

# Raw Coal Receiving and Storage (Out-of-Plant) Cost Model

By David Boleneus

The cost model for raw coal receiving and coal storage operations presented below provides an example of the estimating tools available in the “Cost Models” section of the [“2009 Coal Cost Guide.”](#)

Engineers, company officials, cost estimators and investors may find these models useful for the purpose of economic projecting or capital budgeting of active or inactive coal mines, coal processing plants, or undeveloped coal properties.

The guide is a 780-page compilation of cost and similar data necessary for cost estimating purposes of surface or underground coal mines or of plant operations.

The Introduction section in the guide includes [historical coal production in North America](#), [historical coal prices](#) by the various coal regions in the U.S.

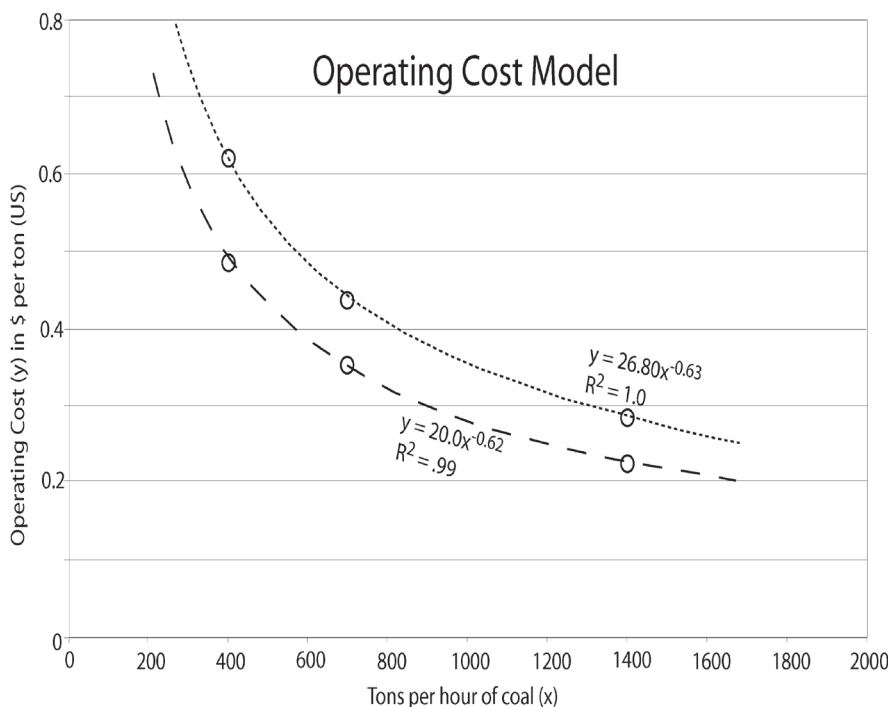
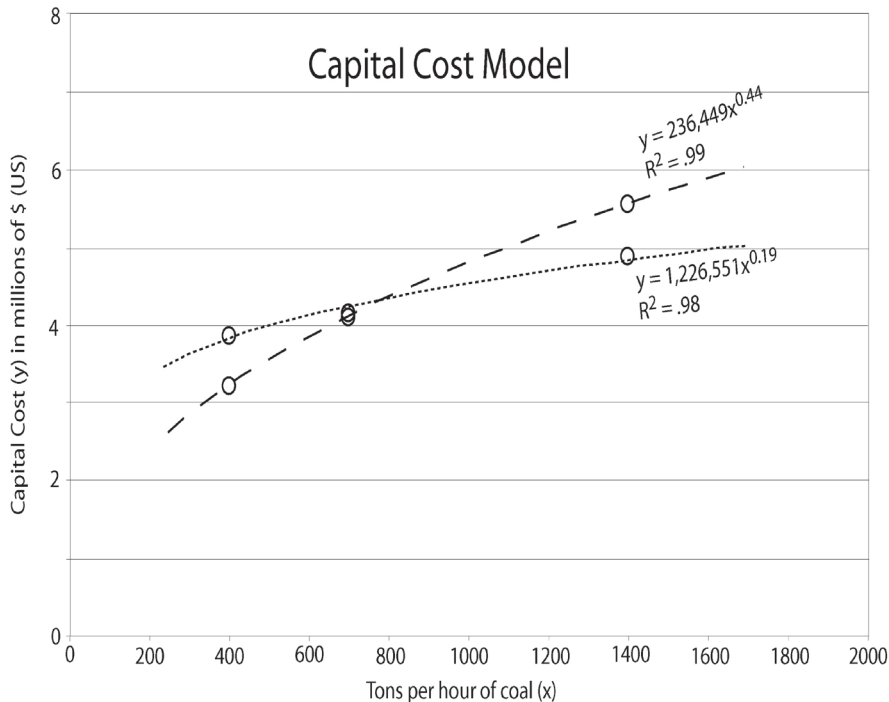
The Coal Prices/Indexes section provides economic indexes for updating of capital and operating costs, equipment, labour, mine, supply and other costs for coal operations.

