



MT. WHEELER POWER
Powering Your Future

Rural Utilities Approach to Grid Modernization & Resiliency

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Powering Your Future

New Energy Industry Task Force
Technical Advisory Committee on Grid
Modernization
May 12, 2016

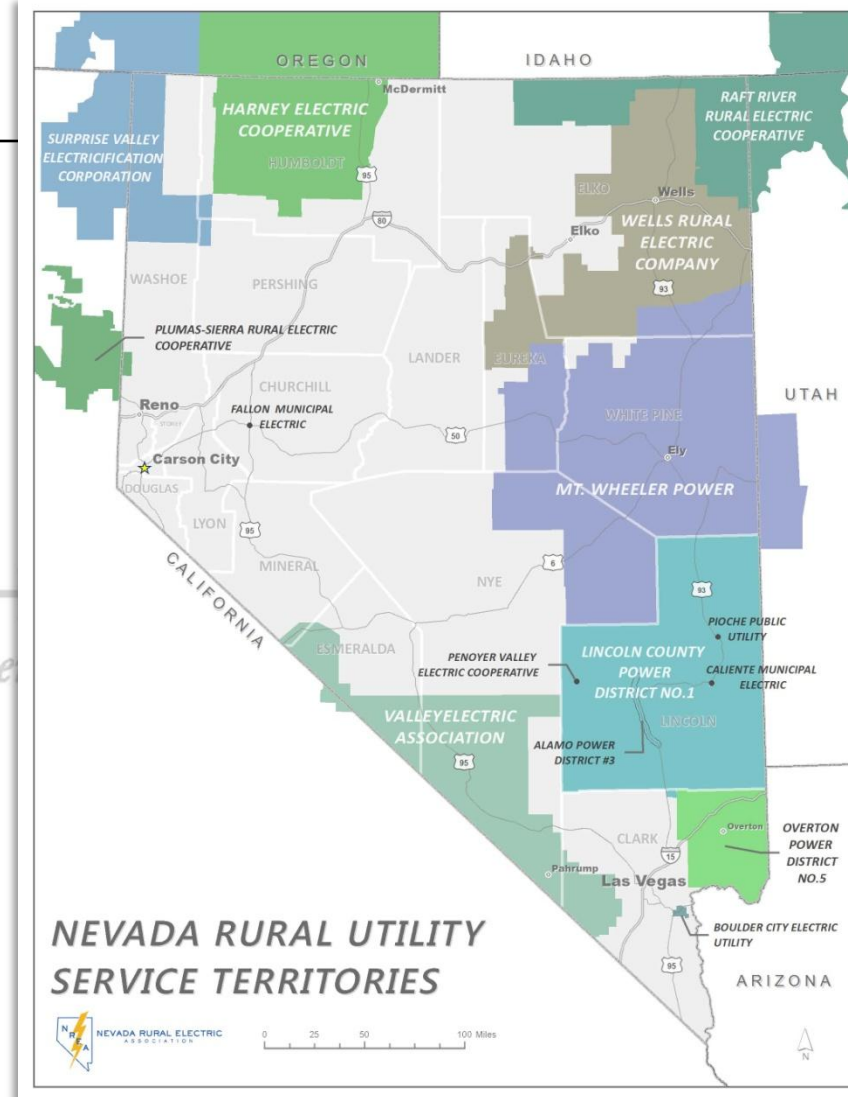
Grid Modernization & Resiliency

Large Service Territories with fewer consumers to share cost's

- Federal Land ROW's not as easy to obtain and surely not as accommodating as they may have been in the past. Even ROW renewal's carry their own set of challenges.
- Long feeder lines provide challenges during outage periods.
- Energy Source limitations, no natural gas. Limited to Electric and Propane.
- Increased Kwh sales, system upgrades are necessary to support load growth.



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Mt. Wheeler Power Co. Inc.

- Created in 1963
- Began doing business on February 19, 1970
- Purchased two local power and light companies in Eureka and Ely
- Serve 16,000 sq. Miles covering two states Utah and Nevada portions of 7 counties Nevada (White Pine, Eureka, Elko, & Nye)



Mt. Wheeler Power Co. Inc.

