



# CHANGING ENERGY LANDSCAPES AND COMMUNITY IMPACTS IN MONTANA

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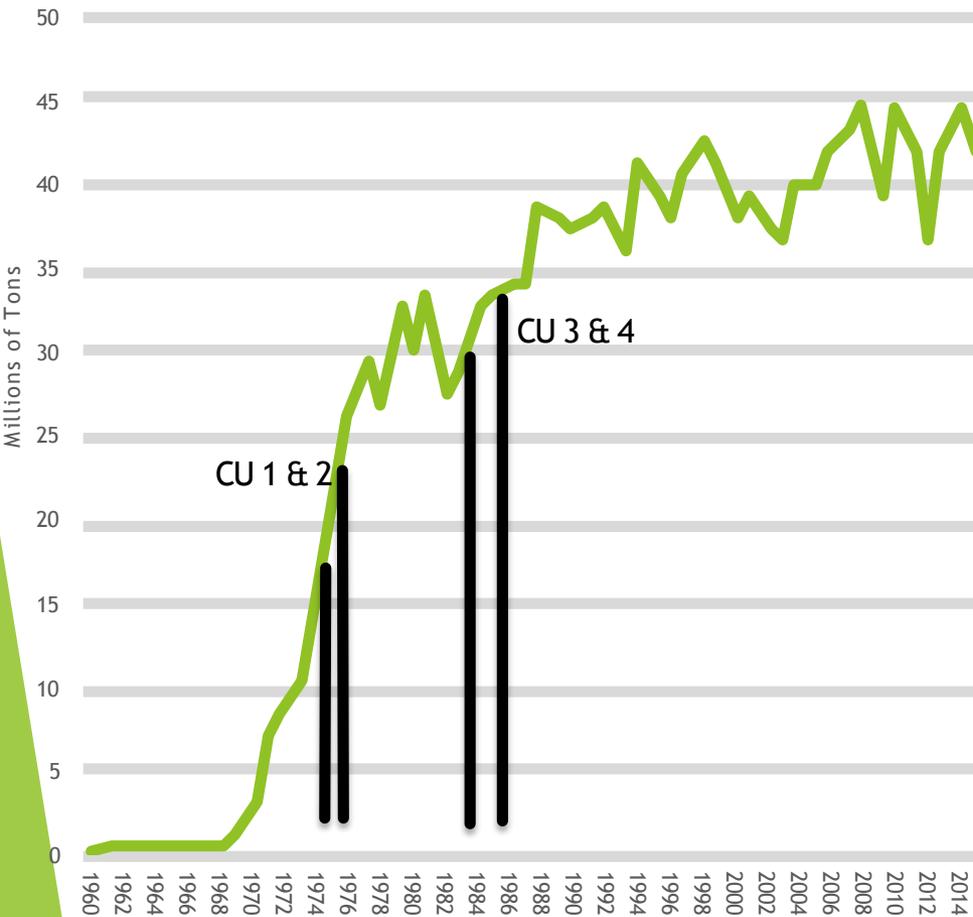
<http://cciag.mt.gov/>

# Presentation Overview

- ▶ Coal in Montana
  - ▶ Quick overview, make-up, recent events
- ▶ Colstrip, MT challenges
- ▶ Colstrip Community Impact Advisory Group
  - ▶ impetus
  - ▶ representative membership
  - ▶ Discussion topics & status
  - ▶ what's next

