
The Mounting Losses at CWLP's Dallman Station

A Study of the Relative Costs of Operating Each
of the Four Dallman Units

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LOSING MONEY RELATIVE TO THE MARKETS

This analysis examines the total annual cost facing City Water Light & Power (CWLP) for the operation and maintenance of the four-unit Dallman Station, as compared to purchasing the equivalent energy and capacity provided by Dallman directly from the Midcontinent Independent System Operator (MISO) energy and capacity marketplaces. Because CWLP is interconnected with the MISO grid, the utility always has the option of either self-generating power or buying it from the grid. It can exercise this option for a specific hour, a year, or indefinitely. It is this membership in MISO that allows for the analysis presented in this whitepaper. Because the Dallman units aren't necessary for local reliability, this analysis considers the plants as an investment. It answers the question: Is continued operation of each of the Dallman units in the financial interest of CWLP and, by extension, its ratepayers?

This analysis does not assess the estimated \$36 million cost for coal ash clean-up¹ or any costs associated with decommissioning. Both of those sets of costs are unavoidable and must be paid eventually, and therefore in no way do they impact an economic analysis of plant closure. Similarly, debt-service costs on existing bonds must be paid whether the Dallman units are operating or shuttered. Thus, these are also excluded from the comparison.

The annual economics associated with each of Dallman's four units is assessed for each year from 2008 to 2016. Because the analysis considers self-generation versus market purchases, and because CWLP could in fact purchase 100 percent of its energy and capacity needs from the MISO energy and capacity marketplaces, generation and consumption are wholly separate within the analysis. In other words, the analysis treats the wholesale market value of the energy and capacity provided by the Dallman units as CWLP revenue. This approach is very similar to an *earnings before interest, taxes, depreciation and amortization* (EBITDA) analysis.²

When, over the course of a year, an electric generating unit produced power at a lower all-in cost than could be purchased from the market, it operated profitably within that year. If, however, the all-in annual cost of the plant exceeds the market value of the power it produced, it lost money relative to the marketplace and operated "in the red." A plant operating profitably reduces the revenue the utility must recover from customers, thereby reducing the burden on ratepayers. On the other hand, when the plant

¹ Burns & McDonnell, *Environmental Compliance Study for Dallman Power Station*, December 2013. Prepared for City Water, Light & Power, Springfield, IL. Project No. 67834.

² This document will refer to energy and capacity revenue minus fuel, variable O&M, and fixed O&M costs as EBITDA. This is an imperfect calculation, as some taxes (e.g. payroll) may appear in the O&M costs. Additionally, generating unit overhauls occurring every 5 years or so, such as major overhauls of line shaft turbines, steam turbines, and gearboxes can be listed as capital expenditure or fixed O&M; capital expenditures are not included as a cost in EBITDA whereas fixed O&M is included as a cost. Because the Burns & McDonnell report excludes them from fixed O&M, those CWLP expenses are excluded from the EBITDA calculation. These excluded capital expenditures average several million dollars per year across the four Dallman units.

loses money relative to the market, the customers in turn pay more for electric power than they would have paid without the high cost associated with owning and operating the power plant.

In 2008, Dallman Unit 31 was out of service and lost money, but Units 32 and 33 were in the black. As a result, CWLP customers came out \$12 million ahead of the MISO marketplace that year due to their municipal utility owning and operating the three units. However, in every year since, CWLP has lost tens of millions of dollars on the annual operation of the units. Its best year was a \$27 million loss in 2015 while its worst was a \$49 million loss in 2012. The year 2016 dealt a \$34 million loss—about \$215 for each residential customer and \$2,300 for each commercial customer. Over the entire 2008–2016 period, CWLP spent \$261 million more operating Dallman than it would have spent simply buying the identical output from the market. In addition, it spent millions of dollars per year on ongoing capital investments on the Dallman units.

Electricity market prices throughout the United States have been declining since 2011 due to lower natural gas prices and an increasing number of low-cost renewable electric generators. Coal plants around the country have been facing thinner margins as wholesale energy prices remain low, and a significant number of coal-fired power plant retirements have occurred as a result. It is reasonable to think that, like any other competitive enterprise, power plants may face good years and bad years. However, sustained losses—and projections of sustained losses—strongly suggest that a power plant should be retired to stem the tide of losses.

