



# **Webinar Series – Webinar #1**

## *Energy Efficiency for Energy Access*

### *Appliance efficiency in resource-constrained settings*

Webinar #2 and #3 planned in H1 – 2016 (dates to be confirmed)

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Feb. 17<sup>th</sup>, 2016

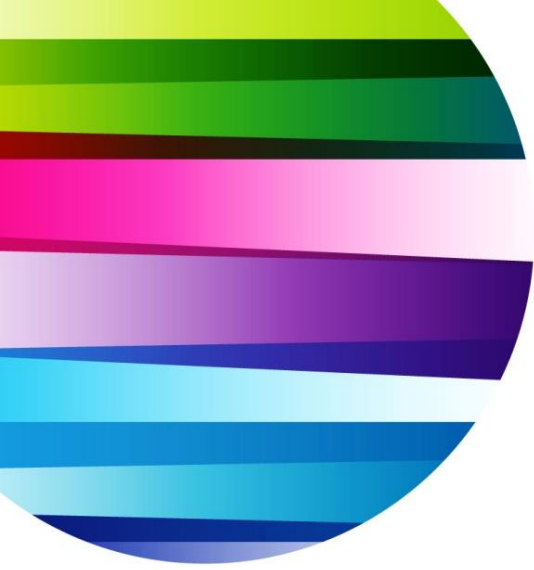
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# Agenda

## Appliance efficiency in resource constrained settings

- 1. Presentation of the Rexel Foundation** 7'
- 2. Why is Energy Efficiency critical in resource-constrained settings?** 7'
- 3. Case studies in Asia** 6'



