

2023 Sustainability Forum

 CONNECT TO SUSTAINABILITY

Sustainability for Business Forum 2022

CEO PANEL

 Tuesday 11 October 2022  Bangkok Marriott Marquis Queen's Park

Moderator



Bob FOX
Chair of JFCCT/EABC
ICT/Digital Economy Committee



Patrice PISCHEDDA
Asia Coo
Acoem



Ratanasiri TILOKSKULCHAI
Managing Director
Tetra Pak (Thailand)



Jagannathan SRINIVASAN
Managing Director
Signify Commercial (Thailand) Ltd.



Igor MAURELL
Head of Ericsson (Thailand)

ORGANISED BY



SUPPORTING CHAMBERS



SPONSORS



HOTEL PARTNER





Creating environments
of possibility



play the video

Human progress is all about finding
the right balance between
developing human activity and
preserving planet
resources

Acoem is committed to constantly
improving this balance



Providing people and organisations focused actionable data and technology

Industrial Reliability

Increasing the productivity of industrials



Production / Manufacturing

Emission & process

Achieving environmental compliance



Emissions

Ambient Monitoring

Preventing & controlling environmental pollution



Ambient/People



GLOBAL PRESENCE



850

people

€130 M

turnover



10

subsidiaries



150

retailers



Future of growth Thailand 2030

- Thailand has a 20-year strategic plan (NESDC)
- Among the 8 areas Thailand must address to improve, the first was climate change, according to Finance Minister Arkhom Termpittayapaisith *“With the global community setting the goal of carbon neutrality and a net-zero balance, Thailand must join the drive”*

Thailand is ranked 108 in 2022 on the Yale Environmental Performance Index

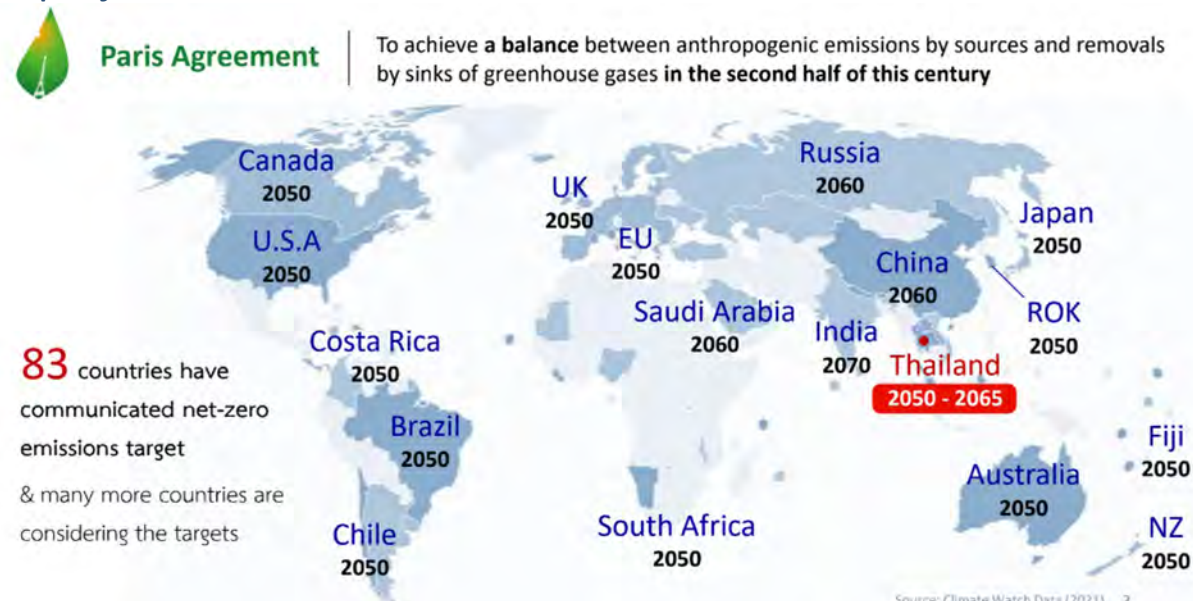
⇒ The country ranked low in Ecosystem Vitality, Water resources and **Climate Policy**

COMPONENT	RANK	EPI SCORE	10-YEAR CHANGE
FILTER: CLIMATE CHANGE			
Climate Change	106	36.00	14.80
CO2 growth rate	78	41.60	22.20
CH4 growth rate	16	71.50	42.50
F-gas growth rate	1	100.00	NA
N2O growth rate	42	77.60	42.00
Black Carbon growth rate	127	54.80	-5.10
Proj. GHG Emissions	157	9.50	4.90
CO2 from land cover	112	30.20	1.20
GHG intensity trend	55	60.00	14.20
GHG per capita	109	42.00	-2.10



Environmental laws & regulations

- 2017 Constitution article 58:
*"In regard to any undertaking by the State or which the State will permit any person to carry out, if such undertaking may severely affect the natural resources, **environmental quality**, health, sanitation, quality of life or any other essential interests of the people or community or **environment**, the State shall undertake to **study and assess the impact on environmental quality**"*
- National Environment Board supervise the policies and MONRE manages environmental matters (PCD)
- Environment regulations are issued individually since 1992
- 2007: Thailand established the National Committee on Climate Change
- 2022: Climate Bill Draft based on the Paris Agreement, pledges to achieve an GHG emission reduction target of 20% from the 1990 baseline business-as-usual projection for 2030



EIA, Waste, Carbon: where are we at?

- The National Environmental Quality Act (revised 2018) provides criteria and processes for environmental impact assessment.
- Waste:
 - The central government is responsible to stimulate regulation, policies, and standard for waste (i.e. ban on single-use plastic bags) but Waste management is the responsibility of local governments
 - Industrial waste management falls under the Industrial Waste Disposal (2005)
 - Wastewater is one of a major pollution in Thailand, either coming from community or industrial sectors (in 2016 14 million cubic meters produced per day vs treatment plant capacity of 3.2 million cubic meters per day)
- Carbon tax is now under discussion and EU Carbon import tax is potentially a game changer





Sustainability for Business Forum 2022

Igor Maurell

Head of Ericsson Thailand

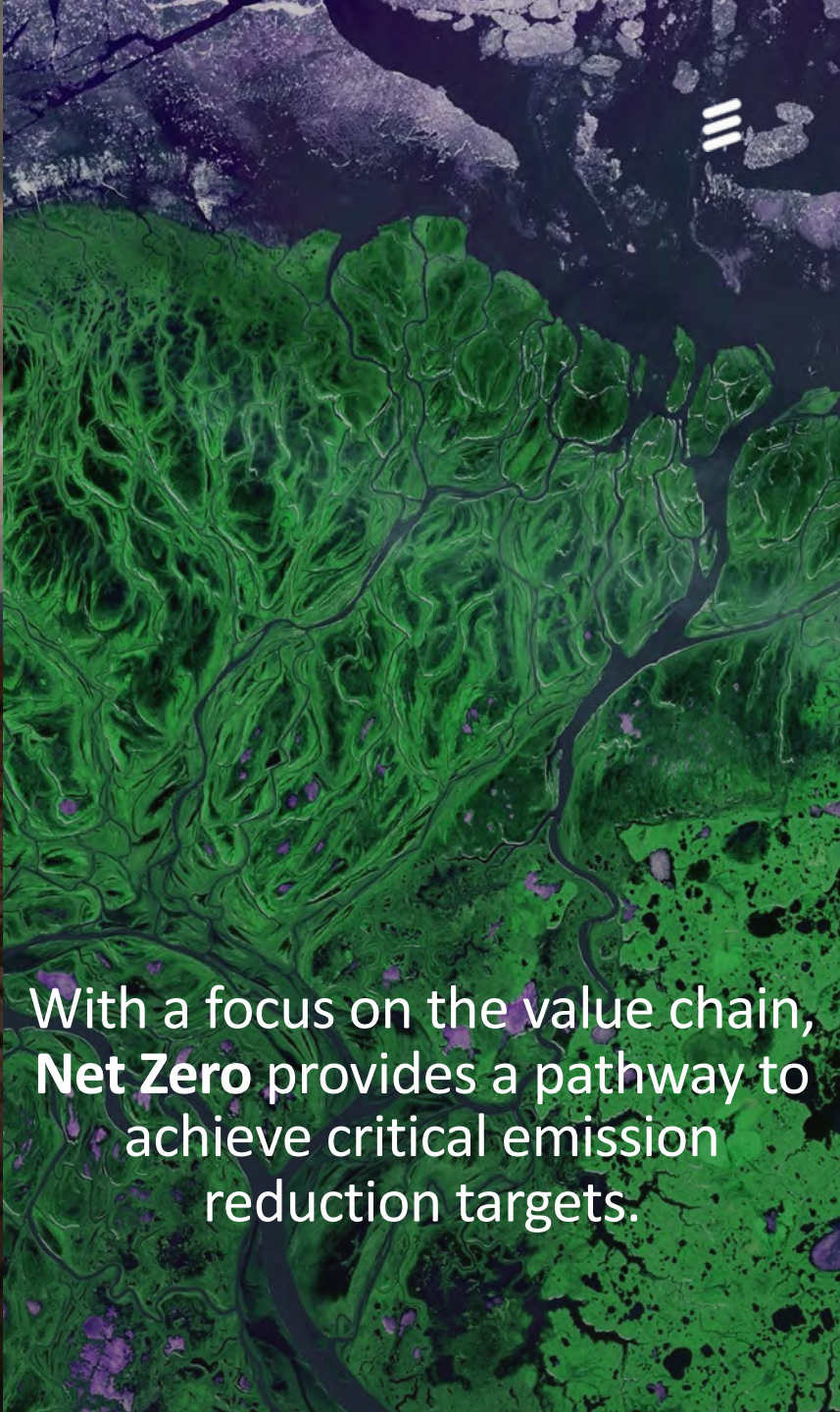
A close-up photograph of a hand holding a piece of white ice over a dark blue liquid. The ice is melting, with some liquid dripping from the edges. The background is dark, making the white ice and blue liquid stand out.

