



Sunlight at Night

The role of Energy Efficiency for developing countries

Harry Verhaar, Head of Global Public & Government Affairs, Philips Lighting
Energy Efficiency for Energy Access: Appliance Efficiency in Resource-Constrained Settings
SE4All Practitioner Network – Rexel Foundation Webinar 17 February 2016

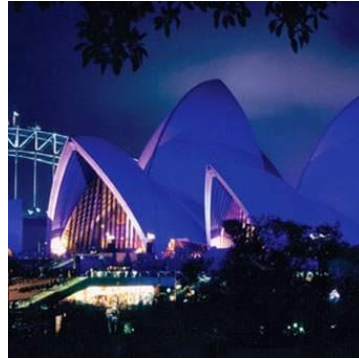
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The Global Relevance of Energy Efficiency

Global trends => Need to double the rate of EE improvement



Population growth
& demographics



Urbanization



The rise of the
middle class



Resource
challenges

Energy demand growing 2x fast (3% p.yr)
as rate of EE improvement (1.5% p.yr)

1. Energy efficiency and the need to **accelerate renovation** of existing infrastructure, primarily in developed countries

2. Energy efficiency and the need to **leapfrog** to the most efficient and clean tech solutions for emerging and developing countries

3. At Philips, we will become **carbon neutral** by 2020

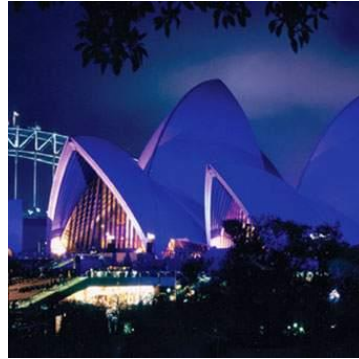
4. At Philips, we will continue to strongly lead the **Global Lighting Sector Transition**

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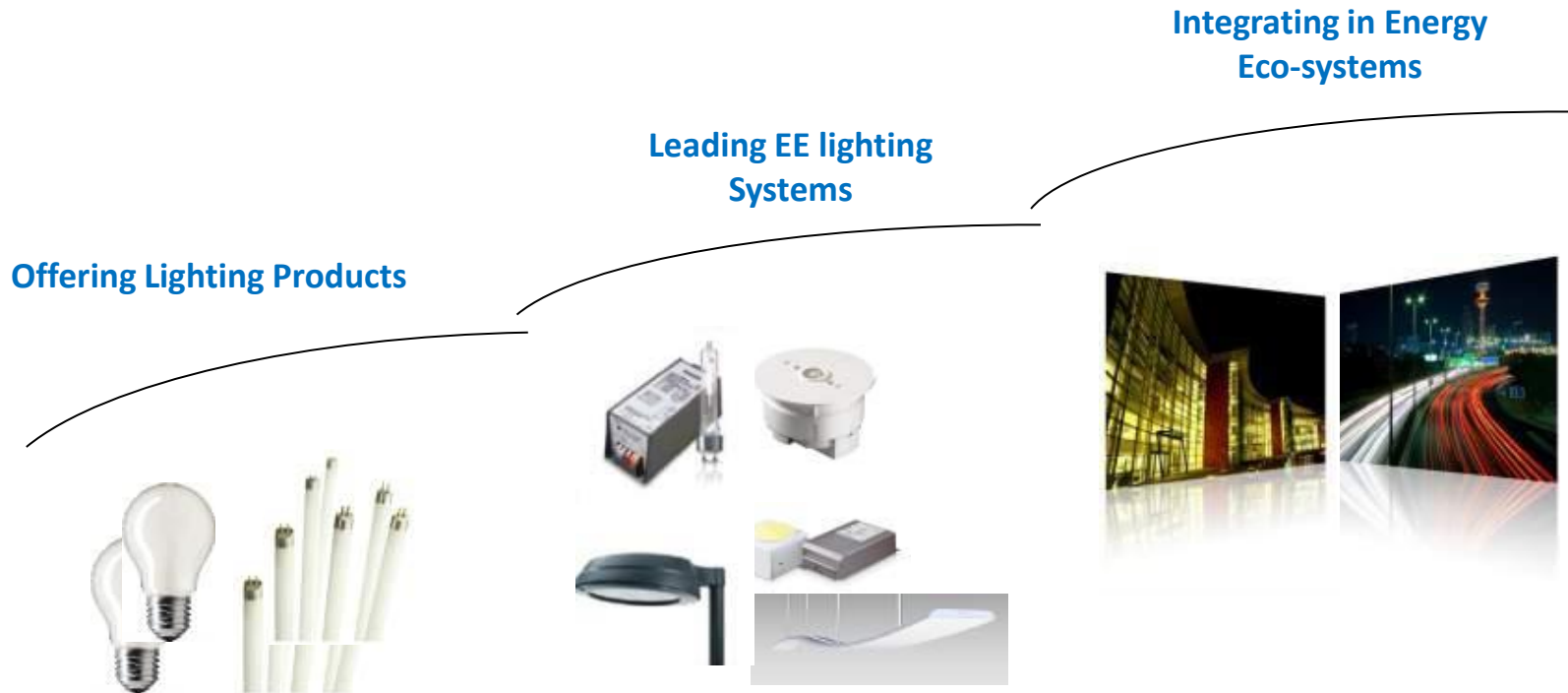
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Our Mission: Eradicating Light Poverty by 2030