# 1. PRESENTATION OF THE REXEL FOUNDATION





# The Rexel Foundation for a Better Energy Future: 1 mission focused on 3 programs

**1**

MISSION

Improving **access to energy efficiency** for all

**COMMUNITY  
PROJECTS**



Improving quality of life for disadvantaged populations

**SOCIAL  
INNOVATION  
PROJECTS**



Driving innovation in energy solutions

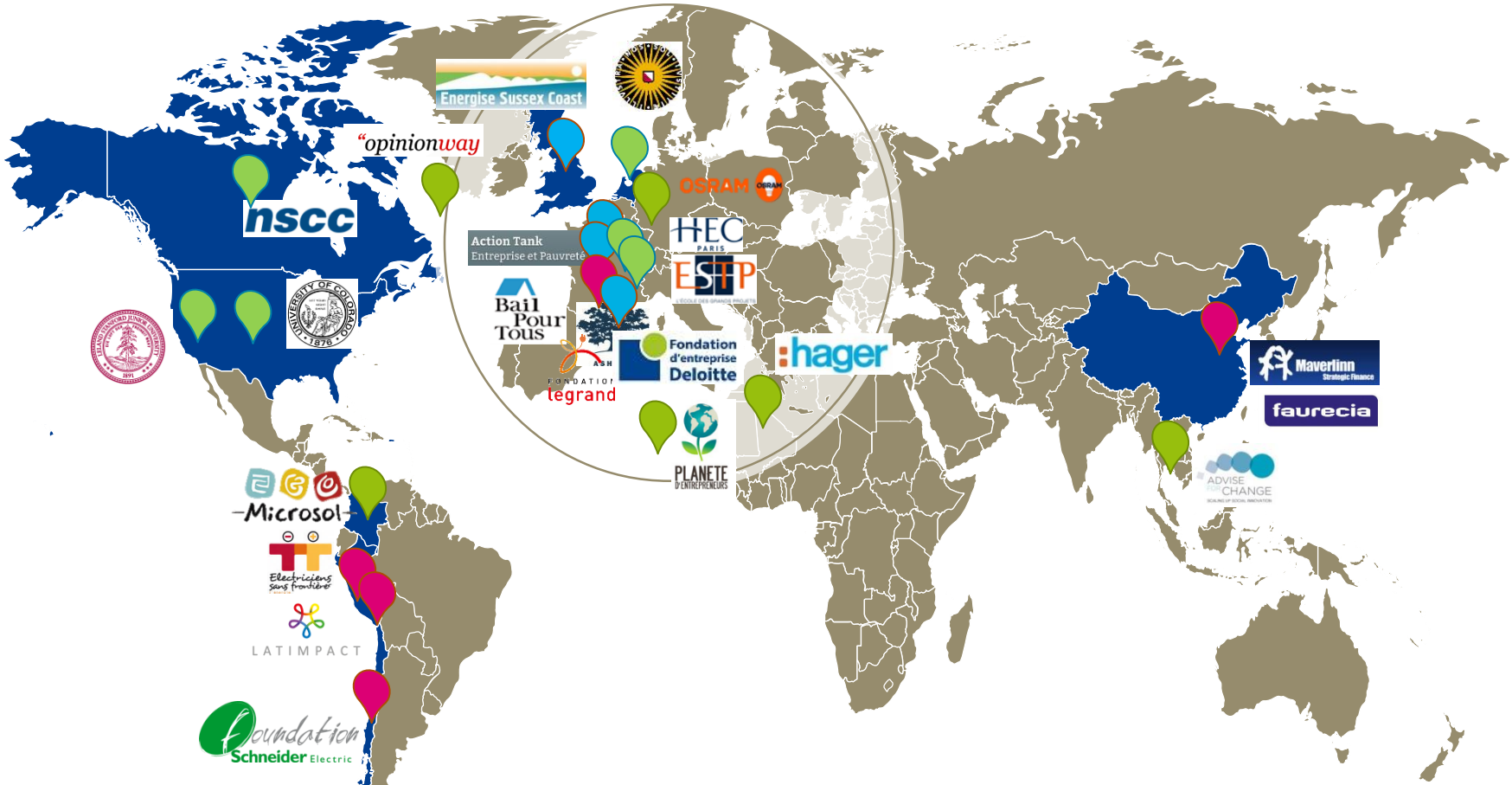
**KNOWLEDGE**



Sharing information and expertise of energy efficiency



# 36 initiatives deployed by the Foundation around the world, so far...



 **10**  
Community projects

 **12**  
Social innovation projects

 **14**  
Knowledge



# Working in partnership with more than 45 organizations

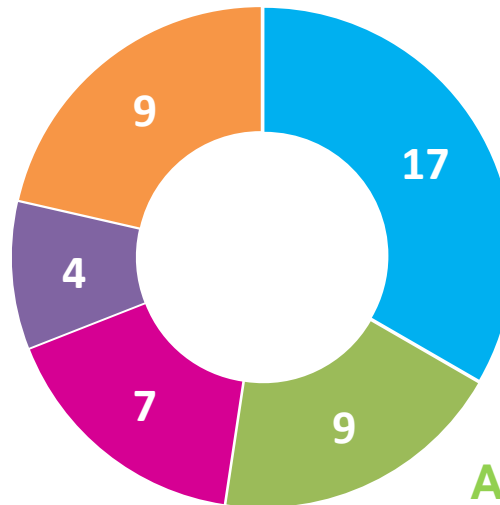
## Business partners:



## Social enterprises:



## Foundations:



## Non-profit organizations:

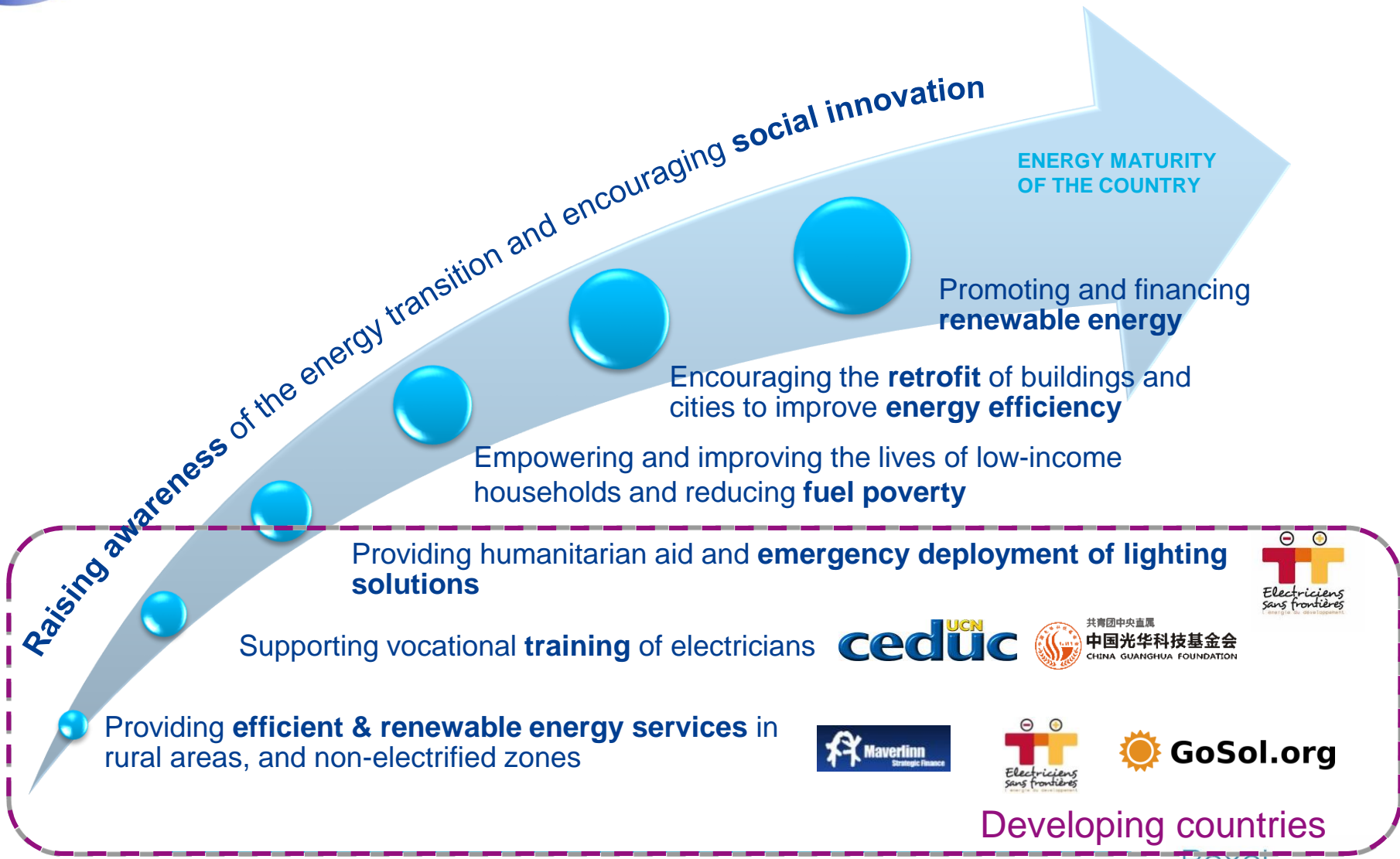


## Academic partners:





# The type of support provided depends on the “energy maturity” of the country



Developing countries



# Providing efficient energy in developing and emerging countries



2014: installation of a **solar energy power plant** at San Xing Elementary School, located in the province of Hebei (China).

Thanks to the Rexel Foundation's support, almost **300 children** now benefit from uninterrupted access to electricity, generated by an on-site solar PV station which provides electricity for the school's IT classrooms, thus improving education.



2015: supporting the GoSol initiative, the first digital platform designed to **transfer technology** to the most disadvantaged communities in developing countries.

GoSol.org is. It develops **free construction guides enabling farmers and craftsmen to build solar concentrators** so that they can access green, free and self-produced energy.