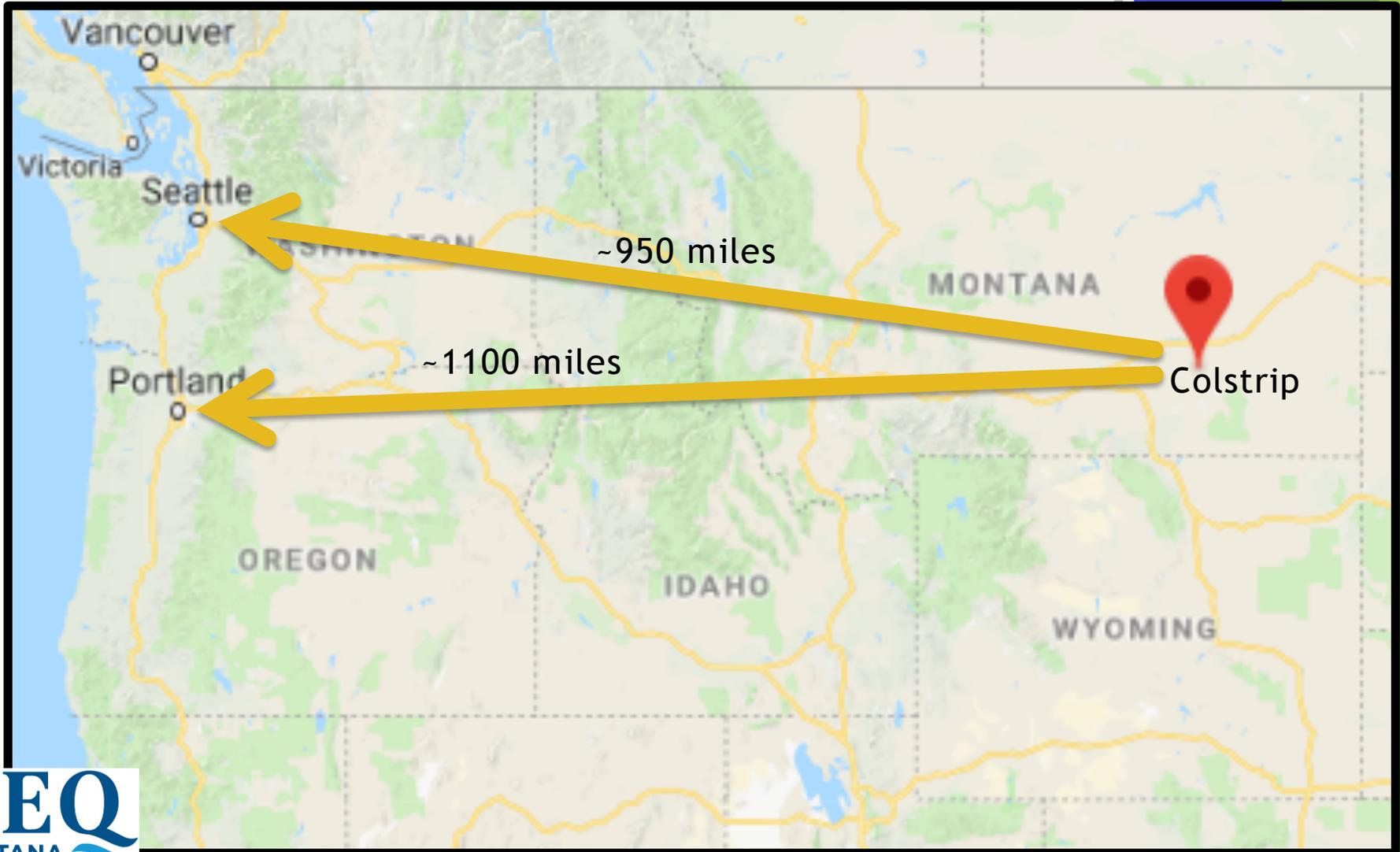
# Coal Production in MT

Coal Production in Montana (1960-2015)



- ▶ Primarily subbituminous coal
- ▶ ~40 million short tons/yr
- ▶ 90% of coal exported (physically or by wire)
- ▶ Colstrip uses ~1/4 to 1/5 of total MT production

# Colstrip, MT





## COLSTRIP, MT

- ▶ Established 1924
- ▶ Incorporated 1998
- ▶ Population 2,300
- ▶ 5<sup>th</sup> highest municipal tax-base in Montana