The Dallman units have been an unmitigated financial disaster for ratepayers since 2009. Because of the confluence of fracking, new combined cycle gas-fired generating units, declining costs for wind and solar power plants, and environmental regulation, there is no reason to expect that any of the four Dallman units will ever operate profitably again.

ANNUAL REVENUES AND COSTS FOR EACH DALLMAN UNIT

Table 1 presents the revenues from energy and capacity, as well as the fuel costs, variable operations and maintenance (O&M) costs, and fixed O&M costs, for each of Dallman’s four units. O&M costs are based on the 2013 Burns and McDonnell report commissioned by CWLP.³ Revenue is based on MISO hourly market prices and capacity market clearing prices. Fuel costs reflect coal prices reported to the U.S. Energy Information Administration and the amount consumed as reported to the U.S. Environmental Protection Agency. These data are up-to-date through the end of 2016.

³ Burns & McDonnell, 2013.

Table 1. Market revenues and costs from Dallman 31, 32, 33, and 4; 2008–2016 (million \$)

Dallman 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	'08–'16
Energy Revenue	\$0.0	\$4.8	\$10.9	\$10.8	\$4.3	\$7.8	\$8.6	\$5.1	\$8.2	\$60.5
Capacity Revenue	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.4	\$3.7	\$1.8	\$6.0
Fuel Cost	\$0.0	(\$4.3)	(\$8.3)	(\$8.8)	(\$3.9)	(\$6.6)	(\$5.9)	(\$5.3)	(\$6.3)	(\$49.4)
Variable O&M Cost	\$0.0	(\$1.2)	(\$2.3)	(\$2.5)	(\$1.0)	(\$1.9)	(\$1.6)	(\$1.4)	(\$2.2)	(\$14.1)
Fixed O&M Cost	(\$5.2)	(\$5.1)	(\$5.2)	(\$5.4)	(\$5.5)	(\$5.6)	(\$5.7)	(\$5.7)	(\$5.8)	(\$49.2)
Earnings (EBITDA)	(\$5.2)	(\$5.8)	(\$5.0)	(\$5.9)	(\$6.2)	(\$6.3)	(\$4.1)	(\$3.6)	(\$4.4)	(\$46.2)

Dallman 32	2008	2009	2010	2011	2012	2013	2014	2015	2016	'08–'16
Energy Revenue	\$25.3	\$10.2	\$11.6	\$9.6	\$4.4	\$7.6	\$12.3	\$3.5	\$6.6	\$91.1
Capacity Revenue	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.4	\$3.4	\$1.7	\$5.5
Fuel Cost	(\$11.5)	(\$9.5)	(\$9.1)	(\$8.0)	(\$3.8)	(\$6.6)	(\$9.2)	(\$4.1)	(\$5.2)	(\$66.9)
Variable O&M Cost	(\$3.4)	(\$2.6)	(\$2.5)	(\$2.2)	(\$1.0)	(\$1.9)	(\$2.5)	(\$1.1)	(\$1.8)	(\$19.0)
Fixed O&M Cost	(\$5.3)	(\$5.3)	(\$5.4)	(\$5.5)	(\$5.7)	(\$5.7)	(\$5.8)	(\$5.8)	(\$5.9)	(\$50.5)
Earnings (EBITDA)	\$5.2	(\$7.1)	(\$5.3)	(\$6.1)	(\$6.1)	(\$6.5)	(\$4.9)	(\$4.0)	(\$4.8)	(\$39.8)

Dallman 33	2008	2009	2010	2011	2012	2013	2014	2015	2016	'08–'16
Energy Revenue	\$54.9	\$27.3	\$30.2	\$21.1	\$24.2	\$25.8	\$29.4	\$22.1	\$14.8	\$249.9
Capacity Revenue	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$1.1	\$9.6	\$4.6	\$15.3
Fuel Cost	(\$23.0)	(\$22.1)	(\$20.6)	(\$14.4)	(\$21.3)	(\$21.1)	(\$20.1)	(\$20.5)	(\$11.6)	(\$174.7)
Variable O&M Cost	(\$6.5)	(\$6.0)	(\$6.0)	(\$4.2)	(\$5.7)	(\$5.8)	(\$5.3)	(\$5.5)	(\$3.8)	(\$48.7)
Fixed O&M Cost	(\$13.4)	(\$13.4)	(\$13.6)	(\$14.0)	(\$14.3)	(\$14.5)	(\$14.8)	(\$14.8)	(\$15.0)	(\$133.9)
Earnings (EBITDA)	\$12.0	(\$14.2)	(\$10.0)	(\$11.4)	(\$17.1)	(\$15.5)	(\$9.8)	(\$9.0)	(\$11.0)	(\$86.0)

