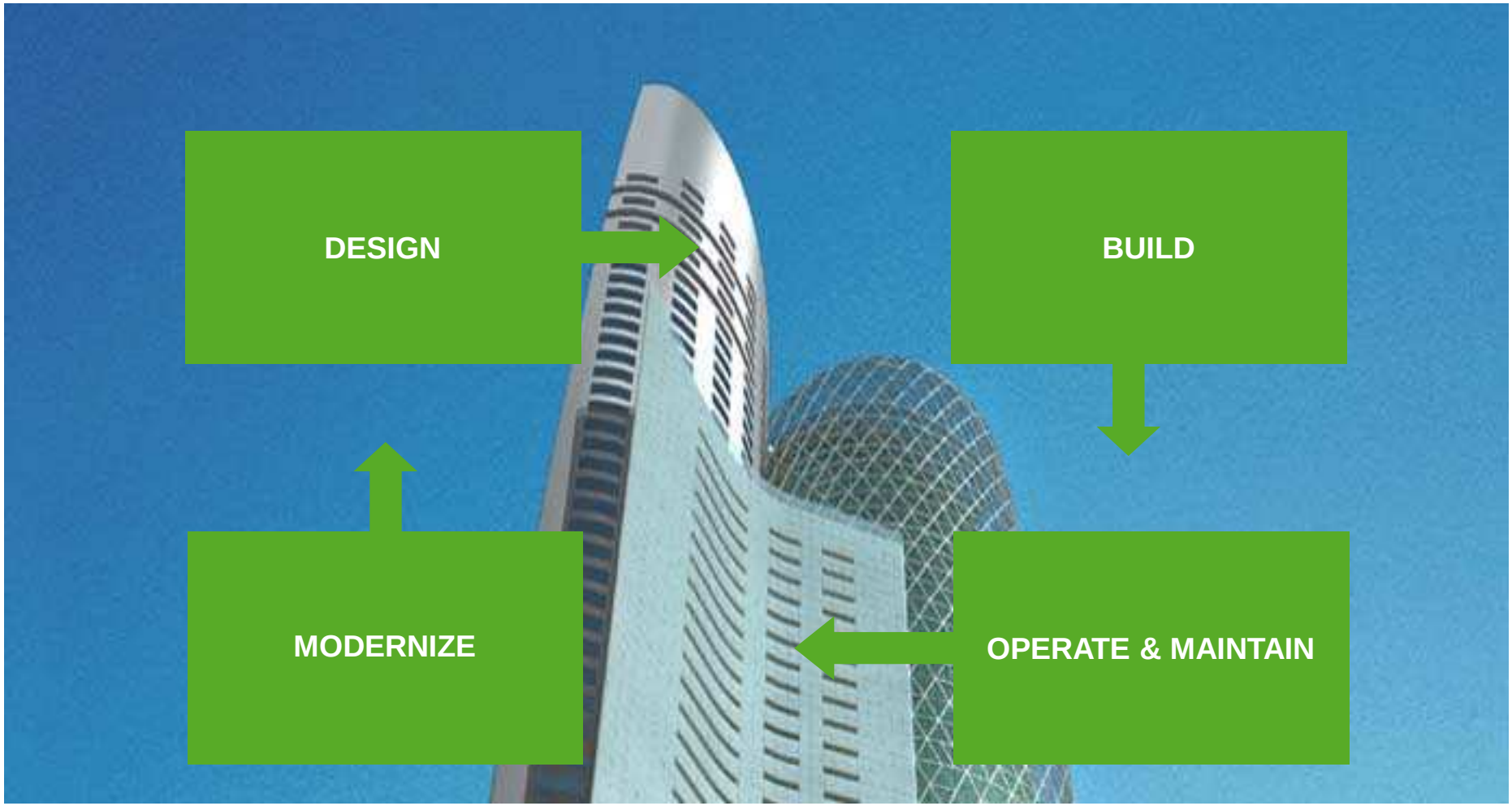


KONE Eco-efficient™ solutions

Johannes de Jong
KONE Major Projects

KONE Eco-efficient™ solutions
FOR THE LIFETIME OF YOUR BUILDING



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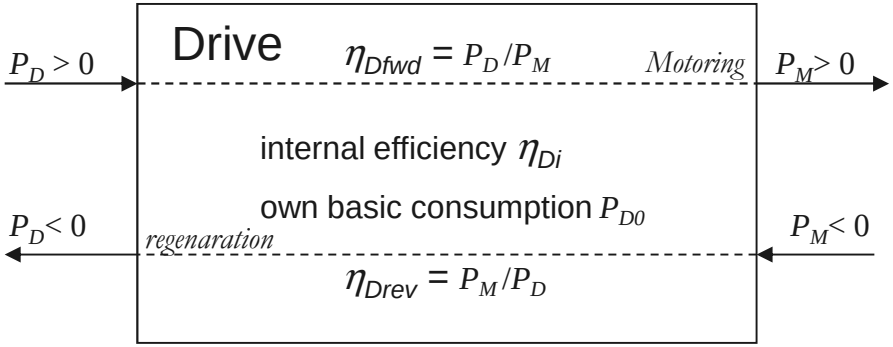


