

# liquid solar



GENERATORS, LLC

## **The Financial Impact of Liquid Solar Generators on Data Centers**

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## Introduction

As data centers continue to grow in number and capacity, the need for reliable and cost-effective energy solutions becomes increasingly important. Energy consumption is a significant cost driver for both large and small data centers. Liquid Solar Generators (LSGs) offer an innovative and economically attractive way to address these energy demands. With an initial investment of approximately \$4.5 million for a 10 MW LSG system, or \$8.5 million for a 100 MW LSG system, data centers can achieve 24/7 power delivery regardless of season or weather, with ongoing service costs of only \$0.01 per kWh. This white paper explores the financial impacts of LSGs on data centers, focusing on cost comparisons, ROI, reliability, and scalability.

## Financial Analysis

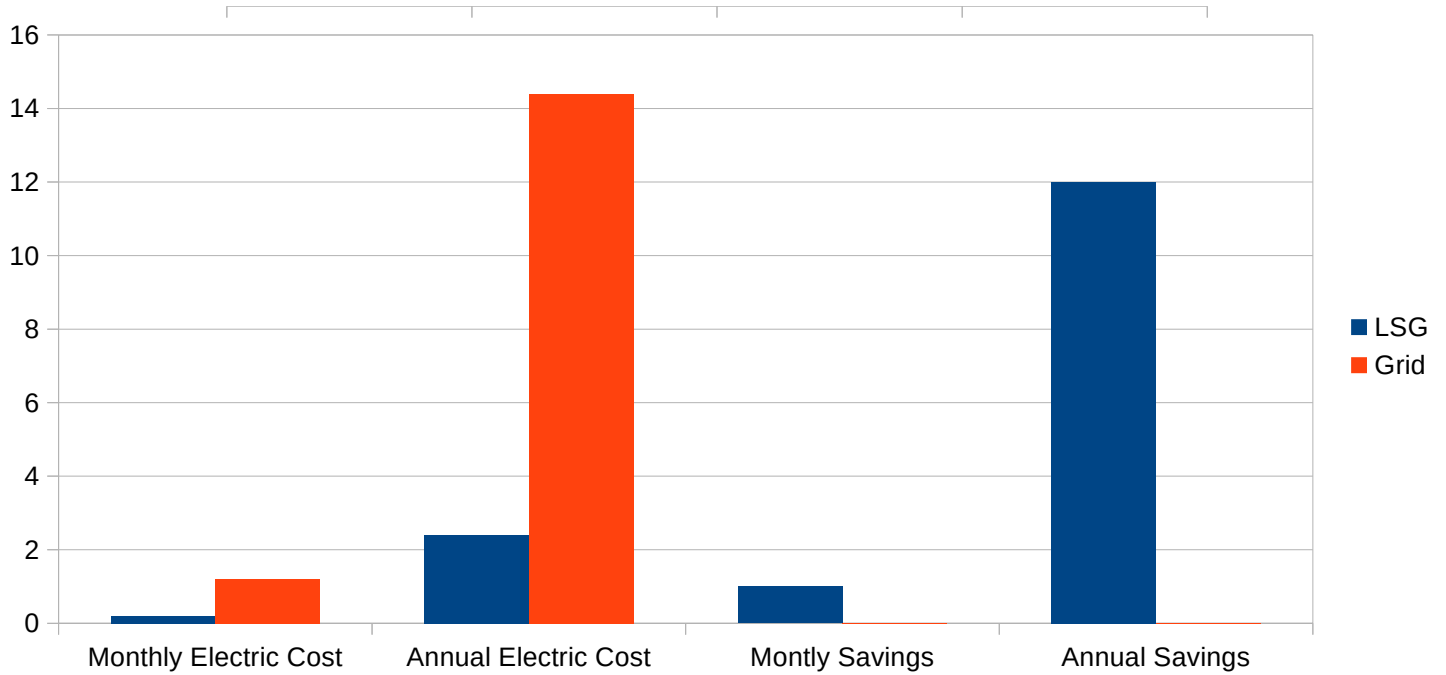
The financial benefit of an LSG system becomes apparent when compared to traditional energy costs. With a 10 MW or 100 MW LSG installation, data centers can benefit from predictable, low-cost electricity at just \$0.01 per kWh. This is significantly lower than the industry-standard rate of \$0.06 per kWh, which many data centers have negotiated as the best available rate.

