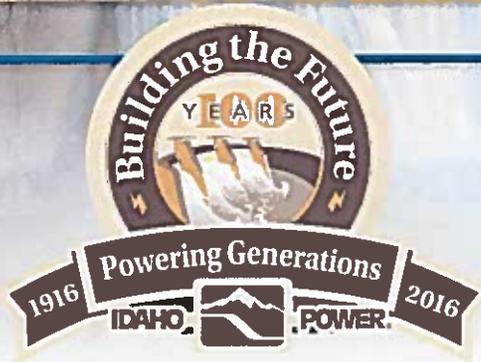


North Valley Reliability: Second Transmission Line Conditional Use Permit



**Blaine County Planning and Zoning
October 13, 2016**

RECEIVED

OCT 13 2016

BLAINE COUNTY
LAND USE & BUILDING SERVICES

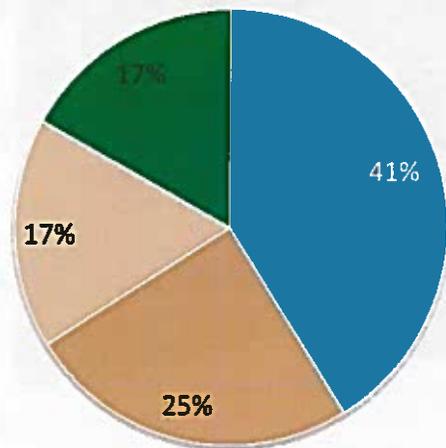
Agenda

- Idaho Power Information
- Electric Grid
- Project History and Need
- Construction Options
- Route and Structures

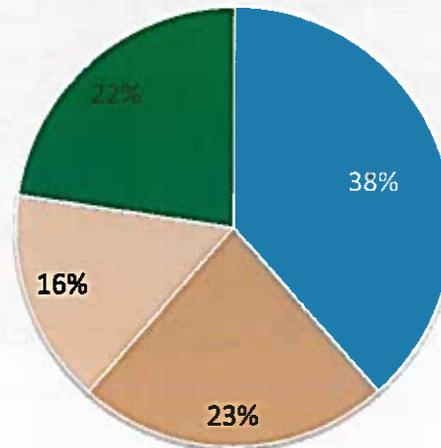
Nameplate Generation

(Capacity)

