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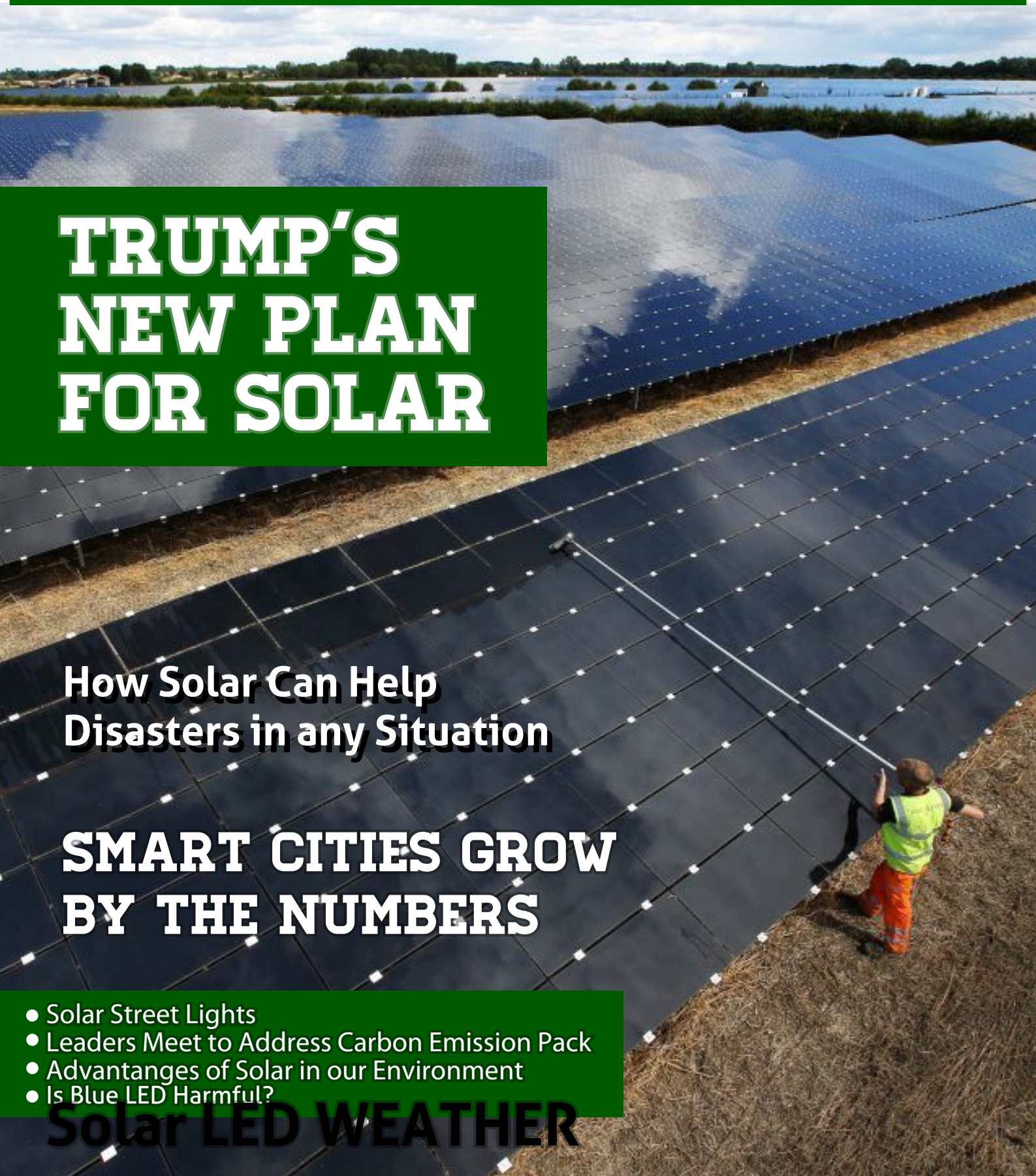

TRUMP'S NEW PLAN FOR SOLAR

How Solar Can Help Disasters in any Situation

SMART CITIES GROW BY THE NUMBERS

- Solar Street Lights
- Leaders Meet to Address Carbon Emission Pack
- Advantanges of Solar in our Environment
- Is Blue LED Harmful?

Solar LED WEATHER

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FOUR KEY WAYS SOLAR CAN HELP AFTER A NATURAL DISASTER

When a 7.8-magnitude earthquake in Nepal killed more than 8,000 people and injured another 18,000 people, the quakes leveled much of Kathmandu and left an estimated 1.4 million Nepalese people in need of help. Solar was integral in providing recovery almost automatically. And here's why.