Dallman 4	2008	2009	2010	2011	2012	2013	2014	2015	2016	'08–'16
Energy Revenue	N/A	\$13.6	\$33.9	\$36.3	\$24.9	\$34.6	\$44.5	\$25.1	\$22.3	\$235.1
Capacity Revenue	N/A	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$1.3	\$11.4	\$5.5	\$18.2
Fuel Cost	N/A	(\$5.6)	(\$21.9)	(\$22.8)	(\$21.0)	(\$25.7)	(\$26.6)	(\$22.2)	(\$17.2)	(\$163.1)
Variable O&M Cost	N/A	(\$1.4)	(\$3.5)	(\$3.8)	(\$3.2)	(\$4.1)	(\$4.2)	(\$3.3)	(\$3.1)	(\$26.5)
Fixed O&M Cost	N/A	(\$9.5)	(\$19.3)	(\$19.9)	(\$20.3)	(\$20.6)	(\$21.0)	(\$21.0)	(\$21.4)	(\$153.0)
Earnings (EBITDA)	--	(\$3.0)	(\$10.7)	(\$10.2)	(\$19.7)	(\$15.7)	(\$5.9)	(\$10.1)	(\$13.9)	(\$89.3)

Source: Synapse calculation

While Dallman Unit 31 was out of service in 2008 and therefore couldn't generate any revenue, Units 32 and 33 both earned money in the MISO marketplace. As a result, CWLP's operations of the Dalman units were in the black that year. Dallman Unit 4 came online the following year, in mid-2009. That year was the first of eight consecutive years in which every single one of the four Dallman units was outperformed by the market. In each year, for each unit, the combined energy and capacity revenue

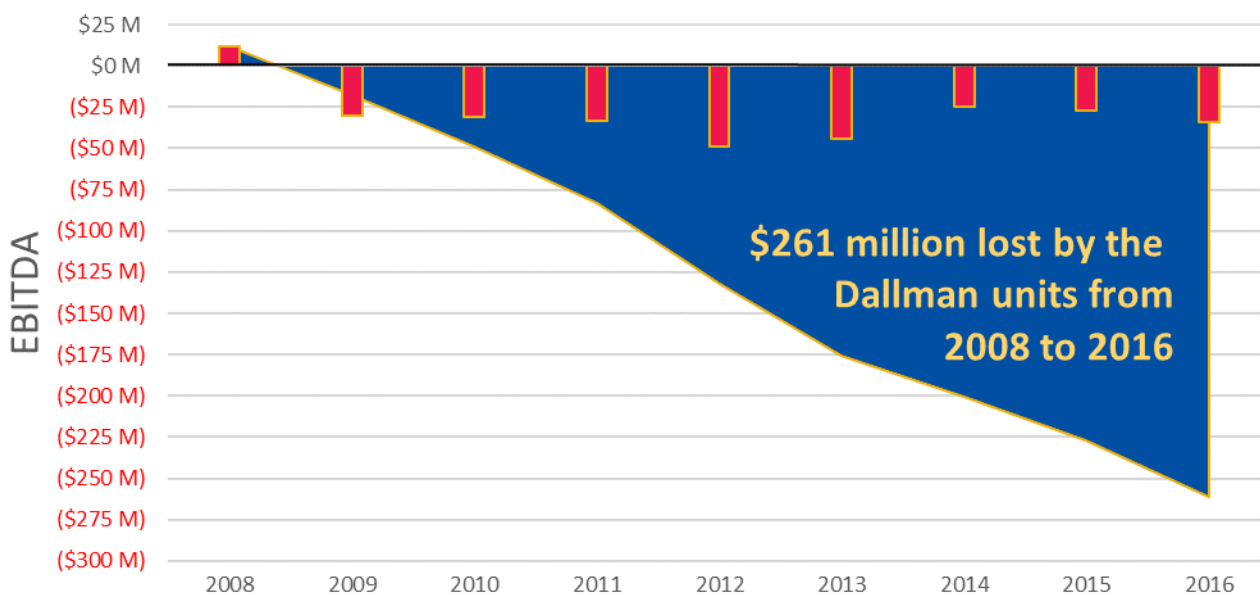
was not enough to cover the associated fuel, variable O&M, and fixed O&M costs. Table 2 and Figure 1 below summarize the net revenues of the four Dallman units.

