

iLamp Roadmap for Oregon

This document covers information required to build a road map to commercial viability for the iLamp territorial license for Oregon.



Oregon Population
4.246 Million

GDP
\$224.43 Billion

Oregon Department of
Transport Budget
\$5.1 Billion

Street lighting is the single largest source of carbon emissions from local governments, typically accounting for 30-60% of their total emissions.

As Oregon state lawmakers adopt ambitious climate goals, such as House Bill 2021 which requires utilities to eliminate their greenhouse gas emissions associated with electricity they provide by 100% by 2040, the state is faced with the challenge of transitioning to clean energy while also addressing issues such as wildfires, pollution, power outages, lack of transmission infrastructure and a lack of a unified west-wide transmission system operator.

Exclusive License for iLamp in Oregon

Oregon has a goal to decrease carbon emissions and shift towards renewable energy. However, the state also has an aging infrastructure, with grid infrastructure, streetlights and traffic signals in need of upgrading. By replacing inefficient streetlights with modern, technology-packed LED streetlights, iLamp can not only improve energy efficiency, but also generate revenue through the monetization of data, media and excess energy produced.

iLamp's modular design allows for easy maintenance and scalability including the integration of other renewable energy technologies such as enhanced turbine, solar and generator, further increasing the potential for energy and revenue generation, making it a cost-effective solution for cities looking to upgrade their streetlights.

Replacing aging, inefficient streetlights with iLamp creates local jobs in various areas including manufacture, assembly, installation, maintenance, and management of the streetlamps and microgrid systems. iLamps use of local labor and materials in the construction and maintenance of microgrids stimulates economic growth in the surrounding communities.

The creation of microgrids also provides additional revenue streams for utilities and municipalities, which can be used to create jobs and support local economic development.

iLamp.com
ILOCX.com/iLamp



ConFlowPower.com
Batteryware.com
PowerasaService.com
Droneready.com
Investinbatteries.com
ILOcasestudy.com



Creativity is the power to correct the seemingly unconnected.

- Nikola Tesla

The Oregon Opportunity

iLamp presents a unique opportunity for Oregon to improve energy efficiency, generate revenue, and promote sustainability, all while modernizing the state's infrastructure. It is a perfect solution for addressing the state's energy, public safety, and job creation concerns.

Oregon has passed a clean energy bill that requires its two largest utilities, PacificCorp and Portland General Electric, to deliver 100% clean electricity to customers by 2040 and prohibits new or expanded natural gas-fired power plants in the state.

The new law makes Oregon the eighth state to commit to 100% clean electricity, and along with New York, it now has the most ambitious timetable in the nation to get there. However, utilities have not yet revealed how they will achieve this goal, with PacifiCorp Senior Vice President Scott Bolton stating that “we don’t have a plan that shows we can get there.”

Making “100 x 40” a reality will require major advances in technology, structural changes in energy markets and fundamental shifts in the way transmission is coordinated and sold.

HB 2021 allows “pauses” in meeting targets if the pace would cause reliability problems or become an economic hardship for ratepayers. And while the law prohibits new or expanded gas plants, it doesn’t require utilities to shut down their existing plants. While advocates have trumpeted the economic benefits and jobs that will flow from the bill, developers and other experts fear the bulk of the renewable energy projects that result will be built out of state.

In 2019, gas and coal-fired plants still furnished more than half of Oregon’s electricity supply. Replacing that capacity will require a vast buildout of wind and solar capacity. However, experts say much of that development is likely to take place out of state due to the lack of reliable wind and solar resources in Oregon.

A recent study of how to decarbonize Oregon’s electricity grid sponsored by a coalition of renewable energy advocates suggested the potential for as much as 20,000 megawatts of offshore wind projects in Oregon, about half of the peak demand that California’s grid operator saw during a heat wave in June 2021.

While the bill is considered ambitious, it will be a major challenge for utilities to achieve the 100% clean energy goal by 2040. The bill includes a number

of provisions to increase community involvement and funding for renewable energy projects, but it remains to be seen how the state will address the significant technological and economic challenges that lie ahead.

Oregon now stands at the cusp of a revolutionary transformation in its urban infrastructure. The introduction of iLamp, with its self powered street lighting technology, is poised to significantly contribute to this transformation. Combining sustainability with economic benefits and a state-of-the-art technology platform, iLamp represents a future-ready solution ideally suited for Oregon's vision.