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Lighting is evolving beyond offering products



- Analog / Lamps
- Stand-alone / 'Dumb'
- Products / Replacement sales



- Digital / LEDs
- Connected / 'Smart'
- Systems & Services / Larger-scale projects

Philips Solar Lighting Portfolio



- **Philips Lifelight**
 - 60 lumens
 - 1W Solar panel
 - USB port for phone charging
 - 3 light setting

- **Philips Lifelight Plus**
 - 150lumen light
 - 2.5W Solar panel
 - USB port for phone charging
 - 3 light setting
 - **Up to 20 hours of light



- **Philips Lifelight Home**
 - 2 lights each 150lumen
 - 4W Solar panel
 - USB port for phone charging
 - 3 light setting
 - **Up to 40 hours of light



Philips “Community Life Centers” offer

- Up to 6000 m² of outdoor area lighting
- Rural healthcare solutions
- Home lighting and healthy cooking
- Surplus power for business generation

All supplied by Philips and powered by the sun



Portable or 'fixed' Solar Lighting Systems

For communities / events or for streetlighting

“Light around you”

- Pack-and-Go
- Quick installation within 10 minutes
- Robust design for harsh conditions
- Max 3m high installation and 0~45° adjustable luminaire
- Quality light from Philips LED technology
- Quick charging and long lasting working hours
- Fully certified components
- Perfect for community, mining field and emergency lighting etc.



