



Conflow Power and iLamp South Korea

CONFLOW SOUTH KOREA

Initial report on Market potential for iLamp in South Korea



Like all cities around the globe Seoul is no different. Many scheme and plans are underway, none however are bringing two factors to the market that will allow iLamp to stand apart from all others.

1

True Autonomous power

2

A revenue generating lamp

This document is to assess the current market in South Korea and establish the hidden potential that will ensure iLamp is the leader.



The Seoul Metropolitan Government said that the city had set up ‘smart poles’, which function as street lamps, traffic lights, Wi-Fi base stations, and closed-circuit television cameras, at 26 locations throughout the city including Seoul Square and Sungnyemun Gate in downtown.

The city plans to come up with 10 types of standard models and instructions on the installation and operation of smart poles, aiming for additional poles to be set up in Guro and Dongjak districts this year.

In addition, for later this year, the city plans to embark on a pilot project to improve the smart poles by adding charging stations for drones and electric vehicles as well as surveillance functions for illegal parking.

Seoul City has prioritized the agenda of replacing old streetlamps and traffic lights, normally replaced with new ones each year, with street poles instead.

There are approximately 240,000 poles set up across the city for public use (streetlamps, traffic lights, CCTV cameras, security lights). Every year, 3,500 to 3,700 of them are replaced with new ones.

In South Korea, about 20 so-called smart street lamps have been installed in the city center. They are designed to better manage traffic or to monitor certain places, or simply to help connect to a public wireless network. By the end of the year, the new models should be able to charge electric cars, as well as drones!

For the moment, 26 of these lamp posts have been installed. Each of these poles of course provides street lighting and traffic lights, but they are also more “intelligent” than regular street lamps, collecting a maximum of information. Other services such as public wireless access points (WiFi) and closed circuit video surveillance cameras are also integrated into the posts.

Over time, the idea is to customize each lamp post according to the needs of its location and neighbourhood. For example, the “Smart Poles” in Seoul Plaza, located just in front of City Hall, offer access to a public WiFi connection. The ones near Sungnyemun Gate have QR codes that can guide visitors to online cultural information.

The first poles equipped with charging solutions for cars and drones are expected before the end of the year. They are designed to be able to easily charge, remotely, the drones used by the municipal services, which serve to help authorities monitor what is happening in the city, such as parking enforcement, but also intervene in case of disasters, where emergency rescue is needed.

While the drone charging system appears to be a world first, the idea of using street furniture as charging points for electric cars is gaining ground in many places around the world. In Europe, the German startup ubitricity is already proposing a solution that consists of integrating such tech into an existing streetlight. This solution, which has already been used successfully in Great Britain, will soon be tested in France.

For the Seoul Metropolitan Government, the installation of this new generation of streetlights should help improve the urban landscape, but also the safety and well-being of Seoulites. In any case, they will help facilitate the transition to an increasingly connected and intelligent city.



The street lighting market is growing globally, boosted by regulatory policies that encourage energy efficiency, IoT convergence, LED price drops, and a new business model “as a service” in different industries. The new concept of “smart poles” is also growing around the world, with use cases that range from basic LED replacement and remote control to the more innovative concept of “smart poles” equipped to offer video surveillance services, air quality monitoring, fiber or Wi-fi connectivity (e.g., Enel’s JuiceLamp).



Public lighting infrastructure has three key features that position itself as potential strategic assets for smart cities' concept, enabling the development of a common platform with significant cost synergies: capillarity, electrification and connectivity.

