

NOVALUME

# COMMUNICATION ON PROGRESS 2020

—  
United Nations  
Global Compact





# STATEMENT OF CONTINUED SUPPORT

“

Novalume joined the UN Global Compact three years ago and I am pleased to confirm that Novalume reaffirms its support of the Ten Principles of the United Nations Global Compact.

I am convinced that none of the future challenges, especially those created by the coronavirus pandemic, can be resolved without a global approach.

As members of UN Global Compact and a global community, we must tap into collective intelligence and collaboration by showing strong leadership steering toward an innovative vision.

Since the creation of Novalume, we have implemented the ten principles of the United Nations Global Compact in our daily work and lead the process to next step by involving our partners and suppliers.

We are all committed to provide our joined contribution.

Sincerely yours,



Kim Krahll Larsen  
Chief Executive Officer of Novalume





# SUMMARY

## ◉ STATEMENT OF CONTINUED SUPPORT

## ◉ NOVALUME TODAY AND NOVALUME OFFICES

## ◉ COMMUNICATION ON PROGRESS 2020

*Implementing the 10 principles into business, strategies and operations*

### Human Rights and Commitments

- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
- Principle 2: make sure that they are not complicit in human rights abuses.

### Labor Principles Integration and Evaluation

- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- Principle 4: the elimination of all forms of forced and compulsory labor;
- Principle 5: the effective abolition of child labor; and
- Principle 6: the elimination of discrimination in respect of employment and occupation.

### Environment Challenges

- Principle 7: Businesses should support a precautionary approach to environmental challenges;
- Principle 8: undertake initiatives to promote greater environmental responsibility; and
- Principle 9: encourage the development and diffusion of environmentally friendly technologies.

### Anti-corruption Policies and Procedures

- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

## ◉ UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

*Novalume takes action to contribute to the UN Sustainable Development Goals (SDGs). Below you will find the relevance and influence of the SDGs on our work to drive positive social, economic and environmental change.*



3 GOOD HEALTH AND WELL-BEING	ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES	11 SUSTAINABLE CITIES AND COMMUNITIES	MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE
7 AFFORDABLE AND CLEAN ENERGY	ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS
8 DECENT WORK AND ECONOMIC GROWTH	PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL	13 CLIMATE ACTION	TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION	17 PARTNERSHIPS FOR THE GOALS	STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT



# NOVALUME TODAY

Novalume is an innovative Danish company that works towards greener and smarter city lighting solutions for public infrastructure. In other words, Novalume is in the business of enabling their customers to go green and taking positive action for the environment.

Novalume's core product, Lumintell™, which is a Light Management System (LMS), enables intelligent management and maintenance of LED streetlights. Lumintell™ solution drastically reduces the city's lighting energy consumption and CO<sub>2</sub> emissions by up to 30%, and the city lighting maintenance costs by up to 50%.

With the ability to integrate IoT and incorporate data on everything from air quality and noise nuisance to road sensors and weather conditions, Lumintell™ is also a launchpad for all kinds of other environmental initiatives, which taps directly into the Smart City and Green agenda of municipalities.

As a consequence of Covid-19 crisis this year, we hope and expect that governments in general will accelerate decisions on infrastructure and environmental projects in order to:

- create a public demand to kick-start economic activities and create local jobs,
- reduce the city's energy consumption and carbon emissions,
- accelerate the green agenda and deliver on the UN Sustainable Development Goals (SDGs).

More than ever, Novalume wants to make a positive environmental and sustainable impact, both locally and globally. To help us do this we cooperate with a number of partner organizations that share this goal. Our partners to create cities greener and more sustainable include Gate 21, Doll Living Lab, State of Green and CLEAN (further info about our partnerships in the SDG 17 section). Our involvement with organizations like these allows us to share our knowledge and stay at the cutting edge of technology, so we can go green together.



## Novalume Vision

Our vision is to develop the best-in class Smart City lighting solutions and enable our customers to achieve more with less.

Passionate, Innovative, Solution-Oriented, Predictable and Eco-Friendly: these are the core values of Novalume's culture.

They guide us in our daily work, in the way we do business and in our commitment to our customers – a commitment that is bound by trust and professionalism.

## Novalume Solution

Cities are connecting intelligent streetlights and creating wireless Smart City solutions, allowing them simultaneously to save energy, reduce CO<sub>2</sub> emissions and maintenance costs.

Lumintell™ provides a reliable and efficient network, allowing you to remotely control and monitor an unlimited number of streetlights – individually or in groups. Each streetlight is connected wirelessly to an online application via the Cloud at [www.lumintell.city](http://www.lumintell.city).

There is no software to install and the only piece of equipment needed is the Lumintell™ Node. Our unique solution consists only of two types of nodes: Light- and Cluster Control Units to manage and connect your streetlights. Lumintell™ creates a flexible network, with no fixed cabinet installations or large gateways to maintain and install.

*"Hundreds of cities around the world are connecting their LED lighting network and building Smart City infrastructure, and the social, economic and environmental benefits are already being documented. Thanks to the existing street lighting infrastructure of cities and our LUMINTELL™ solution, we can connect cities, reduce dramatically their energy consumption, maintenance costs and CO<sub>2</sub> emissions, provide in smart data and make cities more efficient, intelligent and sustainable."*