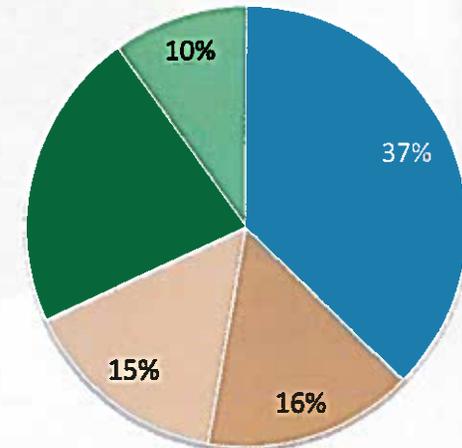
2014 Generation Mix



2017 Generation Mix (Expected)



2025 Generation Mix (IRP)

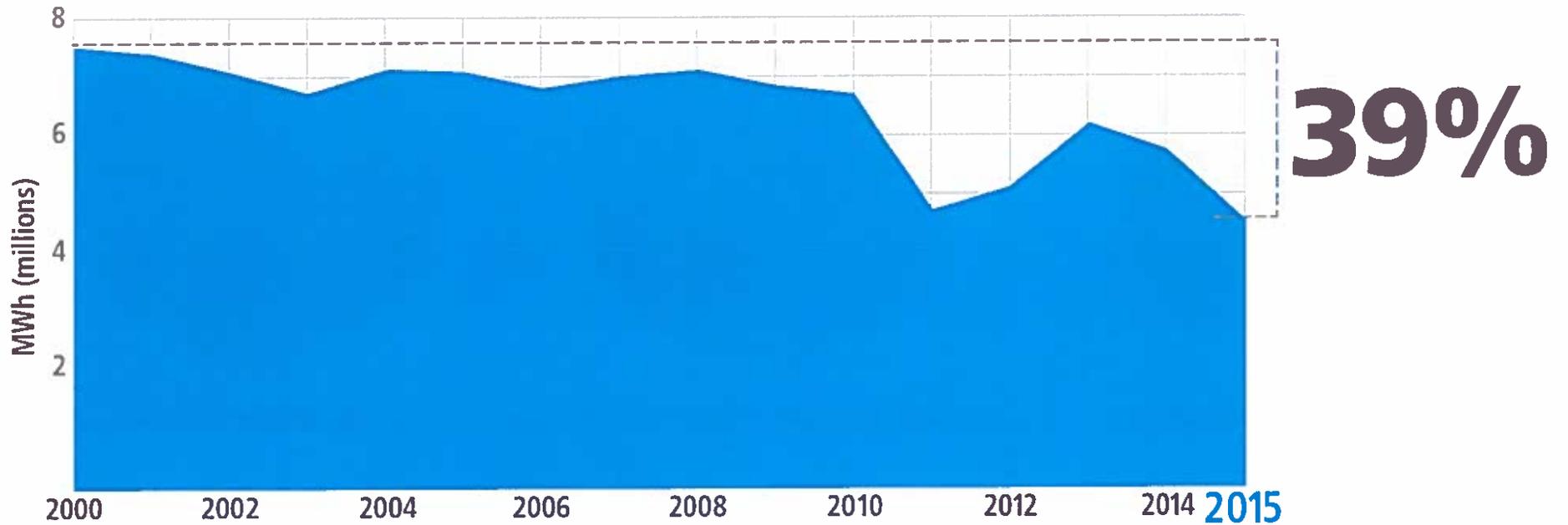


■ Hydro ■ Coal ■ Gas ■ Renewables ■ B2H

Values presented represent current and agreed to contracts as of August 10, 2016. May not add to 100% due to rounding.

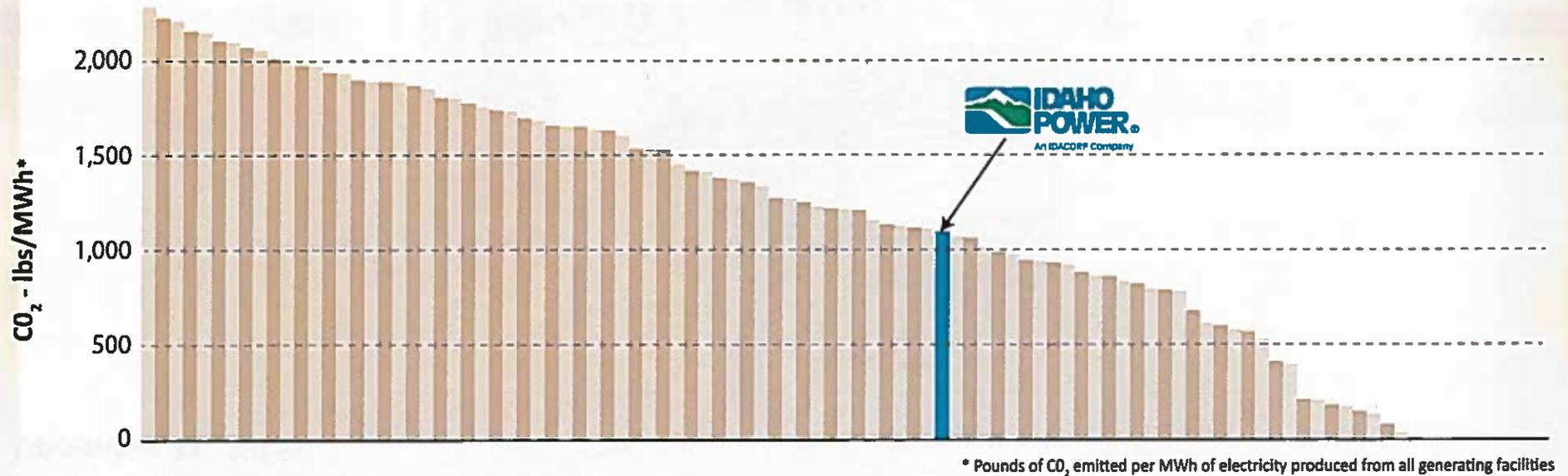
“Renewables in this graph include Idaho Power’s hydroelectric generation as well as the energy Idaho Power purchases from wind, solar, biomass, geothermal and small hydro facilities. Idaho Power does not own the Renewable Energy Certificates (RECs) associated with all of these resources, and instead sells them in accordance with a REC management plan on file with the Idaho Public Utilities Commission. Accordingly, while Idaho Power purchases the energy, Idaho Power cannot and does not represent that electricity produced by this fuel mix is being delivered to its retail customers.”

