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JMD'S NOTE

70th Independence Day Wishes

While I was driving with my son one day I saw a water tank with a broken tap and water was being wasted; the onlookers were not much affected and no effort was visible to save water. My son was concerned about the wastage of precocious natural resource.

He asked, "Papa, why people do not understand the value of things which nature has given us for free? Imagine what will be the situation for my children & grandchildren?"

I was moved with his words and I thought, "Have we become so unconcerned about the things nature has gifted us!"

Another natural resource which is available to us is Sun which offers us light, heat, warmth &Solar Power which is inexhaustible since ages. And India is blessed with around 300 sunny days in a year.

We are at a cusp of a disruption in energy, where fossil fuels are losing their sheen& renewable source of energy will define our future. At UjaasTM we do our bit to give back to mother earth.

We are delighted to present First Edition of our newsletter Ujaas BUZZ-Sun Ki Baat. Recently GST is implemented in the country endorsing One Country-One Tax. Similarly, Sun can be treated as One Source for most of energy need of mankind.

Let us bring home the Sun!! #OwnYourSun

-Vikalp Mundra
JMD
Ujaas Energy Limited

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UJAAS UPDATES

- Ujaas bagged major market share in education sector from its various orders through leading educational institutes in the states of Rajasthan, Assam and Himachal Pradesh
- Some of our major allocations in Government, residential, institutional, industrial & social sectors: IPGCL (5.4 MW), RECPDCL (2 MW), JREDA (3.5 MW & 5 MW), MPUVN (4.8 MW)

HR NEWS

HR at Ujaas is continuously thriving to create highly performance driven, meritocratic yet fair and transparent work culture. We have evolved more of a strategic enabler than merely an administrator. Our first ever annual rewards and recognition event took place last month on 15th July 2017, wherein the efforts of our high performing colleagues were recognized along with a token of thanks to their families. The theme of the event was **"One team, One Ujaas"–Winning together**, which saw an overwhelming excitement and participation from all the teams. **Our core mission is to align every Ujaas team member to the common goal of CPRO** and make our employees grow happily through this journey. **The only thing constant is "Change" and we wish to create an environment that enables its people to become harbinger of change.**

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EMPLOYEE SECTION

History of Solar Cells

The present solar power that we see is not more than 60 years old but the discoveries which led to the production of solar cell began nearly 200 years ago. The discoveries about the properties of light and conductivity have made solar power what we see today. The timeline of discoveries and inventions that led to the creation of solar cell are mentioned below.

1839: Photovoltaic Effect Is Discovered

French scientist Edmond Becquerel first discovered the photovoltaic effect in 1839. This process occurs when light is absorbed by a material and creates electrical voltage. Most modern solar cells use silicon crystals to attain this effect.

1873–1876: Selenium's Photoconductivity Is Discovered

English electrical engineer Willoughby Smith discovered the photoconductivity of selenium, meaning it becomes electrically conductive when it absorbs light. Three years later, William Grylls Adams and Richard Evans Day learned that selenium could produce electricity from light without heat or moving parts that could easily break down. This discovery proved that solar power was easy to harvest and maintain, requiring fewer parts than other energy sources — such as coal-fired plants.

1883: First Solar Cell Is Created

New York inventor Charles Fritts created the first solar cell by coating selenium with a thin layer of gold. This cell achieved an energy conversion rate of 1–2%. Most modern solar cells work at an efficiency of 15–20%.

1887: The Photoelectric Effect Is Observed

German physicist Heinrich Hertz first observed the photoelectric effect, where light is used to free electrons from a solid surface (usually metal) to create power. Contrary to expected results, Hertz found this process produced more power when exposed to ultraviolet light, rather than more intense visible light. Albert Einstein later received the Nobel Prize for further explaining the effect. Modern-day solar cells rely on the photoelectric effect to convert sunlight into power.

1953–1956: Silicon Solar Cells Are Produced Commercially

Physicists at Bell Laboratories discovered that silicon is more efficient than selenium, creating the first practical solar cell — now 6% efficient. This discovery led to solar cells capable of powering electrical equipment. In 1956, Western Electric began selling commercial licenses for its silicon PV technologies, but the prohibitive costs of silicon solar cells keep them from widespread market saturation.

1958: Solar Energy Is Used In Space

After years of experiments to improve the efficiency and commercialization of solar power, solar energy gained support when the government used it to power space exploration equipment. The first solar-powered satellite, Vanguard 1, has traveled more than 197,000 revolutions around Earth in the 50 years it has been in orbit. This application paved the way for more research to decrease costs and increase production.