Kim Krahls Larsen, CEO



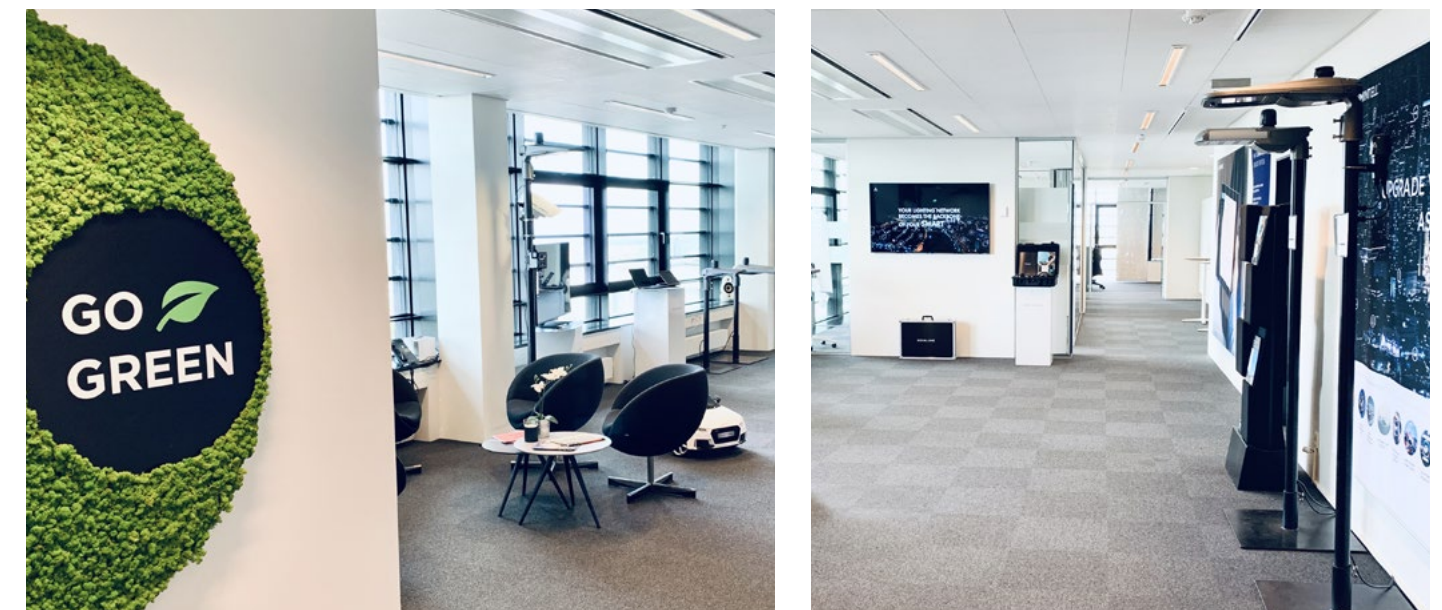
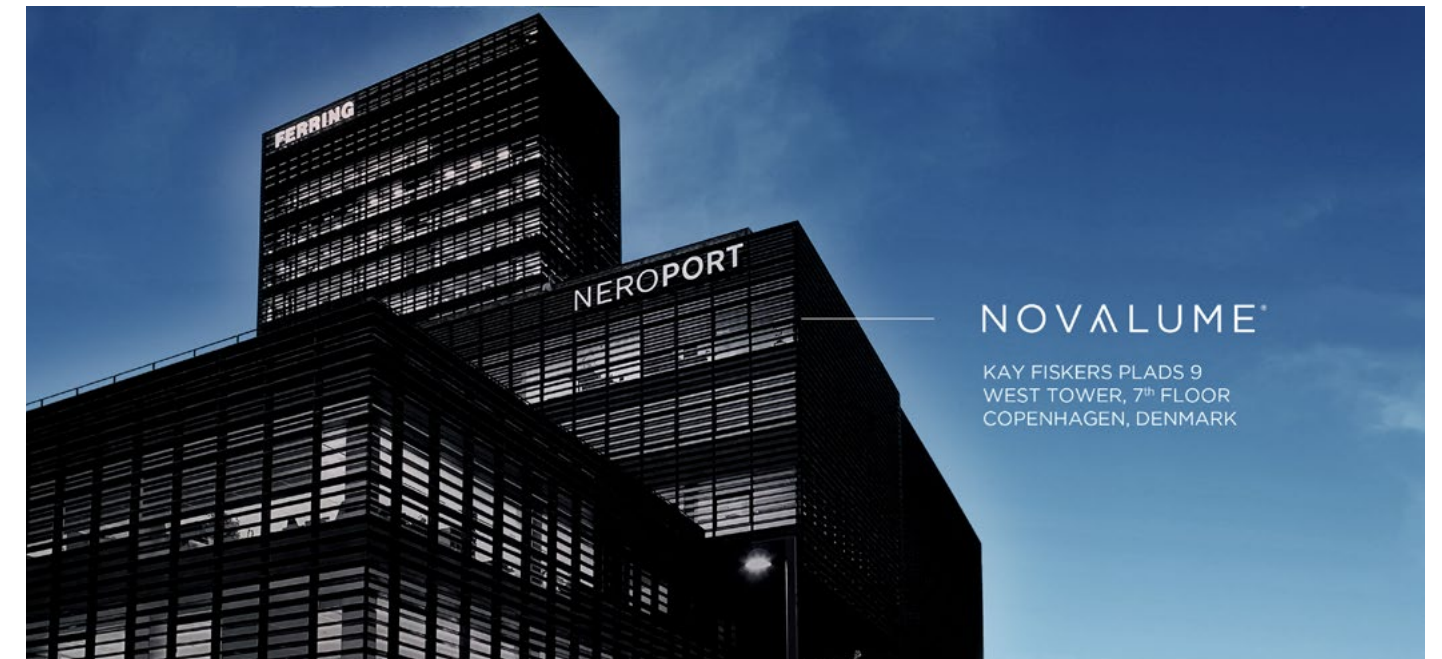
# NOVALUME OFFICES

Novalume A/S is headquartered in Copenhagen, Denmark, with two branch offices: in Santiago, Chile and in Bogotá, Colombia.

