Lighting Growth Strategy

**Lighting Vision 2030**

Improving Lighting Culture and Contributing to the Global Environment

**Connected Smart Lighting**

**Human Centric Lighting**

Japan Lighting Manufacturers Association
Dissemination of “Connected Smart Lighting & Human Centric Lighting”
100% SSL rate in the market of existing luminaires in 2030

SSL (Solid State Lighting): Lighting using semiconductors such as LED, Organic EL and laser

--- Vision ---

Improving Lighting Culture and Contributing to the Global Environment
Aiming to Create New Lighting Value and Contribute to the Global Environment through Dissemination of “CSL” as an intelligent lighting that connects to a variety of things and matters, and “HCL” as a safe, comfortable and convenient lighting that is friendly to human.

--- Mission ---

We will endeavor to disseminate environment-friendly and gentle lighting for realization of a safer and more comfortable living environment and for the improvement the global environment.
As a representative of the lighting industry, we will contribute to the development of the lighting industry and to create a fair and sound lighting market through pursuing government growth strategies, disseminating information to domestic and overseas stakeholders, exchanging information, and conducting negotiations.

Responding to Paradigm Shifts by “Connected Industries”
- Establishment of a business environment to promote "CSL and HCL"
- Organizational reform of the association in response to the paradigm shift

Dissemination of “CSL & HCL”
Market of existing luminaires in 2030
100% SSL rate
60% reduction in power consumption

Responding to Globalization and Borderless Economy
- Improvement of an environment for overseas market development
- Promotion of brand value of Japanese lighting products
- Maintaining and improving sound markets for fair and proper competition

Improving the lighting quality and contributing to SDGs
- Contributing to the global environment by accelerating the change to SSL in the existing luminaire market
- Creating New Spatial Value by Improving the lighting quality
- SDGs: Sustainable Development Goals
Improving Lighting Culture and Contributing to the Global Environment

**Plan for 100% SSL rate of existing luminaires in the domestic market**

<table>
<thead>
<tr>
<th>Year</th>
<th>Luminaires with conventional light sources (other than LEDs)</th>
<th>LED luminaires</th>
<th>Renewal of LED luminaires</th>
<th>Change to LED luminaires by using LED lamps</th>
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</thead>
<tbody>
<tr>
<td>2017</td>
<td>34%</td>
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<tr>
<td>2018</td>
<td>34%</td>
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<td>2019</td>
<td>50%</td>
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<td>2020</td>
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<td>2025</td>
<td>50%</td>
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<td>2026</td>
<td>50%</td>
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<td>2027</td>
<td>50%</td>
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<tr>
<td>2028</td>
<td>50%</td>
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<tr>
<td>2029</td>
<td>50%</td>
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<tr>
<td>2030</td>
<td>98%</td>
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</table>

The number of luminaires in the existing market is estimated to remain approximately 1.7 billion units. Accelerated dissemination of “CSL & HCL” in cooperation with related ministries and agencies is crucial for the achievement of the government target of 100% SSL rate.

**Reduction of power consumption** (simulation in the case of 100% SSL rate in the existing luminaire market)

By adding effect of lighting control systems (Dissemination rate: 30%)

- Existing luminaire market in 2013 is estimated at 1.7 billion units.
- The condition is that the number of existing luminaires remains stable from 2013 through 2030 with the SSL rate of 50% in 2020 and 100% in 2030.
Domestic and Overseas Lighting

2017 Market Estimation of Existing Luminaires by Sector
(Survey by Japan Lighting Manufacturers Association)

The number of existing units by market sector

- Non-residential outdoor market: 37 Millions of units
- Residential indoor market: 725 Millions of units
- Residential market: 967 Millions of units

- Total: 1,729 Millions of units

SSL Rate: 34%

Scenario for 100% SSL Rate of Existing Non-residential Luminaire Markets
(Indoor and Outdoor)

Challenges to Achieve the Scenario

- In order to accelerate the renewal of small and medium-sized properties and rental facilities for which it is difficult to generate capital investment costs, it is necessary to strengthen awareness-raising activities as well as to continue government support measures such as subsidies and tax incentives.

- New measures are needed to accelerate the introduction of lighting control systems in order to achieve further reductions in power consumption and improvements of spatial value.