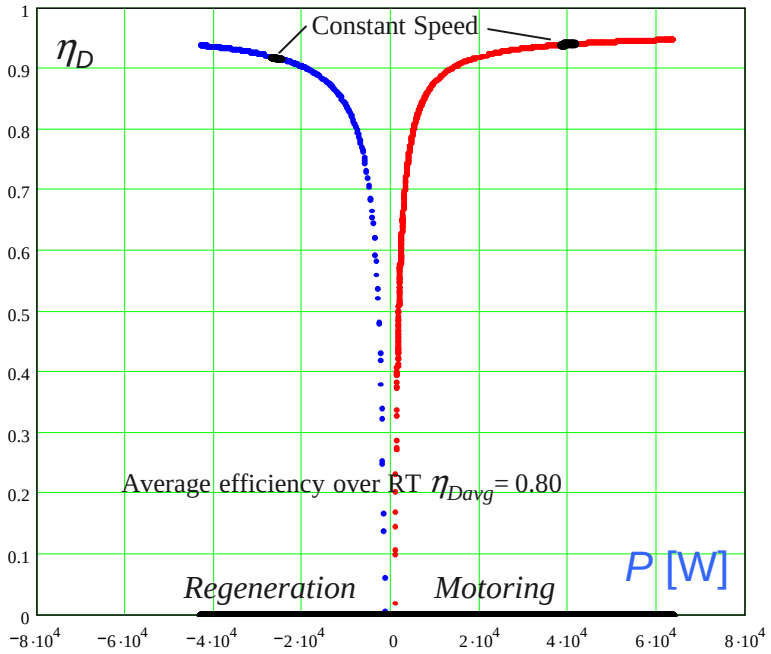
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PRINCIPLE OF ENERGY CONSUMPTION