Infrastructure Modernization

A significant portion of Oregon's infrastructure, from streetlights to traffic management systems, is primed for an upgrade. iLamp's adaptive and modular approach fits right in, ensuring a transition that is both efficient and minimally disruptive.

Relieving Grid Strain and Cost Savings

One of iLamp's standout features is its ability to alleviate strain on the grid, by being completely self powered iLamp removes grid load, translating to direct cost savings. This is crucial for a state like Oregon, looking to modernize without adding a burden on its existing over burdened power infrastructure.

Power as a Service (PaaS) Model

iLamp's PaaS model allows utilities to stay actively involved, transitioning from traditional models to a more futuristic and sustainable approach, generating clean energy for local use.

Ongoing revenue

iLamp doesn't stop at cost savings but also establishes a consistent stream of revenue as each lamp's "real estate" can be utilized for deploying and aggregating newer technologies, ranging from hardware such as cameras and sensors to software such as gunshot detection, localised weather, numberplate recognition, traffic and parking monitoring.

Public Safety, Health, and Communication

From ensuring well-lit roads to monitoring pedestrian safety and air quality,

iLamp offers a holistic solution. Communication modules can act as pivotal data transmission points, enabling a digital transformation that goes beyond just lighting.

Financial Viability and Untapped Revenue Streams

The financial model for iLamp in Oregon projects substantial returns. Apart from direct sales, there's potential in modules, private marketplaces, and uncharted territories like highways and private campuses. The opportunity for diverse revenue streams is immense.

Beyond Metropolitan Limits

While urban centers in Oregon will be primary beneficiaries, the potential of iLamp extends to rural, semi-urban areas, and major transit routes. This ensures a comprehensive coverage, integrating the state into a cohesive, well-lit, and technologically advanced entity.

iLamp in Oregon is not just about innovative streetlights. It's about ushering in an era of smart urbanization, where technology, sustainability, and economic growth coalesce. The state stands to benefit not only from a modernized infrastructure but also from a solution that's cost-effective, grid-friendly, and revenue-generating. Oregon's future looks bright.

Vision Zero goal to eliminate traffic deaths and serious injuries in Portland

Through the Vision Zero program, the cities of Portland and Eugene and their partners are working to eliminate traffic deaths and serious injuries on our streets.

Streetlights make it easier for people to avoid crashes and can reduce the incidence of crashes at specific locations. For example, adding lighting at intersections can reduce crashes by as much as 42 percent. Better street lighting is critical for Oregon to meet its Vision Zero goals to eliminate traffic deaths and serious injuries.

The City of Portland alone owns more than 100,000 streetlights, but still lacks adequate streetlighting, particularly east of Interstate 205.

Portland has many types of street users and street characteristics that support different lighting levels. The Portland Bureau of Transportation (PBOT's) Signals, Streetlighting, & ITS Division maintains and reviews lighting modifications in the City's streets.

In 1990, PBOT implemented an infill policy for residential streets. This policy set maximum spacing standards for practical lighting infill of local streets that previous policies did not cover. As part of this policy, the City developed a standard detail identifying the different light pole layout configurations.

The street lighting guidelines provide illuminance lighting values for different street classifications. Minimum lighting levels rise with street functional classification. The guidelines suggest the brightest lighting for Major Traffic/Major Transit/Traffic Access streets, and lower lighting levels for District Collector and Neighborhood Collector roadways. Local Service roadways have the lowest lighting levels. Wider arterial streets are more likely to require two-sided lighting or other lighting solutions to meet uniformity guidelines.

Higher lighting levels are recommended at intersections and mid-block pedestrian crossings, and sometimes supplemental pedestrian scale lighting is used if it is determined that overhead lighting is inadequate (see Figure 3). PBOT typically mounts pedestrian scale lighting at 14 feet compared to overhead “cobra-head” lighting that is mounted at 30-40 feet.

Street level view of a four lane street with bike lanes and a center median island. There is a combination of overhead street lighting and pedestrian scale lighting.

Portland has some special lighting districts. City code notes that “all street lights shall be a standard overhead fixture except in areas where it is determined by the Commissioner In Charge of the Bureau of Transportation that specialty lighting would substantially enhance a unique characteristic of the district.”

As part of the Outer Division Safety Project, the City is planning to supplement existing lighting on outer SE Division (82nd to 174th) that will improve the uniformity of lighting in this corridor.