A time for action

The impact of climate change is widespread, rapid, and intensifying.

A landscape photograph showing a dry, cracked, brown foreground. In the middle ground, there is a body of water reflecting the sky. In the background, there are mountains under a dramatic, cloudy sky with a hint of sunset or sunrise.

We must limit global warming to 1.5°C above pre-industrial levels.

An aerial photograph of a lush green forest. A river winds through the forest, creating a network of dark lines. The forest is dense and vibrant green, with some purple patches visible. The river is dark and flows through the center of the image.

With a focus on the value chain, **Net Zero** provides a pathway to achieve critical emission reduction targets.

Pioneering a sustainable future across society

Own activities

Reducing emissions to ultimately reach Net Zero by 2030

Supply chain

Halving emissions by 2030, and increase climate action in global supply chains

Portfolio

Develop and innovate our portfolio to halve emissions by 2030 and support climate action in society

Industries and society

Decarbonizing industries and society globally through ICT solutions. Digitalization can potentially enable a 15% reduction in global emissions by 2030

Redefining business – Intelligent Connectivity 5G



The logistics
of the future

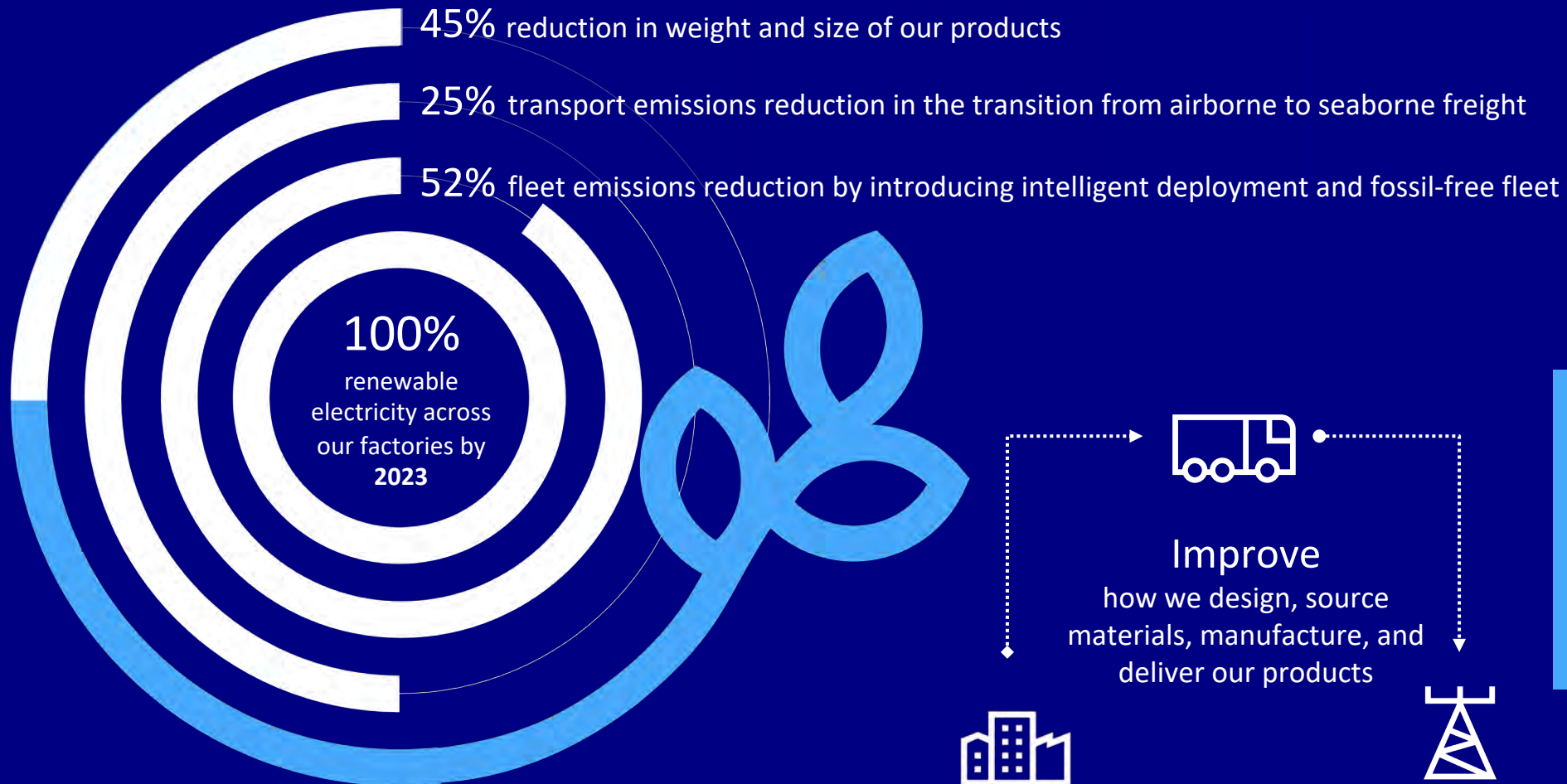


5G Smart
manufacturing



Connected
vehicles

2025 ambition in the journey Net Zero Supply chain



Engage with suppliers, who via their supply chain are responsible for 90% of Ericsson supply chain emissions