## Cost Comparison With and Without LSG

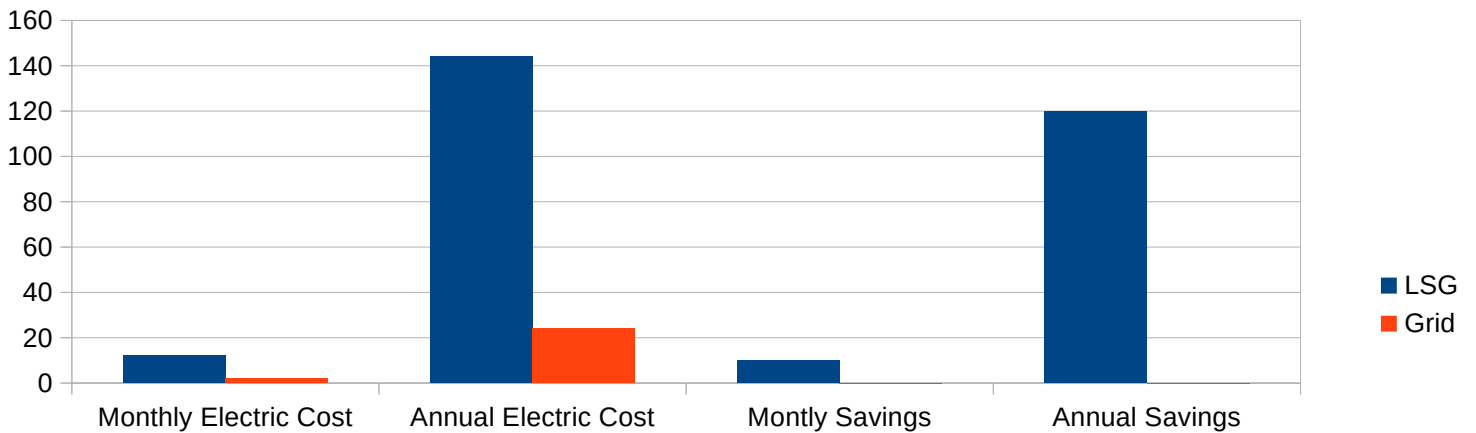
The following table highlights the cost of electricity for a 10 MW and a 100 MW data center with and without an LSG installation.

| Facility Size   | Electricity Cost Without LSG (\$0.06/kWh) | Electricity Cost With LSG (\$0.01/kWh) | Monthly Savings | Yearly Savings | ROI (Months) |
|-----------------|---|--|-----------------|----------------|--------------|
| 10 MW Facility  | \$14,400,000 per year                     | \$2,400,000 per year                   | \$1,000,000     | \$12,000,000   | 5.4 months   |
| 100 MW Facility | \$144,000,000 per year                    | \$24,000,000 per year                  | \$10,000,000    | \$120,000,000  | 5.1 months   |

### 10 MW Data Center



### 100MW Data Center



### Return on Investment

To better understand the financial impact, let's consider the amortization of the initial investment. For a 10 MW facility, the initial investment of \$4.5 million results in an ROI of 5.4 months based on energy savings alone. For a 100 MW facility, the \$8.5 million initial investment results in an ROI of 5.1 months, making these investments exceptionally quick to pay back.