Scenario for 100% SSL Rate of Existing Residential Luminaire Markets

Challenges to Achieve the Scenario

- It is an important issue to increase SSL rate of luminaires in facilities that require electrical work. Especially for old luminaires, measures to promote the renewal of the luminaires are necessary instead of replacing the lamps in consideration of safety, including government support measures such as subsidies for the installation cost.

- Consumers tend to have a consciousness of "Still usable" and "Mottainai (Wasteful)", and they have little awareness of replacing luminaires other than at the time of moving or renovating the residences. Therefore, it is necessary to promote public relations activities that change consumers' awareness, such as appealing for electric power saving and danger due to long-term use, in cooperation between the industry and the government.
Markets and Future Issues

### Shipment Result and Target of Luminaires in Japan
*(based on voluntary statistics of Japan Lighting Manufacturers Association)*

- From market indices such as reduction in housing starts and population transition, the shipment number of luminaires, in particular residential luminaires, is expected to decline in Japan from 2019 onwards.
  - Generation and promotion of high-value-added products by "CSL & HCL" in the renewal market of LED luminaires as well as creation of new business
  - Business expansion in overseas market

### Shipments of Light Sources in Japan
*(based on Machinery Statistics of Ministry of Economy, Trade and Industry and voluntary statistics of Japan Lighting Manufacturers Association)*

- The light source business will continue to shrink due to longer life of the light source, longer lamp replacement cycles by partial use of lighting, and spread of LED luminaires that do not require lamp replacement.
  - The top runner system accelerates the shrinkage of the conventional light source market.
  - Creation of a new circulation-type business model
  - Soft landing of conventional light source business

### Global Market Trends and Future Issues

- The center of the global economy will shift from Europe and the United States to China, India, and Southeast Asia, and the global lighting market will be driven and expanded by emerging countries.
  - Luminaire shipment amount will increase 36% in 2030. The SSL rate also increase from 64% to 96%. On the other hand, the lamp shipment amount is expected to decrease slightly, and the LED rate is expected to rise to about 88%.
  - Accelerated support for entry into expanding emerging markets
  - To discover opportunities to enter overseas high-value-added markets
- The widespread use of LED products accelerates the borderless and globalization of lighting products.
  - Strengthening the market surveillance system to eliminate imports of poor quality

(Source: Fuji Keisai Co., Ltd. "Future prospects of the global luminaire & light source market, 2019")
**Priority Issues**

### 1 Responding to Paradigm Shifts through "Connected Industries"

In order to respond to various business models by "Connected Industries" using advanced technologies and to social changes, business environments such as standardization by collaboration with other industries beyond the field will be established together with the organizational development of the association structure that adapts to them.

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1. Establishment of a business environment to promote &quot;CSL and HCL&quot;</td>
<td>1.1-1.</td>
</tr>
<tr>
<td>2. Organizational reform of the association in response to the paradigm shift</td>
<td>1.1-2.</td>
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</table>

### 2 Improving the lighting quality and contributing to SDGs

In order to achieve an international commitment to reduce greenhouse gas emissions by 26% (compared with 2013 levels) and to contribute to improving the global environment, the government target of 100% SSL rate in the existing luminaire market by 2030 will be pursued.

Create new spatial value by generating new functions and improving the lighting quality through the dissemination of "CSL & HCL" (multi-functional lighting that connects to a variety of things and matters as well as human-friendly, safe, comfortable and convenient lighting).

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<tbody>
<tr>
<td>1. Contributing to the global environment by accelerating the adoption of SSL in the existing luminaire market</td>
<td>2.1-1.</td>
</tr>
</tbody>
</table>

### 3 Responding to Globalization and Borderless Economy

The shipment volume of luminaires for domestic new constructions is expected to decline due to a reduction in the population and a decline in the number of new housing starts.

On the other hand, the global lighting market grows mainly due to population growth in emerging countries and the expansion of the middle class. Wide-area Asia will be the center of the global economy by 2030. With this area as a main target, environment for market entry and business expansion will be prepared, and Japanese lighting products will be promoted.

The widespread use of LED products accelerates the global and borderless transactions of lighting products. Market surveillance system will be strengthened to deal with the increase in imported overseas products that do not match the Japanese market.