2025 ambition in the journey towards Net Zero: Portfolio use



Aim to reduce radio site energy
consumption by

~40%

By supporting a shift to renewable
energy, we anticipate

~70%

radio site emissions reductions



Countdown to 2040

We are committed to achieving a Net Zero value chain by 2040

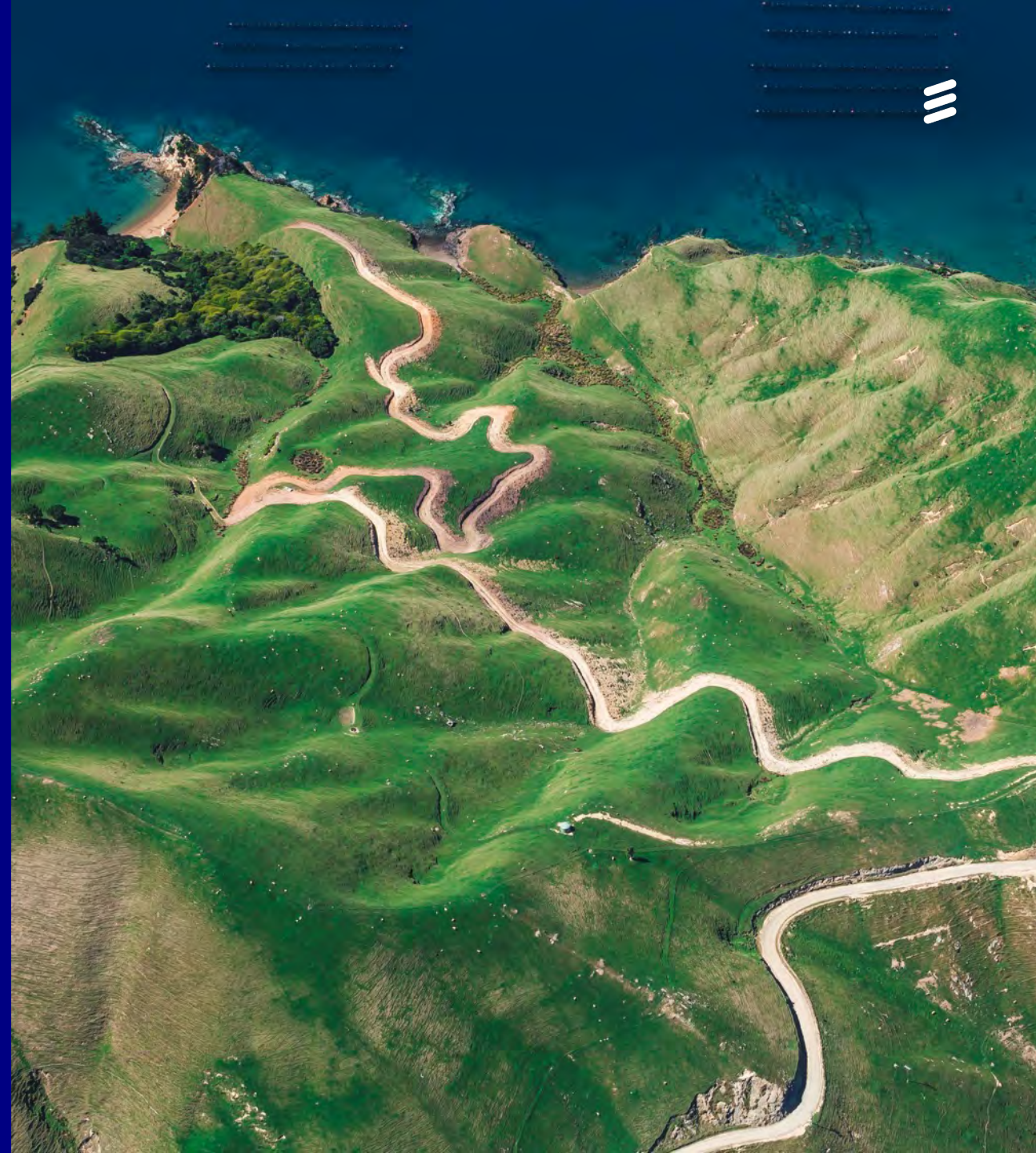
- Achieving Net Zero emissions across our own activities by 2030
- Halving emissions across our portfolio in use and supply chain by 2030

How will we meet our targets?

Our Net Zero 2040 pathway builds on two decades of sustainability leadership and research

Embed commitment in our organization & active roles with regulators, partners & customers to accelerate policy making

Objectives will be broken down into detailed plans and targets with annual reviews







The future of food systems

Ratanasiri Tilokskulchai

Managing Director, Tetra Pak Thailand

Sustainability Business Forum 2022



The world's food systems are unfortunately insecure and unsustainable

1 out of every 9
people globally
are **hungry**

1/3 of all food
produced is **lost**
or **wasted**.

Impact of
COVID-19
and the
Ukraine war

Still more
countries
experience the
global burden of
malnutrition.

Food systems
account for over
1/3 of the global
greenhouse gas
emissions.

70% increase in
food availability
needed **by 2050**



Food is part of our DNA

OUR PURPOSE

**WE COMMIT TO MAKING FOOD SAFE AND AVAILABLE,
EVERYWHERE**



AND WE PROMISE TO PROTECT WHAT'S GOOD:

PROTECTING FOOD



PROTECTING PEOPLE



PROTECTING THE PLANET





**To address global food challenges,
we need to look at entire food systems**

**Food
production**

**Food
processing**

**Food packaging
and distribution**

**Food
consumption**

The 4 stages of food systems as defined by the UN

Our Ambition:

**A world with secure
and sustainable food systems**

Moving food forward



Increase
access to safe,
nutritious food



Reduce
food loss
& waste



Build
sustainable food
value chains



Tetra Pak is a world leading food processing and packaging solutions company. Working closely with our customers and suppliers, we provide safe, innovative and environmentally sound products that each day meet the needs of hundreds of millions of people in more than 160 countries. With more than 25,000 employees around the world, we believe in responsible industry leadership and a sustainable approach to business.

www.tetrapak.com



SBF 2022

Signify



Jagannathan Srinivasan, CEO of Signify Commercial (Thailand) Ltd.

Signify is the world leader in lighting

Our propose is to unlock the extraordinary potential of light for brighter lives and a better world

Light sources



Luminaires



Systems and Services



No. 1

Connected, LED,
Conventional

€6.5bn

sales in 2020,
~ 75% professional

37,000

people in 74 countries

100%

Carbon neutral
operations

Our global brands

PHILIPS

interact

signify

How can we contribute to Brighter lives & a Better world

UN SDG					
					
Climate action		Circular economy		Food availability	
					
• Energy efficient LED • Connected lighting • Solar		• 3D printing • Serviceable street lighting		• Horticulture • Animal lighting • Fish farming	
Safety & security			Health & wellbeing		
					
• Connected road and urban lighting • Philips Hue settings • LiFi			• UV-C lighting • Human Centric Lighting • EyeComfort • Philips Hue settings • NatureConnect		