PBOT performs an equity analysis using its Equity Matrix to inform lighting improvements. The matrix considers the demographic variables of race, income and Limited English Proficiency within Census Block groups in Portland.

The City’s development code requires privately or publicly funded projects with streetlights corresponding to City lighting standards. Design, plans and specifications for streetlights to be installed or altered shall be first approved by PBOT. The full cost of providing the street lighting improvements shall be

paid by the permittee or funding source used for the street construction costs.

Engineering staff in PBOT's Signals, Street Lighting and ITS division conduct monthly "night drives" to evaluate lighting needs and identify street light outages. PBOT also coordinates with City partners to prune overhanging foliage when it seriously obstructs the light intended for the pavement and sidewalk.

iLamp, with its adaptive lighting capabilities, can provide optimal lighting conditions tailored to the specific requirements of diverse street classifications, from major transit routes to local service roadways. iLamp's ability to adjust brightness ensures that critical points like intersections and pedestrian crossings are sufficiently illuminated, aligning with Vision Zero's safety benchmarks.

iLamp's design isn't limited to just illumination. Its open modular platform paves the way for future integrations of both hardware and software solutions geared towards public safety. This adaptability ensures that as technology evolves, iLamp can accommodate new tools and strategies, seamlessly becoming a part of the city's evolving safety ecosystem.

Using modular hardware and software combinations, such as camera and communication systems, iLamp can be used to actively or passively through the use of recognition software, monitor street activity in real-time. This not only aids in detecting potential hazards but also significantly improves response times in the event of an incident. Faster response can be the difference between a minor mishap and a major catastrophe, bringing Vision Zero's goals closer to realization.

iLamp's modular nature allows it to serve as a foundation for future innovations. Be it advancements in pedestrian-scale lighting, traffic management, or novel safety solutions, iLamp stands ready to integrate and upgrade, ensuring Portland's streets remain at the cutting edge of safety technology.

As the city continues to evaluate its lighting needs through initiatives like monthly "night drives" and collaborations for foliage management, iLamp's integration abilities ensure it becomes a core component of this evaluation system, enhancing and not replacing existing efforts.

LED Pilot Program

The Oregon Department of Transportation (ODOT) has initiated a streetlight conversion pilot program, which will involve replacing more than 8,000 high-pressure sodium lighting fixtures with LEDs. The \$18.6 million project is funded by an energy savings performance contract (ESPC) that will result in an estimated equivalent of 3,500 metric tons of carbon emissions saved annually.

The 8,000 streetlights to be replaced during this pilot are along highways in Region 1 of the ODOT system, which includes the Clackamas, Hood River, Multnomah, and eastern Washington counties.

The new LED streetlights use 50% less energy than traditional highway lighting fixtures and are dark-sky friendly with a color temperature of 3,000 to 4,000 Kelvin. The longer lifecycle for each LED fixture – which is roughly 15 to 20 years compared with a two- to four-year lifespan of traditional high-pressure lights – means that there will be less disruption to the public due to traffic control for replacement, according to Ameresco.

ODOT selected Ameresco as its project partner. Ameresco officially began work on this project in May 2020. It expects to complete this project by summer 2021.

A 2019 report stated that the global LED lighting market reached \$26.09 billion in 2016 and is likely to cross \$54.28 billion by the end of 2022, growing at a CAGR of almost 13% from 2017 to 2022. The research noted the advantages provided by LED lights over fluorescent and incandescent lamps as the major factor boosting the growth of the LED lighting market.

Advantages include higher brightness, energy efficiency and longer life span of LED lights. Incessant new product launch by players such as GE and Philips along with other players with innovative tech is drawing the customer all over the world. For example, in August 2017, Kenall rolled out 6-inch modular downlights, which were developed to perform competently for years and are suitable for pharmaceutical processing, tightly sealed and compatible for military installations.

Oregon wide lighting survey

The League of Oregon Cities conducted a survey in 2010 about street and traffic lighting in Oregon. 37% of Oregon's cities participated in the survey, which represents 78% of Oregon's city residents and 55% of all Oregonians. The survey found that most cities use some form of high-intensity discharge lighting (HID), but many cities also use a variety of other lighting technologies. A majority of cities have some form of HID lighting: high-pressure sodium (83%), followed by mercury vapor (46%) and metal halide (26%). 13% of responding cities use LEDs for street lighting, 10% use magnetic induction and 14% use other technology. 56% of responding cities do not own any traffic lights. Among cities that replaced incandescent traffic bulbs with LED, 88% saw a reduction in electricity cost and 85% saw a reduction in maintenance cost.