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<tbody>
<tr>
<td>3. Maintaining and improving sound markets for fair and proper competition</td>
<td>3.2-1.</td>
</tr>
</tbody>
</table>
map to the year 2030

<table>
<thead>
<tr>
<th>SSL rate target in the domestic existing luminaire market</th>
<th>2018 Estimates</th>
<th>2020</th>
<th>2025</th>
<th>2030 Government Target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40%</td>
<td>50%</td>
<td>75%</td>
<td>100%</td>
</tr>
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</table>

2019 - 2025

- Promotion of standardization regarding "CSL & HCL"
- Strengthening collaboration across industries centered on IoT, AI and big data
- Promotion of new entrants from different industries
- Establishment of an organizational structure for committees and secretariats in response to Connected Smart Lighting

Vision in 2030

- Participation in new IEC projects, cross-sectional consortiums, etc.
- Promotion of standardization in the lighting software field by participating in ISO/CIE, ISO/TC274, etc.
- Expanding alliances with other organizations
- Expanding the number of members from different industries (support members)

- SSL rate of existing luminaire market
  - 40% in 2018 ➔ 75% in 2025 ➔ 100% in 2030
- CSL & HCL conversion rate
  - 9% in 2018 ➔ 25% in 2025 ➔ 40% in 2030
- Dissemination and establishment of certification systems for residential and outdoor emergency lighting by promoting the Area Disaster Prevention Lighting Systems linked to smart cities, HEMS, etc.
- Dissemination of correct information on the effectiveness and influence of light, and promotion and enlightenment of new indicators of the quality of lighting

International exchange and information gathering with overseas governments and industry
- Proper response as a lighting industry linked with intergovernmental trade and customs negotiations
- Collection of information through participation in overseas exhibitions and promotion of Japanese lighting products
- Promotion for participating in overseas events and business matching activities
- Strengthening market surveillance systems such as trial buying surveys
- Active interaction and information exchange with GLA and lighting industry associations around the world
- Strengthening cooperation with JETRO/JICA and other international organizations
- Support for overseas business expansion by PR of Japanese lighting products and business matching activities through active participation in emerging countries’ events
- Maintaining and improving safe and sound markets by preventing the inflow of poor quality products from overseas
Responding to Paradigm Shifts by "Connected Industries"

**Promotion of standardization regarding "CSL & HCL"**

Extended systemization utilizing advanced technologies such as IoTs, AI, Cloud, etc.

- **IEC/SEG9**
  - Smart Home/Office Building System

- **JEITA**
  - Smart home sub-committee

- **Ministry of Economy, Trade and Industry**
  - Promotion of the spread of smart houses and buildings Task force

- **Other Related organizations/Committees**

**Lighting system**

**Lighting software**

- Standardization activities JIS, ISO/TC274, CIE

**Cooperation between software and hardware**

**Lighting hardware**

- Standardization activities JIS, PSE Law, IEC/TC34

**Strengthening collaboration across industries centered on IoT, AI, and big data**

<table>
<thead>
<tr>
<th>User</th>
<th>Service provider (Data Utilization)</th>
<th>Platform (Data aggregation and analysis)</th>
<th>Home appliances, IoT devices, Web services, etc. (Data Provision)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Housing manufacturers</td>
<td>Fitness</td>
<td>IoT home appliances</td>
</tr>
<tr>
<td></td>
<td>Fitness</td>
<td>Delivery</td>
<td>“CSL &amp; HCL”</td>
</tr>
<tr>
<td></td>
<td>Delivery</td>
<td>Shopping</td>
<td>Service</td>
</tr>
<tr>
<td></td>
<td>Shopping</td>
<td>Traffic</td>
<td>Information</td>
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<td>Traffic</td>
<td>Car</td>
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<td></td>
<td>Car</td>
<td>Childcare and education</td>
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<td>Childcare and education</td>
<td>Dining</td>
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<td></td>
<td>Dining</td>
<td>Tourism</td>
<td></td>
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Prepared based on data from METI "Smart Life Policy" (February 2018)
Improving Lighting Culture and Contributing to the Global Environment
- Creating Spatial Value by Dissemination of “CSL & HCL” -

**Expansion of Lighting Value and Role**

Through new functions by "CSL & HCL":
- A safe, secure and comfortable living environment will be provided such as watching and monitoring system, crime prevention, disaster prevention, etc.;
- New circulation-type products and business models will substitute for lamp replacement business;
- Service utilizing IoT, for example maintenance service will be widespread.