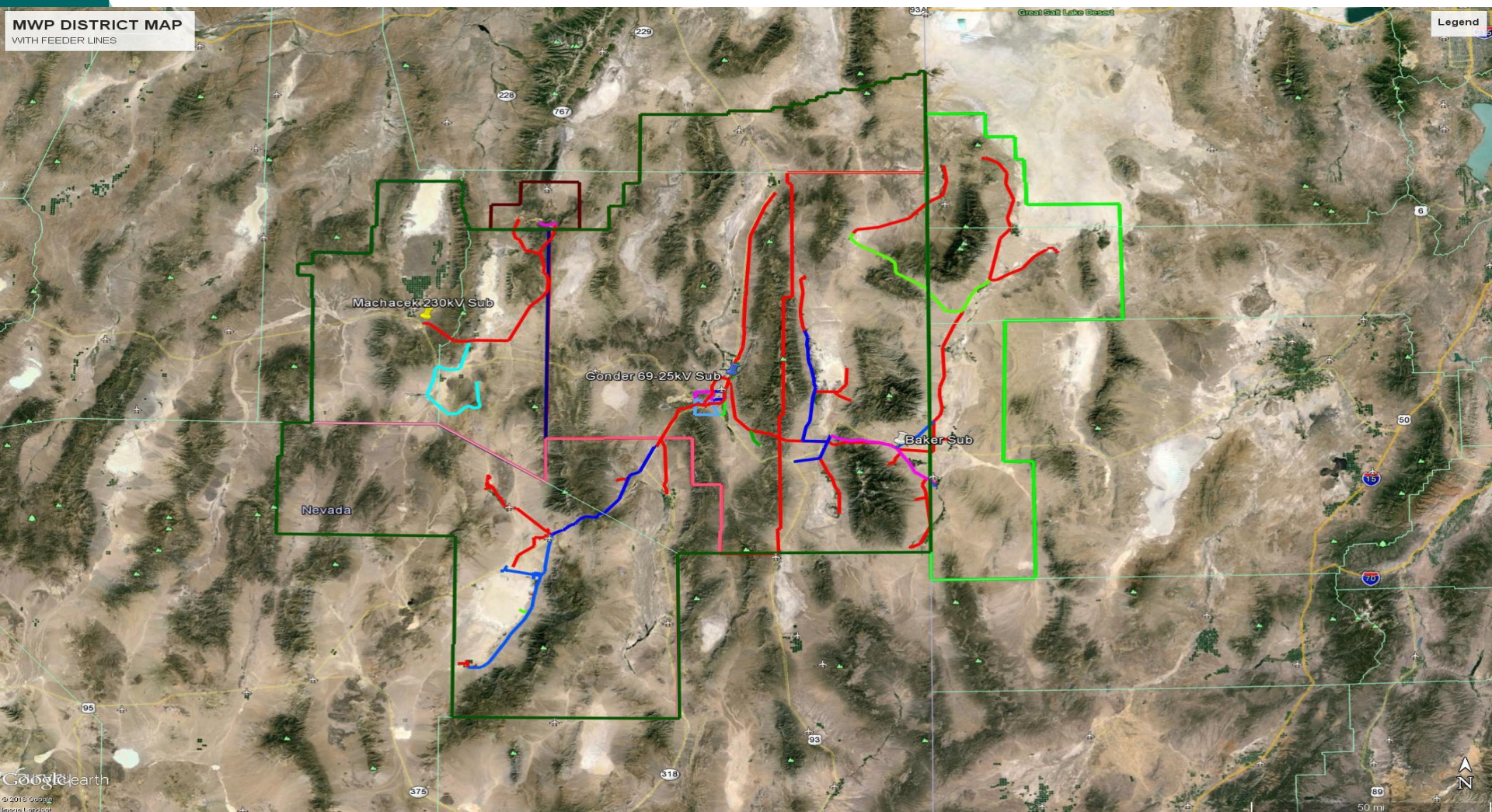
Utah (Western Areas of Tooele, Juab, & Millard)

- 9-Directors serving a specified electorate area.
- Annual Revenue \$33.5 million
- 525 million Kwh sold



Mt. Wheeler Power Co. Inc.

MWP DISTRICT MAP
WITH FEEDER LINES



Mt. Wheeler Power Co. Inc.