Streetlight ownership in most of the cities surveyed is divided amongst several entities. Seventy-one percent of cities report owning some or all of their street lights, with 21 percent owning all. Sixty-eight percent of cities have lights owned by utilities, and 7 percent have streetlights owned by other government entities. Twelve percent reported having streetlights that are owned by private parties

The majority of streetlights in responding cities are, at least in part, maintained by the electric utility. As a result, many cities may not have much decision-making power over the type of lighting technology used because the city is not directly handling operations and maintenance. However, more than half of cities report maintaining some portion of the street lights with their own city work crews.

General fund and state highway fund revenues pay for the majority of street lighting operations in Oregon cities. Cities answered this question, "How are your streetlight costs funded?" in two different ways: by city fund (general fund, street fund), and by revenue source (property tax, gas tax, street lighting fee). Given the two different types of responses, these data do not lend themselves to further statistical analysis, but are nonetheless useful to understand the range of situations in Oregon cities.

The survey states that given the economic downturn, cities across the country are looking for ways to recover costs related to energy and infrastructure. In Oregon, six cities (7%) responded by reducing street lighting to reduce electricity costs. The City of Myrtle Creek, for example, chose to turn out non-essential lights, such as ones in the middle of a block or cul-de-sac while preserving all lights that have an impact on safety, to save money. The City of Portland is not replacing some lights when they stop working and is

Public security and health

reducing the wattage used in others to save money. The City of Bandon has another way of addressing electricity costs. In mid-block locations of new developments, street lights will only be installed upon unanimous agreement of affected residents, with all costs paid by the individual or neighborhood requesting the installation. The vast majority of Oregon cities (88%) charge developers for the costs associated with lighting newly developed areas in the city. Most cities recover some infrastructure costs caused by development in the form of fees or system development charges.



Road Safety

iLamp can positively impact road safety by providing optimal lighting conditions on roads and highways. Its adaptive lighting capabilities can adjust brightness according to traffic conditions, enhancing safety during peak hours and adverse weather conditions. Additionally, modular camera and communications systems can help monitor traffic, detect potential hazards, and improve response times to accidents, further improving road safety.



Pedestrian Safety

iLamp improves pedestrian safety by providing adequate lighting in areas such as sidewalks, crosswalks, and public transportation stops. Modular cameras can be used to monitor pedestrian movement and help identify potential hazards, ensuring a safer environment for walking and other outdoor activities.



Weather Monitoring Module

Weather sensors can detect changing weather conditions, such as fog, rain, or snow, and adjust the intensity and distribution of light accordingly. This adaptability enhances visibility for drivers and pedestrians in adverse weather conditions, further improving public safety.




Air Quality Module


Air quality monitoring can help track pollution levels in real-time, allowing authorities to implement appropriate measures to limit exposure and maintain a healthy environment. By monitoring and addressing air quality con-

cerns, iLamp contributes to improved broader public health and well-being.


Communications

 Communication modules can both expand telecoms coverage and facilitate the transmission of critical information to the relevant authorities and emergency services in case of accidents or security incidents. This real-time communication can help improve response times and overall public safety.

Light Pollution Reduction

 The adaptive lighting capabilities of iLamp can minimize light pollution by adjusting brightness levels according to the time of day and surrounding conditions. This can contribute to a better night-time environment, reducing the impact of artificial light on wildlife and human health.

Integration with Existing Infrastructure

 iLamp technology can integrate with existing sensors and infrastructure, allowing for enhanced data collection and analysis. By connecting iLamp with sensors a modules facilitating parking, traffic management, telecommunications structural, UV and noise monitoring, fire, leak and flood detection, grid management and many more.

Communication modules can facilitate real-time data transmission between these sensors, creating a comprehensive and interconnected network enabling authorities to monitor and manage various aspects of urban living more effectively. This network of sensors can lead to improved decision-making, more efficient use of resources, and a better understanding of the urban environment.