This study aims to analyze the main smart city services that can be developed leveraging public lighting infrastructure, identifying the main bottlenecks and roadblocks that prevent large-scale deployment and developing key recommendations for companies entering this new market. In order to do this, we analyzed a number of relevant use cases and interviewed different players along the value chain (Enel X, TIM, Open Fiber, Axxon, Arianna LED and two Italian municipalities). The main findings are summarized below:

- 1 Lighting poles represent a strategic infrastructure for smart city development (and, in particular, for video-surveillance services and autonomous driving) thanks to their capillarity, connectivity and electrification.
- 2 A significant number of pilot projects are emerging in many countries, but with a lack of large-scale deployment.
- 3 The main constraints for large-scale development are related to a demand not yet in place (players need to create demand for smart services, and this takes time), main buyers (public administration) that have financial constraints and lack technical expertise, and the presence of several stakeholders that need to find the right way to collaborate.
- 4 Public lighting operators need to innovate and push on technology innovation and new business models/partnerships to effectively leverage their infrastructure and participate in this new competition area.

“The concept of “smart city” must be familiar to everyone. As the number of street lights for urban road lighting increases every year, energy consumption also increases, and power supply is becoming more and more tight. The maintenance cost and operation of street lights have also brought a lot of pressure on city management. Many countries in the world have put forward the policy of “building smart cities”, and the construction of smart cities has entered a period of rapid development, creating a huge smart solar street light market. At present, many cities around the world have deployed and piloted smart solar street light projects in the process of exploring smart city construction, including Germany, Spain, Singapore, India, the United States, etc., through the use of LED solar street lights to reduce energy consumption. At the same time, integrate smart solar street lights with traffic management systems, strengthen the intelligent management of road traffic.

The United States is the earliest country in the world to promote smart solar street lights. In 2017, the United States installed a large number of smart solar street lights. The Asia-Pacific region is expected to become the fastest-growing smart street lamp market and is expected to occupy a dominant position by 2026. Japan, China, South Korea, Australia, India and other regions have begun to replace traditional street lamps with smart solar street lights to reduce energy consumption. From 2005 to 2015, the number of urban road lighting in China increased from 10.6 million to more than 40 million, with an average annual compound growth rate of more than 11%. The urban road lighting industry maintained a trend of sustained and rapid development.

