



PacifiCorp Energy
Interwest Mining/Fuels Department

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Wyoming Public Service Commission

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Fueling Strategy

— Overall Strategy

- ❖ **Owned and operated plants:**
 - Coal basin/plant specific (*Central Utah, SW Wyoming, Wyoming PRB*)
- ❖ **Joint-owned plants**
 - Plant specific
- ❖ **Least cost, optimum quality and short-term/long-term supply balanced**
- ❖ **Portfolio based, where possible**
- ❖ **Diversification**
 - Suppliers
 - Mining methods
 - Transportation
 - Captive reserve mining
 - Contract structures

Coal Inventory Strategies

– Objectives

- ❖ Balance between supply risks, coal quality requirements versus costs for coal shortages, loss of electricity sales or generation replacement costs
- ❖ Flex inventories as circumstances evolve
- ❖ Set targets based on different coal basin and transportation dynamics
- ❖ Periodically re-assess short-term and long-term targets

Fueling Strategy — *Central Utah*

— Supply and Demand

- ❖ Historical production levels averaged 25 million tons annually
- ❖ Current production levels averaging closer to 20 million tons annually
 - 8 m tons (40%) of Utah coal consumed annually by Pacificorp plants
 - 7 m tons of Utah coal consumed annually by other local power plants (*IPA, Valmy and Reid Gardener*)
 - 5 m tons of Utah coal consumed annually by cogeneration, cement and other industrial facilities, other utilities

— Basin Dynamics

- ❖ Mines idled/closed (*Tower Complex, Crandall Canyon, Emery*)
- ❖ Near-term depletion of active mines in Book Cliffs (*Dugout, Skyline and West Ridge*)
- ❖ Supplier financial instability
- ❖ Mining Restrictions and increasingly difficult geological conditions
- ❖ Decreasing coal qualities; primarily higher sulfur/ash
- ❖ Limited spot market activity, primarily long-term contracts
- ❖ Limited coal imports, primarily exports

Fueling Strategy — *Central Utah (continued)*

— Future Supply and Demand Balance

- ❖ New reserve development is required to come online (*Lila Canyon, Cottonwood, and Skyline expansion*)
- ❖ Long term – Development of North Horn reserves
- ❖ IPA, Valmy and Reid Gardener have rail capabilities (UP captive)
- ❖ Reid Gardner burns PRB
- ❖ IPA and Valmy have undertaken PRB test burns

— Supply Risks

- ❖ Near – term
 - Quality excursions, mining disruptions and labor negotiations
- ❖ Long – term
 - Reserve development lagging mine depletion
 - Significant quality shift (*higher sulfur*)
 - Loss of reserves (*catastrophic or increased mining restrictions*)
 - Rail capabilities

Fueling Strategy — *Central Utah (continued)*

— Utah Plants Fueling Strategy

- ❖ **Common fueling strategy** (*Carbon, Hunter and Huntington*)
- ❖ **Portfolio and diversification of supply**
 - Sufco long-term contract, longwall
 - Deer Creek captive supply, longwall
 - West Ridge contract – high fusion, high Btu coal, longwall
 - Horizon contract, continuous miner
 - Castle Valley contract, continuous miner
- ❖ **Diversification of transportation**
 - Savage
 - Nielsen
 - Trimac
 - Barney/Robinson (Sufco mine)
- ❖ **Pursuit of opportunities**
 - Contractual
 - Ownership (reserve/mine)

Coal Inventory Strategies — Utah Plants

– Plant Specifics

- ❖ Designed for Utah coal, permit constraints (emissions), no rail capabilities, coal blending required