Table 2. EBITDA of Dallman 31, 32, 33, and 4; 2008–2016 (million \$)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	'08–'16
Dallman 31	(\$5.2)	(\$5.8)	(\$5.0)	(\$5.9)	(\$6.2)	(\$6.3)	(\$4.1)	(\$3.6)	(\$4.4)	(\$46.2)
Dallman 32	\$5.2	(\$7.1)	(\$5.3)	(\$6.1)	(\$6.1)	(\$6.5)	(\$4.9)	(\$4.0)	(\$4.8)	(\$39.8)
Dallman 33	\$12.0	(\$14.2)	(\$10.0)	(\$11.4)	(\$17.1)	(\$15.5)	(\$9.8)	(\$9.0)	(\$11.0)	(\$86.0)
Dallman 4	--	(\$3.0)	(\$10.7)	(\$10.2)	(\$19.7)	(\$15.7)	(\$5.9)	(\$10.1)	(\$13.9)	(\$89.3)
Total	\$12.0	(\$30.0)	(\$31.0)	(\$33.6)	(\$49.0)	(\$44.0)	(\$30.7)	(\$26.7)	(\$40.1)	(\$261.3)

Source: Synapse calculation

Figure 1. Annual and cumulative EBITDA of Dallman 31, 32, 33, and 4; 2008–2016 (million \$)



Source: Synapse calculation

DALLMAN STATION'S BURDEN ON CUSTOMERS

CWLP has about 60,000 residential customers and 8,500 commercial customers, as well as the state government accounts. The analysis used the Fiscal Year 2017 sales (which correspond most directly to Calendar Year 2016) to estimate the costs to Springfield customers resulting from Dallman's losses.

This analysis assumes that once a generating unit ceases to operate, it has no ongoing costs (such as decommissioning) and that no costs would be reallocated to other units. This is a broad and simplifying assumption that makes these cost estimates not directly usable as estimates of customer savings in the

case of plant closure. Because decommissioning is a cost CWLP must face eventually regardless of its near-term decision, and because all four units are consistently losing to the market by wide margins, this assumption in no way undermines conclusions made clear in Tables 3 and 4 below: in 2016 Dallman’s four units cost the average Springfield household \$215 and cost the average commercial customer \$2,307, when compared with market purchases, and Dallman cost CWLP customers an extra 2 cents for every kWh consumed in 2016—a 19 percent premium when compared with market purchases.

Table 3: Cost per kWh for each unit in 2016, in excess of the cost of MISO market prices

Dallman Unit	Cents/kWh
31	0.26
32	0.29
33	0.67
4	0.84
Total	2.04

Source: Synapse calculation

Table 4: Combined costs of all four Dallman units per residential and commercial customer for 2011–2016, in excess of the cost of MISO market purchases

Year	Additional cost for typical residential customer	Additional cost for typical commercial customer
2011	\$217	\$2,345
2012	\$318	\$3,420
2013	\$288	\$3,055
2014	\$193	\$2,077
2015	\$166	\$1,825
2016	\$215	\$2,307

Source: Synapse calculation

The annual costs associated with Dallman, over and above the alternative of market purchases, resulted in bills \$18 higher each month for each residential customer. For commercial accounts, Dallman increased bills by over \$192/month. These costs are real, they are measurable, and their burden has been compounding over the past eight years. CWLP’s Fiscal Year 2018 Five Year Capital Plan details over \$25.6 million of additional investment in the Dallman units over the next half decade, including \$11.7 million in repairs and monitoring for Dallman 31 & 32, \$1.6 million for spare motors for the four Dallman units, and \$2.2 million associated with coal delivery, handling, and piping. The \$261 million lost in the past eight years cannot be reclaimed, but CWLP is not obligated to continue operating the Dallman units at a loss, nor is it obligated to sink over \$5 million a year in capital improvements at Dallman between now and 2022. Because there is no credible scenario in which any of the four Dallman units beat the market in future years, every year that CWLP delays retiring the units will likely cost Springfield’s residents and businesses another 25 to 50 million dollars.