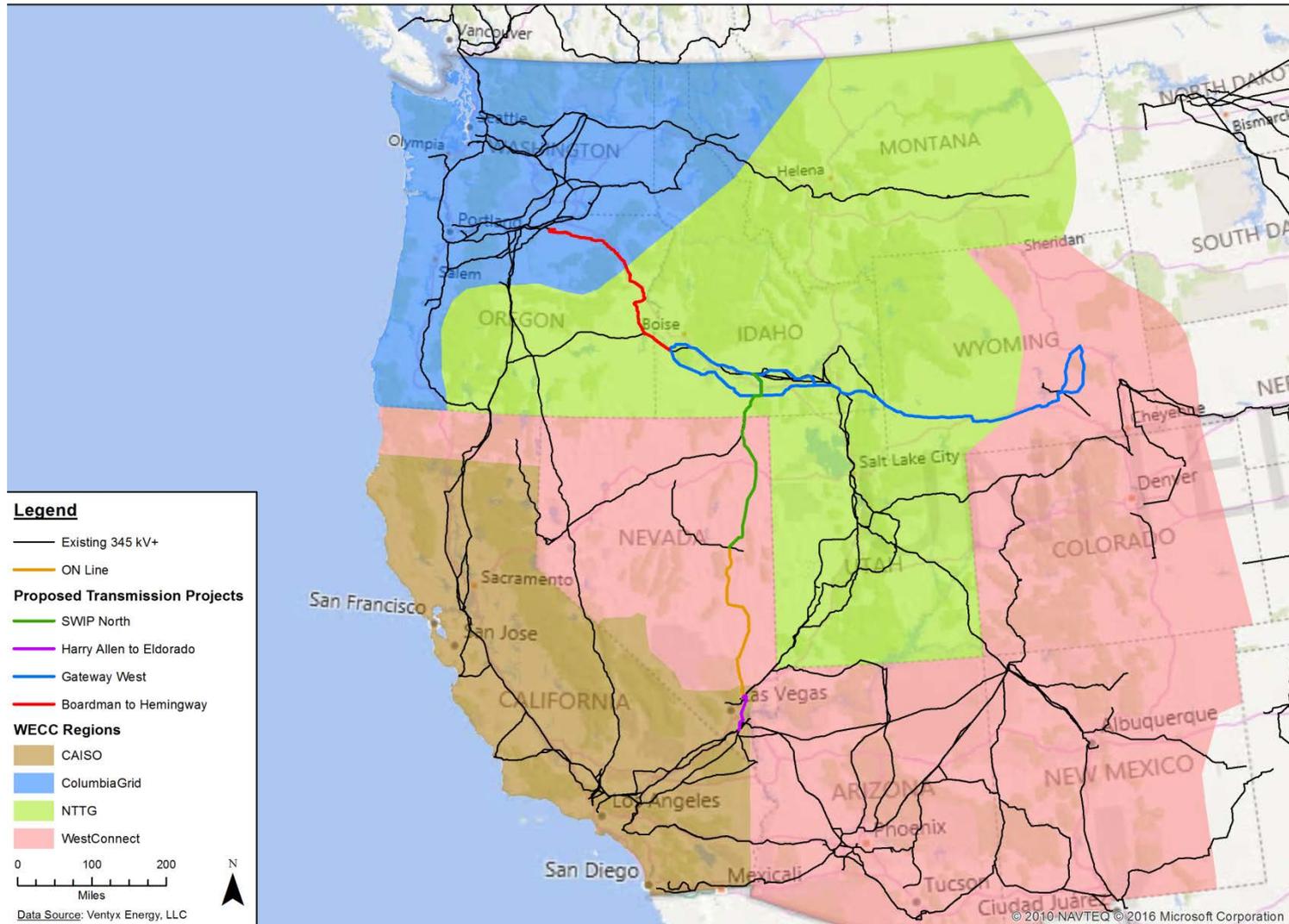
- Energy Market Value = >\$110-\$150 million per year
- COI Congestion Relief = \$23-\$59 million per year
- EIM Benefits = >\$26 million per year
- Wheeling Revenues = \$28 million per year
- Load Diversity/Capacity Sharing = \$15-\$45 million per year
- Reliability Benefits = not quantified
- Insurance Value = not quantified

*Total Benefits estimated in excess of \$200-\$300 million per year.*

*Not building SWIP North will result in significant annual ratepayer costs that could otherwise be avoided.*



# WECC Planning Regions



Region boundaries are approximate for illustrative purposes only