– Combined Supply/Inventory Strategy

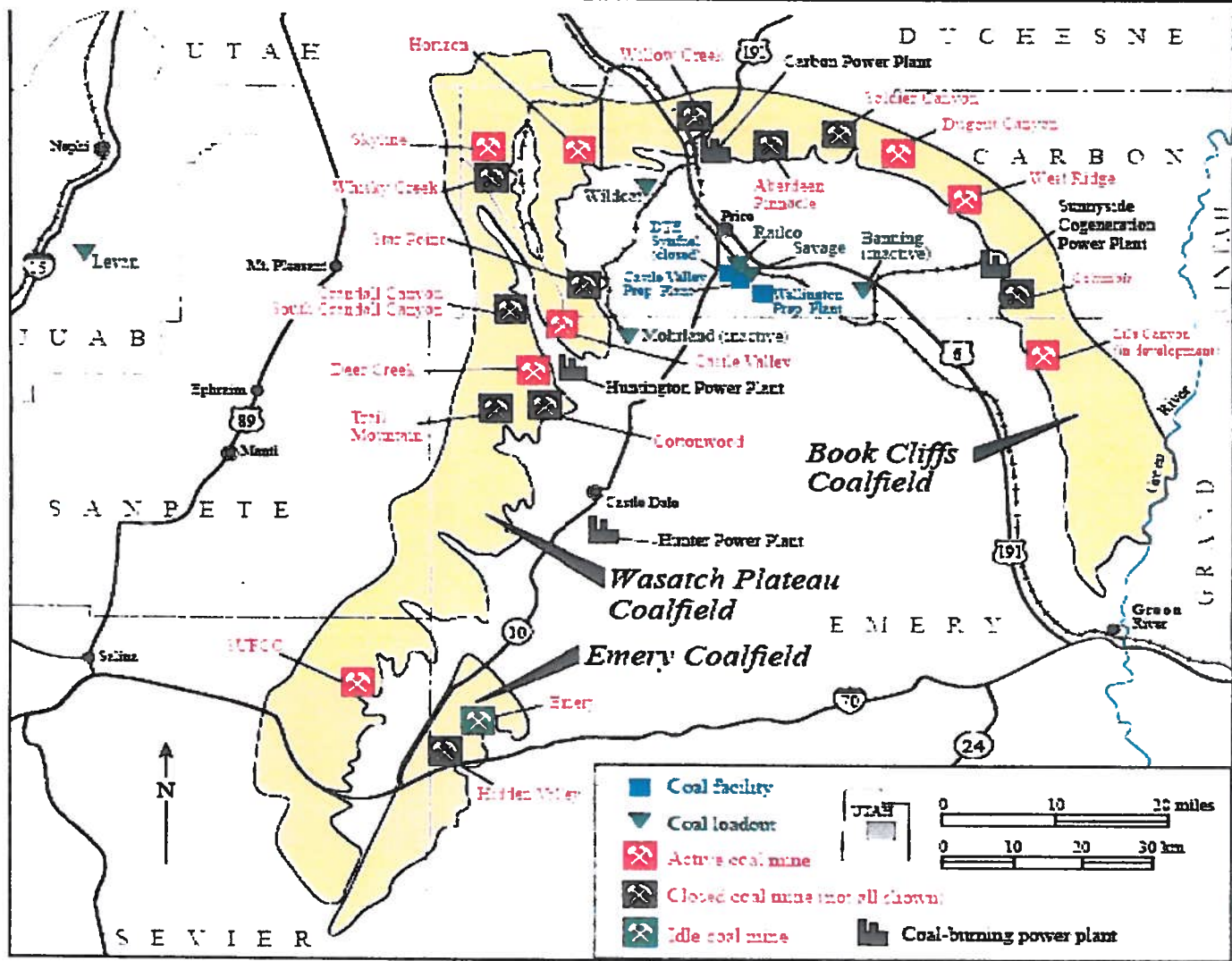
❖ Long-term inventory drivers

- Reserve depletion
- Degrading coal quality
- Deep underground mines
- Increasingly difficult mining conditions
- Mining regulatory restrictions (*loss of reserves*)
- Limited operating mines (*stability of operators varies*)
- Limited replacement supply availability
- New mine development timing

❖ Short-term inventory considerations

- Recent supply disruptions (*Dugout and West Ridge*)
- Quality excursions (*Deer Creek, Sufco, West Ridge, Skyline and Dugout*)
- Contentious contract negotiations

Coal Inventory Strategies – Utah Plants



Fueling Strategy — *Central Utah (continued)*

Utah Plant Specifics

- ❖ **Carbon Plants:** *(0.6m tons annually – 2020 estimated depreciation life)*
 - Blend coals required to manage and mitigate opacity issues
 - Rail nearby, no unloading facilities, limited surface area for coal stockpile/blending
 - Multiple supply sourcing: West Ridge, Horizon and Skyline/Deer Creek
- ❖ **Hunter Plant:** *(4.5 tons annually – 2042 estimated depreciation life)*
 - Coal preparation plant adjacent to Hunter facility – extensive blending for ash fusion temperature and heat content
 - No rail facilities, truck transport only
 - Multiple supply sourcing: Sufco, West Ridge and Deer Creek
- ❖ **Huntington plant:** *(2.9m tons annually – 2036 estimated depreciation life)*
 - Adjacent to Deer Creek mine, conveyor system to plant
 - No rail facilities
 - Limited blending space and capabilities
 - Multiple supply sourcing: Deer Creek, Sufco and Castle Valley