# Providing emergency response and humanitarian aid



Ongoing: The Rexel Foundation is helping to rebuild villages in the valley around **Laprak, Nepal, which were hit by an earthquake in April 2015.**

The Foundation is working with **Electriciens sans Frontières** (Electricians without borders) in the emergency deployment of lighting solutions

## Expected results:

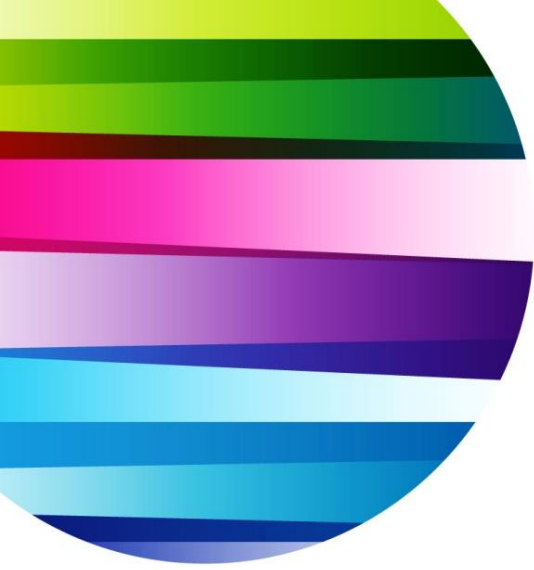
- **Distribution of 3,000 lighting kits** to displaced households in target villages.
- Installation of some **100 public lights** (solar lamps) at strategic locations in villages or refugee camps.

# Supporting vocational training



In 2012, Rexel launched its first project in support of the **Taiyuan school in Shanxi Province in China**. The school trains underprivileged students in the energy trade.

Since that time, the Rexel Foundation's voluntary aid and financial support has allowed **100 students to receive training and 2 training laboratories to be upgraded** to improve teaching conditions.



## 2. WHY IS ENERGY EFFICIENCY CRITICAL IN RESOURCE-CONSTRAINED SETTINGS?

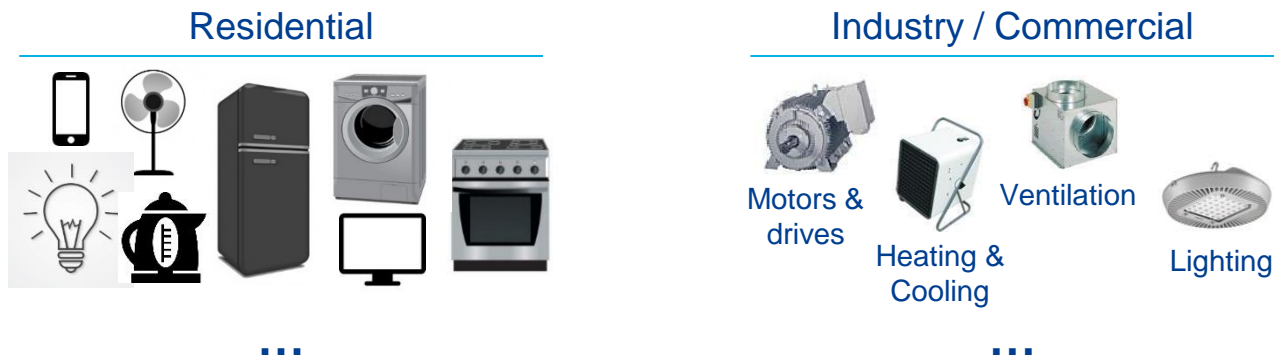




# Appliance efficiency: What are we talking about?

1/2

- “**Energy efficiency** is a way of managing and restraining the growth in energy consumption. Something is more **energy efficient** if it delivers more services for the same energy input, or the same services for less energy input.” *International Energy Agency*
- **Appliance:** “a device, machine, or piece of equipment, especially an electrical one that is used in the house, such as a cooker or washing machine” *Cambridge Advanced Learner’s Dictionary & Thesaurus*