Generation Resources



→ Bonanza Power Plant located near Vernal Utah

Glen Canyon Hydro



← Various Other Renewable's

2015 Renewable Generation #'s

| Rate Class | Installed Capacity (Kw) | # of Facilities | Type | Total Net Kwh | Total Generated Kwh |
|---------------|-------------------------|-----------------|----------|---------------|---------------------|
| Residential | 22.24 | 5 | PV Solar | 6,628 | 29,208 |
| Residential | 4.5 | 3 | Wind | 0 | 175 |
| Commercial | 132 | 7 | PV Solar | 23,971 | 208,729 |
| Commercial | 11 | 1 | Wind | 554 | 667 |
| Totals | 169.74 | | | 31,153 | 238,779 |

Total Kwh's consumed by base load member's in 2015 = 280,653,216

.085% Contributed by Distributed Generation Facilities

Mt. Wheeler Power Co. Inc. NVE Transmission Grid



- 2-230 Kv lines from East (1-NVE,1-LADWP)
- 345 Falcon-Gonder Feed
- 230 kv West (Frontier)
- 500 ON Line N to S

Mt. Wheeler Power Co.



MWP Transmission Grid

| Substation | Transmission Voltage | Distribution Voltage |
|------------|----------------------|----------------------|
| Baker | 69Kv | 25Kv |
| Gianoli | 69Kv | 5Kv |
| Gonder * | 69kv | 25Kv |
| Griggs | 69Kv | 25Kv |
| Dickerson | 69Kv | 25Kv |
| Machecek * | 69Kv | 25Kv |
| Murry | 69Kv | 25Kv |
| Pescio | 69Kv | 34.5Kv |
| Williams | 69kv | 34.5Kv |

* NVE Transmission substations delivered @ 230 Kv



Recent Modernization Projects

- 2009 Full Deployment of AMR Metering System

Entire service area is read in 4 days
(36 man days per month before installation)





Recent Modernization Projects



Gianoli Sub 5kv serving
Ely

New Pescio sub 34.5 kv
serving Railroad Valley &
Duckwater





Distribution System Upgrades



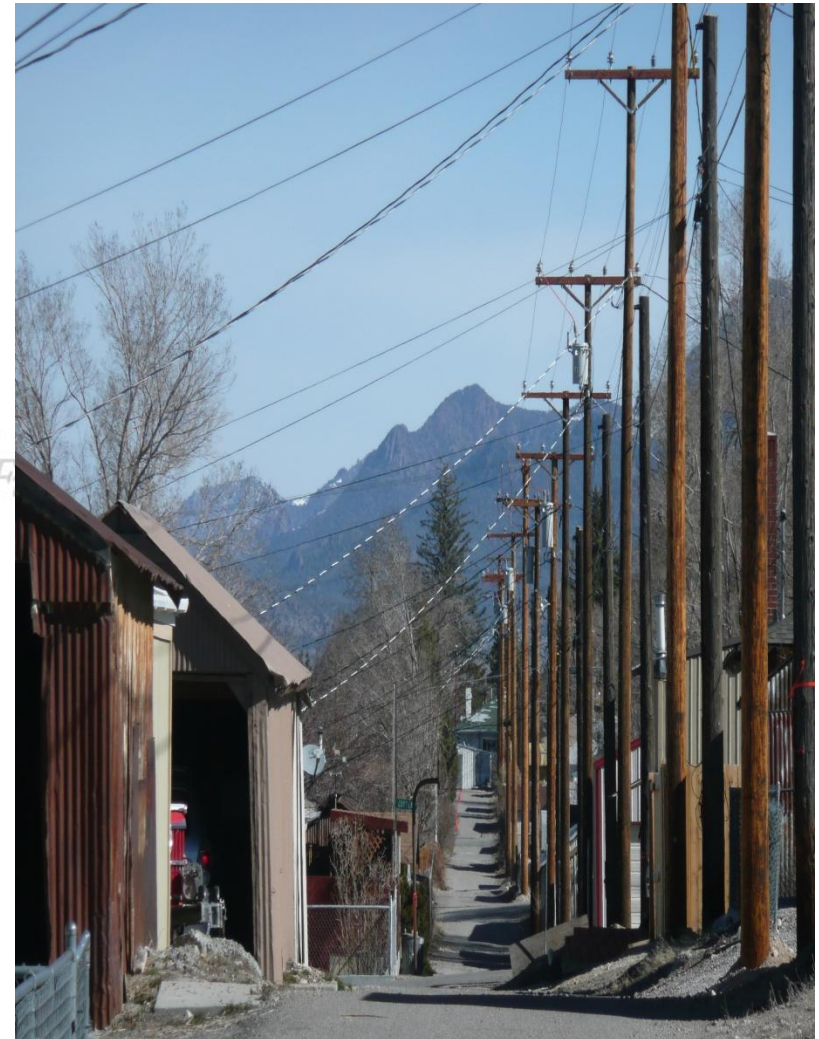
Replacing older infrastructure with modern design and larger conductor for higher load requirements