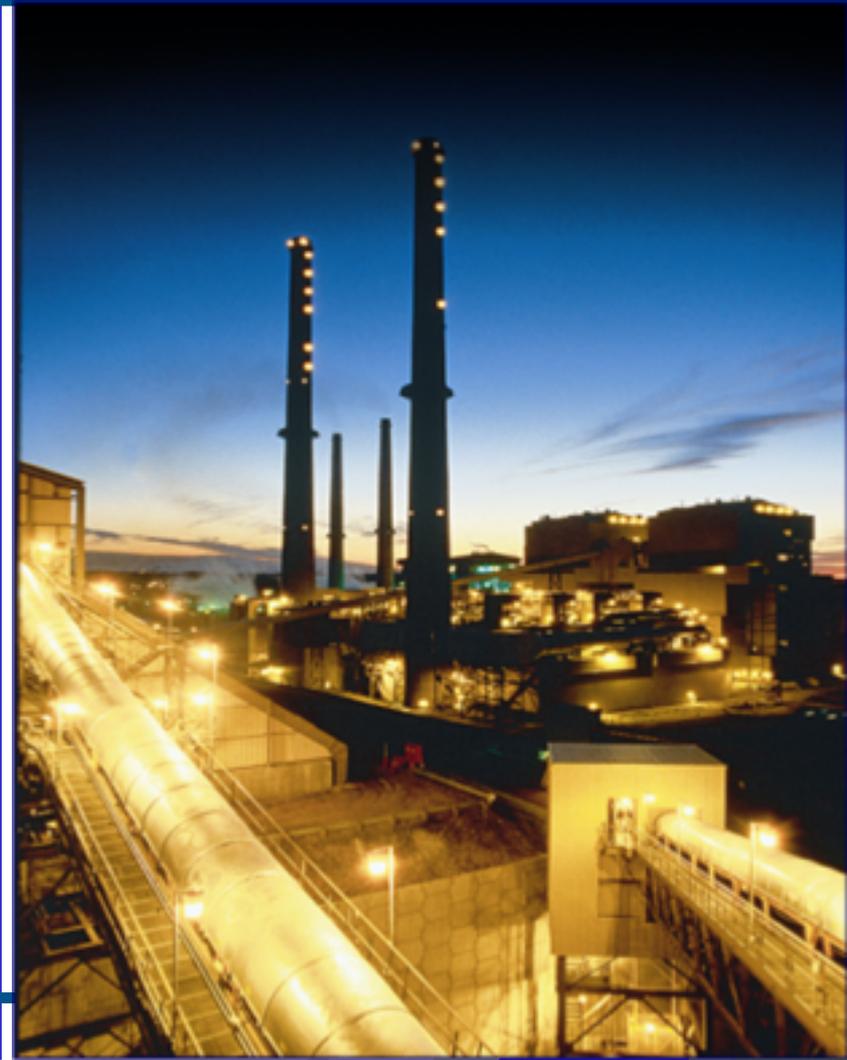
# PLANT AND MINE

- Colstrip mine-mouth operation
- ~750 employees total
- \$80 million/yr in wages
- 85% of city tax base
- 77% of county tax base
- Rosebud Mine
  - ~25,000 acres



# COLSTRIP POWER PLANT

- 4 Units: 2094 MW
  - 1 & 2: online 1975/1976
  - 3 & 4: online 1984/1986
- Constructed by Montana Power Company and Puget Sound Energy
- Currently employs ~380
- Diverse ownership (units 1-4) - 6 companies



# COLSTRIP OWNERSHIP

	Units 1 & 2	Unit 3	Unit 4	Total (%)	Total (MW)
Puget Sound Energy	50%	25%	25%	32%	677 MW
Talen Energy	50%	30%	--	25%	529 MW
Portland General Electric	--	20%	20%	14%	296 MW
NorthWestern Energy	--	--	30%	11%	222 MW
Avista Corp.	--	15%	15%	11%	222 MW
PacifiCorp	--	10%	10%	7%	148 MW

# COLSTRIP: Units 1 and 2

- 2013 lawsuit alleging major violations of the Clean Air Act
  - Sierra Club and the MT Environmental Information Center v. Talen Montana and Puget Sound Energy
- July 2016 Settlement Agreement reached
  - Units 1 & 2 must be closed no later than July 1, 2022
- 2016 - Oregon and Washington legislatures passed measures that directly impact Colstrip
  - Oregon: completely coal free by 2030
  - Washington: allowed for PSE to help pay for the retirement and cleanup of Colstrip Units 1 and 2

# COLSTRIP: Units 3 and 4

- Depreciation schedules on Units 3 & 4
  - Avista 2027
  - Puget Sound Energy 2027
  - Portland General 2030
  - PacifiCorp 2032
  - NorthWestern Energy 2042

# COLSTRIP COMMUNITY IMPACT ADVISORY GROUP

- Formed December 2017 by Governor Bullock and Attorney General Fox
- \$10 million from Puget Sound Energy
- Develop a plan to address economic impact of closure of Units 1 & 2
- Includes state and local officials, community leaders, labor and economic development organizations



Photo: Billings Gazette

# COLSTRIP COMMUNITY IMPACT ADVISORY GROUP

- ▶ Stage 1 - Compile and Study Background Information
- ▶ Stage 2 - Identify and Research Issues
- ▶ Stage 3 - Develop and Finalize Plan for Consideration
  - ▶ Colstrip City Council
  - ▶ Rosebud County Commission