In June 2019, Novalume moved its headquarters from Roskilde to Copenhagen. The offices are in the Ørestad district of the city, a modern and growing business and residential area that is home to many leading Danish companies and institutions. The Novalume headquarters are on the top floor of the Neroport building, conveniently reachable by public transport, bike and car, as well as being in proximity to Copenhagen Airport.

## Key Facts

- Worldwide Smart City lighting installations since 2017: +20 municipalities
- Business activities in +10 countries with municipalities, ESCOs (Energy Service Companies), OEMs (Original Equipment Manufacturers) and distributors
- A total of 60,000 Lumintell V1 luminaires have been sold, half of them are connected





**Lumintell™ solution** reduces the cities' energy consumption and CO<sub>2</sub> emissions by up to 30% – its maintenance costs by up to 50%



Municipality of Glostrup (DOLL), Denmark

# COMMUNICATION ON PROGRESS 2020

Novalume is committed to supporting the Ten Principles of the United Nations Global Compact.

## Human Rights and our Commitments

**Principle 1:** Businesses should support and respect the protection of internationally proclaimed human rights; and

**Principle 2:** Make sure that they are not complicit in human rights abuses.

\* \* \*

Novalume continues to support and respect the protection of internationally proclaimed human rights and to make sure that the company is not complicit in human rights abuses.

In particular, Novalume takes action to avoid infringing human rights and seeks to make a positive contribution towards the protection and fulfillment of human rights.

### Continued application of the Code of Conduct

In relation to these commitments, in addition to adhering to international and local laws where we operate, the Novalume Code of Conduct continues to be a central document for how we do business. Novalume distributes the Code of Conduct to all new employees and all cooperation partners and insists on compliance as a condition of working with Novalume.

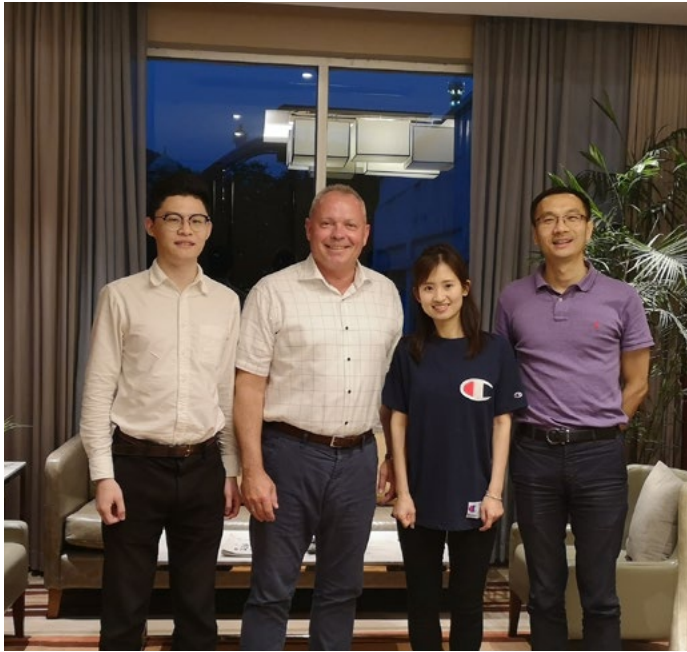
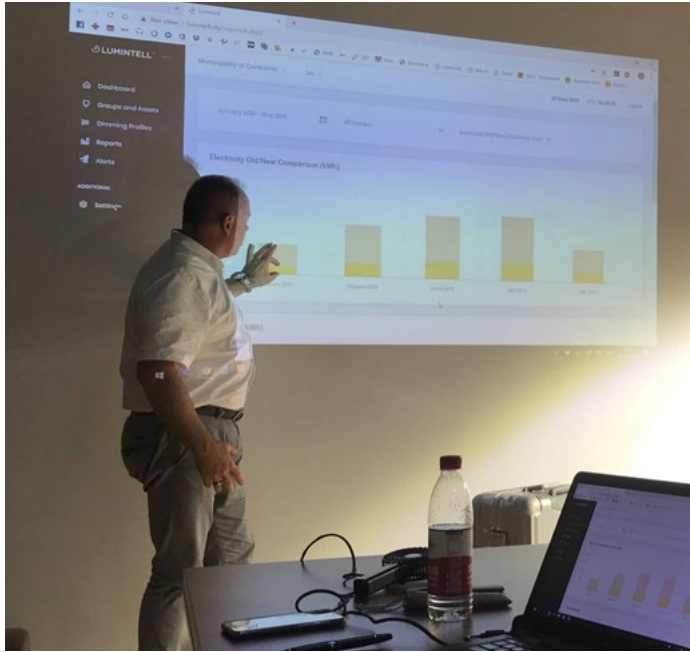
The Code of Conduct sets out concrete conduct requirements and states that Novalume will not “conduct business with a Partner engaged in violation of fundamental human rights.”

### Staff meetings and supplier evaluations

Novalume encourages employees to meet and feel comfortable discussing any issues of concern. Staff meetings take place on a regular basis, at least once a month, and issues raised are brought to the attention of management.

Novalume conducts supplier and sub-supplier evaluations every two years. In this way, Novalume monitors and evaluates the respect of human rights protection in the supply chain. The next supplier and sub-supplier evaluations are scheduled for 2021.





Kim Krahls Larsen (CEO) during a business trip in China in May 2019.

Kim Krahls Larsen (CEO) during one of the Supplier Evaluations in China (May 2019) including inspecting health and safety certificates from suppliers and ensuring that the Code of Conduct provisions on working conditions are being respected.





## Labor Principles Integration and Evaluation

**Principle 3:** Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

**Principle 4:** The elimination of all forms of forced and compulsory labor;

**Principle 5:** The effective abolition of child labor; and

**Principle 6:** The elimination of discrimination in respect of employment and occupation.

\* \* \*

### Code of Conduct requirements

Being founded in Denmark, a country with a strong history of trade unionism and collective bargaining, Novalume naturally upholds the freedom of association and the effective recognition of the right of collective bargaining in the countries where it operates. This is affirmed in the Novalume Code of Conduct.