Efficiencies - Drive



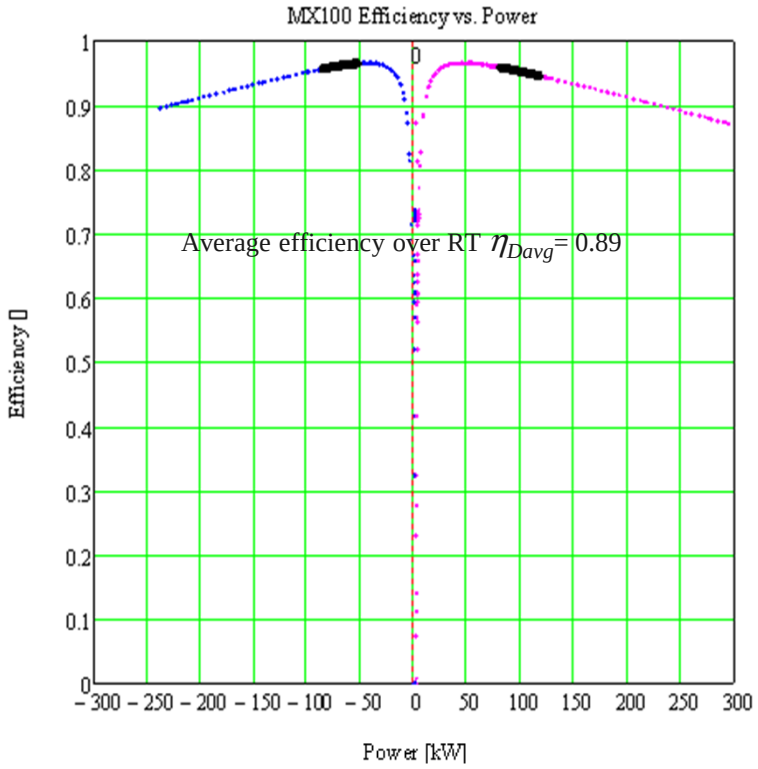




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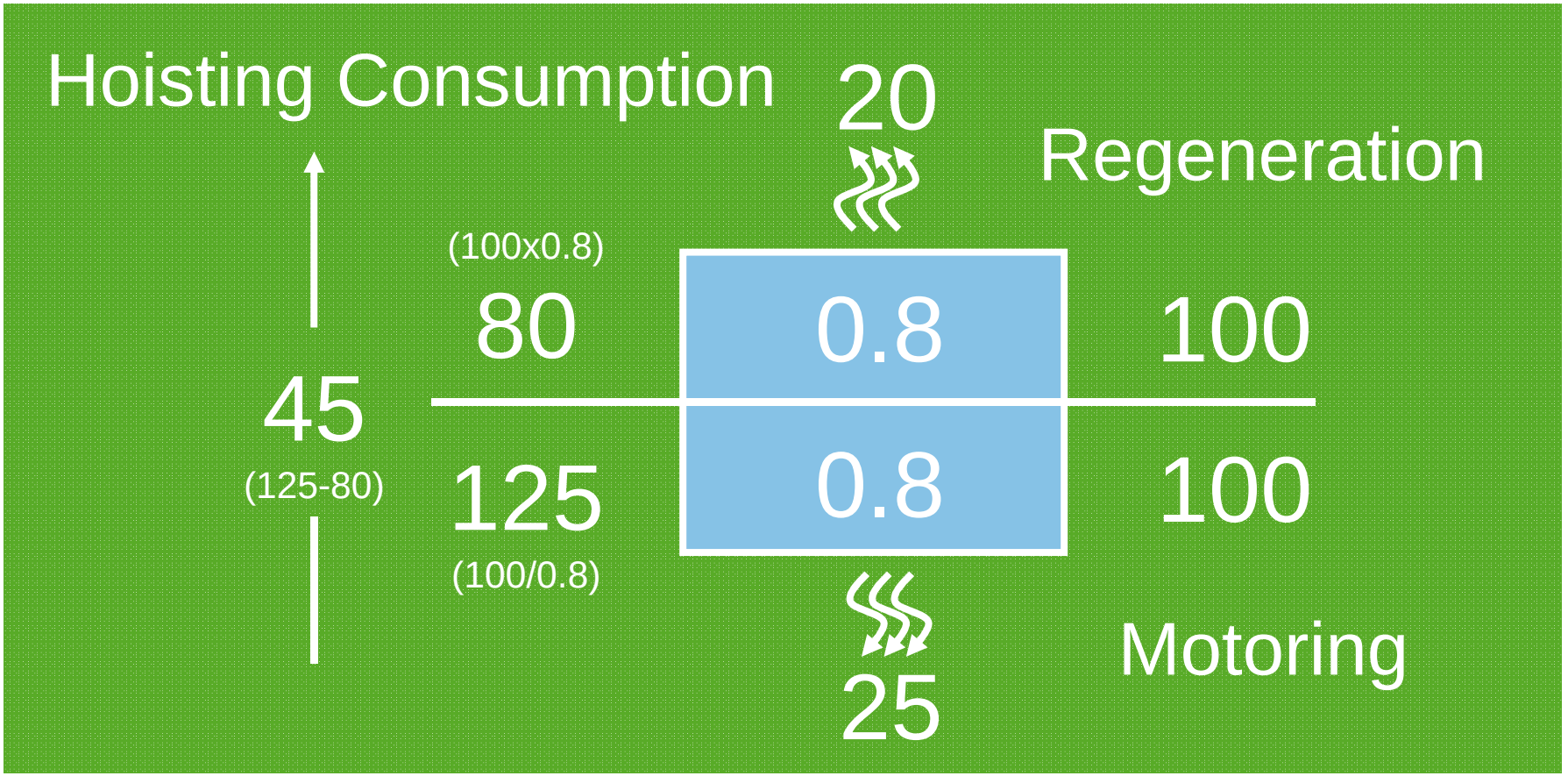
Efficiencies - motor