Solar-Lighting is evolving beyond offering products

Offering Solar-Lighting Products

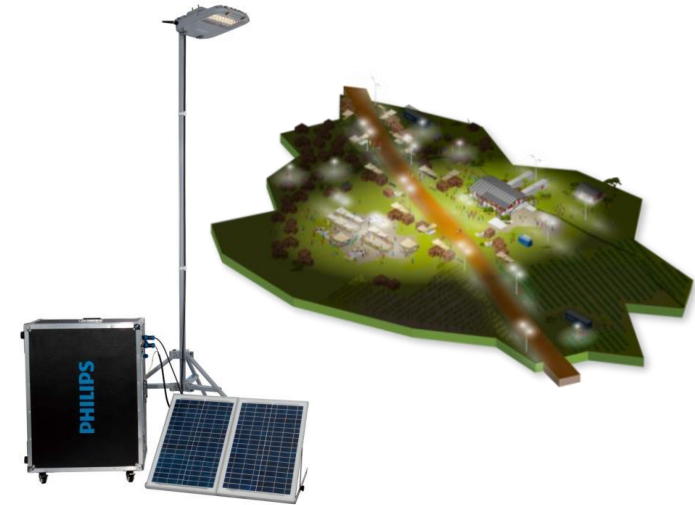


- Analog / Lanterns
- Stand-alone / 'Dumb'
- Products / Replacement sales

Leading EE Solar-lighting Systems



Integrating in Solar-Energy Eco-systems

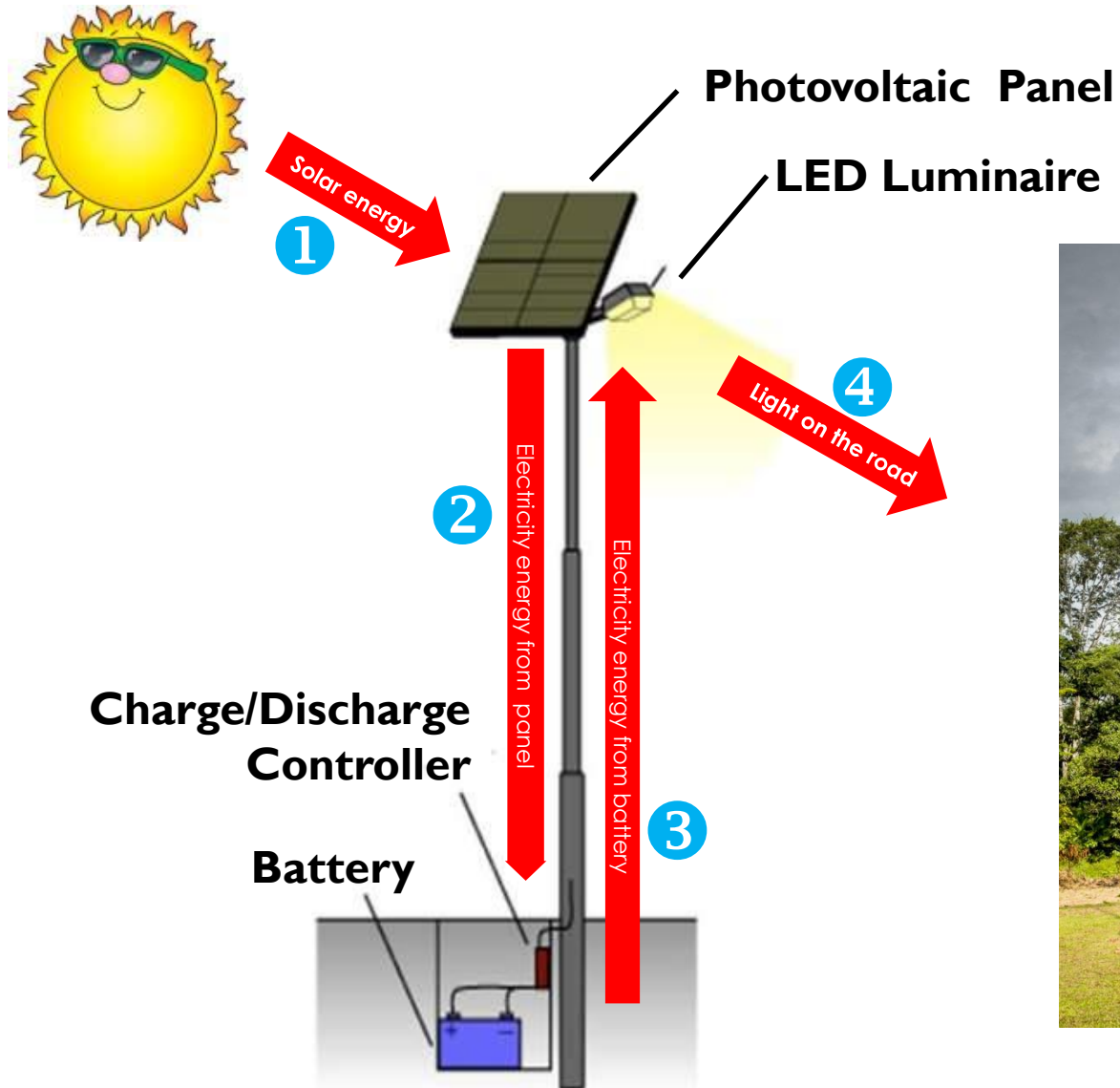


- Digital / Solar-LED systems
- Connected / 'Smart'
- Systems & Services / Larger-scale projects

