

# MINE POWER

SUSTAINABLE POWER SOLUTIONS FOR MINING APPLICATIONS



## WELCOME TO OUR NEWSLETTER



My name is Bruce Anderson, CEO of [247Solar, Inc.](#) Welcome to *Mine Power*, our monthly newsletter. The needs of the mining industry for clean, low-cost, sustainable power, and the availability of new renewable energy technologies, are coming together to offer unprecedented opportunities.

The purpose of this newsletter is to share information about these opportunities, to highlight key developments at the intersection of mining and sustainable energy supplies, and to show how modular, scalable solar solutions can offer unique benefits to mining projects of all sizes. I hope you find it of value.

## BATTERIES NOT REQUIRED— 247SOLAR THERMAL STORAGE

Photovoltaic (PV) panels produce electricity directly from sunlight. Storing electricity requires expensive batteries. 247Solar Plants™ store the sun’s energy as heat, and convert it to electricity only when needed.

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## FEATURED ARTICLE: AN INFLECTION POINT FOR THE MINING INDUSTRY

2019 was the year when miners finally bit the bullet on renewable energy, as declining costs and new technologies made the business case “too compelling to ignore.” Citing both economics and sustainability, mine operators are increasingly substituting renewable sources for grid energy and/or diesel power generation.

The advantages of renewables are particularly clear for mines in remote locations, where grid power is either unavailable or unreliable, and transport costs for fuel are high. Because mining is estimated to account for up to 11% of global energy demand, mine operators are also under pressure from governments and other stakeholders to reduce their carbon footprints.

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## 247SOLAR DEBUTS AT "MINES AND MONEY"

At the recent *Mines and Money* conference in London, 247Solar and its business development partners, ROST International, introduced 247Solar’s innovative solar power technology to the mining industry, to rave reviews.

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# 247SOLAR DEBUTS AT MINES AND MONEY CONFERENCE

## BREAKTHROUGH CLEAN AND SECURE POWER SOLUTION FOR MINES IS WELL RECEIVED

At the recent *Mines and Money* conference in London, 247Solar and its business development partners, ROST International, introduced 247Solar's innovative solar power technology to the mining industry, to rave reviews. The ability of 247Solar Plants™ to lower mine operating costs while

providing reliable, clean power to mines in off-grid locations sparked follow-on discussions with mine developers in a variety of locations across the globe. Stuart Whitelock, CEO of ROST International, says, "247Solar Plants™ are ideally suited to mining applications in remote areas

and where electricity supply is unreliable. They provide highly reliable, uninterrupted power for mining, processing, and ancillary operations at very low operating costs, while eliminating the disadvantages of conventional power technologies." The audience at *Mines & Money* seemed to agree.



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**“247SOLAR CUTS MINING OPERATING COSTS AND SIMULTANEOUSLY DELIVERS DISPATCHABLE, ROUND-THE-CLOCK POWER.”**

**Andy Birtles -  
Mining Engineer**

# COMMERCIAL DEMONSTRATOR 247SOLAR PLANT

**OUARZAZATE, MOROCCO | 2020**

247Solar Inc. is building its first commercial demonstration 247Solar Plant™ in Ouarzazate, Morocco. It is doing so in partnership with the Moroccan Agency for Sustainable Energy (MASEN), a global leader in the commercialization of solar energy. MASEN is Morocco's agency responsible for significantly reducing the country's reliance on

foreign sources of energy by turning to renewable energy technology. The Commercial Demonstrator will be deployed at MASEN's Ouarzazate (Noor) Solar Complex, the largest and best known concentrated solar power (CSP) project in the world. The Plant is expected to be operational later this year.



**ROST International  
Trading Limited**

247Solar has appointed UK based ROST International Trading to assist in developing their business.

Founded in 2014 by partners Stuart Whitelock and Paul Foster, ROST operates in the Renewable Energy, Energy and Water industries.