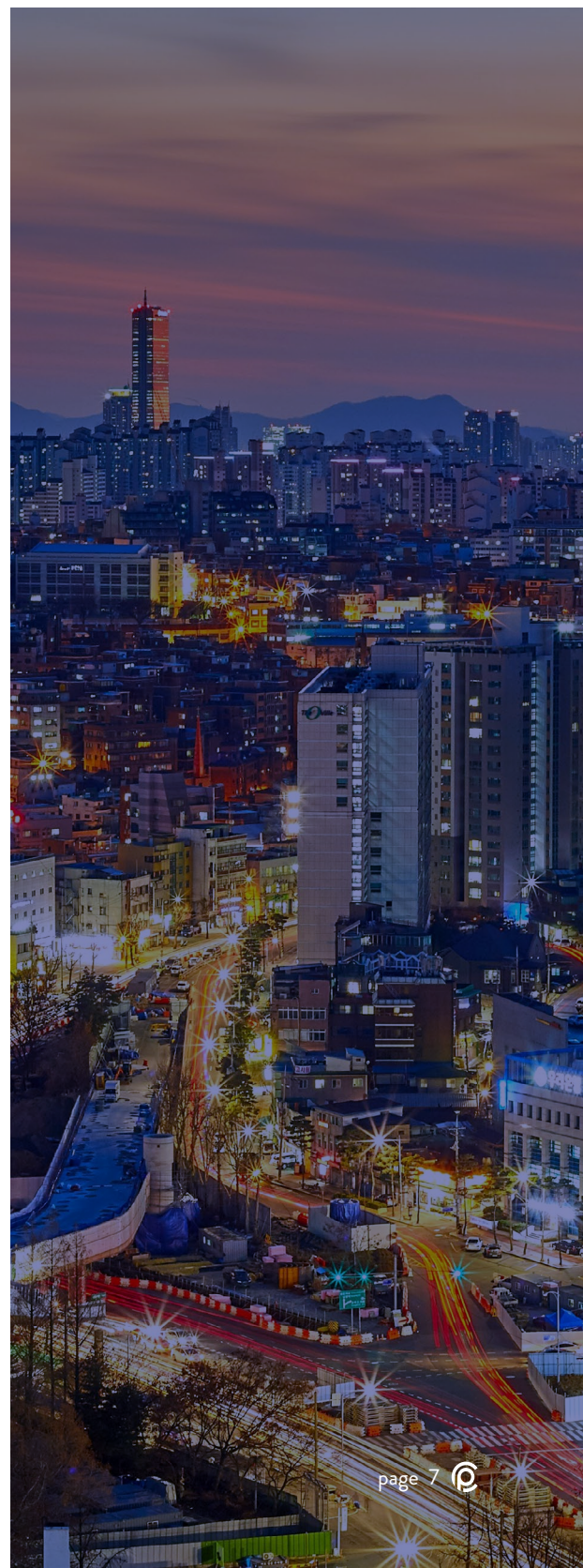


Smart solar street light system

Smart solar street light system is one of the core part of smart city development. Smart solar street lights refer to street lights that realize remote centralized control and management of street lights through the application of advanced, efficient and reliable power line carrier communication technology and wireless GPRS/CDMA communication technology. Smart solar street lights have automatic brightness adjustment and remote lighting control according to traffic flow, active fault alarm, lamp cable anti-theft, remote meter reading and other functions can greatly save power resources, improve the level of public lighting management, and save maintenance costs.

Smart lighting is the entrance to a smart city. Street lights are all over urban roads and streets. Where there is electricity, there are street lights. They are dense, large in number, and in a wide range. As a key node in the construction of a smart city, smart solar street lights can avoid waste of resources caused by repeated construction and are the main carrier of a smart city.

Smart solar street lights can expand the application of various functions of smart cities, such as equipped with smart lighting, smart new energy charging, smart security, smart city management, smart transportation, smart parking and other multi-functional modules to provide convenient services for people's lives. According to forecasts by professionals, the market size of various hardware and services with smart street lights as the entrance will be 4.1 trillion RMB by 2022, accounting for 25% of the total size of the smart city market.

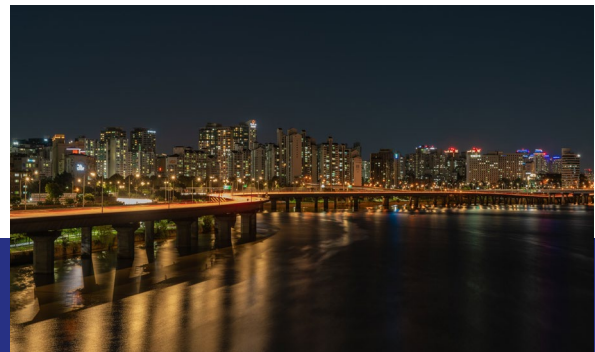


Although the concept of smart lighting is very popular, the current smart solar street lights in China are still in the pilot construction stage. The industry covers a wide range of fields, and the business model has not yet been finalized, and further development is still needed. The development of smart street lights is still very long.

The Republic of Korea (South Korea) currently relies on imports for over 90% of its energy needs. In tandem with low-carbon and environmentally friendly green growth policies, the country strives to develop eco-sensitive systems and turn green growth into a part of everyday life in South Korea.

South Korea has set its economy-wide goal of reducing greenhouse gas (GHG) emissions by 30% by 2020 in accordance with a BAU (Business As Usual) scenario. The country's public sector also aims to reduce emissions by 20% by 2015). To these ends, the South Korean government is planning energy reduction in a number of different ways, including the introduction of renewable energy, using energy-efficient equipment.

Renewable energy is a form of energy source that can replace fossil fuels and nuclear energy, and cannot be depleted. Examples of pollution-free energy sources include solar, geothermal, and tidal and wind power.