Coal-Fired Generation



Benchmarking Air Emissions

100 Largest Electric Power Producers in the United States

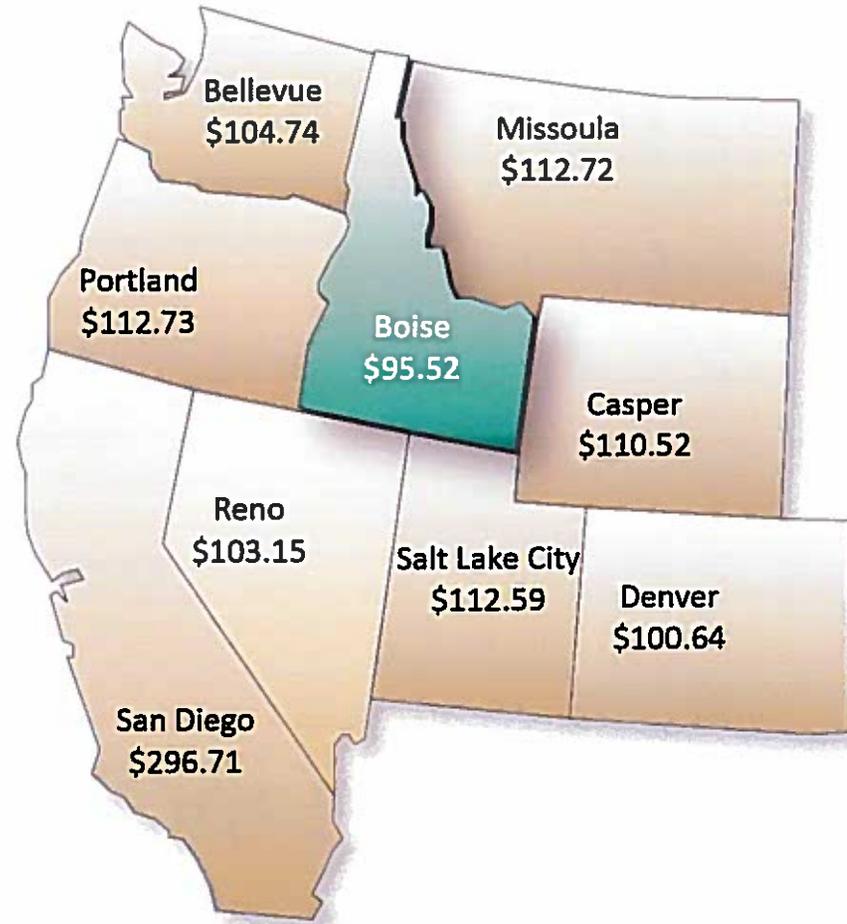


M. J. Bradley & Associates. (2015). Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States.

Average Residential Rates

Monthly Cost for 1,000 Kilowatt Hours

December 31, 2015



Why Are We Here?

- **2007:** 19-member Community Advisory Committee (CAC) and Idaho Power recommend moving forward with second line for reliability
- **2009:** Christmas Eve power outage
- **2011:** Reviewed Electrical Plan with CAC
- **2014:** Idaho Power reconvened the CAC and reviewed additional options, files for conditional use permits
- **Late 2015:** Idaho Power filed permit applications with jurisdictions
- **2016:** Idaho Power holds meetings with jurisdictions and Idaho Public Utility Commission staff

What Have We Explored?