License holder benefit

Benefits for Territorial Holders of iLamp

1. First Refusal on Conflow Power Group Innovations:

Territorial holders will be at the forefront of any technological advancements or innovations developed by the Conflow Power Group. This means that before any new feature, product, or service is rolled out to the broader market, territorial holders have the exclusive opportunity to adopt, integrate, or decline them. This not only provides an edge over potential competitors but also ensures that each territory is equipped with the latest in energy and infrastructure solutions.

2. Local Manufacturing Capabilities:

One of the standout privileges for territorial holders is the ability to establish local manufacturing units. This initiative not only contributes to local economic growth but also ensures quicker response times for installations, maintenance, and replacements. With local manufacturing, territorial holders can control the quality, reduce delivery times, and tailor-make solutions suitable for their region's specific needs.

3. Competitive Edge Against iLamp HQ:

By establishing local manufacturing, territorial holders can potentially produce iLamps at competitive prices, thereby posing healthy competition to iLamp HQ via the allowed sale of these lamps to other territories. This encourages market dynamics that can lead to continuous improvements in the product, better pricing strategies, and an overall enhanced offering for the customers.

4. Access to Wider Network of Territorial Rights Holders:

Being a territorial holder isn't just about managing a region; it's about being part of a global network. Holders gain access to a wide network of other territorial rights holders, which opens up avenues for collaborative projects, sharing of best practices, and even joint ventures. This network provides a platform to exchange ideas, strategies, and market insights which can be invaluable for business growth.

5. Distributing Locally-Developed Technologies:

Territorial holders aren't restricted to what iLamp or Conflow offers. They can innovate, create, or license their own technologies for integration into the local iLamps. Once developed, they can distribute these innovations to other territorial holders both nationally and internationally. This not only diversifies their revenue stream but also places them in a position of influence within the iLamp community.

6. Charging Margins on Distributed Technologies:

When distributing their locally developed or licensed technologies to other territories, holders can charge a margin on those solutions. This is a direct revenue generation model that rewards innovation and the entrepreneurial spirit of the territorial holder.

7. Early Mover Advantage:

Territories that adopt iLamp's solutions early will naturally have a head start. As pioneers, they will have first hand experience, establish best practices, and develop a robust infrastructure that later entrants will look to emulate. This experience positions them strongly not just as market leaders in their territories but also as potential consultants or partners for newer entrants.

8. Preferential Rates on Modules and Software Solutions::

One of the defining advantages for territorial holders is access to preferential rates on various modules and software solutions. iLamp HQ, recognizing the strategic importance of territories and their contribution to the global ecosystem, extends these rates as a token of partnership and collaboration.

When iLamp HQ or any other territory negotiates with third-party vendors or develops in-house solutions, the benefits of bulk purchasing or shared development costs are passed on to the territorial holders. This means lower acquisition costs, which can be a substantial financial benefit.

9. Collective Bargaining Power::

The collective might of all the territorial holders allows them to exert a greater influence when negotiating rates or features with software and module providers. This collaboration ensures that all territories, irrespective of their individual size or bargaining power, get to leverage the combined strength of the entire iLamp community.

10. Access to a Repository of Solutions:

Territorial holders will have access to a vast repository of modules and software solutions developed or sourced by iLamp HQ and other territories. This curated collection ensures that territories do not have to start from scratch or waste resources in reinventing the wheel. They can simply choose from tried and tested solutions, making the deployment faster and more efficient.

11. Continuous Updates and Upgrades:

Technology is ever-evolving, and in the world of smart urban solutions, staying updated is crucial. Territorial holders will continuously receive updates and upgrades on the modules and software solutions from both iLamp HQ and other territories. This ensures that the iLamp infrastructure in each territory remains modern, efficient, and in line with the latest technological advancements.

Territorial holders of iLamp are in a prime position to not just capitalize on the opportunities provided by Conflow Power Group but also to shape the future direction of energy solutions in their region. Their benefits extend beyond revenue generation to establishing a stronghold in the ever-evolving world of sustainable energy solutions.

Rebates, Grants, and Incentives for Solar Street Lighting in the US

Federal Incentives

At the federal level, the Solar Investment Tax Credit (ITC) remains one of the most significant financial incentives. While initially targeting solar arrays for homes and businesses, the ITC also benefits solar infrastructure projects, which include solar street lighting. As of now, the ITC provides a tax credit of up to 26% of the cost of solar projects, which can significantly reduce the financial burden for municipalities and businesses transitioning to solar street lighting.