A list for climate and supply chain



SUSTAINALYTICS
a Morningstar company

#1 in our industry and top 5% of ESG Risk Ratings Universe

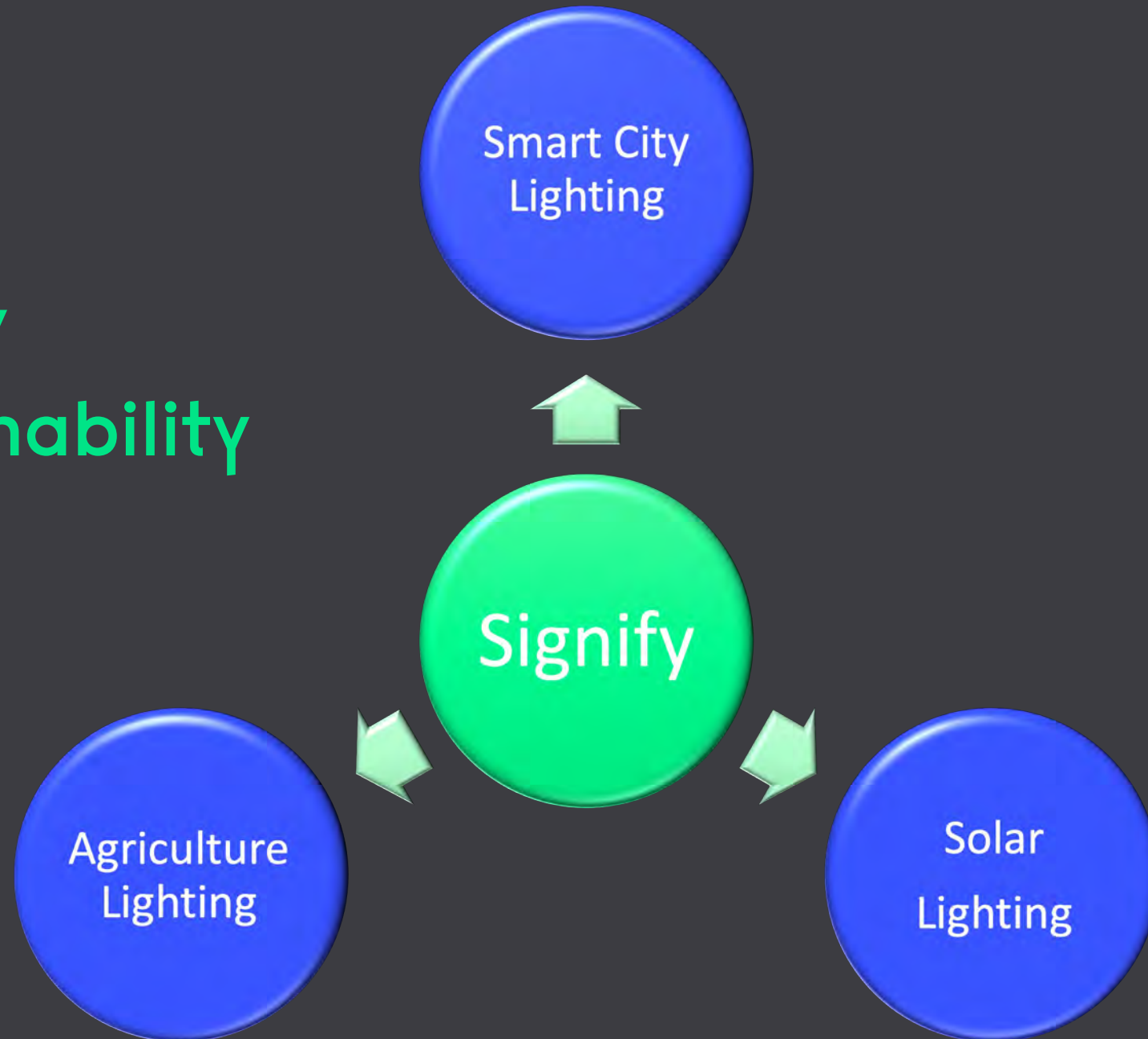


EcoVadis
Platinum Medal
and top 1%



Green Supply Chain

Technology enabling sustainability



interact

Make your city smarter
and more livable



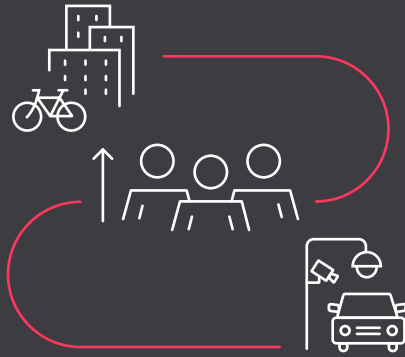
Global trends

- Broad acceptance of the benefits of LEDs
- Lighting is becoming a platform for hosting smart city applications
- Convergence of lighting and information technologies create new capabilities
- Access to open data increases the number of new opportunities

Our world is changing
Global trends shaping our business

Our world is changing

Global trends shaping our business



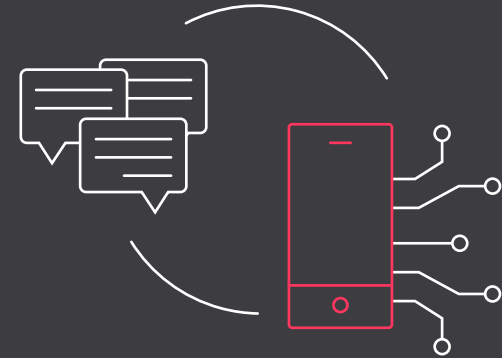
Population growth and urbanization

- Right light and safety



Resource challenges

- Energy efficiency without sacrificing performance
- Insufficient sustainable resources



Digitization

- Optimize operations
- Lighting as part of an integrated IoT infrastructure
- New applications beyond illumination

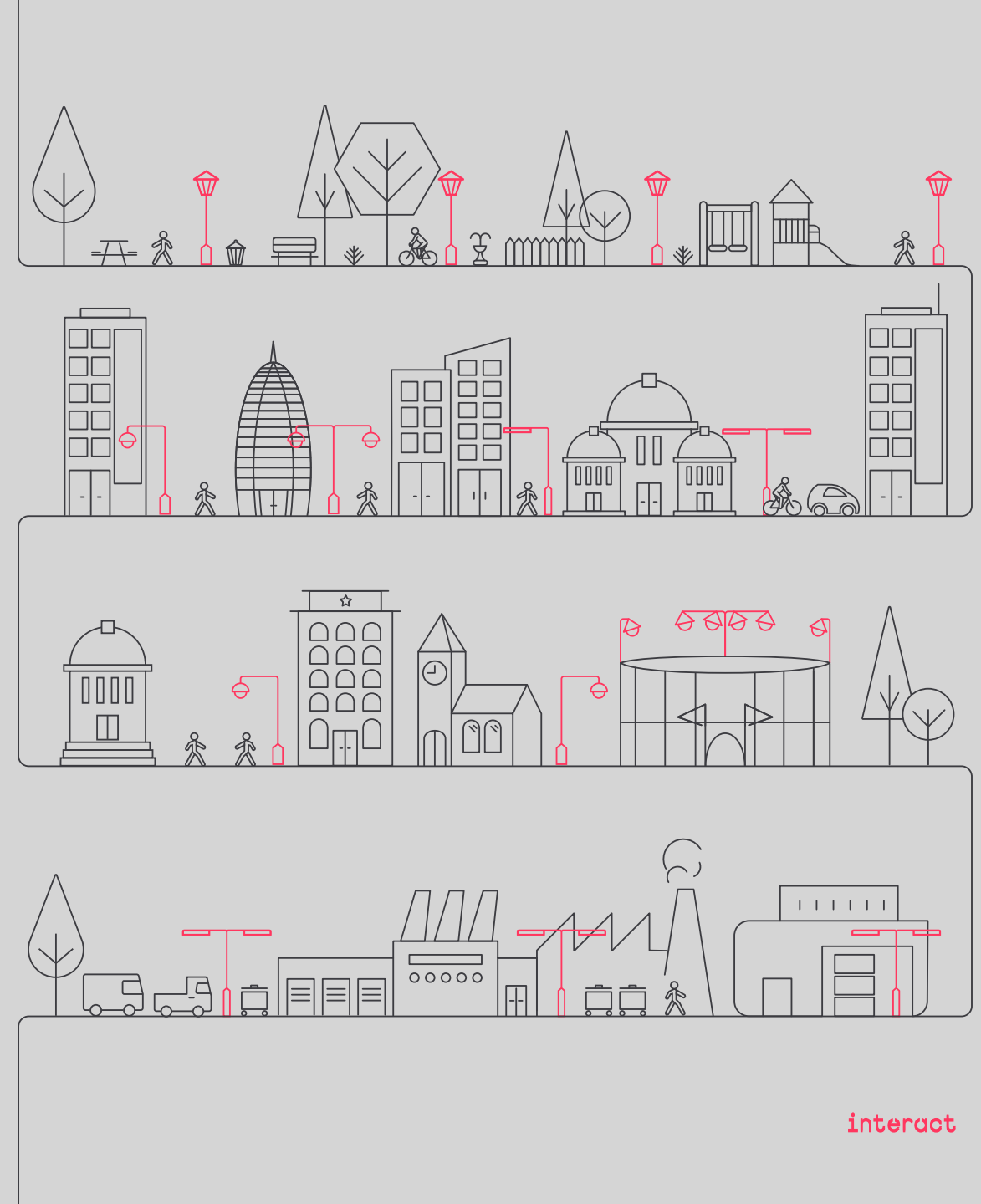
Interact in smart cities

What can it do?

Interact is a connected lighting system and management application that enables you to remotely manage, monitor and control all of your city's lighting, including:

- Roads and streets
- Pedestrian sidewalks and crossings
- Bridges
- Parks and plazas

With Interact, you can optimize operations of your city's lighting assets, integrate with other software to control lighting, gather data, support incidents and, with data enabled services, incorporate many optimization possibilities that translate into saved money for reinvestment in the future.



Smart street lighting

Analyze

Get an immediate overview of your city's lighting infrastructure and analyze performance.

Plan

Stay on top of processes by generating and managing work orders.

Maintain

Predict when luminaires are approaching life-end and schedule preventative maintenance.