Fueling Strategy — *SW Wyoming*

— Supply and Demand

- ❖ Three active mining operations: Black Butte, Kemmerer and Bridger Coal
- ❖ New mining operation coming online 2012 - Haystack
- ❖ Current production levels averaging between 14 – 15 million tons annually
 - Approximately 78% of which is consumed by PacifiCorp's plants: Naughton & Jim Bridger
 - Remainder consumed by Valmy plant (Nevada) and industrial customers, predominately trona-patch companies located within the region

— Basin Dynamics

- ❖ High operating cost and low British thermal unit operations
- ❖ Increasing stripping ratios for surface operations
- ❖ Low capacity operations (operating close to full capacity)
- ❖ Limited penetration into markets outside the region
- ❖ Limited supply options and virtually no true market competition

Fueling Strategy — *SW Wyoming (continued)*

— Supply Risks

❖ Near-term

- Quality excursions
- Mining disruptions
- Transportation disruptions
- Labor negotiations

❖ Long-term

- Quality shifts
- Loss of reserves (catastrophic or increased mining restrictions)
- Rail capabilities

Fueling Strategy — *SW Wyoming (continued)*

—SW Wyoming Plants Fueling Strategy

- ❖ Plant specific fueling strategies (*Bridger and Naughton*)
- ❖ Near-term
 - Flexibility to move supply between facilities, where possible
 - Broaden contract flexibilities to facilitate new sourcing opportunities
 - Enhanced blending and coal handling capabilities
 - Optimization of Bridger surface and Black Butte volumes
- ❖ Long-term
 - Bridger Underground versus other supply alternatives
 - Multi-source if economic (*Naughton*)
- ❖ Portfolio and diversification of supply
 - Bridger captive supply, longwall and surface
 - Black Butte contract, surface
 - Kemmerer contract, surface
- ❖ Diversification of transportation
 - Conveyor
 - Rail
- ❖ Pursuit of opportunities (*contractual, ownership*)(*reserves/mines*)

Coal Inventory Strategies — SW Wyoming Plants

– Plant Specifics

- ❖ **Jim Bridger – sensitive to sodium, limited coal blending capabilities, limited rail capacity, and significant capital modifications required to burn PRB**
- ❖ **Naughton – sensitive to iron, calcium and ash, separate coal streams until 2013, no blending capability, no truck or rail unloading facilities and limited surface footprint**

– Long-Term Inventory Drivers

- ❖ **Limited operating mines**
- ❖ **Limited replacement supply availability**
- ❖ **Limited or no rail capacity and unloading facilities**
- ❖ **Limited coal blending capabilities**
- ❖ **Mining disruptions**
- ❖ **Underground mining regulatory restrictions (loss of reserves)**
- ❖ **New mine/reserve development timing (Haystack, Deadman Wash)**

Fueling Strategy — *SW Wyoming (continued)*

– SW Wyoming Plants Specifics

- ❖ **Jim Bridger plant:** *(8.5m tons annually – 2037 estimated depreciation life)*
 - Blend coals required to manage plant's quality and coal handling system sensitivities
 - Limited blending capability at plant
 - UP captive rail, capacity limited
 - Adjacent to Bridger Coal Company, conveyor system to plant
 - Multiple supply sourcing: Bridger Coal, Black Butte
- ❖ **Naughton plant:** *(2.7m tons annually – 2029 estimated depreciation life)*
 - Two coal streams: high sulfur and low sulfur
 - Limited blending capability
 - No rail or unloading facilities; limited surface footprint
 - Adjacent to Chevron's Kemmerer mine, conveyor system to plant
 - Gas co-firing (20%)
 - Single supply source: Kemmerer

Fueling Strategy — *Wyoming PRB*

– Supply and Basin Dynamics

- ❖ Largest coal producing basin in the U.S.
- ❖ Large volume, low cost surface operations
- ❖ Excess supply capability
- ❖ Production levels adjust to demand fairly quickly
- ❖ Heat content variations between north Gillette, south Gillette and Wright areas
- ❖ Highly liquid market; coals travel throughout U.S. and internationally
- ❖ Joint line access to south Gillette and Wright areas
- ❖ North Gillette mines captive to BNSF