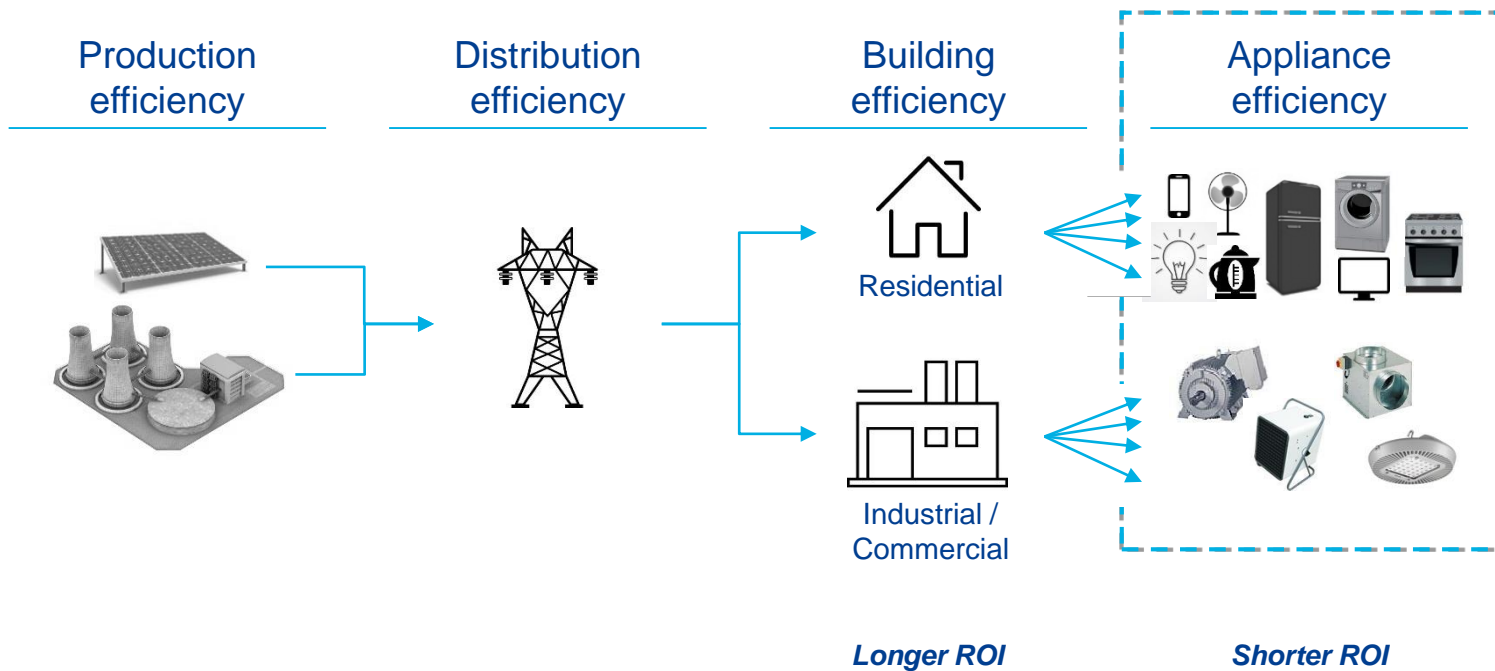
▶ **Appliance efficiency:** enabling appliances to deliver more services with the same energy input or the same services with less energy input



# Appliance efficiency: What are we talking about?

2/2

- **Appliance efficiency** focuses on the consumption side of the electricity supply chain within a building



# Characteristics of “resource constraint” in emerging economies

## ■ Challenges facing energy supply and distribution

- Supply: the number of energy-consuming appliances used in our buildings is constantly rising, driven by:
  - Population growth & structural trends such as urbanization and a booming middle-class
  - Advances in the industrial / tertiary sectors
- Distribution
  - Grid network failures & energy loss
  - Restricted grid coverage (electricity is not equally accessible to everyone)