Monitor

Receive fault notification and real time status reports without the need for any manual scouting.

Manage

Link streetlights wirelessly, using the preferred mobile or wireless network.

Measure

Get automated failure notification alerts, plus metering per individual light point so you can verify your energy bills.



Scene management



Lighting asset management



Energy optimization

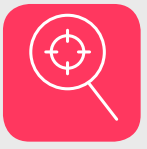


Open Data Interface



Environmental monitoring

Future possibilities



Incident detection

Connected operations have taken off

As of today, we have more than 2,500 customer project sites and 2.8 million light points connected in 58+ countries.

Here are some countries already benefitting from Interact

Brazil
Canada
China
Germany
India
Indonesia
Italy
Malaysia
Norway
Poland
Singapore
Spain
Sweden
The Netherlands
United Arab Emirates
United Kingdom
USA



What are the benefits?



Interact City

Interact is the application for all of your city's outdoor lighting needs.

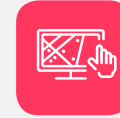
It helps you:

- Make people feel safer
- Beautify public spaces
- Engage citizens
- Boost quality of life and civic pride

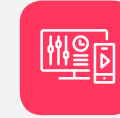
At the same time, you can:

- Reduce your energy costs
- Run your city more efficiently
- Facilitate integrations with other systems and software

Software



Lighting asset
management



Scene
management



Energy
optimization



Open data
interface

Application areas

Roads and streets

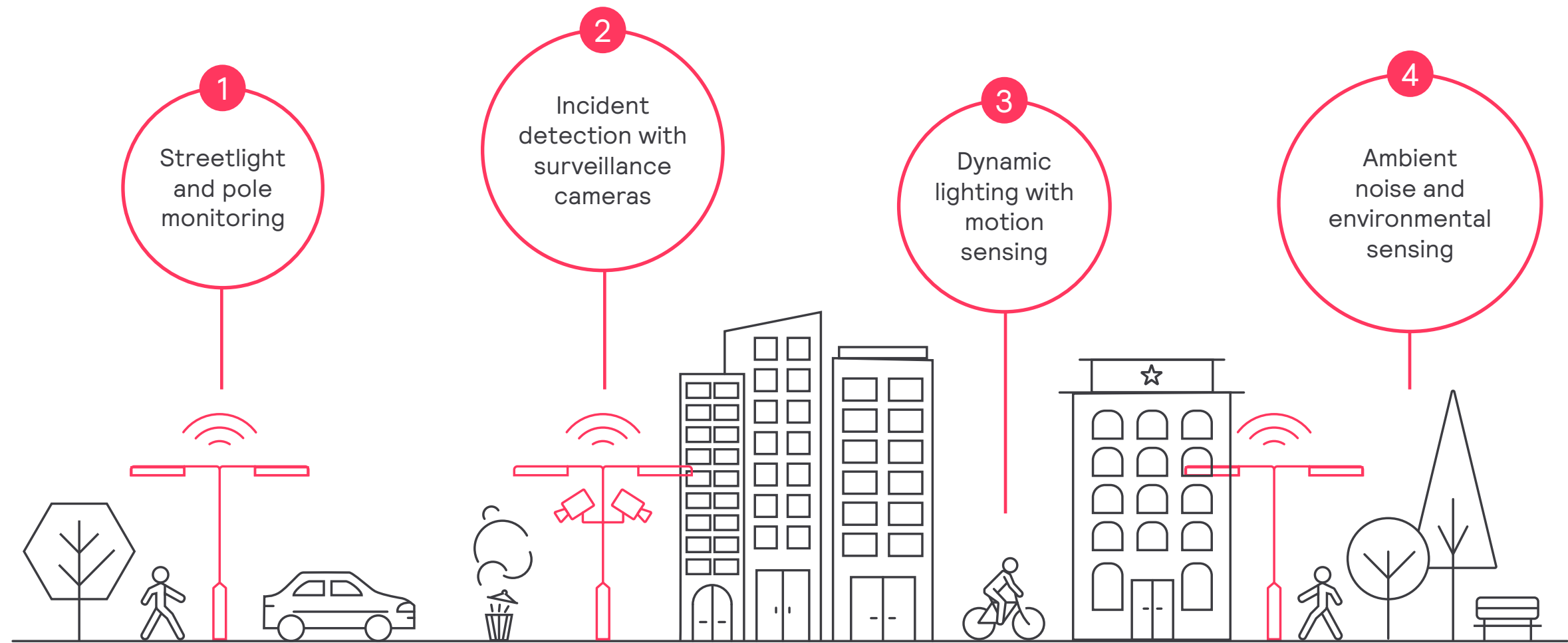
Pedestrian sidewalks
and crossings

Government buildings
and bridges

Parks and plazas

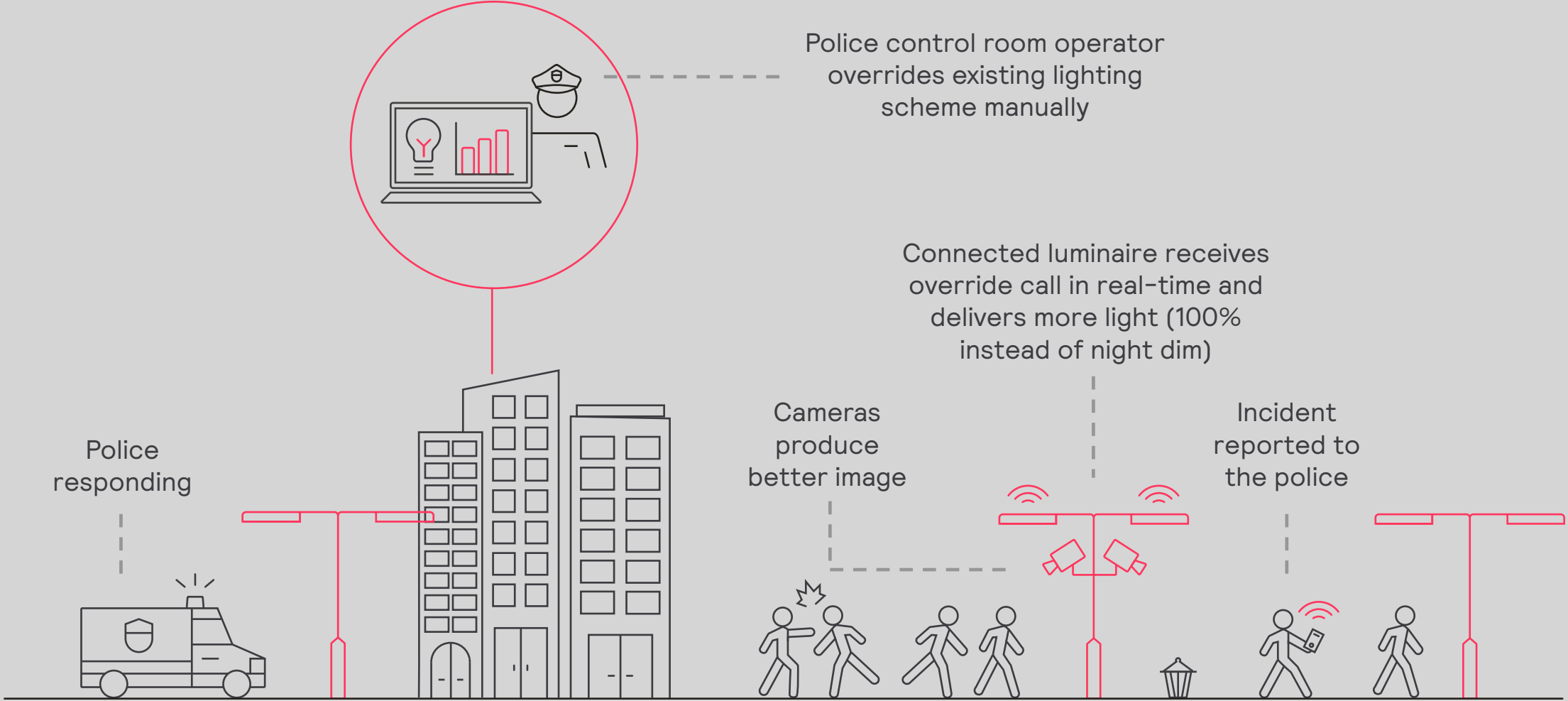


Connected streetlights with public safety and well-being



Connected lighting and public safety

Individual real-time control



Next level Smart City...