Novalume complies with all rules and regulations with regard to labor in the regions where the company is represented. In addition, the Code of Conduct prohibits all forms of forced labor and child labor and seeks to impose higher standards than the legal requirements, for example in the areas of remuneration, leave and working hours.

### Equal opportunities scheme

Novalume is an equal opportunity employer and is committed to not discriminating in any way in respect of employment and occupation.

Furthermore, the CEO of Novalume ensures that any measure implemented to address COVID-19 is accessible to people without discrimination of any kind such as race, colour, disability, age, gender, religion, political or other opinion, national or social origin, property, birth, sexual orientation, gender identity or other status.

### Competitive terms of employment

In addition to furthering the Global Compact Principles on Labor, Novalume seeks to go beyond them.

Novalume's headquarters in Copenhagen provide improved working conditions for its employees, with a high-quality lunch provider, an exceptionally light office environment and comfortable climate-controlled office space.

As a result of the crisis created by the COVID-19 pandemic, the workplace has been arranged in a manner that minimises the risk of infection and ensures it is possible to maintain social distancing among employees. This means, among other things, that employees should be seated with (at least) one metre between them and guidelines has been provided to employees on how to use the canteen, meeting rooms etc.





### **Job motivation and perks**

Novalume reimburses its employees competitively and has an attractive bonus scheme when sales targets are met. In addition, Novalume pays more than half of employees' lunch, there is a pension scheme with health insurance cover for all employees, and several staff members benefit from the use of staff laptops and mobile phones that can be used privately.

### **Workplace evaluations, organisation of work and staff meetings**

Novalume monitors and evaluates its performance with regard to labor in the same way as human rights protection, as described in the previous section.

In accordance with Danish law, a workplace evaluation ('arbejdspladsvurdering') is carried out annually at Novalume's offices. The most recent evaluation was performed the 24th of June, 2020.

Amongst other things, Kim Krahls Larsen (CEO), in collaboration with employees, has organized the work in a way that ensures part of the workforce can continue to work from home if necessary or if needed by some employees. Further, the working hours of such employees have been arranged flexibly, to ensure that as few employees as possible use public transportation during rush hours, and to minimize the number of employees arriving at work at the same time.

Physical meetings including business travel are also avoided wherever possible, and video conferencing has been highly recommended.

### **Supplier evaluations**

The supplier and sub-supplier evaluations, described in the section on human rights above, include inspecting health and safety certificates from suppliers and ensuring that the Code of Conduct provisions on working conditions are being respected. According to the Code of Conduct, suppliers are also required to keep records to demonstrate compliance.

### **Communication and up-to-date information about the COVID-19 pandemic**

The Novalume Board ensures that they take any necessary steps to protect their employees. The CEO of Novalume informs employees about the infectiousness of COVID-19 and the authorities' recommendations on how to avoid the spread of the disease. Furthermore, he personally ensures that up-to-date information circulate on good hygiene practices and provides any necessary equipment to facilitate this, such as hand sanitisers in specific location of the office: main entrance and kitchen mainly.

Periodically, Kim Krahls Larsen (CEO) also issues a reminder on actions that employees must take to help stop viruses like coronavirus spreading. As the situation can evolve rapidly and imply further guidance on additional issues, Novalume continues to align itself with the rules and regulations implemented by Danish government in Denmark and local governments in the country our employees are (Chile, Colombia and China).

### **Continuity of Income and honouring each contract**

The management board ensures a stable continuation of income despite important delays of payment of certain customers and flexible working arrangements such as staying off work because of illness, quarantine or caring for a sick family member.

Current contracts have also been honored to the greatest extent possible. Engagement with suppliers is essential to ensure decent working conditions in global supply chains while providing support for business continuity by allowing flexibility in delivery and quotas.





## Environment Challenges

**Principle 7: Businesses should support a precautionary approach to environmental challenges;**

**Principle 8: Undertake initiatives to promote greater environmental responsibility; and**

**Principle 9: Encourage the development and diffusion of environmentally friendly technologies.**

\* \* \*

Conducting an environmental policy in line with the Global Compact's environmental principles is still central to Novalume's business.

### Precautionary approach

With regard to taking a precautionary approach to environmental challenges, Novalume deems the main risk of environmental damage due to its activities to be in the supply chain and addresses this risk with provisions for environmental protection in the Code of Conduct, which must be adhered to by suppliers. The Environmental Protection standards include, but are not limited to, minimizing pollution in the supply chain. These provisions are intended to ensure that our cooperation partners also protect the environment and adopt a precautionary approach to environmental challenges.

Novalume's products and services both promote greater environmental responsibility among our clients and encourage the development and diffusion of environmentally friendly technologies.

### Reduction of energy consumption and CO<sub>2</sub> emissions

One of Novalume's environmental focus areas is reducing energy consumption and thereby CO<sub>2</sub> emissions. Projections indicate that 5 billion people (60% of the world's population) will live in cities by 2050 and, according to the International Energy Agency, the overall demand for lighting will be 80% higher by 2030 than it was in 2005.

With lighting representing a large and increasing share of municipal energy consumption, our LED public lighting solutions – with the Lumintell™ smart system – allow municipalities to drastically reduce their energy consumption and CO<sub>2</sub> emissions by up to 75%. This important reduction of energy consumption and CO<sub>2</sub> emissions has a direct and positive impact on the environment.

### Environmental monitoring with IoT sensors

Another of Novalume's focus areas this year, the incorporation of IoT sensor plugins for our Lumintell™ Smart City and Lighting Management System, also contributes to promoting greater environmental responsibility and developing

and diffusing environmentally friendly technologies. Novalume's IoT solutions put municipalities in a position to initiate environmental initiatives regarding air pollution, noise pollution etc.

