

Residential Infrastructure Lighting Market – Global Industry Size, Share, Trends, Opportunity, and Forecast Segmented by Technology (LED, Fluorescent, Incandescent), By Product (Recessed Lighting, Street Lighting, Spot Lighting, Flood Lighting), By Region, Competition 2018-2028.

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Abstracts

Global Residential Infrastructure Lighting Market was valued at USD 9.26 Billion in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 7.53% through 2028. Traditional lighting solutions, including high-pressure sodium (HPS) and metal halide (MH) lamps, have been the cornerstone of Residential Infrastructure Lighting for many years. These technologies offer consistent and reliable illumination but are gradually being phased out in favor of more energy-efficient alternatives due to their high energy consumption and maintenance costs. Light-emitting diode (LED) technology has revolutionized the Residential Infrastructure Lighting market. LEDs are highly energy-efficient, with longer lifespans and lower maintenance requirements compared to traditional lighting. Moreover, LED lighting can be easily integrated into smart lighting systems, allowing for remote monitoring and control, which enhances energy savings and overall system efficiency. The rise of smart Residential Infrastructure Lighting systems is a significant trend in the market. These systems incorporate sensors, connectivity, and data analytics to provide dynamic and adaptive lighting solutions. Smart lighting not only saves energy but also enhances safety by adjusting brightness based on real-time conditions, such as traffic flow or weather. Rising construction in both developing and developed countries, together with government laws limiting the use of inefficient lighting systems, are the primary factors anticipated to drive the market. LED lighting has a long lifespan, no flicker, and great illumination strength while consuming less energy. Additionally, LED manufacturers are

focusing on including features like Wi-Fi, occupancy sensors, and daylighting because these attract customers and increase product sales, thus fostering market growth.

Key Market Drivers

Rising Demand for Energy-Efficient Solutions

In pursuit of sustainability, solar-powered lighting solutions have gained traction in the Residential Infrastructure Lighting market. These systems harness solar energy to power LED lights, reducing dependence on the grid and lowering operational costs. Solar lighting is especially valuable in remote or off-grid areas where conventional power sources are scarce.

Urbanization and Infrastructure Development

One of the primary drivers of the Residential Infrastructure Lighting market is the ongoing global urbanization trend. As more people migrate to urban areas, the need for well-lit and safe infrastructure becomes critical. New infrastructure projects, such as road expansions, smart cities, and public transportation systems, require efficient lighting solutions to ensure functionality and safety. The increasing emphasis on energy efficiency and sustainability has pushed governments and organizations to adopt eco-friendly lighting solutions. LED technology, in particular, aligns with sustainability goals by reducing energy consumption and carbon emissions. Governments worldwide are incentivizing the adoption of energy-efficient lighting through regulations and rebates.

Rapid technological advancements have fueled innovation in the Residential Infrastructure Lighting market. LED technology, coupled with smart lighting systems, has made it possible to create adaptive lighting environments that respond to real-time data. This not only saves energy but also enhances safety and user experience.

Safety and Security

Safety and security concerns are pivotal drivers of Residential Infrastructure Lighting. Well-lit roads and public spaces reduce accidents and deter criminal activity. Smart lighting systems can adjust brightness levels based on the presence of pedestrians or vehicles, making spaces safer and more secure. Government Initiatives and Regulations. Government initiatives and regulations play a significant role in shaping the Residential Infrastructure Lighting market. Many countries have set energy efficiency

targets and standards for lighting products. Additionally, incentive programs and subsidies encourage the adoption of energy-efficient lighting technologies, further boosting the market.

Public Awareness and Demand for Quality of Life

Growing public awareness of the importance of well-lit and aesthetically pleasing urban environments has driven demand for quality lighting. People now expect well-designed lighting solutions that enhance their quality of life, making aesthetics an essential consideration for infrastructure projects. The Residential Infrastructure Lighting market exhibits regional variations due to differences in infrastructure development, government policies, and economic conditions. For instance: North America has been at the forefront of LED adoption in Residential Infrastructure Lighting. The region's commitment to energy efficiency and sustainability has driven widespread LED retrofitting projects in cities and municipalities.