The demand for connectivity in cities continues to grow 4x by 2025*

Connectivity densification



- Wi-Fi offloading requirements
- Small cells / 4G / 5G
- Broadband IoT applications

Fiber dependency



- Cost of trenching
- Disruption for citizens
- Neutrality of the host

Scalable urban infrastructure



- Fragmented smart city solutions
- Complex permitting process
- Repeatable application globally
- Aesthetics and vendor lock-in

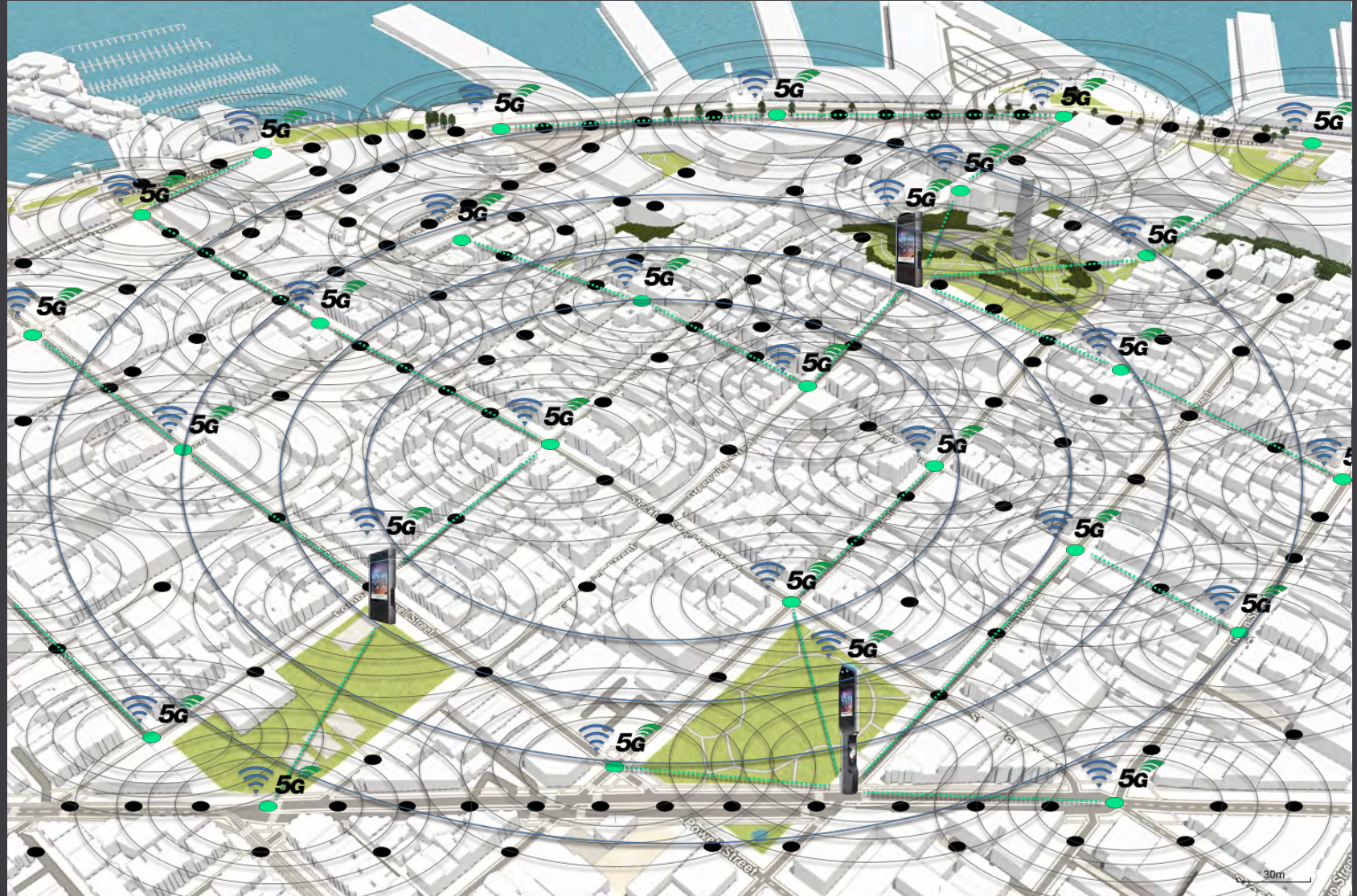
Biosign expansion and complex...

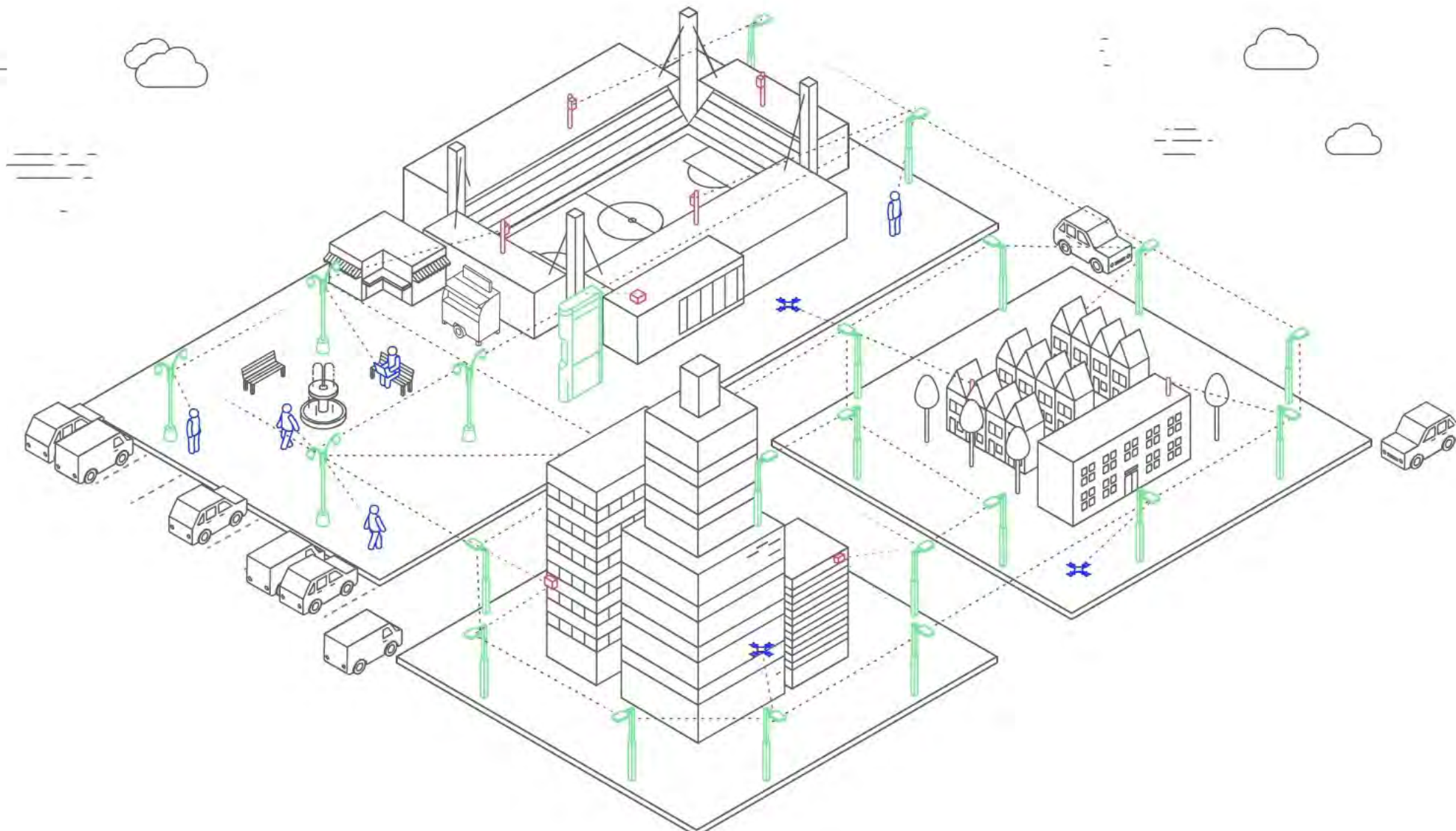


Or, in another way...