Power sooner versus later.
Solar power generators are incredibly helpful in disaster situations because they eliminate the need to wait. Relying on traditional diesel power generators often means trying to find fuel in chaotic post-disaster situations, or waiting for fuel to be shipped in by relief organizations. With solar there's no need to wait. Solar power generators can be especially vital for medical services and with battery backups power is available day or night.

More agile, strategic relief workers.
The US military has been relying more on solar power in recent years in part because modern military operations are leaner than they used to be. Smaller, more strategic deployments can't rely on bulky, heavy fuel canisters for diesel generators. In the same way solar enables military forces to enhance troop mobility, it can allow medical and disaster relief personnel to move more quickly to where help is needed most. For this reason, the larger microgrid style solar systems used in normal conditions are typically not what's needed in a post-disaster situation.

Clean, safe water.
In post-disaster situations the water supply is often heavily compromised. Floods can foul municipal water systems. Earthquakes damage pipes, causing water contamination. Dysentery, cholera, typhoid, and hepatitis may contaminate water. Solar water filtration is a cheap, low tech way to get clean water quickly. It uses electricity and heat to disinfect water. There are already several commercially available solutions available that are small, rugged, and highly portable.

More stable communities and economies.
Solar lanterns are incredibly beneficial to displaced people after disasters. After a flood in Namibia one relief organization studied the specific benefits of these lanterns. They found children were more able to keep up with their studies at night and businesses were able to stay open, resulting in fewer disruptions to the local economy.

TRUMP'S IMPACT ON CLEAN-E

Wind and solar power will probably continue to grow during the next few years, though longer-terms prospects are cloudy.

President-elect Donald Trump is a self-declared climate-change denier who, on the campaign trail, criticized solar power as "very, very expensive" and said wind power was bad for the environment because it was "killing all the eagles." He also vowed to eliminate all federal action on climate change, including the Clean Power Plan, President Obama's emissions reduction program for the power sector.

So how will renewable-energy businesses fare under the new regime?

Trump's rhetoric has had renewable-energy stocks gyrating since the election. But the impact could be far less drastic than many worst-case scenarios. "At the end of the day what Trump says and what is actually implemented are two completely different things," says Yuan-Sheng Yu, an energy analyst with Lux Research.

Still, Yu authored one of the darkest forecasts on renewable energy under Trump's leadership. His report projected that energy generation from renewables would essentially flatline under two Trump terms, growing just 2.3 percent through 2024. That's a stark shift from recent history, which saw wind and solar generation in the U.S. grow by 4 percent and 28 percent, respectively, just last year. Projected generation under Trump looked even more meager in comparison to the robust renewables uptick Yu forecast under a Hillary Clinton victory: a 56.9 percent increase in renewable generation over eight years, thanks to a renewables-centric energy policy platform.

However, the Lux projection, like post-election analysis from some investment research firms, makes a questionable assumption: that President Trump would wipe out the federal tax credits for wind and solar installations. Renewable-energy advocates say Trump never explicitly called for eliminating the tax credits and could find it difficult to garner the congressional support required to do so.

The tax incentives were extended by the Republican-controlled Congress in December 2015 with bipartisan support. "The renewable-energy tax credits are pretty firmly in place," says Rob Gramlich, senior vice president of government and public affairs at the American Wind Energy Association, an industry trade group. In August, Senator Charles Grassley, an Iowa Republican, vowed to protect the wind tax credit if Trump became president and tried to scrap it. "If he wants to do away with it, he'll have to get a bill through Congress, and he'll do it over my dead body," Grassley said.

Another driver for wind and solar power that's likely to endure under President Trump is renewable portfolio standards, which are currently legislated by 29 states and the District of Columbia. Those state mandates, which require electricity retailers to supply a rising percentage of their power from renewable sources, account for about two-thirds of wind and solar power installations in recent years, according to the Department of Energy's Energy Information Agency.

One unknown, however, is Trump's vow to kill the Clean Power Plan, which was designed to constrain emissions from coal-fired power plants and offer incentives to replace them with renewables. The Energy Information Agency affirms Gramlich's concern in its 2016 Annual Energy Outlook, which assessed scenarios with and without the CPP. Growth in energy generation from renewables is comparable under the scenarios in the early years through 2020, but it significantly slows thereafter in scenarios with no CPP.