Just as monitoring and responding to key performance indicators is an integral part of business interventions, successful environmental projects are also data-driven. In order to improve quality of life in a city, it is first necessary to know what the starting point is. Without keeping track of environmental indicators, it would be impossible to know if climate initiatives were successful or if goals were being met. In practice, this means the need for air quality sensors in different parts of cities, sending data in real time.

### The Novalume Headquarters: offices, catering and cleaning

Environmental responsibility and sustainability are major factors in the Novalume's culture but also in its offices in Ørestad, Copenhagen. The offices are located in the Neroport building, which is owned and operated by the Swedish property company Castellum, and catering and cleaning by the Compass Group Denmark, operating under the brand Eurest.

Castellum is the Nordic region's most sustainable property company, having ranked first in the world in the 2019 Global Real Estate Sustainability Benchmark (GRESB) awards for the fourth consecutive year. Castellum's approach to the ownership, management and development of the Neroport building and its other property holdings includes focus on resource efficiency and high environmental construction standards.

Compass Group Denmark is a leading provider of facility management, catering and cleaning services, a subsidiary of Compass Group PLC, a global service company with more than 600,000 employees in over 50 countries. Their approach is holistic and rooted in the UN Sustainable Development Goals.

Compass Group actively pursues the UN sustainable development goals (SDGs), which address the global challenges facing the world and seek to ensure a sustainable future for all. An example of this is Urban Nomad, which ensures that our work clothes, dish cloths and disposable products are produced sustainably and are biodegradable. In Denmark, Compass Group focus their efforts on three of the SDGs: SDG 3, 8 & 12.

Since the reopening of the canteen of the Neroport building the 31st of August, several good hygienic practices and food safety measures have been adopted, among others:

- Physical separation of workers and other staff in all premises of a business operation. Keeping 1.5 meter distance between guests in the canteen
- Improved cleaning, disinfection and sanitation measures such hand sanitisers in all premises, instructional floor stickers, installing physical barriers, extra training of food workers about hygiene and food safety, etc)



- Reducing menu options temporally and offering lower risk menu items that require less direct food handling,

#### **‘Go Green’ branding and SDGs Label Pins**

Novalume continues to use the ‘Go Green’ label to promote greater environmental responsibility. The logo is used in Novalume’s marketing materials and features prominently in the new offices.

Novalume Management team also shows its dedication to support the SDGs by bearing the SDG label pins during events and meetings with partners, service providers or city officials.

An example of this effect during meetings, and for those who are not familiar with this pact, is the questions asked about the SDGs, the Communication on Progress and the UN Goba Compact organization. Their questions shows a certain interest and eventually their will to be a new member.



#### **‘Go Green’ branding**

Novalume continues to use the ‘Go Green’ label to promote greater environmental responsibility. The logo is used in Novalume’s marketing materials and features prominently in the offices.

#### **Monitoring our environmental efforts**

Novalume monitors environmental protection in the supply chain during supplier and sub-supplier evaluations. The next evaluations will take place in 2020.

Novalume also monitors and evaluates environmental performance using the Lumintell™ system, which provides analytics data, including an energy savings analysis, for the installations where the system is deployed.

Since the Covid-19 pandemic, Kim Krah Larsen (CEO) has also encouraged telecommuting and virtual meetings which can reduce negative impacts on the environment caused by travel and reduce our carbon footprint.

## **Anti-corruption Policies and Procedures**

**Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.**

\* \* \*

#### **Code of Conduct provision**

Anti-corruption continues to be an important issue for Novalume. Novalume stands by the Anti-Bribery and Anti-Corruption Policy set out in the Code of Conduct. Violation of these provisions by a cooperation partner results in the termination of the business relationship with immediate effect.

#### **Management pledge**

Top management in the company is still required to sign and abide by an extended agreement and pledge on anti-bribery.

#### **Record-keeping and oversight**

Novalume’s business practices require the keeping of written records to facilitate the monitoring of transactions. Novalume also uses the services of consultancy firms in its overseas dealings to ensure the avoidance of personal business interests and control of transactions.





The 2030 Agenda for Sustainable Development, which was adopted in September 2015 by the member states of the United Nations, is an action plan for people, planet and prosperity. It includes 17 Sustainable Development Goals (SDGs) and 169 targets.

# UN SUSTAINABLE DEVELOPMENT GOALS 2020

Novalume's activity relevant to the SDGs and the targets that it helps achieve is outlined in the following sections.







# ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES



## Goal 3: Good Health And Well-Being

*Target 3.9: “By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.”*

\* \* \*

One of Novalume’s focus areas this year, the incorporation of IoT sensors for the Lumintell™ Smart City System, is directly related to the goal of promoting good health and well-being, specifically regarding the reduction of air pollution.

Increasing air pollution is a growing global problem and one that requires action from cities and national governments alike. Researchers estimate that air pollution kills nearly 800,000 people a year in Europe alone and the WHO puts the annual fatalities worldwide at 7 million<sup>(1)</sup>.

As described in the Environment section above, monitoring and responding to data is key to successful environmental initiatives at a local and national level. Lumintell™, in addition to being an intelligent lighting solution, functions as a city-wide IoT-ready network that can be used to connect smart sensors in any location and in any combination. Smart data are then visible directly in the Lumintell™ web application, making it easily usable for environmental monitoring.

Real-time monitoring ensures accurate data that allows municipalities to take action to reduce pollution. Action that could be taken on the basis of real-time air quality sensor data might be to regulate traffic in specific parts of the city at various times or impose restrictions on certain types of construction work.

Source: (1) WHO, <https://www.who.int/mediacentre/news/releases/2014/air-pollution/en/>



# ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL



## Goal 7: Affordable And Clean Energy

*Target 7.3: “By 2030, double the global rate of improvement in energy efficiency.”*

\* \* \*

Novalume contributes directly to the goal of doubling the global rate of improvement in energy efficiency by developing technologies that minimize energy consumption and allow people to do more with less.