1982: The First Solar Parks Are Created

The first solar park — basically a solar power plant — was built in Hesperia, California, in 1982. This park generated 1 megawatt, or 1,000 kilowatts per hour, while operating at full capacity. This could power a 100-kilowatt light bulb for 10 hours. In 1983, a second solar park was built in Carrizo Plains, California. At the time, it was the largest collection of solar arrays in the world, containing 100,000 PV arrays that generated 5.2 megawatts at full capacity.

1994–1999: Photovoltaic Conversion Reaches New Levels

In 1994, the National Renewable Energy Laboratory developed a new solar cell from gallium indium phosphide and gallium arsenide that exceeded 30% conversion efficiency. By the end of the century, the laboratory created thin-film solar cells that converted 32% of the sunlight it collected into usable energy.

2015: Flexible Printed Solar Panels Hit the Market

Solar cells as thin as paper can now be manufactured using an industrial printer. They have 20% power conversion efficiency, and a single strip can produce up to 50 watts per square meter.

Solar power has come a long way in the past 200 years, this technology shows no signs of slowing down — if anything, it is advancing at an unprecedented rate.

-Abhinav Lal
Assistant Manager (Retail Business)

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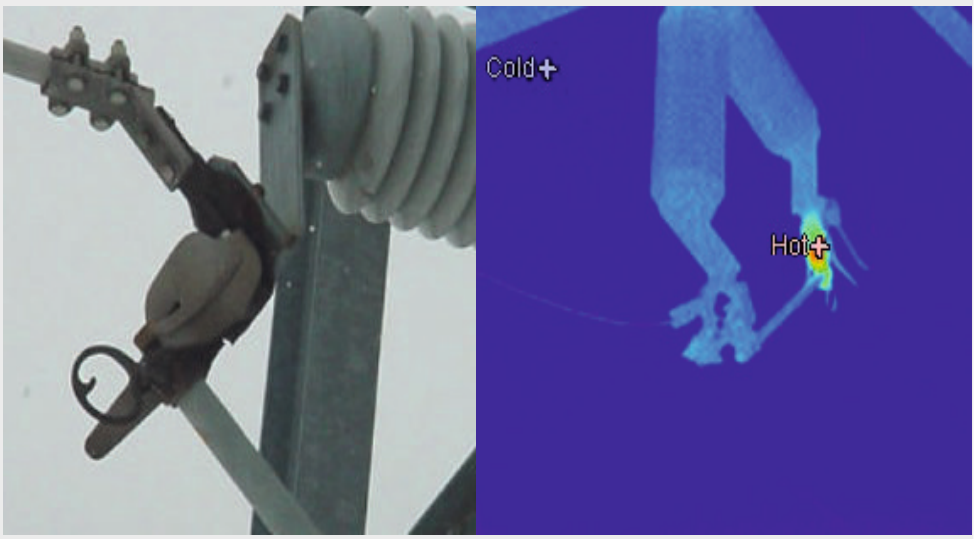
INDUSTRY UPDATES



PV power plants are not maintenance free; they require a regimen of continual monitoring, periodic inspection, scheduled preventive maintenance, and service calls. Thus an effective O&M strategy has been incorporated with number of different elements, all aimed at reducing costs, while improving availability and

It is a well-established fact that with efficient and predictive maintenance, energy producers can better manage their resources, take necessary precautionary measures and improve overall productivity.

Strategized operation and maintenance has to be apart of the plant overall cost. Implementation of the systems and resources for O&M should not be considered as overhead cost and rather be considered as profit centre.

Ones you have proper resources and systems in place the preventative maintenance focus will be on predicting failures, maintaining equipment, and ensuring the site's tasks are performed according to schedule to effectively manage time and capital.

The corrective maintenance focus is on responding to incoming alerts to evaluate and, if needed, restore the site to optimal working condition, maximizing financial and energy returns

Thermal Imaging

Infrared Imaging IR imaging is a crucial diagnostic tool in maintaining the electrical performance, efficiency and reliability of the sites electrical equipment. Infrared light is used to analyze and measure thermal energy emitted by the PV modules and inverters. Ineffective cells produce high levels of heat, which are detected as hot spots in the IR thermal imaging. By detecting these anomalies, corrective action can be taken before costly system failures occur.

UJAAS ENERGY LTD.

CO: 701, NRK Business Park, Near
Vijay Nagar Square, Indore, M.P.

+91 731 4715300

www.ujaas.com www.ujaashome.com

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