Good solar lighting



A solar LED is a stand-alone lighting system



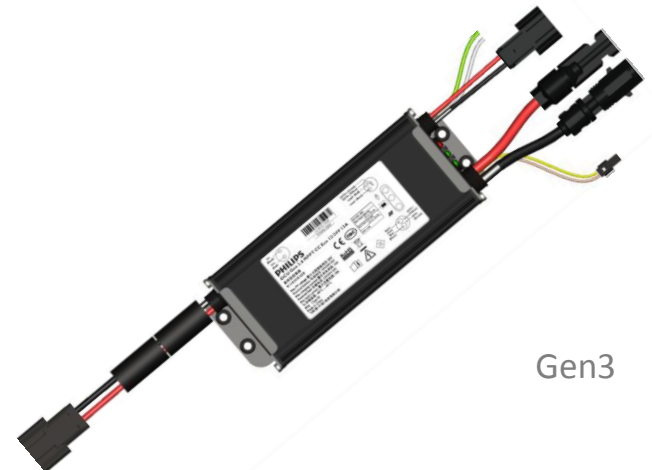
Standalone Off-grid Solutions

A reliable heart with advanced technologies

- Support luminaires of up to 14,000 lumens
- 12/24V system compatible
- Compact modular design for in-pole installation
- IP66 water proof
- Application-related program configuration by PC or IR remote
- Temperature sensor to battery for charging voltage compensation to secure battery lifetime
- PWM charging technology in Gen1
- Higher charging efficiency with MPPT (>99%) technology in Gen3 to drive the system **cost down**



Gen1



Gen3

Standalone Hybrid Solutions

A simple switch to **get rid of black-out risk**

- Support luminaires of up to 19,000 lumens
- Simply switch to **Hybrid Controller Unit**, and remain other components in the system
- **No black-out** risk anymore
- Higher charging efficiency with MPPT enabled to drive the system **cost down**
- **Synchronized** switch on/off for the entire road/street
- Freedom of choosing the primary power source (either battery or grid) for different application conditions



Centralized Off-grid Solutions

Another way to lit up communities

- Superior for community lighting and life
- Centralized PV and batteries for ease-of-maintenance
- No limitation on installation locations for light points

Draft specs:

- PV panel < 10k Wp
- Battery capacity < 30 KWH
- Max load capacity < 9k VA (3-phase)
- Output 220 Vac, 12/24 Vdc, USB ports



design sketches

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Philips Solar LED Lighting Systems