## Reliability and Geographic Flexibility

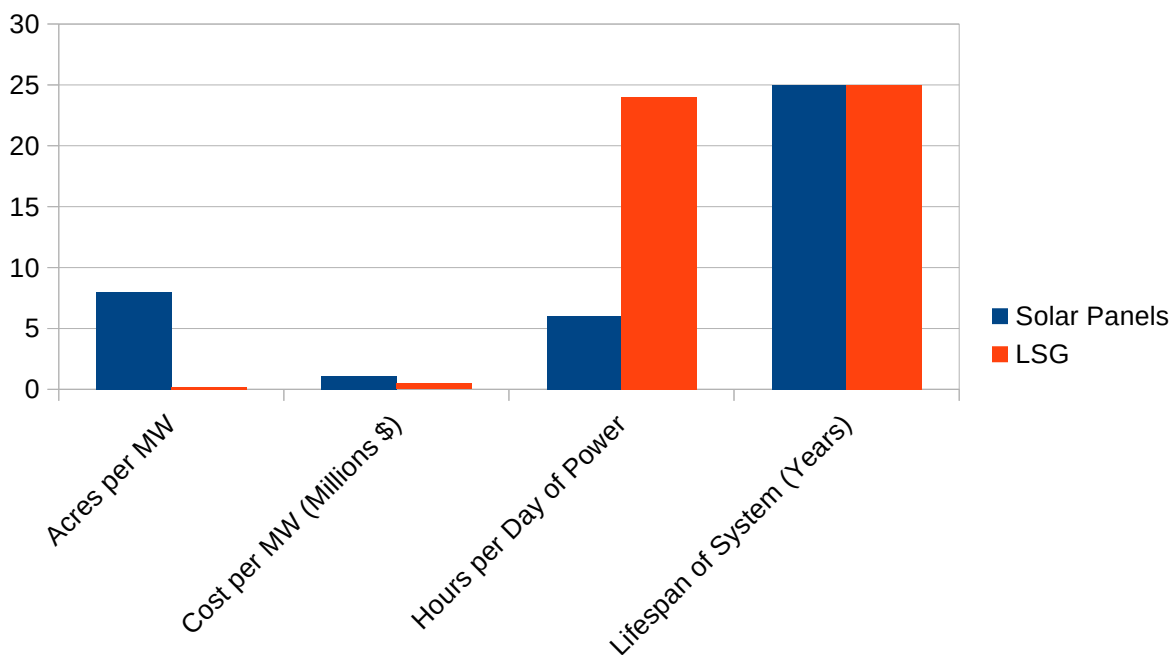
Unlike many renewable energy solutions, LSGs provide consistent power regardless of weather or season. The innovative design of LSGs involves capturing and storing solar energy during daylight hours and using it when solar generation isn't possible, such as at night or during cloudy days. This approach guarantees energy availability, making LSGs highly reliable for data centers, which require uninterrupted power to ensure optimal performance.

Geographically, LSGs are versatile. Thanks to lessons learned from Concentrated Solar Power (CSP), LSGs are viable even in regions with minimal sunlight during certain times of the year, such as Latvia, which only has one hour of sunlight per day in December. This resilience makes LSGs a practical solution for data centers around the world.

Too often, the choice of where to place a data center has come down primarily to the cost of electricity. LSGs remove that from the equation. This allows companies to choose their location based on available talent, favorable laws, political stability, and other important factors that would take precedence if not for the cost of electricity.

## Scalability and Land Requirements

LSGs are designed to be scalable. A 100 MW LSG facility can be built on just 2-3 acres of land, which is significantly less than the land required for comparable photovoltaic solar or wind energy projects. Additionally, LSGs are compatible with net metering, which allows the power to be generated off-site. This means that data centers can use grid power while accumulating net metering credits from an LSG located elsewhere within the same utility's territory, effectively offsetting their energy costs.



## The Freedom to Grow and Innovate

Are there product lines you'd like to introduce or expand but haven't because the cost of electricity makes it too risky? With LSGs, those risks are minimized. Now you can innovate, expand, and outthink the competition without worrying

about energy expenses. The savings on electricity are just the start—possibly even the smallest benefit an LSG can bring to your bottom line. The freedom to experiment and innovate can far outweigh these savings. Redirecting funds previously allocated to electric bills into attracting top talent can drive growth in ways you can't even envision until you're collaborating with your new team members.

## **Conclusion**

Liquid Solar Generators represent an opportunity for data centers to cut energy costs, reduce dependency on traditional grid power, and achieve greater reliability. With low operational costs, high reliability, and flexible installation options, LSGs provide a compelling solution for both large and small data centers looking to optimize their energy consumption. The combination of proven technologies from photovoltaics, concentrated solar power, wind power, and industrial-scale heat storage has led to a cost-effective and reliable energy solution with impressive ROI and low ongoing costs.