See more:

Trend Analysis of Smart Solar Street Light - EXC

Economic Evaluation of Environment-Friendly Streetlights on a University Campus: Using a Field Survey in Korea - Journal of Asian Architecture and Building Engineering



In 2019 it was announced that by 2023 Seoul would have smart street lights

A “Smart Street Light System” will be developed by 2023, which will attach sensors to street lamps erected close to the road and relay road information collected to vehicles and road facilities.

The Ministry of Land, Infrastructure and Transport announced on Monday that it would hold an research and development (R&D) briefing session with the Ministry of Science and ICT, the Ministry of Trade, Industry and Energy, and the Ministry of Interior and Safety on Tuesday.

The project aims to reduce traffic accidents and improve traffic flow by collecting road information by attaching sensors to street lights and using information and communication technology (ICT) to share such information with signal lights, vehicles and pedestrians via smartphones.

Sensors on the street lights will collect and share information such as traffic accidents, congestion, icy roads, current traffic conditions, the direction and speed of movement of individual vehicles, falling objects and potholes.

This will help protect pedestrians by lighting red lights on the crosswalk traffic lights in the direction of progress, by identifying information on vehicles travelling at high speeds late at night and guiding them to a detour in the event of a car crash at an intersection ahead.

This project will be carried out as a multi-agency R&D project where three or more ministries will collaborate. The government has set aside 26 billion won (US\$22.86 million) in funding for the project until 2023.

Main competitor in South Korea



SOLEZ CO.

Solez Co., Ltd. (CEO Kim Jong-hee), located in Yangsan Eogok Industrial Complex, is a company leading the industry in this field with bold technology investment and ceaseless R&D to revitalize the LED lighting industry and new and renewable energy. CEO Kim Jong-hee, whom I met at this company on the 20th, was checking the controller containing the core technology of solar street light in the laboratory on the second floor. In the production room on the first floor, lens attachment work was being done for streetlights to be supplied to the Huangshan Culture and Sports Park and floodlights used for sports facilities.

Solez, a venture company specializing in LEDs, was the first in Gyeongsangnam-do to acquire the 'performance certification' that certifies the technology and performance of products through the examination by the Ministry of SMEs and Startups in the street light field last year. This is a system that supports public institutions to preferentially purchase excellent products. Under this system, all public institutions are required to purchase at least 50% of their purchases as products from small and medium-sized enterprises (SMEs), and 10% or more of them are stipulated to be purchased as technology-developed products.

Kim Jong-hee, CEO of Solez Co., Ltd. said, "Through performance certification, we will increase our share in the public lighting market based on the pilot purchase system for technology development products hosted by the Ministry of SMEs and Startups." We can be proud of doing it side by side." Based on this, the Public Procurement Service is planning to select an excellent procurement company.

In addition, it holds two related patents in the field of solar street light, a new and renewable energy business. In the meantime, the battery charging efficiency and performance degradation pointed out as the disadvantages of solar street lights have been dramatically improved with the overheat and low temperature protection device of the lithium battery used in the patented solar LED lighting. This reduces the space attached to the solar street lamp pole and makes the solar street lamp more aesthetically pleasing. It can also be lit for 7 days without sunlight.

In addition, the solar LED lighting device that turns on/off according to the time of sunset and sunrise using latitude, longitude and time information is the only technology possessed by Solez that can illuminate even in the early morning hours before sunrise, which is the vulnerable time of solar street lights. am.



It also secured price competitiveness by lowering the unit price of one solar street lamp to 4 million won. Local governments are also paying attention to Solez's technological prowess, which adds the advantage of eco-friendliness to the cost savings. Orders are coming in from all over the country, including Yangpyeong and Geochang in Gyeonggi-do.

CEO Kim Jong-hee said, "It is effective to install it in a place where there are many people who exercise in the early morning hours. In Geochang-gun, Gyeongsangnam-do, all street lights are installed with solar power, and I hope that Yangsan City will also take the lead in applying eco-friendly technology to the public sector."

This is a working paper to highlight key factors to enter the power sector in South Korea.

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