– Supply Risks

- ❖ Environmental permitting impediments
- ❖ Competition between domestic vs. export
- ❖ Transportation disruptions

Fueling Strategy — *Wyoming PRB (continued)*

– Wyoming PRB Plants Fueling Strategy

- ❖ Plant specific fueling strategies (Dave Johnston and Wyodak)
- ❖ Near-term
 - Leverage postage stamp rail rate to access North Gillette mines
 - Integrate and leverage supplies where possible
- ❖ Long-term
 - Optimize supply sourcing based on new rail rate economics
 - Mitigate impacts of price re-openers
- ❖ Portfolio supply
 - Dry Fork contract – Dave Johnston
 - Rawhide contract – Dave Johnston
 - Black Hills contract - Wyodak
- ❖ Transportation
 - Multiple sourcing for Dave Johnston diversifies transportation risk
 - Conveyor to Wyodak minimizes transportation risk

Coal Inventory Strategies – Wyoming PRB Plants

– Plant Specifics

- ❖ Dave Johnston – BNSF rail captive, sensitivities to elevated sodium and calcium and compatible with lower heat content coals
- ❖ Wyodak – conveyor from mine, no rail or unloading facilities; limited surface footprint

– Long-Term Inventory Drivers

- ❖ Rail and weather disruptions
- ❖ Mining disruptions

Fueling Strategy — *Wyoming PRB (continued)*

– Wyoming PRB Plants Specifics

- ❖ **Dave Johnston plant:** *(3.5m tons annually – 2027 estimated depreciation life)*
 - **Compatible with lower heat content coals (8,000 btu/lb – 8,400 btu/lb)**
 - **Sensitivities to elevated sodium and calcium content**
 - **BNSF captive rail**
 - **Multiple supply sourcing: Rawhide, Dry Fork and Wyodak**

- ❖ **Wyodak plant:** *(1.6m tons annually – 2039 estimated depreciation life)*
 - **Conveyor from Wyodak mine**
 - **No rail or unloading facilities; limited surface footprint**
 - **Single supply source: Wyodak mine**

Fueling Strategy — Joint Owned (NW Colorado)

– Supply Basin and Dynamics

- ❖ Primarily three active mines (*Trapper, Colowyo and Twentymile*)
- ❖ Reduced demand impacting production levels
- ❖ Transportation costs impede imports and exports
- ❖ Supply primarily consumed locally
- ❖ Existing reserves depleting
- ❖ State energy policies creating uncertain for operators and consumers which is impeding expansions to adjacent reserves

– Supply Risks

- ❖ Reserve expansions lag reserve depletion
- ❖ Mine closures
- ❖ Mining disruptions

Fueling Strategy — Joint Owned (NW Colorado cont.)

– NW Colorado Plants Fueling Strategy

❖ Plant specific fueling strategies *(Craig and Haden)*

❖ Near-term

- Contract supplies through current reserves *(Colowyo and Twentymile)*
- Optimize Trapper reserves
- Integrate, leverage supplies where possible

❖ Long-term

- Pursue captive reserve expansion
- Pursue opportunities *(contractual, ownership) (reserves/mine)*

❖ Portfolio supply and diversification

- Trapper, captive supply, surface
- Colowyo contract, surface
- Twentymile contract, underground

❖ Transportation Diversification

- Haul truck from Trapper mine to plant
- UP rail contract *(Colowyo)*
- Truck *(Twentymile to Hayden)*
- UP rail and unloading facility *(Hayden)*

Fueling Strategy — Joint Owned (NW Colorado cont.)

– NW Colorado Plants Specifics

❖ **Craig plant:** *(19.28% ownership) (Units 1&2) 0.65m tons annually – 2034 estimated depreciation life) (total plant requirements 5.3m tons annually)*

- Adjacent to Trapper mine
- Truck receiving facility, rail unloading hopper (limited capacity)
- UP captive rail (3.5m annual capacity)
- Sensitive to low heat content coals
- Multiple supply sourcing: Trapper and Colowyo

❖ **Hayden plant:** *(17.5% ownership 0.3m tons annually – 2030 estimated depreciation life) (total plant requirements 1.65m tons annually)*

- Truck unloading facilities
- Rail facilities
- Single supply source: Twentymile mine

Fueling Strategy — Joint Owned (Arizona)