Europe is a leader in smart Residential Infrastructure Lighting solutions. The European Union's ambitious energy efficiency goals have prompted investments in adaptive lighting systems that respond to traffic patterns and weather conditions. The Asia-Pacific region, with its rapid urbanization, represents a significant growth opportunity for the Residential Infrastructure Lighting market. Countries like China and India are investing heavily in new infrastructure projects, creating a high demand for lighting solutions. LED lights are often a better option when compared to alternative lighting options like incandescent, CFL, incandescent, and halogen lights, as they can operate with little energy input while delivering strong illumination. LEDs are extensively utilized in both indoor and outdoor situations. LEDs allow designers versatility in their designs and the durability to withstand frequent switching. The market is expected to expand as consumers become more aware of their benefits.

American National Standards Institute, China Compulsory Certification, and International Electrotechnical Commission are a few significant regulatory bodies.

The American National Standards Institute, China Compulsory Certification, and International Electrotechnical Commission are a few significant regulatory bodies that manage product certification. Manufacturing after obtaining the required licenses permits to do business, offer services, and import and export products. Governments in both developed and developing economies are attempting to lower high energy usage.

They are doing this by upholding a number of quality laws that assist them in preserving

consumer safety, managing energy use, and monitoring environmental issues. LED lighting is an energy-saving solution with a 50,000-hour lifespan and lower electricity use. As a result, it is anticipated that stringent government rules limiting the use of lighting that uses a lot of energy will promote the expansion of the market.

When used as overhead surgical illumination earlier, halogen lights bothered medical workers during procedures or examinations. Additionally, the examination room's 50 to 100 W halogen bulbs with the tiny surgical illumination produced a lot of heat and consumed too much electricity. As a result, one factor anticipated to fuel the expansion of the target LED lighting market is manufacturers' strategy for combining LEDs in surgical illumination, exam lights, phototherapy, and endoscopy to enhance patient treatment experiences. The development of the LED lighting industry is also anticipated to be impacted by technological advancements in the medical device sector that will replace older or less efficient equipment.

The COVID-19 pandemic negatively impacted the global economy. The demand for LED lighting was reduced as a result of rigorous suspensions and lockdowns imposed on construction sites. However, the second half of 2021 saw an increase in construction due to the introduction of new as well as upgrading projects, which contributed to the steady recovery of the industry for LED lighting.

Key Market Challenges

High Initial and Deployment Costs of LED Lighting System to Restrain Market Growth

In recent years, light emitting diode (LED) systems have experienced a substantial surge in their level of recognition. Nevertheless, the primary expense associated with purchasing a single unit of these systems surpasses that of the conventional CFL lighting systems currently available. The components that comprise these systems, including diodes, transmitters, and capacitors, involve considerable costs, thereby directly influencing the initial retail price of the complete system. Additionally, the substitution of current lighting systems with LED alternatives and the installation of new LED lights pose affordability challenges for residential consumers, ultimately impeding the progress of the worldwide market.

Key Market Trends

The adoption of Light Emitting Diode (LED) technology continues to grow rapidly in the Residential Infrastructure Lighting market. LED lights offer numerous advantages over

traditional lighting solutions, including energy efficiency, long lifespan, and reduced maintenance costs. The city of Los Angeles, California, embarked on a massive LED streetlight retrofit project. By replacing traditional high-pressure sodium (HPS) streetlights with LED fixtures, the city achieved energy savings of over 60%. Moreover, the LED lights provided better visibility, enhancing safety for residents and reducing light pollution.

Smart Residential Infrastructure Lighting

Smart Residential Infrastructure Lighting systems are becoming increasingly popular. These systems utilize sensors, data analytics, and connectivity to create adaptive lighting environments. They can adjust lighting levels based on real-time data, such as traffic conditions, weather, and pedestrian movement, thereby enhancing energy efficiency and safety. The city of Copenhagen, Denmark, implemented a smart lighting system in its bicycle lanes. The system uses motion sensors to detect the presence of cyclists and pedestrians. When a user approaches, the lights brighten, providing a safer and more comfortable experience. This not only enhances safety but also reduces energy consumption during periods of low usage.