According the UN Habitat, cities consume today 78% <sup>(1)</sup> of the word’s energy. Energy usage is expected to grow by 25%<sup>(2)</sup> by 2040.

Lighting accounts for almost 20% of the total global usage and up to 40%(2) of a city’s energy bill, so smart street lighting represents an excellent opportunity for improvement; by reducing the need for energy, cities lower their impact on the environment and climate change.

With street lighting representing a large and increasing share of municipal energy consumption, our energy-efficient solutions have the potential to make a significant contribution to achieving this goal.

Source: (1) UN Habitat (United Nations Human Settlements Program), (2) WEMO 2019 (World Energy Market Observatory), (3) Global Smart Street Lighting & Smart Cities (Page 5): Market Forecast (2019 – 2028) by Northeast Group (2017)



8
DECENT WORK AND ECONOMIC GROWTH


PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

## Goal 8: Decent Work And Economic Growth

*Target 8.2: “Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors.”*

*Target 8.4: “Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead.”*


\*\*\*

Novalume’s energy-efficient products and services facilitates resource efficiency in consumption and the decoupling of economic growth from environmental degradation.

As an exemple of decent work for all, Novalume joined last year a scheme organized by the Danish Ministry of Employment (Beskæftigelsesministeriet) to offer an internship to a person who is reentering the workforce after having been out of work for an extended period due to illness.

Novalume also employs foreingners not only in the Headquarters and locals in foreign countries where Novalume has its business activities. Novalume is an equal opportunity employer and is committed to not discriminating in any way in respect of employment and occupation. For exemple, in Chile, Colombia and China, all Novalume employees are paid above-average salaries in their respective countries.

At Novalume, we believe that the key to sustainable and Smart City solutions for our society is innovation and technological development, with a close collaboration with our partners (see the SDG 17 for more details about our partnerships). Since the creation of Novalume in 2016, significant innovations diversification and creative solutions have been implemented in the core of our business, product development, services and our way of working.

8
DECENT WORK AND ECONOMIC GROWTH


PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

In continuation of the Lumintell™ V1 Solution (2017), a LED luminaire with an embedded LMS solution, Novalume has launched its externally mounted Lumintell™ V2 Solution in 2019, and a Lumintell™ V3 Solution is in final stages of development with was launched in August 2020.

Lumintell“ consists of an in-house developed software platform. Together with the corresponding hardware component, Lumintell™ NEMA and Zhaga Nodes, they provide an advanced and intelligent Smart City Solution within the international fast-growing market of connected infrastructure.







## BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

### Goal 9: Industry, Innovation, And Infrastructure

*Target 9.1: “Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.”*

*Target 9.4: “By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.”*

*Target 9.C: “Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020.”*

\* \* \*

Technological innovation and increasing urbanization make Smart Cities more relevant today than ever before.

Novalume’s street lighting products and services form part of the local infrastructure where they are deployed.

In 2019, Novalume launched an externally mounted solution (Lumintell™ Node) for LED streetlights, which expands the available market to include basically all LED luminaires worldwide. During the summer 2020, another step has been reached with the launch of the new Lumintell™ Field App and the Lumintell™ Node Zhaga version that includes motion and daylight sensors, as well as enhanced service and maintenance features.

This standardized interface Zhaga, makes the deployment process for smart lighting much easier and faster and unlock the potential for Novalume’s products to improve lighting infrastructure around the world.

**Thanks to the new Lumintell™ Node and system, municipalities can now upgrade LED street lighting infrastructure with sensing and communication capabilities, while significantly improving the efficiency, maintenance and running costs of their lighting network.**



## BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

The electricity cost savings achieved through upgrading to Novalume’s solutions are so significant that they pay for the cost of upgrading, typically within a few years. This makes the cost of upgrading very affordable.

For the same reasons as indicated in the Environment section of the Global Compact Principles chapter and the sections above, Novalume’s solutions contribute to resource-use efficiency and greater adoption of clean and environmentally sound technologies.







## MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

### Goal 11: Sustainable Cities And Communities

*Target 11.6: “By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.”*

*Target 11.B: “By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels.”*

\* \* \*

Novalume’s products and services facilitate improving safety, air quality and resource efficiency in cities, as well as mitigating climate change.

As described in the Environment section of the 10 Principles, Novalume’s energy-efficient street lighting allows cities to reduce their adverse environmental impact by cutting energy consumption and CO<sub>2</sub> emissions. Also, as detailed in the Good Health and Well-Being section above, Novalume’s IoT and sensors network provide an effective tool for cities to improve air quality and reach other environmental goals.

Public lighting represents one of the most excellent power grids spread across towns and cities throughout the globe. It’s like the nervous system of a city, connecting over 300 million streetlights worldwide<sup>(1)</sup> with access to power.

By connecting streetlights and sensors, Lumintell™ provides a powerful dashboard for presenting smart data in a way that makes it useful for improving the urban environment. Real-time monitoring ensures accurate data that allows municipalities to take action and reach their goals. Action that could be taken on the basis of real-time air quality sensor data might be to regulate traffic in specific parts of the city at various times or impose restrictions on certain types of construction work. Intelligent streetlights and sensors can be used for many different applications: whether the priority is improving sustainability, safety, energy-efficiency, reducing CO<sub>2</sub> emissions or improving the quality of life of citizens.

Source: (1) Global Smart Street Lighting & Smart Cities: Market Forecast (2019 – 2028) by Northeast Group (2017)



## ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

### Goal 12: Responsible Consumption And Production

*Target 12.7: “Promote public procurement practices that are sustainable, in accordance with national policies and priorities.”*

*Target 12.A: “Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.”*

\* \* \*

Denmark is a world leader when it comes to developing new and green technology – particularly in terms of Smart City and lighting solutions. For example, DOLL Living Lab, a leading facility of its kind in Europe, and probably in the world, tests and demonstrates intelligent outdoor lighting systems and Smart City technologies.