Oregon Specific Incentives

The state of Oregon has been notably proactive in embracing renewable energy. Thanks to its abundant renewable resources, the state has invested heavily in solar energy, with numerous incentives tailor-made to promote solar projects. When it comes to solar street lighting, Oregon offers:

Energy Trust of Oregon Incentives: Energy Trust of Oregon has specific programs that provide cash incentives for solar projects, which can cover part of the upfront costs associated with the installation of solar streetlights.

Oregon Department of Energy Tax Credits: The state offers tax credits for renewable energy projects, which can reduce the tax liabilities for businesses and municipalities implementing solar street lighting.

Local Utility Rebates: Depending on the locality within Oregon, various utility companies offer rebates for solar projects, further making solar street lighting an attractive proposition.

The warning signs for Oregon

Oregon has been experiencing increasingly large fire seasons over the last few decades, with the preceding 2020 wildfire season being one of the most destructive in the state's history, in 2021 more than 1000 fires burnt more than 518,303 acres across the state, causing severe air pollution, power outages, loss of land, property, injury and death. Early detection is part of the first line of defense against wildfires.

At the end of July 2021, Governor Kate Brown signed a bill to invest \$220 million in wildfire prevention, preparedness, and response.

Oregon's air pollution problem is exacerbated by easterly winds that bring smoke and pollution from out of state and an aged in-state waste incineration burns an unlimited amount of in and out of state industrial waste, and up to 18,000 tons of out of state medical waste each year.

Oregon's air is so hazardous it's breaking records - September 2022
Four Oregon cities among nation's worst for air pollution

Fine particle air pollution originating from human activity was responsible for an estimated 107,000 premature deaths in the United States – at a cost of \$886 billion to society – in 2011. The U.S. Office of Management and Budget found that regulations issued by the Environmental Protection Agency (EPA) limiting air pollution generated between \$157 billion and \$777 billion (in 2010 dollars) in benefits to the U.S. economy, mainly by reducing the health risks of exposure to fine particulate air pollution.

In 2022, Oregon received over \$1 Million in EPA Funding to be spent on community air monitoring and there are various initiatives to increase air quality monitoring.

In December 2022 the Portland area was hit with high winds causing outages to more than 20,000 homes in Multnomah County, according to Portland General Electric's outage map. Nearby in Clackamas County, about 27,000 people were in the dark Tuesday afternoon and another 29,000 were without power in Washington County. About 25,000 customers outside the Portland region were also without power around noon Tuesday, according to Pacific Power.

The Market & Financials

Oregon, known for its environmentally conscious population and progressive city planning, offers an attractive market for sustainable infrastructure solutions. Street lighting plays a significant role in both its urban areas, such as Portland, and its extensive rural regions. Given Oregon's lean towards sustainability, there's a higher willingness to invest in long-term eco-friendly solutions like iLamp.

Market Segmentation

By Area : Urban (Portland, Eugene, Salem) vs. Rural (Eastern Oregon regions).

By Need : Replacing old infrastructure vs. New installations in developing areas.

By Application : Public streets, highways, private campuses, parks, and carparks.

Environmental Concerns : Oregon's push for green solutions aligns with iLamp's features.

Smart Cities : Portland and Eugene have shown interest in smart city solutions, offering opportunities for iLamp.

Decentralized Systems : As the state works to improve its grid resilience, solutions like iLamp that reduce strain are welcome.

The Market

Total Addressable Market (TAM):

Based on infrastructure projects and existing lighting solutions, we estimate a potential of 500,000 streetlights across Oregon, representing a potential market size of \$4.5 billion.

Serviceable Available Market (SAM):

Given Oregon's focus on sustainability and smart technologies, 70% of the TAM could be approachable, making the SAM \$3.15 billion.

Serviceable Obtainable Market (SOM):

Considering market penetration rates and competition, an initial capture of 10% of SAM would be \$315 million.

Financial Model

For the purpose of the below model, the number of lamps is determined using the equation $[(\text{total population}/100)*8.7]$, provided by the Northeast Energy Efficiency Partnerships (NEEP) used to estimate the number of public streetlamps in a state using the population. The population of Oregon is 4.246 million, giving an estimated 369,602 public streetlights.