Distribution System Upgrades



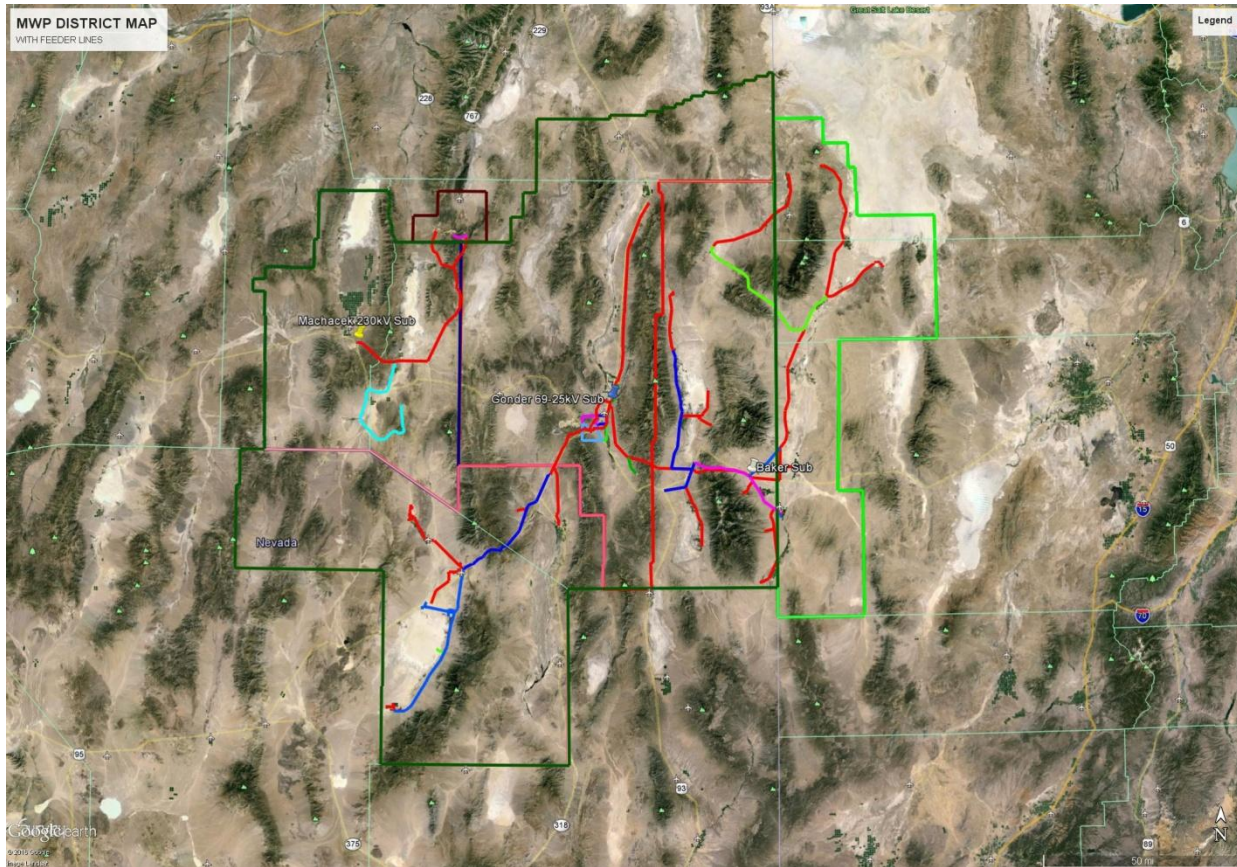
Getting all of Utilities to Modernize
can be difficult !