Solar-Powered Lighting

Trend: Solar-powered lighting solutions are gaining prominence as sustainability becomes a focal point. These systems harness solar energy to power LED lights, reducing the reliance on the electrical grid and lowering operational costs. In rural areas of India where reliable access to electricity is a challenge, solar-powered streetlights have been deployed to improve safety and accessibility. The solar panels charge during the day, and the stored energy powers the LED streetlights at night, contributing to energy independence and reducing carbon emissions.

Aesthetic and Architectural Lighting

Beyond functionality, Residential Infrastructure Lighting is increasingly seen as a means of enhancing aesthetics and creating distinctive urban environments. Architectural lighting designs are used to illuminate landmarks, bridges, and buildings, transforming cities into visually appealing spaces. The Sydney Opera House in Australia is a prime example of architectural lighting. Its unique and iconic design is accentuated at night with carefully designed lighting schemes that highlight its sail-like structures. This not only adds to the beauty of the cityscape but also draws tourists and visitors.

Human-Centric Lighting

Trend: Human-centric lighting is gaining attention for its ability to enhance well-being and productivity. This trend involves adjusting the color temperature and intensity of lighting to mimic natural daylight patterns, which can have positive effects on circadian rhythms and overall health. In healthcare facilities, such as hospitals and clinics, human-centric lighting systems have been installed to improve patient outcomes. These systems can simulate natural daylight, which aids in the healing process and helps patients maintain a healthy sleep-wake cycle. The integration of Residential Infrastructure Lighting with the Internet of Things (IoT) and connectivity is expanding possibilities. Lighting systems are now part of larger smart city ecosystems, enabling data-driven decision-making and automation. In Singapore, lampposts have been equipped with sensors and cameras to create a 'Smart Lamppost' network. These lampposts provide real-time data on air quality, traffic, and weather. The data collected is used for urban planning and improving the city's overall livability.

Segmental Insights

Operational Voltage Insights

In terms of market segmentation by voltage, the market was dominated by the up to 600V.

Regional Insights

North America is expected to dominate the market during the forecast period. North America is a developed region with a well-established infrastructure. However, there is still a significant demand for infrastructure development, particularly in the areas of roads, bridges, and public transportation. This demand is driving the need for new and improved Residential Infrastructure Lighting solutions. North America is a leader in the adoption of new technologies, including in the area of lighting. This is due to a number of factors, such as a high level of disposable income, a strong culture of innovation, and a supportive government regulatory environment. The early adoption of new technologies is helping to drive the growth of the Residential Infrastructure Lighting market in North America. North America is increasingly focused on energy efficiency and sustainability. This is due to a number of factors, such as rising energy costs, concerns about climate change, and government incentives. The focus on energy efficiency and sustainability is driving the demand for energy-efficient and sustainable Residential Infrastructure Lighting solutions, such as LED lights and smart lighting

controls. In addition to these factors, the North American Residential Infrastructure Lighting market is also benefiting from a number of other trends, such as the increasing urbanization of the region and the growing demand for intelligent transportation systems.

Key Market Players

Cree Inc

Hubbell Lighting

Zumtobel Group AG

Philips Lighting

Acuity Brands Inc.

Dialight plc

Eaton Corporation

Osram GmbH

GE Lighting

SAMSUNG

Report Scope:

In this report, the Global Residential Infrastructure Lighting Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Global Residential Infrastructure Lighting Market, By Technology:

LED

Fluorescent

Incandescent

Global Residential Infrastructure Lighting Market, By Product:

Recessed Lighting

Street Lighting

Spot Lighting

Flood Lighting

Global Residential Infrastructure Lighting Market, By Region:

North America

United States

Canada

Mexico

Asia-Pacific

China

India

Japan

South Korea

Indonesia

Europe

Germany

United Kingdom

France

Russia

Spain

South America

Brazil

Argentina

Middle East & Africa

Saudi Arabia

South Africa

Egypt

UAE

Israel

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Residential Infrastructure Lighting Market.

Available Customizations:

Global Residential Infrastructure Lighting Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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