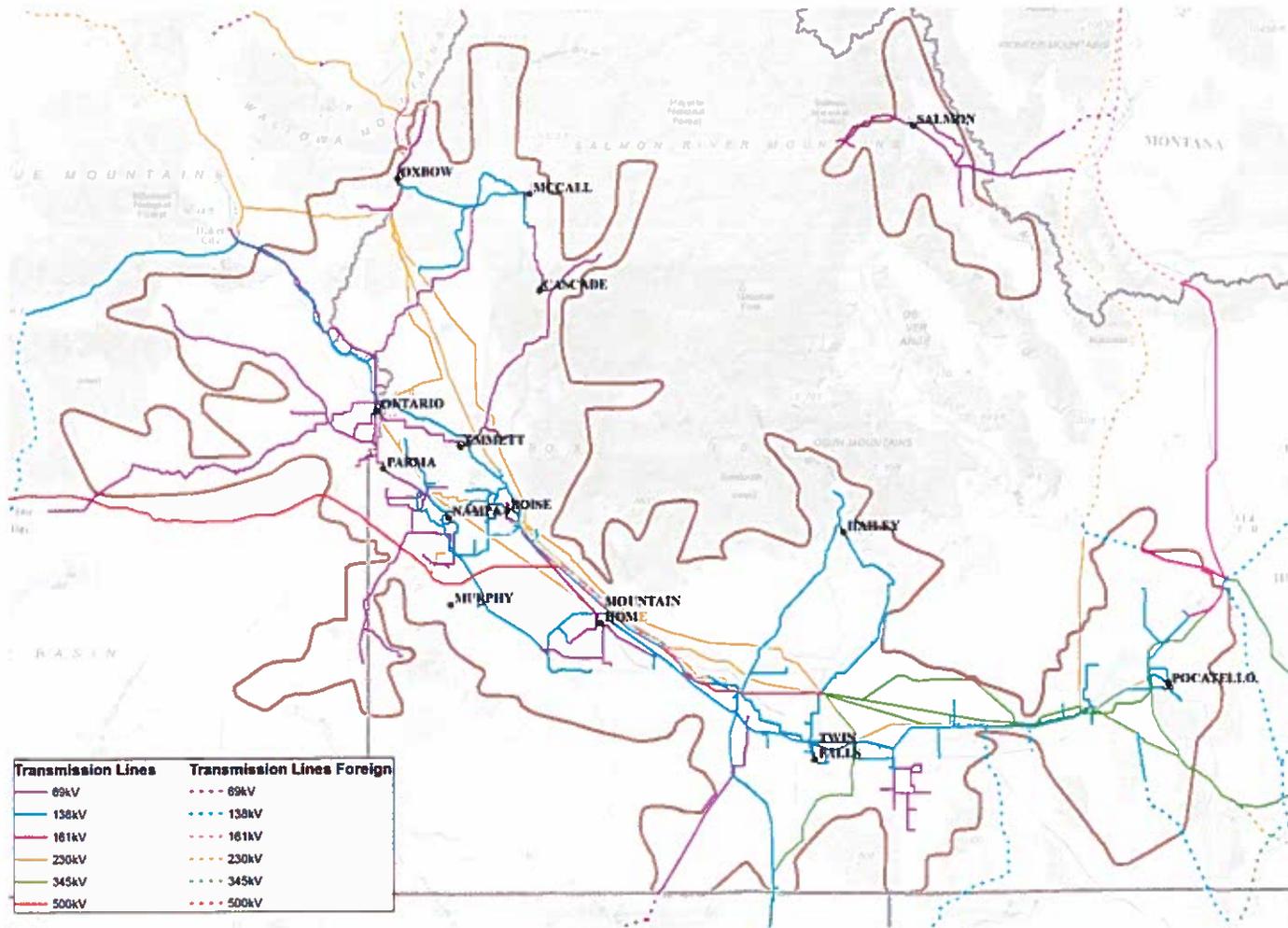
- **2014:** Wood River Renewable Energy Working Group:
 - Explored feasibility of renewable projects in area
 - Provided data on load requirements for serving customers
 - With input, updated Idaho Power's Green Power Program
- **2014:** Provided CAC with estimates for storage and diesel generation
- **2015:** Rocky Mountain Institute's eLab workshop with Idaho Power, Ketchum, Sun Valley Co, and NRG representatives:
 - Collaborated on solutions, addressed technical and economic barriers
 - In the blog below, Idaho Power's participation was applauded:
http://blog.rmi.org/blog_2015_09_08_elab_accelerator_explores_resilience_options_in_sun_valley
- **2016:** updates storage and generation cost estimates with input from INL

How the Grid Works

- Grid
 - Entire Highway System
- Transmission
 - Interstate Highways
 - 100 kV or higher
- Distribution
 - Local Roads