Transmission System Extension 32 miles 69kv service to Pan Mine



Transmission System Extension 32 miles 69kv service to Pan Mine



Transmission System Extension

Designed for
Avian
mitigation

4-separate
Permitted
sections

Could have
been 8-miles





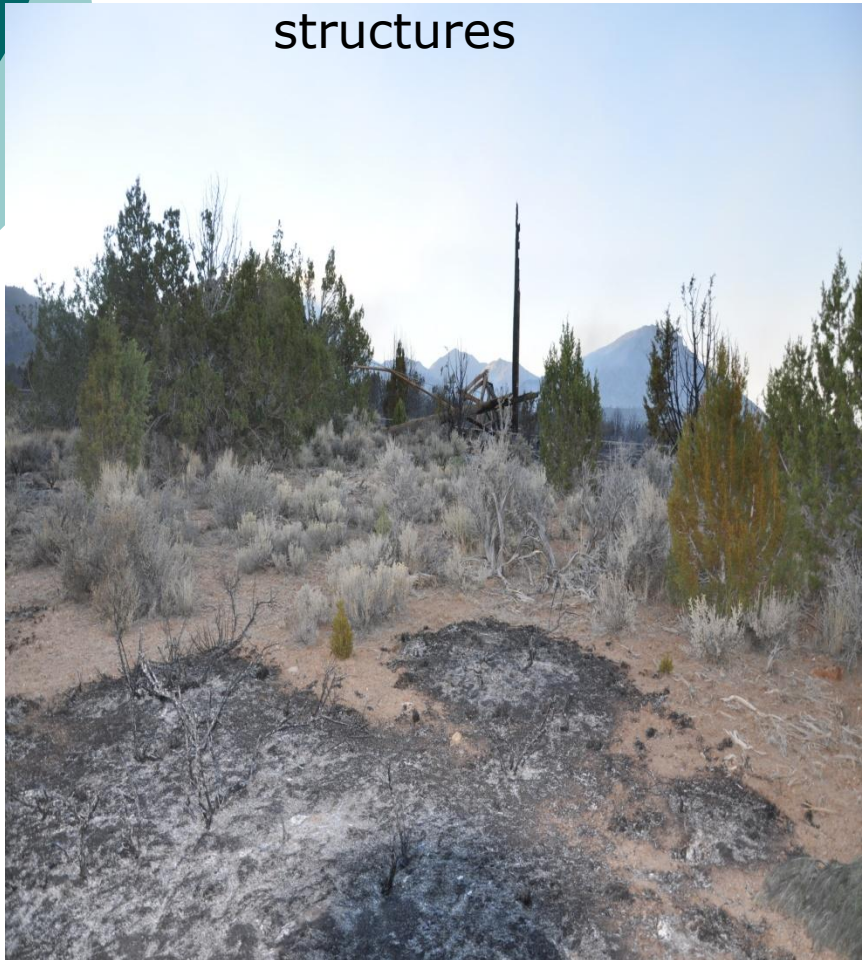
Resiliency

- Pinto Fire June of 2012
- 230kv structures destroyed
- 25kv system destroyed
- Mining and agriculture members highly dependent on electric service
- Full restoration was achieved in 26 hours



Resiliency / Pinto Fire

230 Kv Structures destroyed
along with 69 & 25 Kv
structures





Resiliency / Pinto Fire



Our Portable substation was vital in allowing for restoral of power to the members effected by the fire.



Resiliency / Range Fire

- Range Fire 1-week following the Pinto Fire
- Burned 230 Kv systems of NV Energy and LADWP
- 69kv transmission system serving Baker Substation: Snake Valley, Spring Valley's, Great Basin NP, Utah Members



Resiliency / Range Fire





Resiliency / Range Fire





Resiliency / Range Fire



Mutual Aid Agreements play a significant role in disaster recovery. Crews from Wells Rural Electric assisted in the rebuild of the 69kv line, While Lincoln County Power District loaned & transported materials for the job. Allowing for restoral in 18 hours.

Summary Modernization and Resiliency



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- Cost effective Modernization, member benefit.
- Concern for Environment and cost balance.
- Employees are our greatest asset, no specialist, extremely resourceful and dedicated to restoring power to the members.
- Continue to meet challenges with open mind

Summary Modernization and Resiliency



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Resiliency; The power or ability to return to the original form, position, etc., after being bent, compressed, or stretched; elasticity.

Summary Modernization and Resiliency



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Question & Answers



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