Other sections in the guide address current costs and information concerning labour, equipment, supplies, natural gas, electric power, transportation and taxes. Sections are updated annually as costs change.

The Cost Model section provides capital and operating costs for:

1. surface mining;
2. underground mining-continuous miner, either by shaft or ramp access;
3. underground mining-longwall, either by shaft or ramp access and;
4. heavy-media processing of coal.

Each model presents costs at several levels of production. In total, the Guide presents 51 mining models and nine post-mine processing models, with more models scheduled for addition in the future, to cover all of the various



- Option (1) - Rotary breaker, silo storage, & conveying
- Option (2) - Two-stage crusher, conical pile storage, & conveying
- Data point

## LIST OF ITEMS INCLUDED AND ITEMS NOT INCLUDED IN RAW COAL RECEIVING AND STORAGE COST MODELS

Costs Included:	Costs Not Included:	Costs Not Included:
Equipment purchase Construction of facility Installation of equipment Equipment operation Sales tax Engineering & construction management Wages, salaries, benefits and employment taxes Natural gas and electric power Supplies and miscellaneous items	Property tax and other taxes (except sales and employment tax) Overhead (local, home office) Insurance Equipment replacement Depreciation Permitting Town site Incentives	Sales and interest expense Access roads Costs associated with mining Costs associated with coal cleaning Equipment transport to site Working capital Contingencies Overtime labor

## STORAGE CAPACITY OF RAW COAL

Hourly Rate:		Silo Storage:		Conical Pile Storage:	
Tons per hour	Tonnes per hour	Tons	Tonnes	Tons	Tonnes
400	363	6,880	6,241	4,354	3,950
700	635	13,083	11,869	6,914	7,272
1,400	1,270	19,375	17,577	14,696	13,332

stages of coal mining and post-mine processing sequences. Costs are presented in average US\$ (2008) in English and metric units.

The model summarizes estimated costs for raw (or run-of mine) coal receiving and storage operations. Raw coal receiving and storage is an “out-of-plant” operation between the mining and cleaning (preparation) of the coal. Because not all coal mining operations require cleaning of the coal, heavy media preparation plants are less common at mines in the southern U.S., western U.S. and Canada than at mines in the eastern U.S.

The model presents two cost options. For each one, costs are estimated at three rates of throughput (feed), a total of six models. Four steps common to both options are receiving and conveying coal to the facility, a size reduction step, storage and conveying from storage.

The two operating options for which costs are estimated for the coal receiving and storage model presented are (1) the rotary breaker-silo storage option and (2) the two stage crusher-conical pile storage option. The throughput rates used in these models are 400, 700 and 1,400 tons per hour. These modeled rates are identical to throughput rates used for the processing plant cost models presented elsewhere in the Coal Cost Guide.

The throughput rates also fall within the range of small- to large-sized processing operations in the U.S. The overall sizes of actual U. S. coal processing plants range from 130 to 6,200 tons per hour (Mining Media International, 2007). The small processing plant (20th percentile) is 350 tons per hour, a median-size plant is 650 tons per hour and the large plant (80th percentile) is 1,200 tons per hour.

The cost models represent generalized capital and operating costs for the receiving and storing of raw coal.

Current costs for the models are drawn from [InfoMine's Mine and Mill Equipment Costs, An Estimators Guide and Mining Cost Service \(InfoMine USA, Inc., 2008\)](#). Building construction is suitable for snowy, moderate winters and warm temperate summers. A more detailed listing of major equipment can be found in the Coal Cost Guide. ■

### Links and References

- [Coal News and Markets](#)
- [Coal Production in the United States - An Historical Overview](#)
- [CostMine](#)
- [North America Coal Production and Consumption by Year](#)
- [Mine and Mill Cost Calculator](#)
- [U.S. Coal Resource Databases](#)
- InfoMine USA Inc., 2008a, Coal Cost Guide. Spokane, WA, 782 p.
- ----2008b, Mining Cost Service. Spokane, WA, 1026 p.
- ----2008c, Mine and Mill Equipment Costs, An Estimator's Guide. Spokane, WA, 438 p.
- --- 2008d, U.S. Coal Mine Salaries, Wages, and Benefits: 2008 Survey Results. Spokane, WA ,108 p., Mining Media International Inc., 2007, 2006-2007 Keystone Coal Industry Manual. Jacksonville, USA, 770 p.

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