By coupling outdoor lighting with lighting control systems as the logical starting point is typically overlooked by city administrators. Innovation and regulations are driving increased use of smart and connected devices, including wireless networks, smart controls and nodes, the Internet of Things (IoT), cloud-based software and smartphone applications.

Thanks to the Lumintell™ solution, city workers do not have to be “High Tech” or IT savvy to deploy and utilize Smart City applications. Due to Novalume’s technological developments and innovations, municipalities in developing countries can be “smart” as well. The last three years, Novalume has set-up or participated in several workshops, events and training in Chile, Colombia, Denmark, Italy, Indonesia and other countries to support technology and regulations on a national and local level.

At Novalume we believe, that the key to promote sustainability in consumption, production and development is the cooperation between citizens, knowledge institutions, companies, national and local policy makers.





## Goal 13: Climate Action

*Target 13.2: “Integrate climate change measures into national policies, strategies and planning.”*

\* \* \*

Cities are growing rapidly in terms of inhabitants and the space they occupy. Every minute, we add 10,000 square metres of city space. Every five days, we build a new Paris. Each year, the total size of Japan.

This urbanization requires us to rethink how our cities are engineered. Today, cities occupy 3%<sup>(1)</sup> of the Earth’s land, but account for two thirds of the world’s energy demand and 70%<sup>(2)</sup> of CO<sub>2</sub> emissions. The large carbon footprint of cities also impacts air quality, raising growing concerns on the health and well-being of citizens. In fact, 91%<sup>(3)</sup> of the world’s population currently lives in places where air quality levels exceed the World Health Organization’s limits, causing 4.2 million<sup>(4)</sup> deaths every year.

**In other words, the impact of cities is enormous. But so are the opportunities for urban efficiency.** To deliver on the UN Sustainable Development Goals and the Paris Agreement, we need to be city-centric. Cities have a unique opportunity to reduce their energy consumption, CO<sub>2</sub> emissions and air pollution by using new, energy-efficient technologies and system such as Lumintell™.

Lumintell™ facilitates the reduction of electricity consumption and thereby of CO<sub>2</sub> emissions – a central climate change measure – and also provide tools used for reducing other forms of pollution that contribute to climate change. Just as monitoring and responding to key performance indicators is an integral part of business interventions, successful environmental projects are also data-driven. In order to improve quality of life in a city, it is first necessary to know what the starting point is. Without keeping track of environmental indicators, it would be impossible to know if climate initiatives were successful or if goals were being met. In practice, this means the need for air quality sensors in different parts of cities, sending data in real time.

Source: (1)(2) World economic Forum, the 17th of January. 2020. <https://www.weforum.org/agenda/2020/01/smart-and-the-city-working-title>. (3)(4) World Health Organization, [https://www.who.int/health-topics/air-pollution#tab=tab\\_1](https://www.who.int/health-topics/air-pollution#tab=tab_1)



## Goal 17: Partnerships

*Target 17.14: “Enhance policy coherence for sustainable development.”*

*Target 17.16: “Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries.”*

*Target 17.17: “Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships.”*

\* \* \*

At Novalume, we believe that the key to sustainable and innovative solutions for Smart Cities and our society is the cooperation between organizations, companies, policy makers and citizens.

**Joining local and international networks is a great opportunity for Novalume to improve our business activities and services, get insight into and inspiration about the latest green tech trends and collaborate with other innovative organizations focused on the green transition, sustainability, innovation and smart solutions for cities.**

### Our current partnerships and memberships

In this section, you will find our key partners that help us to generate more innovative, more sustainable and greener solutions. In 2020, three new memberships have been signed with a focus on:

- the energy sector with *Energy Cluster Denmark*,
- technology standards for smart street lighting with *Zhaga Consortium*,
- and communication protocol for smart cities with *TALQ Consortium*.

These partnerships and memberships are gathered below around four key competencies:

- **Environment, Green Growth and Sustainability**
- **Smart City and Smart Street Lighting**



- **Energy, Technology and Innovation**
- **Financing**

## ENVIRONMENT, GREEN GROWTH & SUSTAINABILITY

### GATE 21 – The Gate for Green Growth (Denmark)

Gate 21 is a nonprofit partner organization with a vision of making Greater Copenhagen the leading region in the world for green transition and growth. As a partner of Gate 21, Novalume joins some of the most ambitious regions, municipalities, companies and knowledge institutions in Greater Copenhagen, where we participate in working toward the common goal of accelerating green change and growth. For more information, visit [gate21.dk](https://gate21.dk)

### STATE OF GREEN – Denmark’s Official Green Brand

State of Green is a not-for-profit, public-private partnership from Denmark. The organization fosters relations with international stakeholders and is a network of Danish businesses, governmental and academic institutions, experts, and researchers. With the other members of State of Green, Novalume will be working to drive the global transition to a sustainable, low-carbon, resource-efficient society. For more information, visit [stateofgreen.com](https://stateofgreen.com)

## SMART CITY & SMART STREET LIGHTING

### LIGHTING METROPOLIS – The largest cooperation platform in Scandinavia for future innovative lighting

Member since 2019. Lighting Metropolis works to make Greater Copenhagen (Skåne, Halland & Eastern Denmark) the region where global companies invest in the innovation, testing and demonstration of future solutions in collaboration with cities, scientists and local companies.