The iLamp Oregon Territory financial model spans three years, the model is centered on the sale of iLamps, with each lamp selling for \$9,000. From this sale price, \$1,000 is paid to iLamp HQ as a royalty for each lamp. The territorial license holder buys lamps from iLamp HQ at decreasing costs over time: \$3,500 in the first year of sales, \$3,000 in year two and onwards, excluding the \$1,000 royalty. The model assumes a linear sales growth pattern, starting with just 1% of the local market, with a 25% year on year growth rate over the first 3 years.

The remaining revenue, after accounting for the costs and royalty, is considered the territory's gross profit. This gross profit does not take into account installation, maintenance, or operational costs. However, the model also does not include the significant revenue generated by the streetlamps modules or any royalty taken on Power As A Service revenue due to the complexity and varying requirements of each sub-license. Additionally it does not include the private market for lights on privately held carparks, campuses, etc and may not include the lions share of lighting on highways, nor does it include cost savings which may be made by manufacturing the lamps locally or revenue made selling promotional, distribution or sub-licenses.

This financial model therefore represents a conservative base which can be further fine tuned to reflect the unique dynamics of the local market.

$$\text{Market Size (lamps)} = \frac{\text{total population}}{100} \times 8.7$$

Using the population of Oregon (**4.246 million**), the market size is:

$$\text{Market Size} = \frac{4,246,000}{100} \times 8.7 =$$

369,602 (rounded to nearest whole number)

Lamps sold based on the sales growth pattern

In year one of operation, sales will capture just 1% of the market:

$$\text{Number sold (Year 1)} = 0.01 \times 369,602 = 3,696$$

Year 1:

Number sold	: 3,696 lamps
iLamp selling price	: \$9,000
Cost of sales per lamp	: \$3,500
Royalties due per lamp	: \$1,000
Gross profit per lamp	: $\$9,000 - \$3,500 - \$1,000 = \$4,500$
Total sales (revenue)	: $3,696 \text{ lamps} \times \$9,000 = \$33,264,000$
Gross profit	: $3,696 \text{ lamps} \times \$4,500 = \$16,632,000$

Year 2:

Number sold	: 4,620 lamps
iLamp selling price	: \$9,000
Cost of sales per lamp	: \$3,000
Royalties due per lamp	: \$1,000
Gross profit per lamp	: \$5,000
Total sales (revenue)	: \$41,580,000
Gross profit	: \$23,100,000

Year 3:

Number sold	: 5,775 lamps
iLamp selling price	: \$9,000
Cost of sales per lamp	: \$3,000
Royalties due per lamp	: \$1,000
Gross profit per lamp	: \$5,000
Total sales (revenue)	: \$51,975,000
Gross profit	: \$28,875,000

iLamp Financial Model (Years 1-3)

Items	Year 1	Year 2	Year 3
Number Sold	3,696 lamps	4,620 lamps	5,775 lamps
Ilamp Selling Price	\$9,000	\$9,000	\$9,000
Cost of Sales	\$3,500	\$3,000	\$3,000
Royalties Due	\$1,000	\$1,000	\$1,000
Gross Profit per Lamp	\$4,500	\$5,000	\$5,000
Total Sales (revenue)	\$33,264,000	\$41,580,000	\$51,975,000
Gross Profit	\$16,632,000	\$23,100,000	\$28,875,000

Income Statement

Items	Year 1	Year 2	Year 3
Net Sales	\$33,264,000	\$41,580,000	\$51,975,000
Cost of Sales	\$16,632,000	\$13,860,000	\$17,325,000
Gross Profit	\$16,632,000	\$27,720,000	\$34,650,000
Selling & Operating	\$3,326,400	\$4,158,000	\$5,197,500
General and Administrative	\$1,663,200	\$2,079,000	\$2,598,750
Total Operating Expenses	\$4,989,600	\$6,237,000	\$7,796,250
Operating Income	\$11,642,400	\$21,483,000	\$26,853,750
Income Before Taxes	\$11,642,400	\$21,483,000	\$26,853,750
Income Tax (30%)	\$3,492,720	\$6,444,900	\$8,056,125
Net Income	\$8,149,680	\$15,038,100	\$18,797,625

Potential partners

Oregon's electric IOUs provide service to approximately 74 percent of customers in the state. Most of that service is provided by the two major electric IOUs, PGE and Pacific Power. PGE serves 780,000 residential customers while Pacific Power serves 517,000 residential customers. Idaho Power's residential customers in Oregon number 13,500. The rest of Oregon is served by 37 consumer owned electric utilities (COUs), which are cooperatives, people's and municipal utilities.