Indoor Lighting



Solar Indoor Lighting Systems

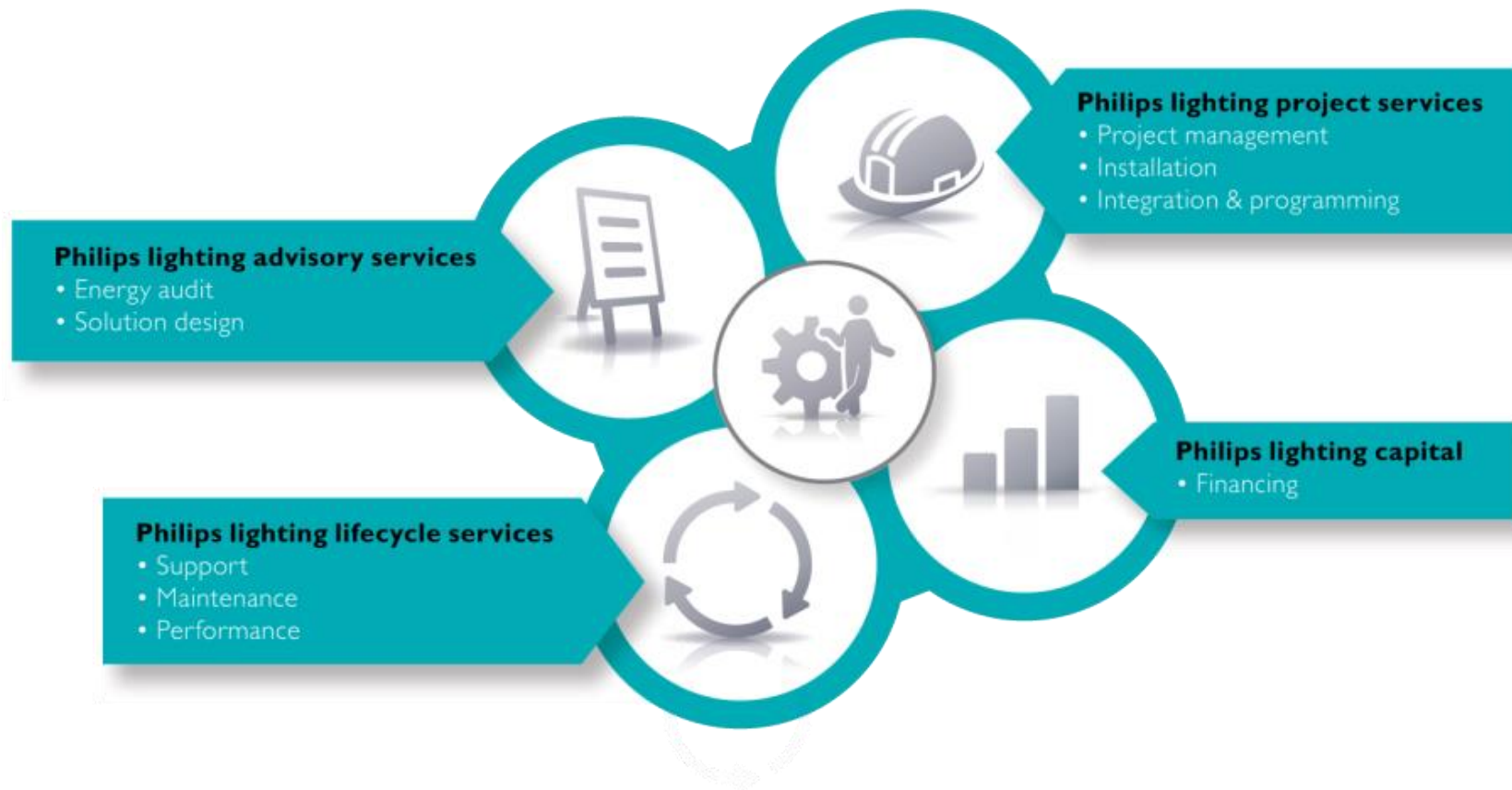
Reliable, Convenient, and Quality of Light with Affordable price



- Quality of light with six light sources at most
- Robust system design with LED bulbs and LED battens
- Long working hours (up to 120 hours*) after one full charge
- Fool-proof installation
- Plug-and-Play
- User friendly operating with detachable controller
- USB port available for the charging of USB-dependent devices

Philips as solar LED lighting partner

From financing, design, project management, installation and maintenance, Philips can help you set up a world-class but also affordable solar LED lighting system



Xiao Xi Chong village, Guiyang, Guizhou Province, China
UN-FCCC 2011 Best Practice Example of PPP
ISA 2012 Global SSL Showcase Top100

Philips Solar Off-grid LED street lighting in China

“Philips solar lighting installed in villages not only lit the night sky of the cottage, but also awakened the villagers for a better life.”

Mr. Yu, Deputy Secretary of Guiyang Municipal Urban Management Bureau

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Philips Solar Off-grid LED road lighting in China

"This is for a road of 25km. Philips solar road lighting systems not only fully complied with safety requirements for roads, but also have outstanding system performance. It's significantly saving the energy. And it's 100% green."