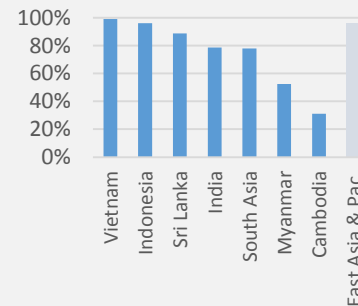
## ■ Challenges facing consumers/industry

- Residential: rising cost of energy is taking its toll on households
- Industrial / Tertiary: reliable supply of energy is critical
- Lack of regulatory norms and standards in appliance efficiency

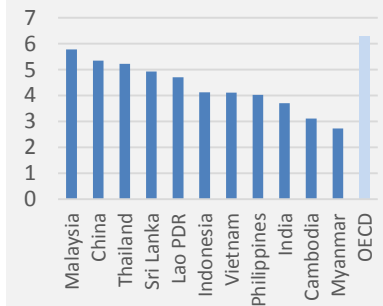
**x3**

Electricity generation in Southeast Asia is predicted to triple by 2040<sup>1</sup>

Access to electricity (% of population)<sup>2</sup>



Quality of electricity supply, 1-7 (best)<sup>3</sup>

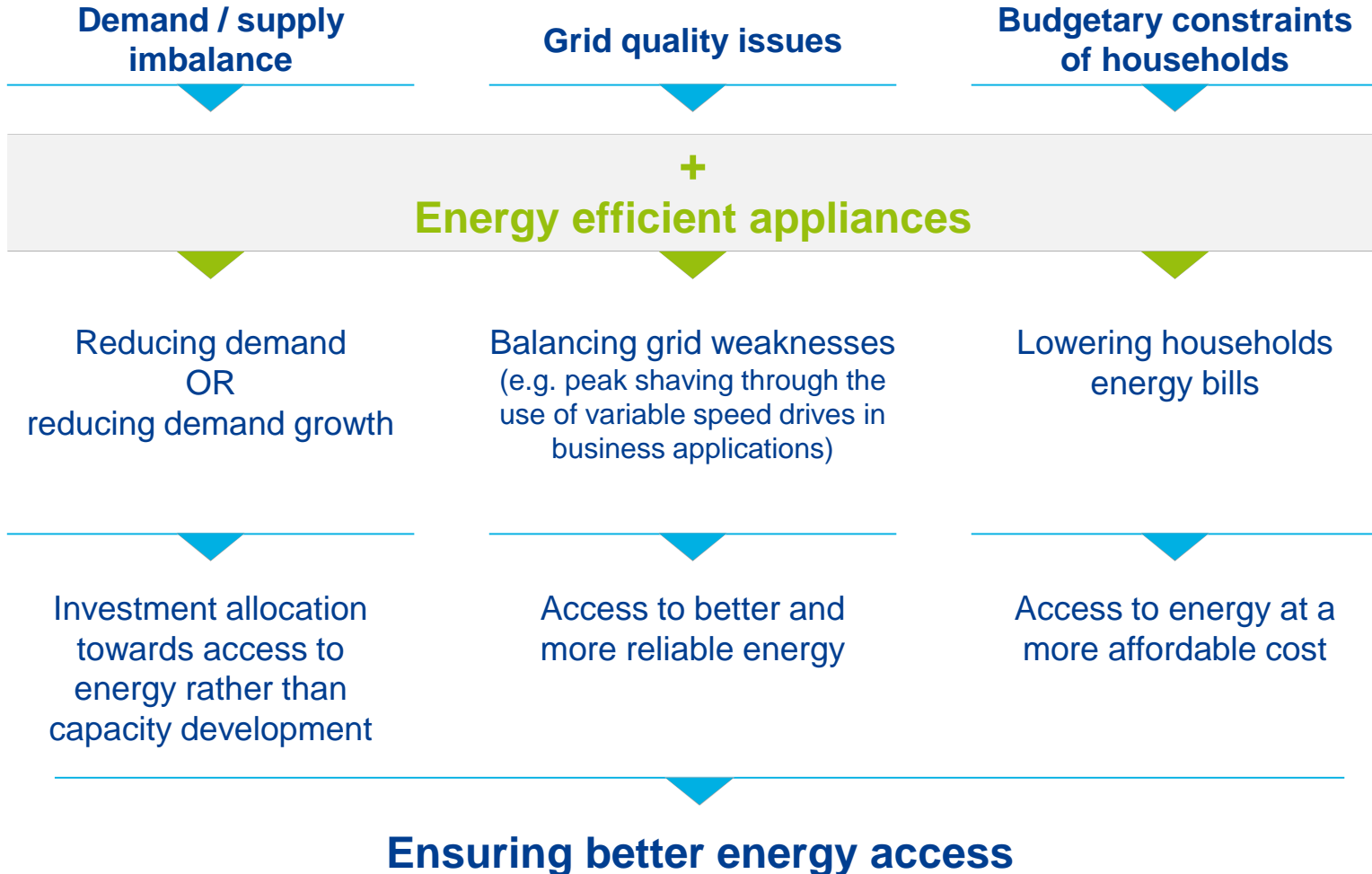


**Only 1 in 2**

countries in Southeast Asia have introduced Minimum Energy Performance standards (MEPS) for appliances<sup>4</sup>

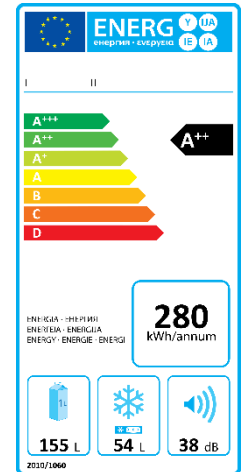


# Energy efficient appliances in resource-constrained settings are key to energy access



# Drivers of appliance efficiency

- **Regulation** (not developed in this presentation)
  - Development of MEPS (Minimum Energy Performance Standards)
  - Regulatory customer information
- **Efficient and affordable products**
  - Total Cost of Ownership (TCO)
  - Development of financing options to overcome financial/affordability barriers (including subsidies)
- **Educating electrical installers and raising awareness among end-users of....**
  - Energy efficiency
  - The importance of size vs. usage when choosing an electrical appliance
  - The importance of size when designing and installing electrical systems / circuits
  - Subsidies and other financing mechanisms for energy efficient appliances



Example of EU energy label for appliances