West Oregon Electric Co-Op

<https://www.westoregon.org/>

West Oregon Electric Cooperative was formed to meet the needs of the people in our communities and we continue to build new lines to growing membership.

Pacific Power Oregon

<https://www.pacificorp.com>

Our long-term plan accelerates a bold energy future with low-cost, reliable and sustainable power for our customers and communities.

Portland General

<https://portlandgeneral.com>

Portland General Electric is a Fortune 1000 public utility based in Portland, Oregon. It distributes electricity to customers in parts of Multnomah, Clackamas, Marion, Yamhill, Washington, and Polk counties - 44% of the inhabitants of Oregon.

Specht Development, Inc.

<https://spechtprop.com/>

503-646-2202

Specht Development, Inc. and Specht Properties, Inc. have been a premier developer and property manager of commercial real estate in Oregon and SW Washington for over three decades. Specht and its affiliated entities have developed or managed the development of 12 million square feet of commercial space with a cost basis of over \$1 billion, building value for our clients and shareholders at every step in the process.

Pacific NW Properties

<https://pnwprop.com/>

503-626-3500

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Cairn Pacific

<https://cairnpacific.com/>

503 345-6733

Tom DiChiara, Principal – tom@cairnpacific.com

<https://phkinc.com/>

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Further potential contacts

E-Solutions Oregon

16070 S. Rifle Way, Oregon City,
OR 97045, United States
503-476-3243

<https://esolutions-or.com>

Blue Raven Solar

5319 SW Westgate Dr Ste 160,
Portland, OR 97221, United States
800-377-4480

<https://blueravensolar.com>

E2 Solar

20784 NE High Desert Ln,
Bend, OR 97701, United States
541-388-1151

<https://e2solar.com/>

Smart Solar Energy Salem Oregon

503-342-0315

www.smartsolarenergyco.com/

Power Northwest

2711 NW St Helens Rd, Portland,
OR 97210, United States
503-208-4357

<http://www.powernw.com/>

Sunshine Solar

541-295-8500

1489 Rogue River Hwy, Grants
Pass, OR 97527, United States

<https://sunshinesolarinc.com/>

Utility Contacts

Blachly-Lane Electric Cooperative

541-688-8711

Clearwater Power Company

541-688-8711

Columbia Power Cooperative

541-934-2311

Consumers Power

541-929-3124

Douglas Electric Cooperative

541-673-6616

Hood River Electric Cooperative

541-354-1233

Midstate Electric Cooperative, Inc.

800-722-7219

Salem Electric

503-362-3601

Umatilla Electric Cooperative

800-452-2273

Wasco Electric Cooperative

541-296-5051

Central Lincoln PUD

877-265-3211

Central Electric Cooperative

541-548-2144

Columbia Basin Cooperative

541-676-9146

Columbia Rural Electric (WA)

509-382-2578

Coos-Curry Electric Cooperative, Inc.

541-332-3931

Harney Electric Cooperative

541-573-2061

Lane Electric Cooperative

541-484-1151

Oregon Trail Electric Cooperative

541-523-3616

Surprise Valley Electric Corporation

541-947-2368

Umpqua Indian Utility Co-op

541-677-5569

West Oregon Electric Cooperative, Inc.

503-429-3021

Clatskanie PUD

503-728-2163

<p>Columbia River PUD 503-397-1844</p>	<p>Emerald PUD 541-746-1583</p>
<p>Northern Wasco PUD 541-296-2226</p>	<p>Tillamook PUD 503-842-2535</p>
<p>Canby Utility Board 503-266-4021</p>	<p>City of Ashland Electric Department 541-488-5357</p>
<p>City of Bandon 541-347-2437 x233</p>	<p>City of Cascade Locks 541-374-8484</p>
<p>City of Drain 541-836-2417</p>	<p>City of Forest Grove Light & Power 503-992-3250</p>
<p>City of Monmouth 503-838-3526</p>	<p>Eugene Water & Electric Board 541-484-2411</p>
<p>Hermiston Energy Services 541-289-2000</p>	<p>McMinnville Water & Light 503-472-6158</p>
<p>Milton-Freewater City Light & Power 541-938-5531</p>	<p>Springfield Utility Board 541-746-8451</p>

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