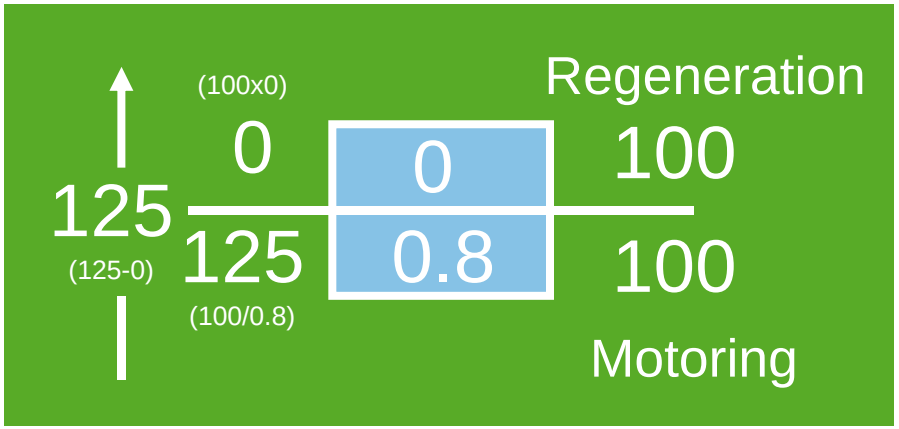
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The principle of energy consumption I

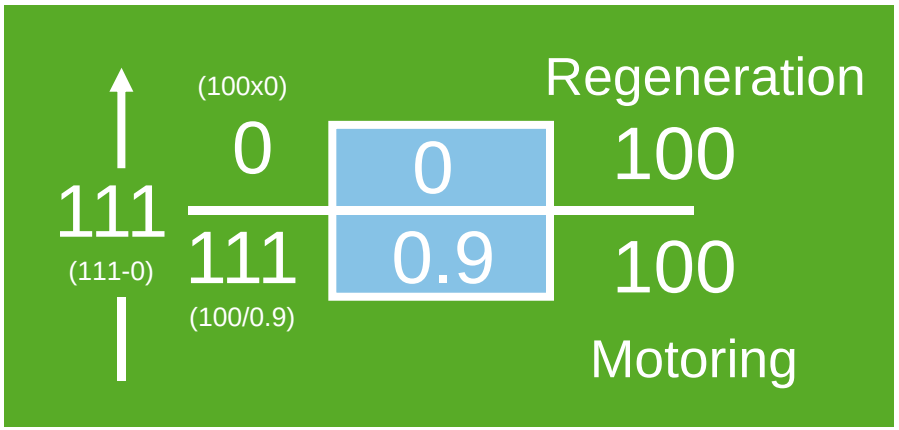


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The principle of energy consumption II