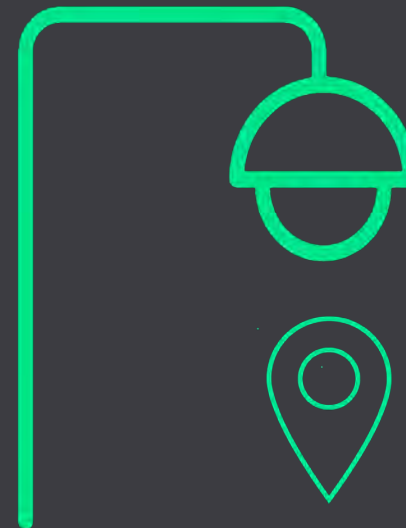
With our solution we enable the connectivity grid of the future

- 1 Light pole grid
- 2 Smart Hub
- 3 Upgrade pole
- 4 Activate pole
- 5 Meshed network





The benefits in action



HTC Eindhoven The Netherlands

Smart pole deployment with multiple IoT solutions at High Tech Campus, Eindhoven.

Primary applications:

- Connected lighting
- Small cell radios
- Safety & Security
- Public Wi-Fi
- Advertisement / Information
- Air Quality monitoring



Solar Solutions

Global trends

Inflation



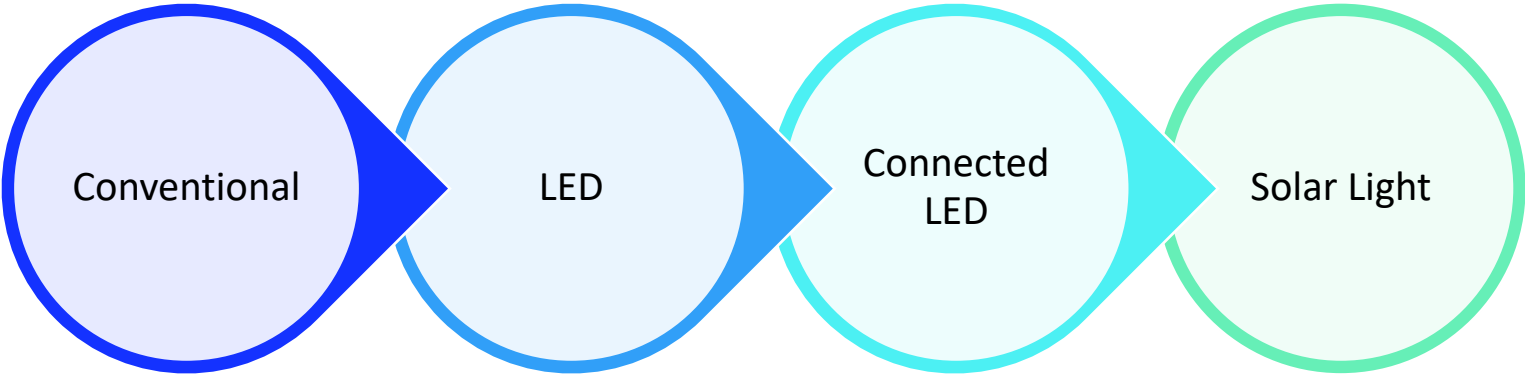
Energy



Climate



Solar Solutions



20%

of the office
electricity bill is
from lighting

Up to 50%

can be reduced
by changing to
LED

Up to 80%

can be reduced
with connected
LED

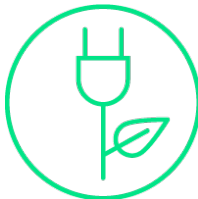
Up to 100%

can be reduced
by using solar
lighting



Renewable

Solar lighting reduces the
use of fossil fuels



Energy efficient

Achieve energy savings of up
to 75%



Low maintenance

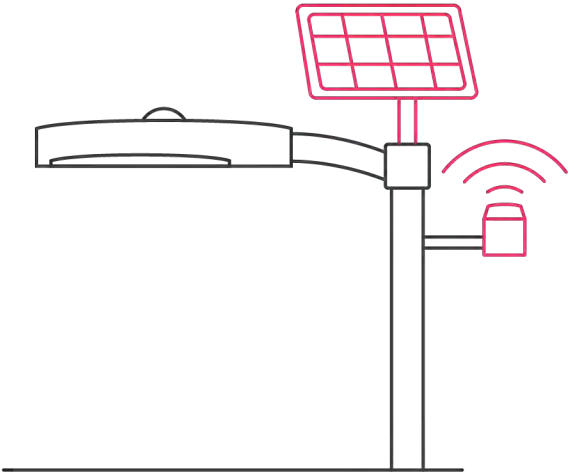
Solar panels can last up to
30 years



Quality of life

Off-the-grid communities
can access 24/7 light

Solar System



Luminaire

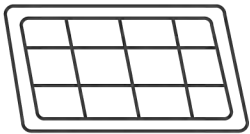
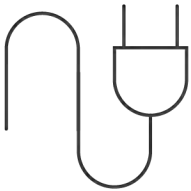


Photo voltaic
panel



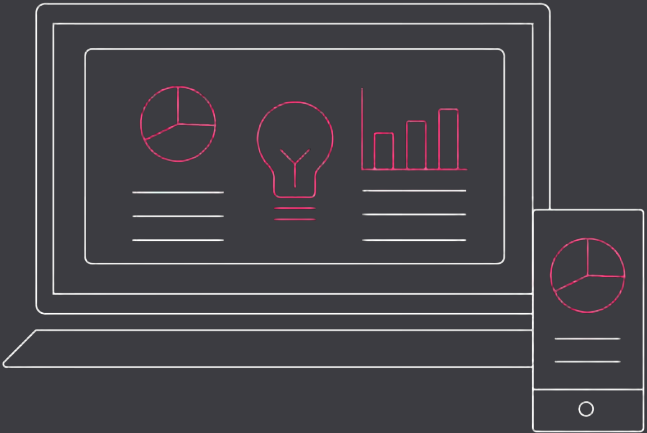
Battery



Charge
controller

Remote control and monitoring of connected solar lighting systems

- 1. Reliable system performance in different weather and seasonal conditions.
- 2. Measure of downtime, uptime, service level delivered
- 3. Fault alarm, rectification and turn around time.
- 4. Energy saved, taken from grid, feedback to grid and its money value (saved, earned and spent).
- 5. Measure of CO2 emissions impact.
- 6. Minimize manual intervention to manage remote solar stations.
- 7. Tracking of asset locations and Asset Management to help users to plan timely maintenance activities.
- 8. Calculate blackout measurement based on sun hours and no-sun hours. This would help to efficiently plan the availability of solar power during cloudy days or in winter.



Agriculture Lighting

The population is growing – this puts extra pressure on our ability to rethink how we live, consume and produce



Now: 7.7 billion

2050: 9.7

billion

2100: 11.2 billion



Money



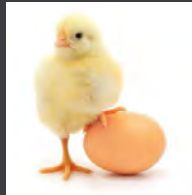
Urbanization



Food demand

+ 60% more food by
2050

We help growers and farmers globally



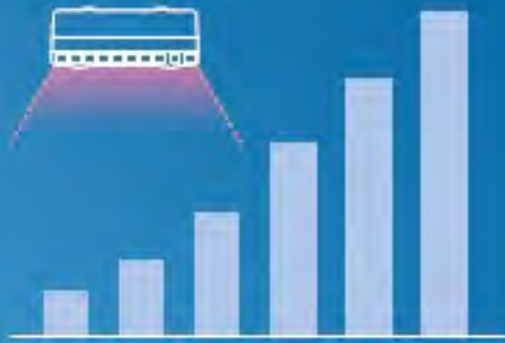
Horticultural
Lighting

Animal Centric
Lighting

Aquaculture
Lighting

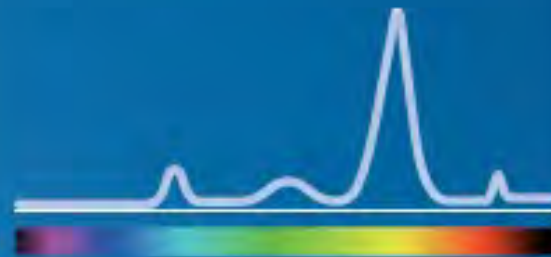
Light Recipe: The four characteristics that define the optimal growth of your crop.