One glimmer of hope for renewables' long-term prospects under Trump is the president-elect's promise to invest over $500 billion in infrastructure. If some of that spending is devoted to expanding and modernizing U.S. electrical infrastructure, it could eliminate the power-grid constraints that are the biggest impediment to long-term growth for these energy sources.

Another source of hope is that clean energy is supporting job growth and exports, according to Sam Adams, the former mayor of Portland, Oregon, who is U.S. director for the World Resources Institute, an environmental research organization based in Washington, D.C. "There is a fierce global competition already under way to determine which country will be the world's top supplier of clean-energy technology and services," said Adams during a press call on Wednesday. He said he would be looking forward to making that case to Trump and his administration.

ADVANTAGES OF LED LIGHTS FOR THE ENVIRONMENT

Taking care of the environment is a responsibility that everyone should feel accountable for. Most of us are already aware of environmentally friendly processes such as recycling to minimise the amount of waste we produce and reduce our carbon footprint. However, a lot of people are unaware of new and upcoming technologies that we can use to help reduce carbon emissions. A good example of this is LED lighting, which provides many environmental advantages.

Energy Efficient LED lights are up to 80% more efficient than traditional lighting such as fluorescent and incandescent lights. 95% of the energy in LEDs is converted into light and only 5% is wasted as heat. This is compared to fluorescent lights which convert 95% of energy to heat and only 5% into light! LED lights also draw much less power than traditional lighting; a typical 84 watt fluorescent can be replaced by a 36 watt LED to give the same level of light. Less energy use reduces the demand from power plants and decreases greenhouse gas emissions.

LED lights contain no toxic elements. Most offices currently use fluorescent strip lights which contain noxious chemicals such as mercury. This will contaminate the environment when disposed of in landfill waste. Disposal has to be arranged through a registered waste carrier so switching to LED avoids the cost and time implications required for compliant disposal – and helps to protect the environment from further toxic waste.

LEDs have a better quality of light distribution and focus light in one direction as opposed to other types of lighting which waste energy by emitting light in all directions, often illuminating areas where light isn't required (such as the ceiling). This means that less LED lights are needed to achieve the same level of brightness given off by fluorescents and incandescent lights. Fewer lights will reduce energy consumption and will therefore be a benefit to the environment.

A longer life span means lower carbon emissions. LED Lights last up to six times longer than other types of lights, reducing the requirement for frequent replacements. This results in using fewer lights and hence fewer resources are needed for manufacturing processes, packaging materials and transportation.

SMART LIGHTS FOR SMART CITIES

Funded by the Department of Energy's Energy Efficiency and Conservation grant program, the Smart Lights for Smart Cities initiative installed more than 5,700 street lights in 25 metropolitan area communities. The initiative targeted smaller communities with populations less than 35,000.

Many cities and counties in the Kansas City metropolitan area use inefficient mercury and high-pressure sodium street lighting. Smart Lights test program showcased different technologies, primarily Light-Emitting Diode (LED) street lighting, and vendors demonstrating the benefits of changing to another lighting system first-hand.

Utilities want to know whether high-efficiency streetlights are a promising long-term technology. Municipalities want to be sure that the energy savings and costs LEDs can provide are sustainable enough to not only compensate for start-up costs, but also that they add value to public safety or the community character.

Municipalities can reduce energy consumption, cost, and maintenance, improve citizen vehicle compliance and increase violation capture and city revenue, enhance situational awareness, real-time collaboration, and decision making across city agencies, add intelligent Internet of Everything (IoE) innovations to transportation, utilities, public safety, and environmental monitoring without adding significantly more physical infrastructure.

3 Myths Surrounding LEDs

Light emitting diodes (LEDs) are popping up in more and more places as companies and individuals try to save money and reduce energy consumption. But some people insist there are problems with them. Here are three of the myths that have arisen around LEDs:

Myth 1:
LEDs will make you go blind.

An article in a recent issue of the Journal of Photochemistry and Photobiology detailed a study in which the effects of LED light on human retinal cells were examined and concluded that LEDs can harm human eyes. The authors of this article came to this conclusion based on an experiment that exposed human retinal cells to 5 mW per cm2 of light from an LED for 12 hr. This equates to staring at a 100-W-equivalent light bulb from four inches away for 12 hr.

Light at that intensity and duration would likely damage anyone's retinas and is one reason parents tell kids not to stare at the sun. And if scientists ever do discover a real danger from LEDs, future LEDs can be tuned to emit a spectrum of light similar to that from ordinary incandescent bulbs.

Myth 2:
Blue LEDs are especially dangerous.

