



The eco-Titan Micro–Infrastructure Lighting Solution, a product family – Delivering a New Lighting Solution

White Paper

Intended Audience-Who needs to know

This paper is designed for those who are interested in more detailed information on CMT Worldwide’s (Worldwide) new eco-Titan Micro-Infrastructure Lighting Solution, Governments, Engineers, Specifiers, and other who have an interest to understand the capabilities and uses within developing countries, ecologically conscience organizations and solar power users.

Introduction-Why a Micro-Infrastructure Lighting Solution



Worldwide has introduced a new Micro-Infrastructure Lighting Solution to solve Outdoor Lighting Issues. Over the past 10-15 years, the lighting markets and governments have asked for solutions to deliver environ-friendly lighting to communities that want to reduce dependency on existing power plants and install lighting where power plants can’t reach or don’t exist. This paper details what is required to deliver the solutions to those developing markets. Worldwide believes developing countries can change entire communities by delivering complete environmentally friendly communitywide lighting systems. A brief development history is explored which defines the application characteristics, capabilities and the engineering design parameters. The product

markets served today and in the future.

Market Requirements – for Micro-Infrastructure Lighting Solutions

The Lighting industry is experiencing a significant shift toward the use of solar lighting systems and environmentally friendly materials that can support developing markets. As countries worldwide develop manufacturing capacity, expand production, and improve their individual communities, these lighting advances have enabled communities to participate in more broadly in world markets. This production expansion is enabling these communities to improve and advance their lifestyle, by increasing the demand for lighting after sunset within their individual communities. In many communities, candles or kerosene lamps supply light after sunset. These communities depend on kerosene, diesel, or firewood for their energy, any solution that saves these expensive resources is important both environmentally and economically.

Environmental, government and community pressures are some of the driving forces and the pace is accelerating. Micro-Infrastructure Lighting solutions are beginning to capture





significant market interest. Indications are that over the coming years the trend will dramatically increase.

We have identified three forces that are helping shape the Micro-Infrastructure Lighting market:

- 1 Developing Countries Governments are increasing the demand for economical rural lighting solutions;
- 2 The ability to deliver solutions without dependence on an electrical grid; and
- 3 Traditional electric utility suppliers can be limited to deliver solutions to these remote markets.

Customer Engineering Demands.

The customers for advanced Lighting solutions include developing rural communities, the utility industry, municipalities, real estate developers, retail consumers and. Each sector is subject to different pressures but all are increasing the engineering requirements expected of Micro-Infrastructure providers. Developers and retail consumers are often driven by fear or liability concerns to provide ample lighting and security for their developments, while reducing energy costs. Customers are requesting the greenest solution in most every request for quotation.

Environmental Concerns

Environmental regulations spurred by interest groups and lobbyists are cutting off economically viable mini-power plant projects. The ability to develop integrated environ-friendly solutions eases the pressure from these regulatory organizations. These organizations regularly support, encourage, and provide in some cases assist in financial incentives for implementing Micro-Infrastructure solutions. Nuclear Power plants are being built more infrequently, clean coal is being developed and any solution that improves a community and reduces carbon usage meets the primary socio-economic objectives.

Many Producers Have Limited Ability To Change

We believe that some producer's have little room to respond to market shifts. Heavy capital investment requirements, over capacity and raw materials prices limit the flexibility for producers to effectively react to changing market conditions.

The shift from traditional power sources to alternative sources is gaining momentum. Over the last several years, the alternative power sources have fought industry resistance and are winning market share for these alternative applications in many lighting applications. Worldwide the Micro-Infrastructure deployment is utilizing the eco-Titan Pole product family to meet this market shift.

What is the Micro – Infrastructure Lighting Solution



The solution (drawn here) includes an eco –Titan Pole, LED lighting fixture, a solar panel and a battery pack. This combination of components is a complete system sized to the local lighting, geographic and environmental conditions.

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Each solution is custom designed to meet a communities exact requirements. These configurations generally are installed at the 15 to 20 foot installed height maximizing the projected ground light. Additionally, dual light configurations and other specialized designs to support exacting community specifications are available.

The Micro-Infrastructure Lighting Solution requires no external power plant, the system is completely standalone delivering proper outside lighting. Installations are quickly achieved without significant additional costs or pre-installation requirements.

Eco-Titan™ Poles solve the alternative materials requirements

Worldwide's new eco-Titan™ Product Family, the next generation Lighting Poles, deliver a new level of performance and economy to the industry. The Titan™ Pole Products are designed to meet your Micro-Infrastructure lighting requirements. This new product is a result of 8 years of development, leveraging 60 plus years delivering and servicing utility and lighting pole customers, plus our experience supplying FRC poles to many Lighting & Distribution customers.

The reason for introducing this new product line is that our customers need a permanent alternative material pole solution with the following characteristics.

1. Engineered for specific heights and strength applications.
2. Easier to install and handle than concrete, steel and wood poles.
3. An environmentally friendly pole.
4. Less conductive than steel, aluminum or wood.
5. Meets current accepted design specifications.
6. A hollow core to accommodate current and planned telecom, wireless, security and fiber access.
7. Poles with a variety of colors and finishes.

These features are built into the eco-Titan Pole design specifications to deliver long life, excellent visual appearance and the performance demanded by our customers.

CMT Worldwide designed and tested the eco-Titan Poles to meet all current NESC, ANSI, ASTM, and AASHTO specifications and requirements.

The eco-Titan pole products are constructed of high strength reinforced lightweight concrete, CMT Worldwide's patented lightweight reinforced concrete composite. CMT Worldwide's composite provides the strength of reinforced concrete, yet contains no organic material or ferrous metals. These characteristics make the products ideally suited to today's sensitive environment.

What are eco-Titan Poles made of & why

Eco-Titan Poles are manufactured from specially developed high strength concrete designed to meet the product demands required by the new marketplace. Our composite material, an inorganic reinforced concrete composite, is a patented material that for its weight provides





stronger, lighter and more durable lighting poles, utility poles and other poles better than concrete or steel. The material has a high strength-to-weight ratio, high torsional rigidity, is non-corroding in a variety of environmental conditions, and is available in a variety of colors and finishes. In our manufacturing process the material acts as binding agent and provides compressive strength. In fact, in many applications it strengthen with age.

Eco-Titan Poles are manufactured using a breakthrough proprietary technology allowing Worldwide to maximize the inherent benefits of our raw materials. This results in defined strength exactly where required on the pole, thus we can manufacture a pole that weighs less than 50% of a comparable wood pole and yet achieves required stress break points and deflection within current specifications. Worldwide's process has other attractive manufacturing benefits such as reduced waste, simple pole movement from production to shipping and a small manufacturing footprint. A complete discussion of our winding process and a visit to our facilities is available upon request.

Worldwide is, today, a leading producer of composite lighting & utility poles. Our composite products are categorized as follows:

1. Lighting Standards, ranging in size from 10 feet to 40 feet.
2. Distribution Utility poles to 55 feet.

Summary & Conclusions

Worldwide is excited to introduce the eco-Titan Pole Product line to the Lighting & Distribution Markets. These products meet a strong market demand for engineered pole products designed to meet evolving installation challenges, requirements and concerns. Composite Materials history insures our customers of our commitment to excellent, innovative products, that will meet their requirements today an in the future.

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