

Colstrip: Montana's Existing Coal Generation Resource

Dale Lebsack, Talen Montana

Introduction

- Talen Montana is operator and part-owner of the Colstrip Steam Electric Station, and through its affiliates, supplies power to a number of customers throughout the state
 - ~360 employees, mostly in Colstrip
 - 50% owner of Colstrip Units 1&2 (307 MW)
 - 30% owner of Colstrip Unit 3 (222 MW)

Current State of Coal Generation

- Electricity generated from coal has furthered economic growth in US for last 70 years
 - In Montana, Colstrip Station has provided safe, reliable, low-cost power since 1970s
 - Colstrip is ~33% of state's installed generation capacity and ~89% of its installed coal capacity¹
 - Today, affordable electricity from coal generation enables Montana's energy-intensive industries, such as mining, refining and manufacturing, to remain competitive
- Coal generation technology has evolved to be more efficient and address environmental needs
 - Newest plants produce more electricity per ton of fuel while employing technologies to limit environmental impact
 - Older plants retrofitted with emission control technologies
 - Technologies to reduce NO_x, SO₂, Particulates and Mercury are mature
 - Carbon capture technology continues to develop with demonstration projects underway

¹Source: S&P Market Intelligence

Current State of Coal Generation (cont'd)

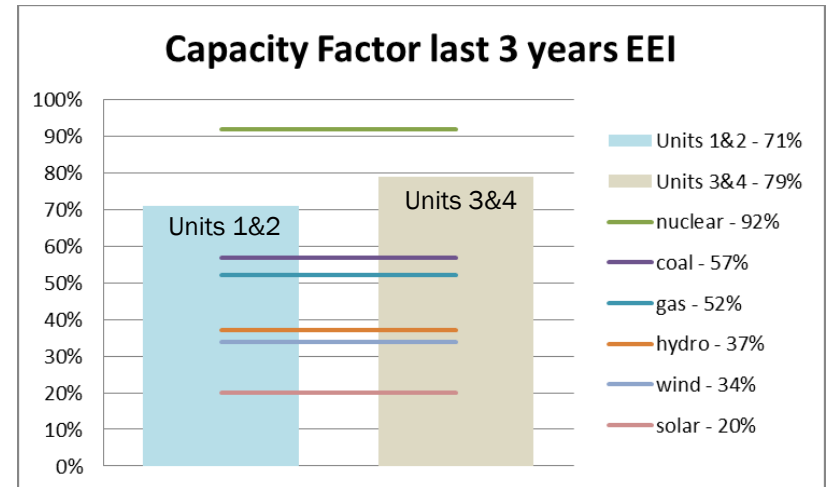
- Over last 7 years, cheap natural gas and environmental concerns have stopped new plant development and driven retirements
 - From 2000-2010, US installed coal generating capacity constant at ~300,000 MW¹
 - Since 2010, capacity down ~15%, or ~45,000 MW¹
 - By 2025, coal generating capacity expected to drop additional 5%, or ~16,000 MW¹
- As the electricity system evolves, it is vital to our economic and national security interests to maintain system reliability and resilience without significantly increasing cost to customers
 - Existing lower-emitting, lower-cost coal plants must continue to be part of our resource mix into the foreseeable future
 - With proper maintenance, Colstrip 3&4 (1,480 MW) will continue to safely and reliably supply Montana's energy needs for 25 years or more

¹Source: S&P Market Intelligence



Colstrip – Reliable & Resilient

- Utilizing its share of Colstrip (529 MW), Talen Montana can meet the needs of NorthWestern Energy's customers in a way that others cannot
 - As an existing generator, Colstrip has demonstrated its ability to reliably provide energy, capacity, and ancillary services at reasonable cost
 - Colstrip's mine-mouth arrangement provides system resilience by mitigating the risk that generation is lost due to fuel supply disruption
- Since it is dispatchable, Talen Montana's share of Colstrip can provide a variety of products in varying volumes
 - Energy
 - Capacity
 - Ancillary Services
 - Regulation Up/Down
 - Operating reserves (spin/non-spin)
 - Voltage/Reactive Power



Source: Plant Data, Edison Electric Institute

Environmental Protection & Safety Excellence

- Since 2000, Colstrip has invested \$300 million on environmental protection projects
 - \$150 million on water related controls (pond liners, solids disposal, and groundwater remediation)
 - \$150 million on air emission controls
 - SO₂ emissions – ↓58%
 - NO_x emissions – ↓66%
 - Particulate emissions – ↓61%
 - Mercury emissions – ↓85%
- Colstrip's emission improvements are evident¹:
 - SO₂ emissions lower than 68% of US coal plants
 - NO_x emission lower than 40% of US coal plants
 - CO₂ emissions lower than 40% of US coal plants
- Earlier this year additional NO_x controls installed on Unit 3 to further reduce its NO_x emissions by 25%
- Colstrip continues to monitor and support development of carbon capture technology, but technology is not yet economically viable
- In July 2017, Colstrip was recognized by OSHA with STAR Status for its efforts as part of the agency's Voluntary Protection Program (VPP)

¹Source: 2016 Data – U.S. EPA Emissions Database

Benefitting Montana Customers

- As an existing generator, Colstrip already provides significant benefits to Montana customers and the state overall
- Jobs
 - Plant employs ~350 people while Rosebud mine employs ~400 people
 - Contractors at the plant will employ as many as 750 people during a major overhaul
 - The plant and adjacent mine combined pay more than \$82M/year in compensation and benefits to employees¹
- Taxes
 - During a typical year, Colstrip and Rosebud Mine pay over \$70M in state and local taxes¹
 - Plant and mine employees pay another \$6M in state and local taxes¹
- Statewide Economic Impact (if Colstrip was not operating)¹:
 - Loss of more than 3,700 jobs, with nearly 2,700 in the private sector
 - Personal income reduced by ~\$360M/year
 - Montana's net economic output reduced by \$638M/year

¹Source: Barkey, P.M. and P.E. Polzin, "The Economic Contribution of Colstrip Steam Electric Station Units 1-4," prepared for The Colstrip Steam Electric Station Owners, November 2010.

Montana Coal Power for Montana Customers

- Talen Montana has a long history of generating electricity for Montana customers and wants to ensure the Colstrip plant continues to operate for many years to come
- We believe it is in the best interests of Montana customers to utilize an existing in-state coal fired resource like Talen Montana's share of Colstrip to meet future supply needs
 - NorthWestern Energy's customers will benefit from a dispatchable resource with proven reliability that can provide a variety of products
- From jobs to taxes to affordable electricity, Colstrip Station has provided significant economic benefits to Montana for the last 4 decades and can continue to do so well into the future
 - Ensuring plant continues to operate is best way to support community
 - Requires Montana's leaders and other stakeholders to support solutions that maintain long-term economic viability of Units 3&4