– Arizona Plant Fueling Strategy

- ❖ Plant specific fueling strategy (*Cholla*)
- ❖ Near-term
 - Supply contracted long-term
 - Rail contract
- ❖ Long-term
 - Extend rail agreement
 - Evaluate replacement supplies (Star Lake, PRB)

– Cholla Plant Specifics (*100% Unit 4 ownership 1.6m tons annually – 2042 estimated depreciation life*) (*total plant requirements 4.3m tons annually*)

- ❖ Retrofitted to burn lower heat content and higher sulfur coal
- ❖ BNSF captive rail
- ❖ Single supply source: Lee Ranch/El Segundo

Fueling Strategy — Joint Owned (Montana)

– Montana Plant Fueling Strategy

- ❖ Plant specific fueling strategy (*Colstrip*)
- ❖ Near-term
 - Supply contracted through current reserves
- ❖ Long-term
 - Potential third party coal sourcing
 - Reserve expansion

– Colstrip Plant Specifics (*10% ownership*) (*Units 3 and 4 - 0.7m tons annually – 2046 estimated depreciation life*)

- ❖ Conveyor to plant
- ❖ No rail unload facilities
- ❖ Captive to BNSF
- ❖ Approval authorities over mine plan, capital investments and third party coal sale decisions. Budget oversight authority.
- ❖ Single supply source: Rosebud mine (*Area C reserves*)

Coal Inventory Strategies – Joint Owned Plants

– Plant Specifics

- ❖ Cholla – BNSF rail captive, significant distance from alternative suppliers
- ❖ Colstrip – conveyor from mine, no rail or unloading facilities; captive to BNSF
- ❖ Craig – truck receiving and rail unloading hopper, UP captive, sensitive to low heat content coals, adjacent to Trapper mine
- ❖ Hayden – truck unloading facilities, rail facilities being constructed

– Long-Term Inventory Drivers

- ❖ Access to alternative supplies
- ❖ Mining methods and disruptions
- ❖ Rail and weather disruptions

COAL & TRANSPORTATION CONTRACTS: REOPENER & TERMINATION DATES

Plant	Mine Operator	Mine	2010				2011				2012				2013				2014				Contract Reopener	Termination Date
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Bridger	Kiewit Mining	Black Butte																					-	12/31/2014
	Union Pacific	Black Butte																					-	12/31/2014
Cholla	Peabody	El Segundo																					1/1/2013	12/31/2024
	BNSF	El Segundo																					-	12/31/2017
Colstrip	Westmoreland	Rosebud																					-	12/31/2019
Craig	Rio Tinto	Colowyo																					7/1/2011	12/31/2017
	Union Pacific	Colowyo																					-	12/31/2017
	Trapper	Trapper																					-	12/31/2020
Hayden	Peabody	Twentymile																						12/31/2011
	Links Freight	Twentymile																						12/31/2011
	Peabody	Twentymile/Sage Creek																					1/1/2018	12/31/2027
	Union Pacific	Twentymile/Sage Creek																						12/31/2016
Johnston	Black Hills	Wyodak																					-	12/31/2011
	Peabody	Rawhide																					-	12/31/2013
	Western Fuels	Dry Fork																					-	12/31/2013
	Western Fuels	Dry Fork																					-	12/31/2013
	Arch	Coal Creek																						12/31/2014
	BNSF	All																					-	12/31/2013
Naughton	Chevron Mining	Kemmerer																					7/1/2010	12/31/2021
Wyodak	Black Hills	Wyodak																					7/1/2014	12/31/2022
Utah	Arch	Sufco																					1/1/2011	12/31/2020
	America West	Horizon																					5/1/2010	12/31/2010
	America West	Horizon																					1/1/2016	12/31/2022
	Rhino	Castle Valley																					1/1/2011	12/31/2011
	Rhino	Castle Valley																					1/1/2015	12/31/2020
	Utah American	West Ridge																						12/31/2010
	Utah American	West Ridge																						12/31/2014
	Electric Lake	Dugout/Skyline																						12/31/2010
	Trucking	Various																						12/31/2010
	Trucking	Various																						12/31/2013
Contract Commencement																								
Contract Expiration																								
Price Reopener																								
Proposed Contract																								
			<p>Notes:</p> <p>Dave Johnston rail, Dry Fork, Rawhide agreements expire in 2013; West Ridge, Black Butte, UP and Coal Creek expire in 2014</p> <p>Contract price reopeners/price resets at Cholla, Naughton and Wyodak in the next three years.</p> <p>Current negotiations - Hayden, Dave Johnston and Utah</p>																					