# COLSTRIP COMMUNITY IMPACT ADVISORY GROUP

- Workforce impacts
- Economic impacts
- Infrastructure impacts
  
- Within Colstrip
- Within Rosebud County
- Regional impacts
- State impacts

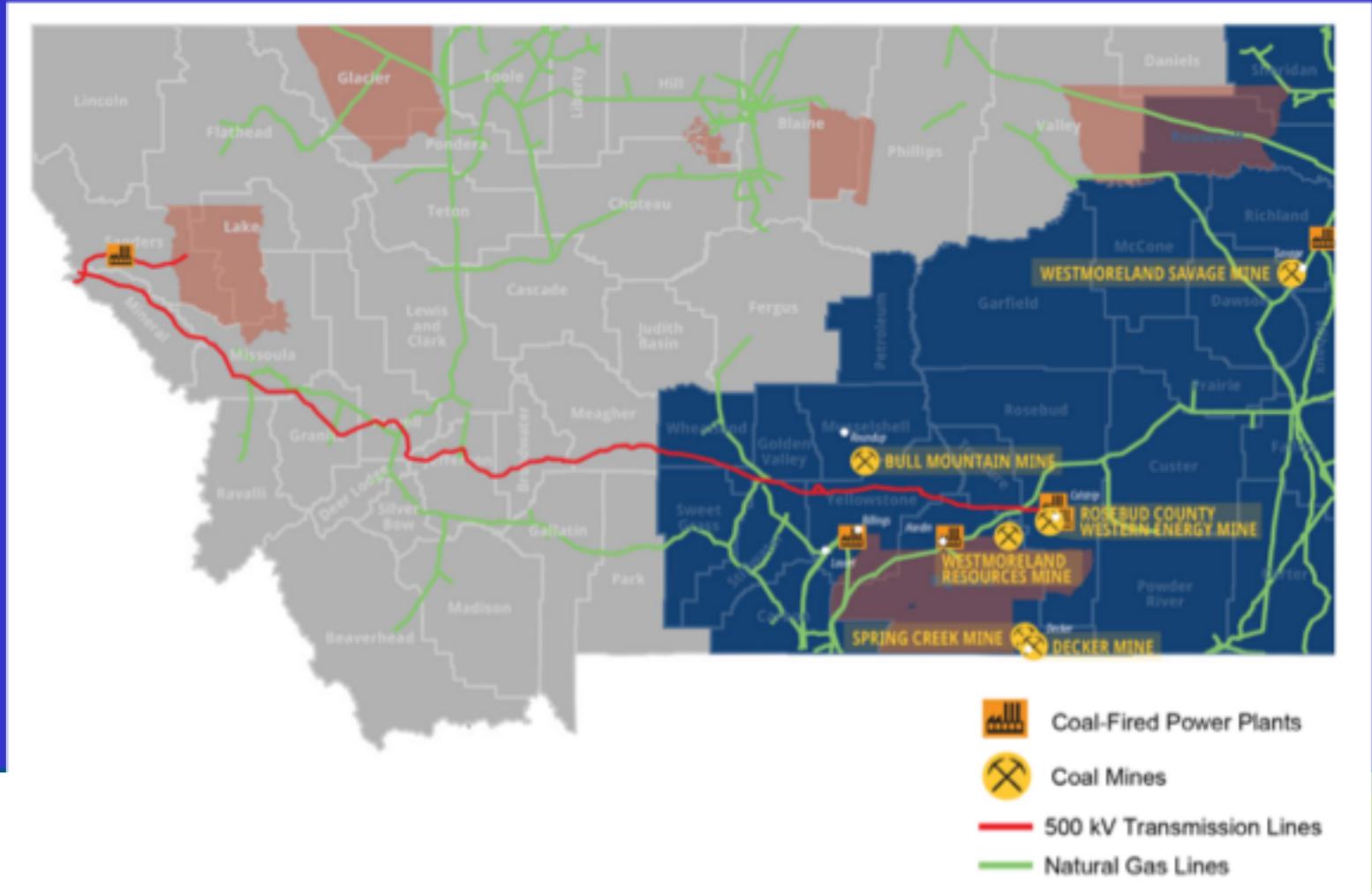
# Solutions to Many Challenges

- ▶ Workforce training
- ▶ Investment
- ▶ The role of technology
  
- ▶ Global economy
- ▶ Localized pain

# Montana POWER Grant

- The POWER Grant: a workforce development grant aimed at retraining workers impacted by the downturn in coal-related industries
- This ~\$4.0M available funding is separate from the \$10 million in settlement funds for the community of Colstrip
- Goals:
  - Train and assist current coal-impacted workforce by upgrading skills for existing jobs or a new career
  - Opportunities in apprenticeships and on-the-job training
  - Providing career planning and other employment services
  - Work with local partners to develop a workforce plan to a transitioned economy

# MONTANA POWER INITIATIVE



# DOE ANALYSIS OF CO2 REDUCTION AT COLSTRIP (2016)

- Improving Plant Efficiency (1-3% reduction)
  - Turbine modifications
  - Coal drying
  - Increasing steam temps
- Co-Firing (2-3% reduction)
  - Biomass
  - Natural gas
- Carbon Capture and Utilization

# CURRENT USE OF CO<sub>2</sub> - EOR IN MONTANA

- Bell Creek Field in Southeast MT
- CO<sub>2</sub> sourced from natural gas processing plants in WY and piped into MT
- CO<sub>2</sub> injection began in 2013 and ~1 million tons of CO<sub>2</sub> per year are going into the field
- Anticipate an additional 40-50 million barrels of incremental oil over the life of the project



# Questions *and* Discussion

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