Light level



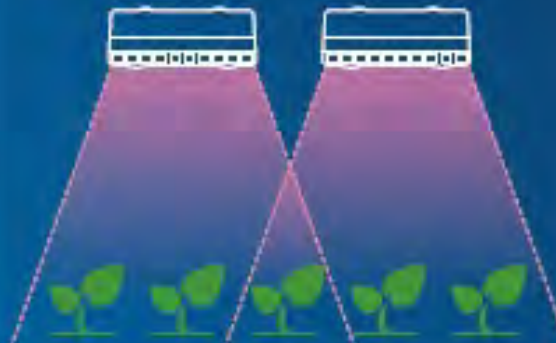
Amount of light
in $\mu\text{mol}/\text{m}^2/\text{s}$.

Spectrum



- Crop specific
- High red content for high efficiency

Uniformity



Uniform light levels
across the crop for
consistent growth

Time



- Moment of switching on/off
- Amount of hours per day

Benefits of Philips Horticultural Lighting



Improve
reliability



Optimize
quality



Increase
yield

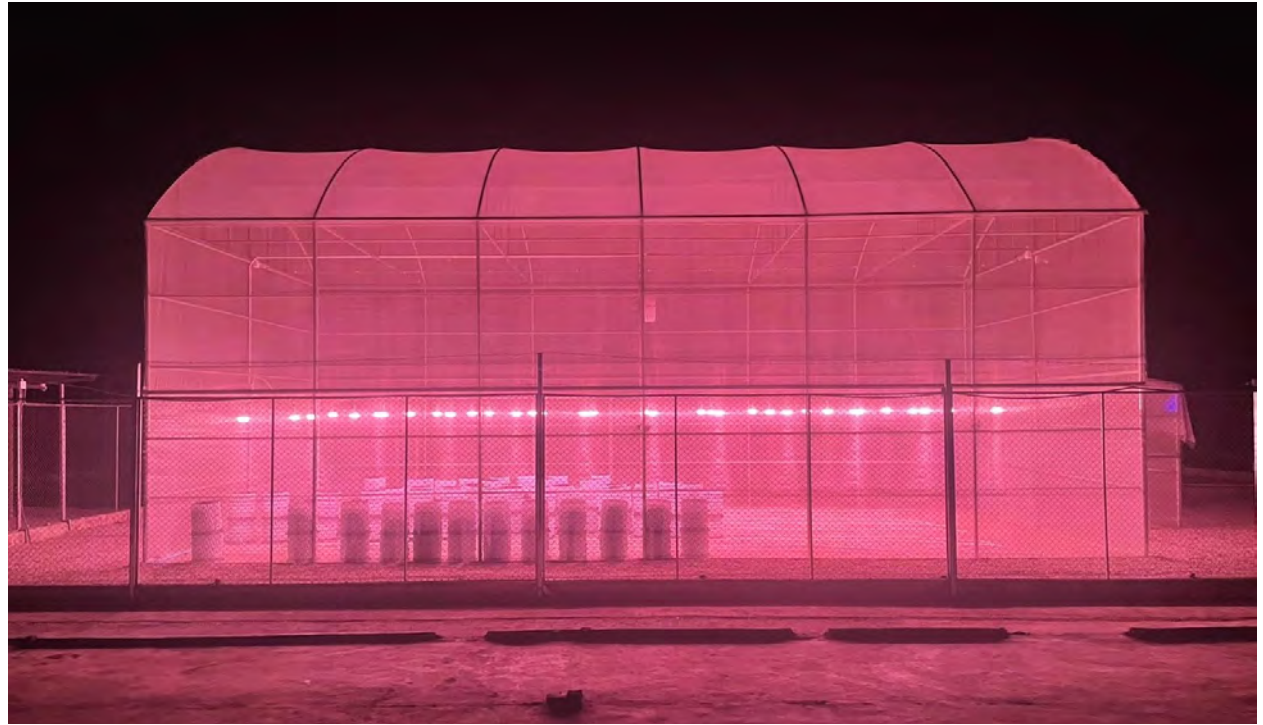


Increase
water efficiency





R US farm, Bangkok



Jessie Farm, Chiang Rai

Animal Centric Lighting

Increase value through animal well-being

Tunable indoor LED lighting assures healthier, better fed, and less stressed livestock

- Expand yield through animal well-being
- Enhanced growth and maturity
- Improved feed conversion
- Natural animal behavior
- Minimum 50% energy reduction

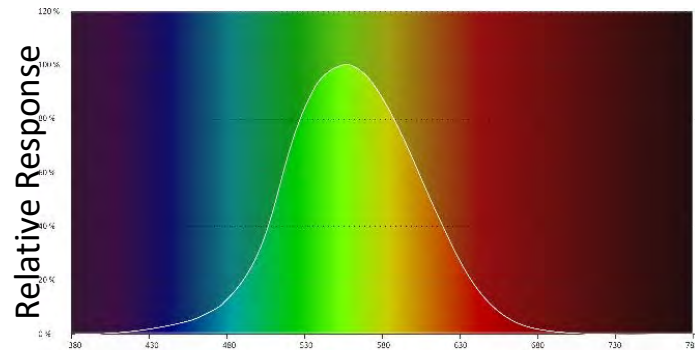


Different light receptors

Translates to different receptors and the way we each see light.



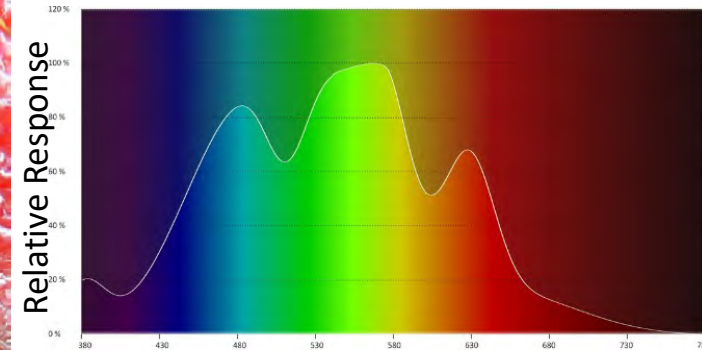
Humans



Wavelength



Domestic Fowl



Wavelength



Proven Results

Better flock performance on average

- Increased bird weight (3-7%)
- Decreased feed conversion rate (3-5%)
- Decreased myopathy (woody breast syndrome)
- Greater proliferation of skeletal satellite cells, a primary muscle regenerator

Improved animal welfare by reducing stress

- Replicates a birds' natural habitat
- Regulates circadian rhythms
- Positively effects blood glucose and triglyceride levels
- Enhanced immune response to viral and bacterial infection



Philips Aquaculture LED Solutions



Marine-based Aquaculture

Under water LED lights
Powerline control system
LightRecipes™



Land-based aquaculture

Tank LED lights
Under water LED lights
Pathway LED lights
DALI control system
LightRecipes™



Ponds & lake aquaculture

Solar Powered Luminaires



Future aquaculture

Universities
Research institutes
Algae
Seaweed
Other species

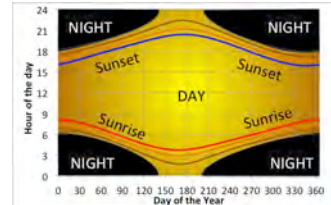
Lighting value with a special lighting recipe

created by mimicking natural lighting environment of a species

Species



Daylight length 18h (1h dim up + 16h 100% + 1h dim down)



Growth



Region



Habitat



Light level Up to 2000lux surface average



Coloring



Survival



Spectrum Green 545nm + Blue 450nm *



\$ € £ ¥

*human perception in white environment as white light ~4500K

Signify