The new lighting project, called Lighting Metropolis – Green Economy (LMGE), will lead to energy savings in the region. Only one fifth of the public lighting in Greater Copenhagen is classified as energy-efficient today. LMGE exploits this enormous potential to implement qualitative and energy-saving LEDs, and thereby further consolidating the region as a leading metropolis of sustainable lighting solutions. 14 Danish and Swedish municipalities participate in this project together with Novalume and other companies. For more information, visit [lightingmetropolis](https://lightingmetropolis).





## STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

[com.](#)

### **DOLL - Lighting the Future of Smart Cities**

DOLL Living Lab is a leading facility of its kind in Europe, testing and demonstrating intelligent outdoor lighting systems and Smart City technologies. 80+ delegations come and visit DOLL Living Lab annually, experiencing the solutions in a 1:1 scale. Currently, 50+ partner companies such as Novalume and knowledge institutions contribute to the Living Lab's success. Novalume's installation is conveniently located next to the visitor center so public decision makers and practitioners from city and government levels, as well as Smart City-focused players in general, can discover the full potential of the Lumintell™ solution in live conditions. For more information, visit [doll-livinglab.com](http://doll-livinglab.com).

### **SMART CITY CLUSTER DENMARK - Cluster of Smart City Solutions Providers**

Smart City Cluster Denmark is a new Danish initiative (2019) that creates an overall framework for companies, research environments, cities and projects in Denmark that work with the digitization of cities and local communities - Smart City. For more information, visit [smartcitycluster.dk](http://smartcitycluster.dk)

### **ANAP - Asociación Nacional de Alumbrado Público (Colombia)**

Novalume joined the ANAP Group in 2018 in order to promote the evolution of public lighting services in Colombia. All members, through the promotion of work plans and discussion tables, conferences and congresses, develop and pursue constant research and innovation in order to boost the use of new technologies and the preservation of the environment, while improving public services and the quality of life of residents. Novalume will participate at the next Smart City Forum organized by ANAP, Smart City Expo Latam and Alianza Smart Latam in Bucaramanga, Colombia in December 2019. For more information, visit [anap.co](http://anap.co).

## ENERGY, TECHNOLOGY AND INNOVATION

### **Energy Cluster Denmark - The platform for innovation in the energy sector (2020)**

Energy Cluster Denmark is Denmark's cluster organization for the entire energy sector. Created in 2020, this platform facilitates the synergy and technological development across the energy areas with a close dialogue between the 400 members. For more information, visit [energycluster.dk](http://energycluster.dk).

## STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

### **TALQ Consortium - The Smart City Protocol (2020)**

Founded in 2012, the TALQ Consortium aims to define a globally accepted smart city protocol for central management software (CMS) to configure, control, command and monitor heterogeneous outdoor lighting networks and Smart City applications. The TALQ Smart City Protocol is a specification for information exchange, suitable for implementation in various products and systems. This way interoperability between Central Management Software (CMS) and Outdoor Device Networks (ODN) from different vendors will be enabled, such that a single CMS can control different ODNs in different parts of a city or region. For more information, visit [talq-consortium.org](http://talq-consortium.org).

### **ZHAGA Consortium - Smart standards, smarter lighting (2020)**

With its origins in Europe, the Zhaga Consortium is a global lighting-industry organization that aims to standardize interfaces of components of LED luminaires in order to ease and accelerate the adoption of the latest-generation technology in smart street-lighting and smart cities. Thanks to the Lumintell™Node and system, municipalities can now upgrade LED street lighting infrastructure with sensing and communication capabilities, while significantly improving the efficiency, maintenance and running costs of their lighting network. For more information, visit [visitzhagastandard.org](http://visitzhagastandard.org).

### **CLEAN - International Cleantech Cluster**

CLEAN is a world-leading cleantech cluster based in Denmark with an international focus. Their mission is to accelerate the green and sustainable transition while creating growth for the Danish cleantech companies. CLEAN has four focus areas: Smart Energy, Resource Efficiency, Smart City and Internationalization. The organization creates innovative solutions to some of the challenges that concern us all and as a member of CLEAN, Novalume wants to contribute to this vision. For more information, visit [cleancluster.dk](http://cleancluster.dk)

## FINANCING

### **EKF - Denmark's Official Export Credit Agency**

EKF and other international financial partners assist us in securing our international business transactions. For more information, visit [ekf.dk](http://ekf.dk)



## THE TEN PRINCIPLES OF THE UN GLOBAL COMPACT

Corporate sustainability starts with a company's value system and a principles-based approach to doing business. This means operating in ways that, at a minimum, meet fundamental responsibilities in the areas of human rights, labor, environment and anti-corruption. By incorporating the Ten Principles of the UN Global Compact into strategies, policies and procedures, and establishing a culture of integrity, Novalume is not only upholding their basic responsibilities to people and planet, but also setting the stage for long-term success.

### Human Rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2: make sure that they are not complicit in human rights abuses.

### Labour

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: the elimination of all forms of forced and compulsory labor;

Principle 5: the effective abolition of child labor; and

Principle 6: the elimination of discrimination in respect of employment and occupation.

### Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges;

Principle 8: undertake initiatives to promote greater environmental responsibility; and

Principle 9: encourage the development and diffusion of environmentally- friendly technologies.

### Anti-Corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

\* \* \*

More information about the UN Global Compact 's SDGs  
(Sustainable Development Goals) by 2030 here: [https://www.un.org/  
sustainabledevelopment/](https://www.un.org/sustainabledevelopment/)

Announcement of Novalume's support of the principles of the UN Global  
Compact in the Newsroom of Novalume's Corporate Website: [https://novalu.  
me/newsroom](https://novalu.me/newsroom)



**WE SUPPORT**

Novalume is a signatory member of the  
United Nations Global Compact since 2017





NOVALUME®

Smart City Lighting Solutions

---

Kay Fiskers Plads 9, West Tower, Copenhagen S, Denmark

+45 35 37 88 88 | [info@novalu.me](mailto:info@novalu.me)

**[novalu.me](https://novalu.me)**