## 3. CASE STUDIES IN ASIA





# Efficient appliances for business: Solutions for reliable access to energy

- **Example 1: energy efficient motors to improve reliability of energy supply**

## Customer

- ▶ Consumer packaged goods industry (float glass)
- ▶ Location: Jhagadia (Gujarat state), India

## Rexel solution

- ▶ Retrofit of 160 kW furnace metal cooling fan
- ▶ Existing soft starter replaced with **AC drive** enabling to **reduce peak energy demand** and **optimize energy consumption at use**
- ▶ **Critical issue:** Revamping done in a running plant
- ▶ **Two-step solution:**
  - Step 1: Choosing the most adapted energy saving application
  - Step 2: Motor replacement without discontinuing operations

## Customer needs

The management wanted to:

- ▶ Save energy in all areas of manufacturing
- ▶ “Be a reference for sustainable habitat”

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## SAVINGS

- ▶ 2,215,500 INR saved per year
- ▶ 365,500 kWh saved per year
- ▶ 289.15 tons of CO<sub>2</sub> emissions saved per year
- ▶ **Payback: 4 months**



# Efficient appliances for business: Solutions for reliable access to energy

- **Example 2: energy efficient lighting brings energy savings with immediate results**

## Customer

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- ▶ Food & Beverage Industry
- ▶ Pune (Maharashtra state), India

## Rexel solution

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- ▶ Retrofit of 370 existing lights
- ▶ Installation of **LED lighting solutions** adapted to the customer's needs and location (shop floor / manufacturing areas)