[Contact Stuart Whitelock](mailto:stuart@rostinternational.com)  
[www.rostinternational.com](http://www.rostinternational.com)

# AN INFLECTION POINT FOR THE MINING INDUSTRY

## THE MINING INDUSTRY IS TURNING TO CLEAN ENERGY FOR REASONS OF ECONOMICS AND SUSTAINABILITY

According to a recent article in [Energy and Mines](#), 2019 was the year when miners finally bit the bullet on renewable energy, as declining costs and new technologies made the business case “too compelling to ignore.” This was reinforced in a piece from [Greentech Media](#), which cited both economics and sustainability as reasons why mine operators are increasingly substituting renewable sources for grid energy and/or diesel power generation.

The advantages of renewables are particularly clear for mines in remote locations, where grid power is either unavailable or unreliable, and transport costs for fuel are high. Because mining is estimated to account for up to 11% of global energy demand, mine operators are also under pressure from governments and other stakeholders to reduce their carbon footprints.

### SOLAR STEPS UP

Among renewable sources, solar power generation is especially attractive in areas with lots of sunlight (high DNI—direct natural irradiation), which also happen to be where many mines are located. Think: Africa, Australia, South Asia (including most of China), the Middle East, and western areas of South America and the USA.

Most people tend to think of solar as

being synonymous with photovoltaic panels and (expensive) battery storage. Concentrated Solar Power (CSP) systems capture and store the sun’s energy as heat instead of electricity, eliminating the need for batteries. However, up to now, they have only been economical at large scale. New, next-generation CSP systems like 247Solar Plants™ offer a modular, scalable solution that is ideally suited to mining applications.

### CLEAN, RELIABLE POWER

247Solar Plants™ provide highly reliable, uninterrupted power for mining, processing, and ancillary operations at very low operating costs, while eliminating the disadvantages of conventional power technologies. Close proximity of 247Solar Plants to the mine means minimal voltage drops during peak load requirements. Proximity to the mine also means that additional equipment such as shovels, drills, fans, hoists and pumps can benefit from a sustainable power supply, further reducing costs and emissions.

### RAPID CONSTRUCTION, PHASED IMPLEMENTATION

247Solar Plants use mostly factory-built components, making installation and commissioning timeframes short. Due to their modular design, the first 400kW plant typically can begin supplying power in 6-8 months from

the time of confirmed order, with completion of 10MW in 12-15 months. Power for mine development, construction, pre-production, and production phases can be supplied incrementally, allowing for staged financing.

### ENVIRONMENTAL AND SOCIAL BENEFITS

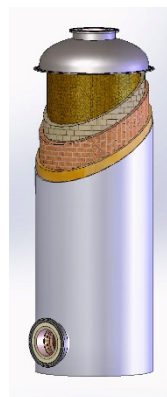
247Solar Plants use no water and require minimal maintenance. 247Solar technology enables mining operations to significantly reduce their carbon footprint and contribute to any Corporate Social Responsibility initiatives. Local communities and other social facilities may also benefit both immediately and after the mine ceases operation, as the Plants can continue to supply local communities or be wholly or partially relocated to other sites.

### A UNIQUE SOLUTION

Thomas Hillig writes in [Energy Central](#) that “the business case for partly substituting expensive fuel like diesel, heavy fuel oil (HFO) or gas by solar and wind had been positive on paper for years,” and calls renewables “the new normal” for mines in remote locations. 247Solar Plants can reduce fuel consumption by 65-80% vs. diesel gensets, while offering lower CAPEX and O&M costs per kWh/year than PV with batteries. 247Solar plants are certainly well worth a look.

## BATTERIES NOT REQUIRED — 247SOLAR THERMAL STORAGE

Most people think of solar power in terms of photovoltaic (PV) panels that produce electricity directly from sunlight. The problem with PV has always been that with electricity, it’s either use it or lose it — or store it in expensive batteries. 247Solar Plants™ store the sun’s energy as heat, and convert it to electricity only when needed. The proprietary 247Solar Thermal Storage System™ stores up to 15 hours of energy in simple, inexpensive solid media like ceramic pellets or even firebrick – at less than 5% the cost of batteries. Contact us to learn more.



## FOR FURTHER READING

Topics of interest at the intersection of mining and sustainability.

### Rocky Mountain Institute:

[Sunshine for Mines: A Brighter Vision for Sustainable Resources](#)