Road Bureau of Nanyang City



Philips Solar Off-grid
LED road lighting
in Indonesia



Philips Solar Off-grid LED factory public lighting in India

"I must say that Philips Solar LED lighting done at our plant, is one of the best choices we have made"

Akhilesh Yadav

Factory Manager, Khamgaon Plant, Hindustan Unilever Ltd

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Mivida green community, New Cairo

Philips Solar Off-grid LED area lighting in Egypt

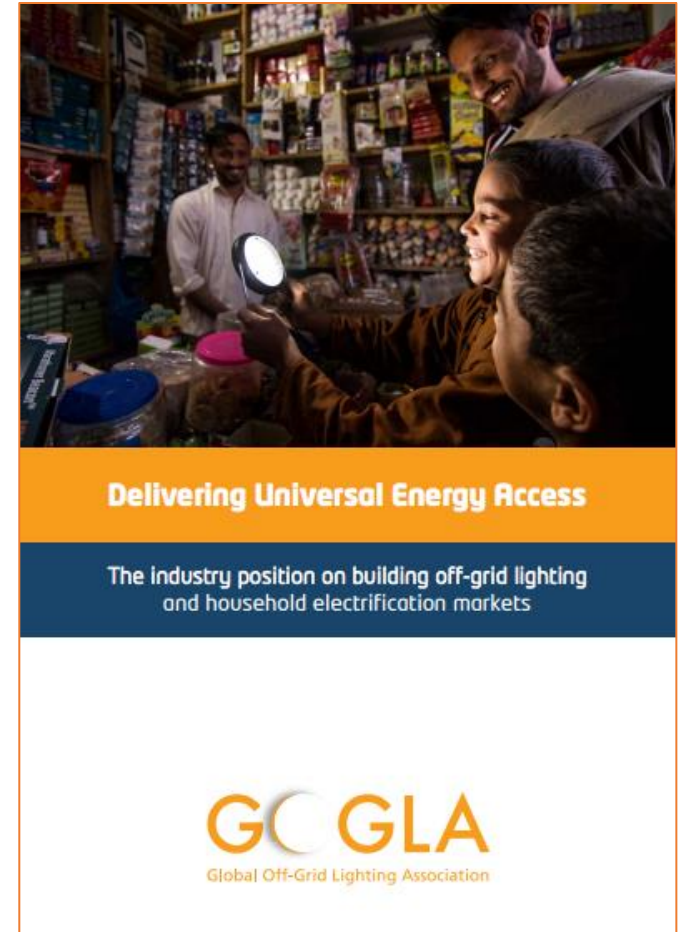


A photograph of a man and a young child. The man, on the left, is smiling broadly and looking towards the camera. He has a mustache and is wearing a white tank top. The child, on the right, is also smiling and looking towards the camera. The child is wearing a yellow tank top and a necklace. They are both holding a solar-powered lamp. The lamp has a red, spherical top with a clear lens in the center, and a silver metal frame with two thin legs. The background is a plain, light green wall.

Delivering Universal Energy Access
The Global Off-Grid Lighting Association

GOGLA: Teaming-up as an off-grid sector

- There is a need to **build solid partnerships** between the industry and Governments, policy-makers, and eco system enablers to ensure sustainable market growth.
- With over 70 members, **GOGLA is the voice of the industry**. Positions outlined in a handbook representing the collective decision of that voice, administered through a formal voting process.
- The handbook provides guidance on how to best work with and support the industry in **delivering universal energy access faster**.



A person in a yellow shirt is climbing a thatched roof of a traditional hut, holding a solar panel on a pole. The background shows a clear blue sky and some greenery.

Eight Positions Adopted

1. Measuring Energy Access – the Use of the Global Tracking Framework
2. The Use of Public and Donor Funding
3. Kerosene Subsidies
4. VAT and Import Duty Settings for Off-Grid Lighting Products and Solar Home Systems
5. The Role of Donor Funding to Mobilize Investment
6. Support for Quality Products and Quality Assurance
7. Protection of Intellectual Property Rights
8. Life Cycle and Recycling

The role of Energy Efficiency for developing countries

Summary

- EE crucial for equitable socio-economic development
- Leapfrogging to innovative 'clean-tech' solutions
- From Product -> System -> Eco-system perspective
- Partnerships key element of success



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