There's a whiff of truth to this one. The human eye doesn't handle blue light well, especially bright blue light. It can cause mild and temporary headaches and nausea. But if exposure is long enough, it could permanently damage the eye. The source of the blue light—LED, incandescents, or neon—doesn't matter.

Some overly cautious folks point out that many LED-makers use a primary blue LED and phosphor-down-convert it to get a white LED. They then leap to the conclusion that down-converted blue LEDs will damage eyes or even cause cancer So far, there's no proof of this. There is proof, however, that blue LEDs lower melatonin levels, which can weaken a person's immune system. Medical science does not yet know if an LED-weakened immune system can lead to cancer.

To be on the safe side, many companies are limiting or eliminating the use of blue LEDs for common features such as backlighting TV screens and power buttons on electronic devices. There are also LED makers using primary violet LEDs as the basis for white-emitting lamps.

Myth 3:
LEDs aren't bright enough and have poor light quality.

This was true at one time, but no more It can be refuted with some technical specs. LEDs have color temperatures ranging from 2,500K (warm white) to 6,500K (daylight), and Color Rendering Indexes between 75 and 85, with some high-end LEDs topping 90. (Incandescent bulbs have a CRI of 100 by definition, the highest possible value. For comparison, low-pressure sodium lights have a CRI of -44; Coated mercury vapor's CRI is 49, Tri-phosphor warm-white fluorescents have a CRI of 73,; and quartz metal halide lamps rate an 85 CRI.)

Traffic engineers also think LEDs are plenty bright. They go into traffic signals which must be visible in the brightest sunlight. Traffic and auto engineers also use LEDs on vehicle headlight and tail lights, and to illuminate tunnels and other roadways. LEDs are also used to light up entire buildings and large rooms.

The U.N. climate conference was the first time that nearly every nation on Earth agreed to cut emissions. Will this agreement likely have any impact on GMIC and its future goals?

UPCOMING MEETING OF 200 LEADERS TO ADDRESS CARBON EMISSIONS PACK

The latest call for action is being made by members of the Carbon Pricing Panel, including the Prime Minister of Canada, Justin Trudeau, President of Chile Michelle Bachelet, Prime Minister of the Federal Republic of Ethiopia Hailemariam Dessalegn, President of France François Hollande, German Chancellor Angela Merkel, and Mexican President Enrique Peña Nieto, together with Bank Group President Kim, IMF Managing Director Lagarde, California Governor Edmund G. Brown Jr., Rio de Janeiro Mayor Eduardo Paes and OECD Secretary-General Angel Gurría.

A Vision Statement accompanying their announcement charts out three steps that need to be taken to widen, deepen and promote global cooperation on carbon pricing. First, the number of countries and businesses that participate in a carbon pricing system needs to increase. Second, prices need to be significant enough to account for pollution as an operating cost, and incentives for investments in low carbon solutions need to be established. And third, better links between the various regional and national pricing systems already in place need to be set up.

Speaking at the high level CPLC meeting, the IMF's Lagarde emphasized the value of cutting emissions.

"If the top 20 emitters in the world were to impose carbon charges that reflect only their domestic and environmental benefits, this would already reduce global emissions by over 10 percent," she said.

United Nations Secretary-General Ban Ki-Moon, who is expecting a record number of heads of state and government to participate on April 22 in a signing ceremony in New York for the Paris climate agreement said: "We must put a price on pollution and provide incentives to accelerate low carbon pathways. Market prices, market indices, and investment portfolios can no longer continue to ignore the growing cost of unsustainable production and consumption behaviors on the health of our planet."

Momentum for putting a price on carbon pollution is growing. Some 90 countries included mention of carbon pricing in their national plans, called the Nationally Determined Contributions, known as NDCs, prepared for the Paris climate change conference. In addition, more than 450 companies around the world report using a voluntary, internal price on carbon in their business plans and more plan to follow suit in the next two years. The number of implemented or scheduled carbon pricing schemes has also nearly doubled since 2012, amounting to a collective value of $50b.

The Carbon Pricing Leadership Coalition (CPLC), a global initiative that brings together more than 20 national and state governments, more than 90 businesses, and civil society organizations and international agencies, aims at garnering public-private support for carbon pricing around the world.

New partners joining the coalition include Côte d'Ivoire, Colombia, Finland and the United Kingdom; companies including Iberdrola, Rusal, and Tata Group; and Yale University.

Bank Group President Kim and IMF Managing Director Lagarde also convene the Carbon Pricing Panel, the high level leadership group that aims to spur further, faster action ahead of the Paris climate talks.

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