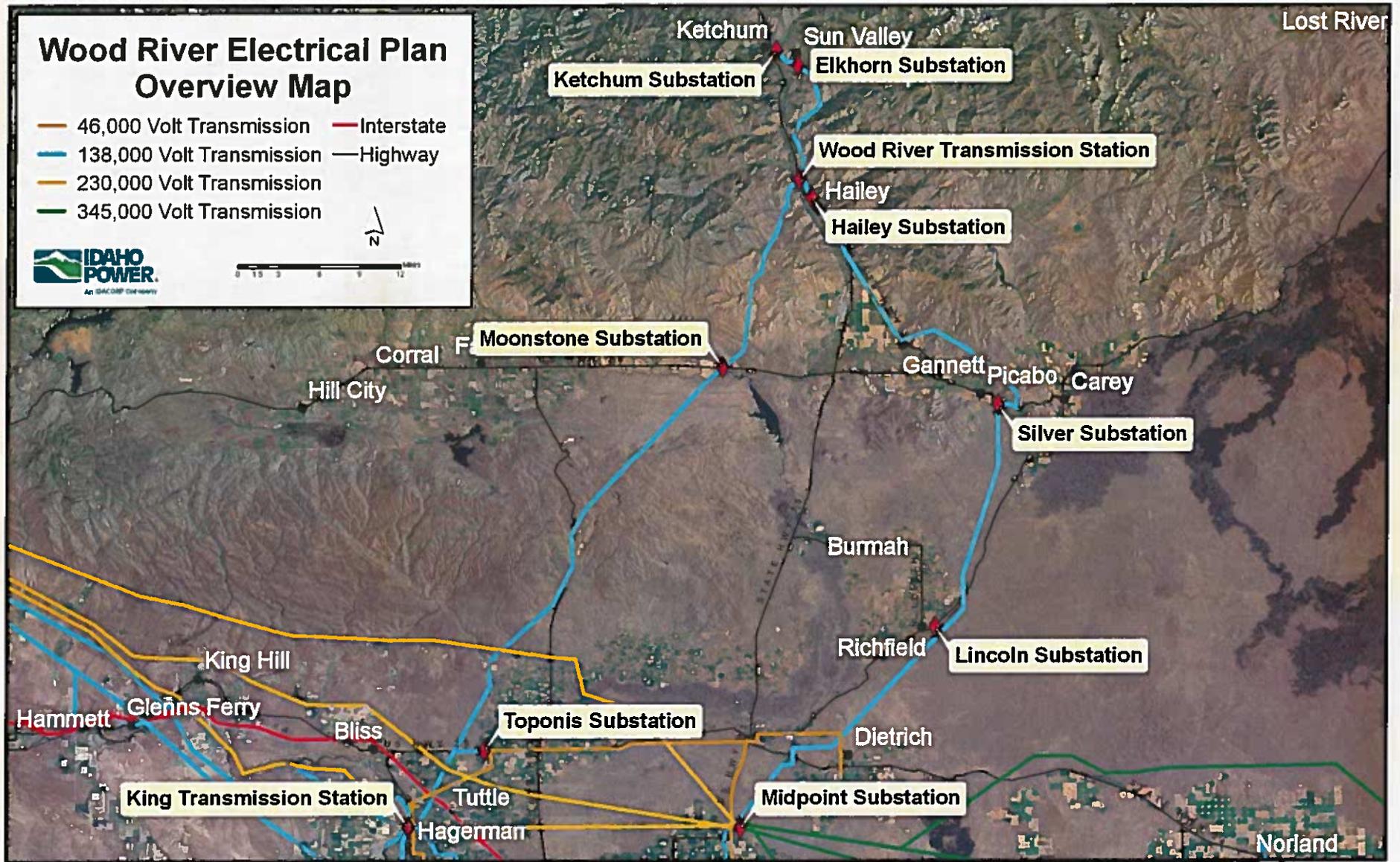


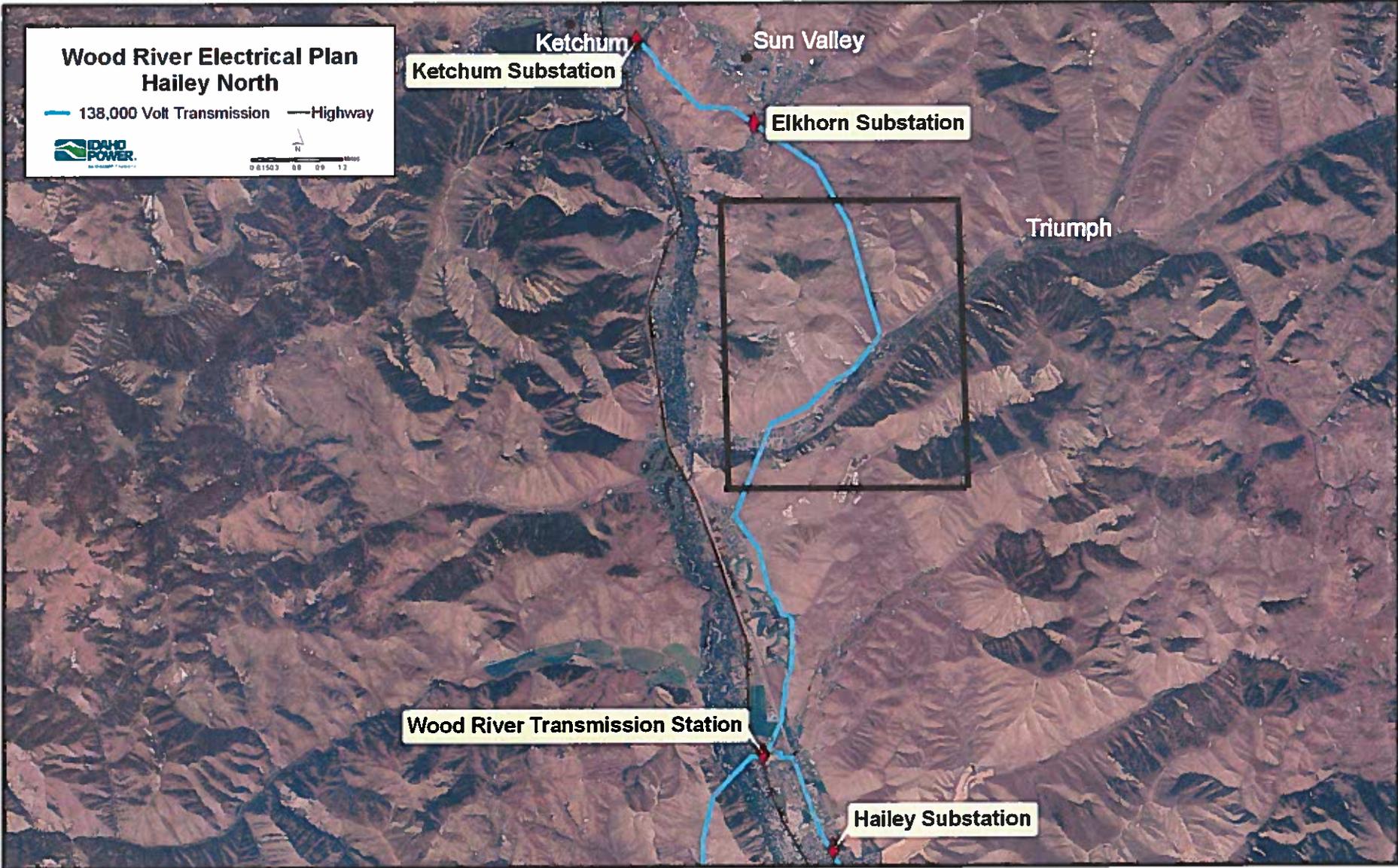
Idaho Power Service Area



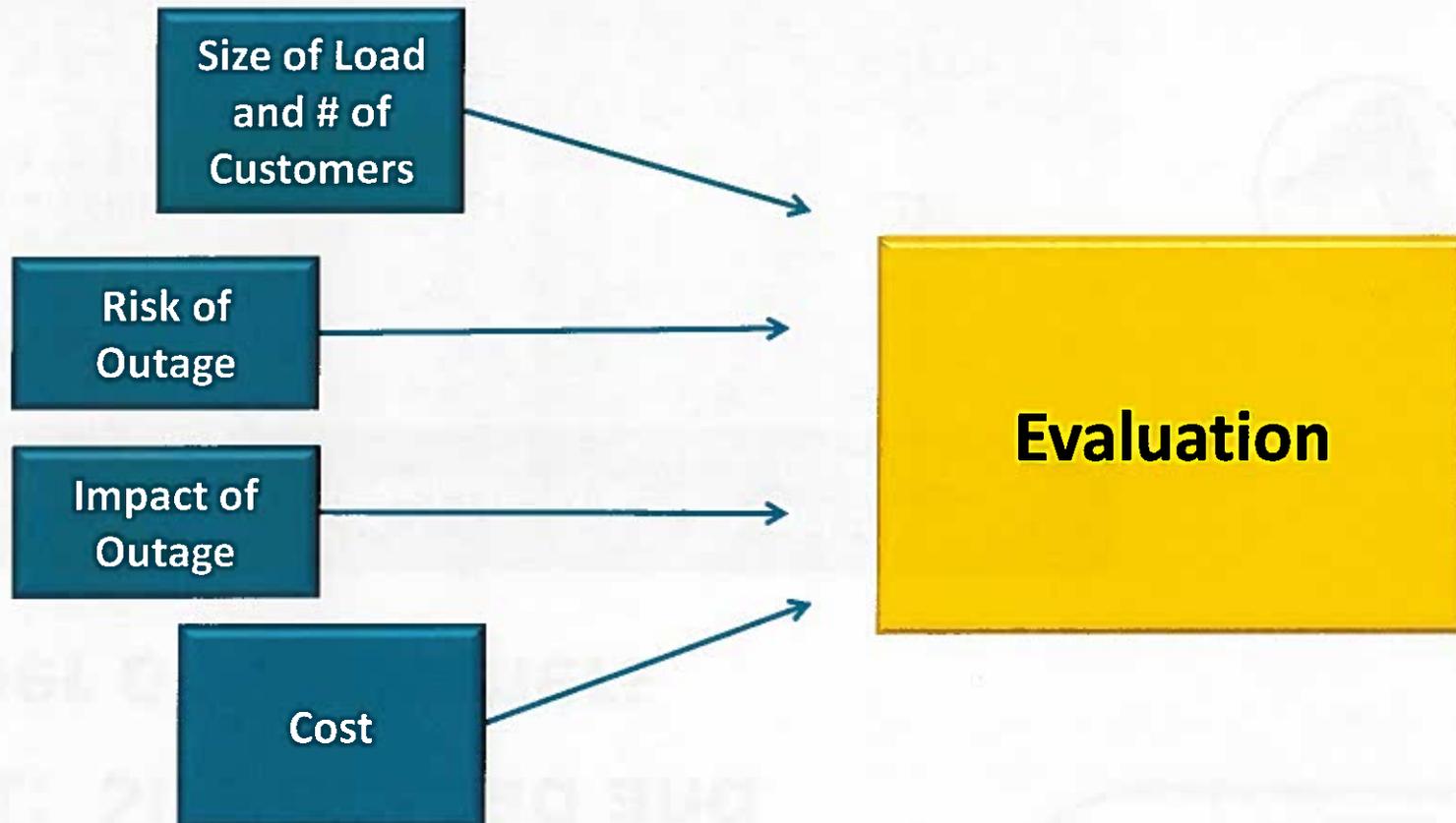
Wood River Electrical Plan Overview Map

- 46,000 Volt Transmission
- 138,000 Volt Transmission
- 230,000 Volt Transmission
- 345,000 Volt Transmission
- Interstate
- Highway





Project Need Evaluation



STEP 1: Size of Load and Number of Customers

Substations	Peak Load (MW)	# Customers (Spring 2014)
STAR-EAGLE	65	12,193
Ketchum-Elkhorn	64	9,188
Kuna	23	4,917
Horseshoe Bend	12	4,300



STEP 2: Risk of Outage

The Balancing Act



External Causes

- Fire
- Vandalism
- Weather
- Trees
- Animals
- Vehicles



Age of Line and Past Performance



STEP 3: Impact of Outage

- Difficult terrain (extended outages)
- Safety and Security (cold temperatures, frozen pipes, inability to pump water and gasoline, etc.)
- Economic impact (businesses, tourism, conventions, reputation, etc.)



