

How much does one minute of downtime cost your industrial network?

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1 Introduction

Real downtime cost includes many factors, such as lost revenue, reputation damage, lost FTE, and cost to recover. Some, such as lost FTE, are difficult to measure across an entire industry, and some, such as reputation damage, are difficult to estimate for even a single company.

In this article, we compute a conservative downtime cost-per-minute by estimating only lost revenue.

2 Method

The industries included in this estimation are:

- Water/Wastewater
- Oil/Gas
- Manufacturing
- Power/Energy

We selected 10 companies in each industry and found their revenue based on the most recent 10-K filing available. The industry-level computations are done with the resulting average revenue.

$$\text{Downtime Cost Per Day} = \frac{\text{Average Revenue}}{365}$$

$$\text{Downtime Cost Per Hour} = \frac{\text{Downtime Cost Per Day}}{24}$$

$$\text{Downtime Cost Minute} = \frac{\text{Downtime Cost Per Hour}}{60}$$

3 Results

Industry	Average Revenue	Cost/Day	Cost/Hour	Cost/Minute
Water/Wastewater	\$289,851,985	\$794,115	\$33,088	\$551
Oil/Gas	\$91,951,620,000	\$25,192,246	\$10,496,760	\$174,946
Manufacturing	\$101,802,800,000	\$278,911,780	\$11,621,324	\$193,688
Power/Energy	\$17,383,288,889	\$47,625,449	\$1,984,393	\$33,073

On average, an industrial network incurs \$100,564 downtime cost per minute.

The different industries have very different average revenues, so within-industry averages provide a much better estimate for your true downtime cost. But even the smallest industry, Water/Wastewater, stands to lose over \$550 per minute in lost revenue alone.

Even this conservative estimate has big implications. During a downtime event, even with a 2-hour mean-time-to-recover, a water company will have lost over \$66,000, and a manufacturing company will have lost over \$23.2 million dollars.

4 Extension

Each company is unique, and the computed industry averages may not represent smaller privately-owned companies. Thus, we present a general result:

Suppose your revenue is \$100 million per year. Then, your daily revenue is \$273,900, and your hourly revenue is \$11,400. That's nearly \$200 per minute.

Thus, for every \$100 million of revenue your company makes, your downtime cost per minute increases by nearly \$200. That provides a handy rule of thumb: Downtime cost per minute = (Revenue in millions/100) * 200

$$\boxed{\text{Downtime Cost Per Minute} = 2 * \text{Revenue in Millions}} \quad (1)$$

Example: American Water Works Company made around \$3,777 million in revenue in 2020. That means that $2 * \$3,777 = \$7,554$ is lost for each minute of downtime.

5 Conclusion

Estimating true downtime cost is a difficult and elusive process, but some simple calculations can provide insightful lower-bound estimates and strongly demonstrate the business importance of improving an industrial network's efficiency and resiliency. In the event of downtime, your OT teams need the best tools to get to their equipment and fix the issue, because as shown above, every minute matters.

6 About

Dispel provides secure remote access to industrial networks. Utilities and manufacturers use Dispel to access their industrial control systems quickly, from anywhere. Dispel serves over 18 million people and partners, and over 10% of the data centers in North America, from offices in New York, Austin, Virginia, and Tokyo.

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