**Creation of a comfortable visual environment space by "CSL and HCL", utilizing advanced technologies such as IoT, AI and big data**

Creation of a comfortable visual environment space by progress of dimming and toning technologies and advancement of color rendering

**Improving the Lighting Quality**

**Promoting further energy saving through “CSL & HCL”**
(Dissemination of Lighting Control Systems)

**Dissemination of LED lighting**

2009 **First wave** (LED Lighting) 2019 **Second Wave** (Connected Industries) 2030 onwards

**Enhancement of Lighting Quality and creation of spatial value through "HCL & CSL"**

**Smart City**

**Smart Home**

**Human Centric Lighting**

**Increase of Lighting Value**
Comfort, Convenience, and Earth-friendly

**Creating value by connected lighting**

**Improvement of Lighting Quality**

**Dimming/Toning/Multiple-lamp dispersion**

<table>
<thead>
<tr>
<th>Energy</th>
<th>7:00</th>
<th>9:00</th>
<th>12:00</th>
<th>Evening</th>
<th>18:00</th>
<th>Night</th>
<th>21:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather</td>
<td></td>
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Improving Lighting Culture and Contributing to the Global Environment
- Promoting Dissemination of "CSL & HCL" -
Responding to Globalization and Borderless Economy

- **International interaction and information exchange with governments and industries of various nations of the world**
  - Standardization support, Personnel dispatch, Holding of event & business matching, dispatching of information on Japanese products, etc.
  - Building connection network in public and private sectors, and collecting information on policies, market, projects, etc.

  - Interaction with ASEAN countries

- **Promotion of brand value of Japanese lighting products and business matching activities**

  - Japan Pavilion at overseas exhibitions

- **Responding to intergovernmental trade and tariff negotiations as Japanese lighting industry** (Review and study of HS Code)
  - WCO (World Customs Organization)
  - HSC (Harmonized System Committee) and RSC (Review Sub-Committee)
  - Governments of various nations
  - Japanese government Ministry of Finance Ministry of Economy, Trade and Industry
  - Major power such as EU, USA and Australia

  - **(Mission)**
    - Proposal of clear and appropriate HS Code of lighting products
    - JLMA HS Code Subcommittee
    - GLA HS Code Committee
    - Member companies

  - HS Code
  - Harmonized Commodity Description and Coding System
    - (Statistics Item Number)

- **Maintaining sound market for fair and proper competition**
  - Globalization and borderless transactions of lighting products through the spread of LED products
  - Production shrinkage of conventional light source products
  - Increase in imported overseas products that do not match the Japanese market
  - Strengthening market surveillance systems such as trial buying surveys
Profile of the Japan Lighting Manufacturers Association

The Japan Lighting Manufacturers Association (JLMA) is promoting standardization, dissemination, accreditation business and international activities to contribute to the sound development of lighting equipment (light sources, luminaires, control devices, and components) and related businesses, the development of industry, as well as the assurance of safety in people’s lives and the improvement of livelihood culture.

On April 1, 2019, the Japanese National Committee of CIE (JCIE) is merged into JLMA, and we also conduct research and study on illumination and light, thereby we aim at reinforcement of activities for "Improvement of Lighting Quality".

Main activities of the Japan Lighting Manufacturers Association

- **Dissemination activities**
  - Public-relations activities
  - Information transmission
  - Statistical survey
  - Cooperation with related organizations

- **Standardization activity**
  - Compliance with domestic standards
  - Compliance with Overseas Standards
  - Establishment and alteration of Association’s Technical Standards

- **Certification business**
  - Certification services for escape lighting
  - Voluntary evaluation services for emergency lighting
  - Voluntary registration services for recessed luminaires (S-type)
  - Approval of luminaires for public facilities

- **International activity**
  - Supporting international interaction
  - Support for international standardization
  - Promotion of GLA activities

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