Reduce Risk to Residents

Blaine County's Local Emergency Planning Committee:

- A long-term interruption of electrical power to any part of the county is the most serious threat to residents
- Resiliency and reliability of the power delivery service is extremely important
- Not just a North Valley issue; affects all of Blaine County – residents and emergency responders

STEP 4: Cost

Cost:

- Evaluate Alternatives
- Maintain Low Rates

Community Benefit:

- Reliable power at peak energy use



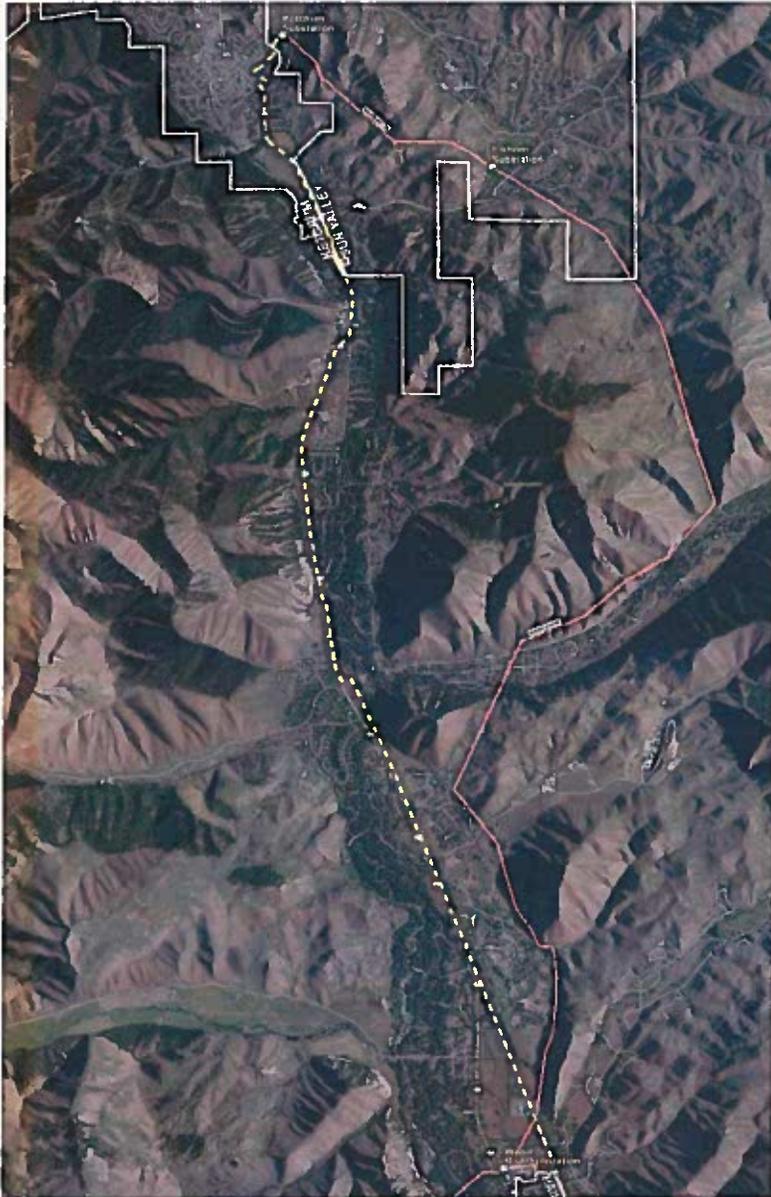
Additional Considerations

What are other similarly-situated towns doing?

- Vail
- Aspen
- McCall

Providing Resiliency

- Determine Base Case
- Evaluate Community Preferred Alternatives



Project Overview

- 12 miles total length:
 - 10 miles in Blaine County
 - 2 miles in Ketchum and Sun Valley (all underground)
- Where possible, existing Idaho Power lines are being combined on new structures for this line.

Underground Transition Location Alternatives

- Option 1: Elkhorn Rd.
- Option 2: Hospital Dr.



Construction



Undergrounding Options (Blaine County only)

	Overhead Build	Underground Build
Opt. 1 – Elkhorn Rd.	10 miles, 182 structures	n/a (at Ketchum City Limits)
Opt. 2 – Hospital Dr.	9 miles, 165 structures	1 mile of trenching, 3 miles of conduit, 4 vaults

Cost



Undergrounding Options		
	Total Cost Estimate	Variance
Opt. 1 – Elkhorn Rd.	\$30.0M	\$0
Opt. 2 – Hospital Dr.	\$32.7M	\$2.6M

- Based on mid-range costs.
- Estimates are contingent on securing right-of-way and regular construction conditions.