## Customer needs

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The management wanted to:

- ▶ Reduce energy consumption by 30% and GHG emissions by 15% in one year
- ▶ Improve light quality

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## SAVINGS

- ▶ **810,000 INR saved per year**
  - 770,000 INR reduced energy costs
  - 40,000 INR reduced maintenance
- ▶ **95,659 kWh saved per year**
- ▶ **76 tons of CO<sub>2</sub> emissions saved per year**
- ▶ **Payback: 1.8 years**



# Training & awareness-raising

## ■ Example 1: Training offered to Rexel employees

The Rexel Academy:  
Energy Efficiency modules

Training of Rexel salesforce in partnership  
with our suppliers

**ENERGY EFFICIENCY EXPERTISE AT REXEL**

Welcome to the Energy Efficiency Expertise at Rexel!

As a major player in the energy value chain, we, Rexel, can actively support our customers and their clients to optimize or reduce their Energy Consumption and be part of a better energy future. This new Energy Efficiency E-Learning program has been designed with different paths to elevate your level of knowledge and expertise!

It will allow you to continue your education and will provide you with a certificate demonstrating you have successfully completed your Quiz.

With more confidence, it is easier to better support your customers on daily basis and develop your business activity.

Please click on the video on the left side, that will give you better insight on what we are offering through this E-learning program, which has been developed with the support of our strategic vendors.

Wishing you a lot of fun and an excellent training!

**Discover** ▶

- Electrical Concepts
- Energy Efficiency Fundamentals
- Energy Rate Structures | Concepts and Unit pricing
- Going Green with Leadership in Energy Environmental Design
- Lighting I: Lighting Your Way **NEW!**

**Discover** ▶

- Maintenance Best Practices for Energy Efficient Facilities
- Proven Energy Efficient Strategies For Retailers
- Financial Analysis of Energy Efficiency Projects
- Efficient Motor Control with Power Drives Systems
- HVAC Systems I: An Introduction to Building Controls
- Energy Efficiency: Building Automation
- Energy Efficiency: Building Automation I
- Electric Vehicles: Plugging into Smarter Energy Management
- Defining Light **NEW!**
- Incandescent and Low Pressure Discharge **NEW!**
- High-Intensity Discharge and LED **NEW!**

**Discover** ▶

- Energy Audits
- ISO50001: Maximizing Your Energy Efficiency
- Financing and Performance Contracting
- Motors A Performance Opportunity Roadmap
- Active Energy Efficiency Using Speed Control
- Energy Efficiency: Building Automation II
- HVAC Systems II: Air-Air and Water
- HVAC Geothermal Heat Pumps
- HVAC Efficiency and Equipment Optimization
- Lighting V: Economics **NEW!**
- Lighting VI: Calculating Required Lamps with the Lumen Method-SI and Method-US **NEW!**
- Energy Audits Instrumentation I: Electrical, Lighting Temperature and Humidity Measurement **NEW!**

> **5,500**

employees were trained in energy efficiency in 2013 and 2014

Supported by a community of

**240**

energy efficiency experts across

**23**

countries

➤ **18 000**

employees having access to the Rexel Academy EE E-learning program in 2016

# Training & awareness-raising



- Example 2: Training of external stakeholders to support energy efficiency



A program is in progress in **Thailand** in partnership with the **Department of Skill Development (DSD) within the Ministry of Labor** to provide electrical installation and automation education kits as well as training to DSD trainers to ensure a virtuous cycle.

**600 DSD employees / year** will be trained

A program is in progress in **Vietnam** in partnership with the **European Institute for Cooperation and Development (IECD)** to develop and modernize the electrical training given to young people in Ho Chi Minh in order to improve their employability.

**720 students** will be trained over 3 years



**Thank you**

Website

**[www.rexelfoundation.com](http://www.rexelfoundation.com)**

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**[@rexelfoundation](https://twitter.com/rexelfoundation)**

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