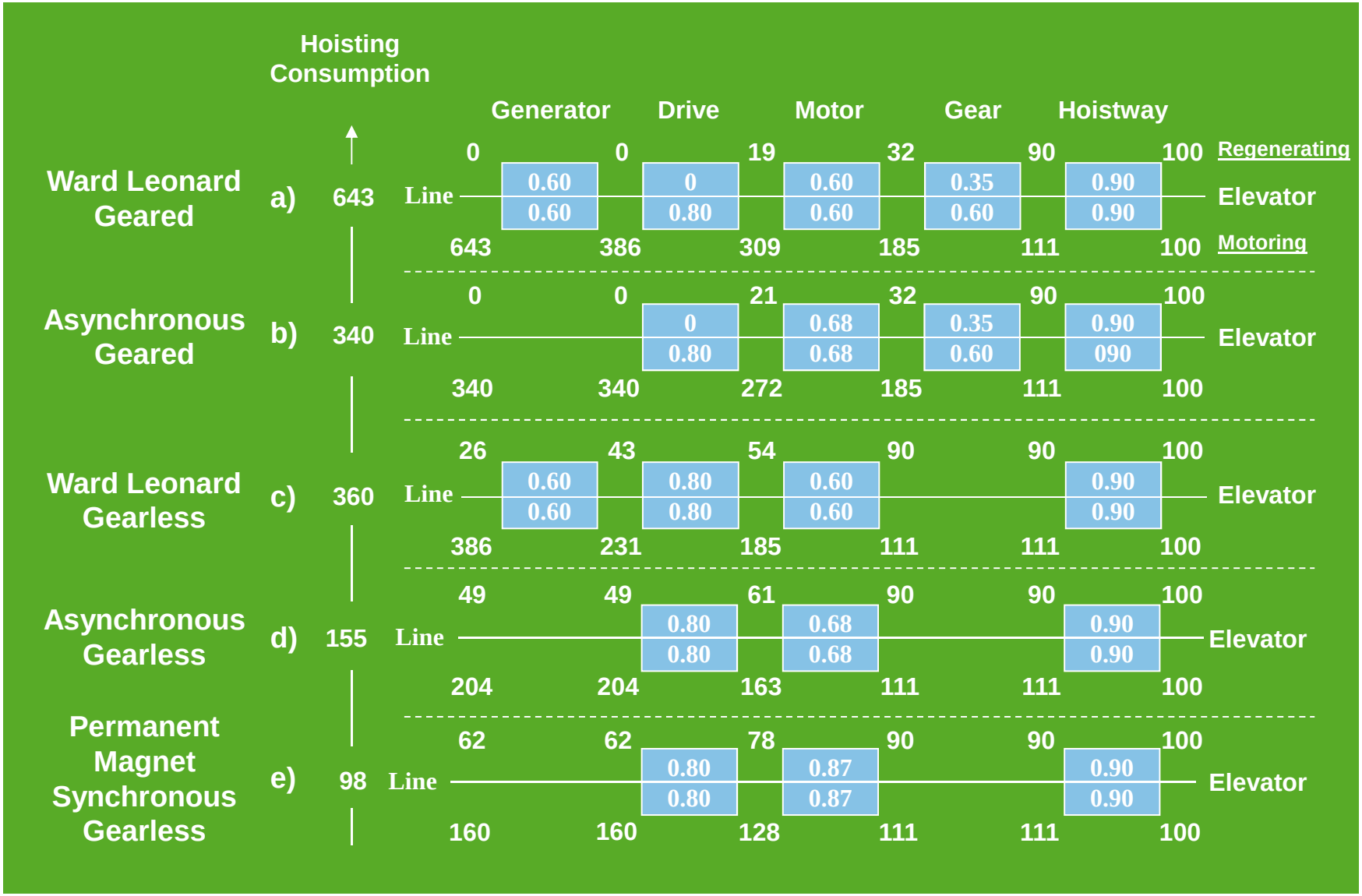






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For different types of elevators

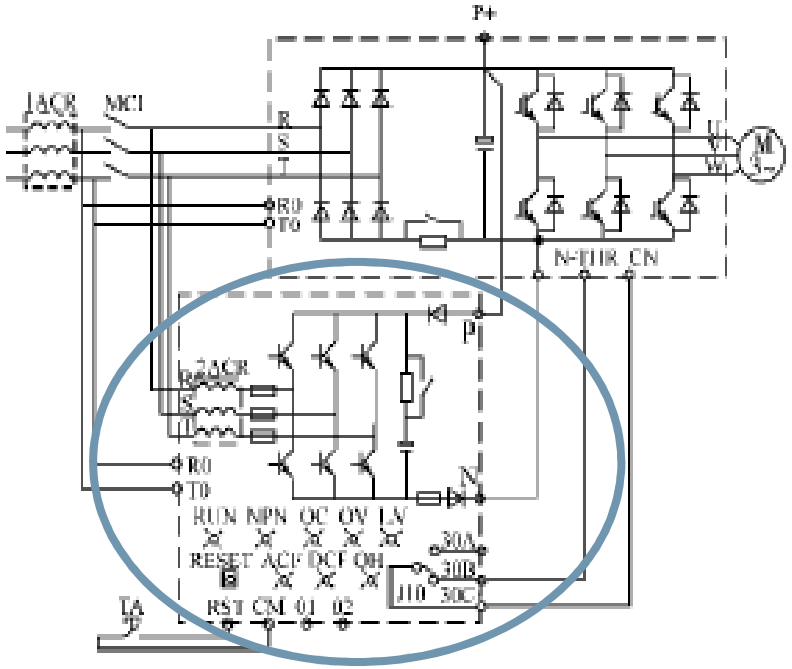


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How regenerated energy is returned

The Regenerative Braking System

- KONE was the first company to make regeneration available in the elevator industry in the early 1990's.
- It was invented in Finland by KONE together with Tampere University.



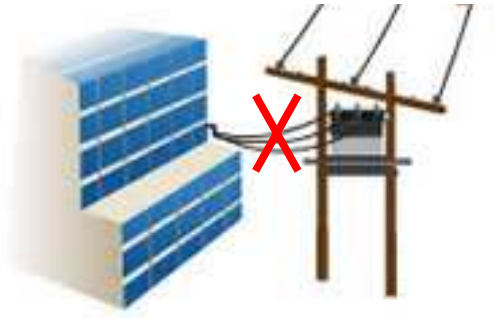
No need for external devices to accept regenerated energy: The Modulated Line Bridge (MLB, encircled) will automatically adjust:

- Frequency
- Phase and
- Voltage.

 © KONE Corporation

Regeneration requires sufficient load

Most countries do not accept energy to be returned to the external building grid.



- Regenerated energy must therefore not leave the building, but must be re-used within the building by other loads (Lighting, Airconditioning, other elevators, etc).
- Make sure that there is enough load on the elevator grid to consume the regenerated energy.
- If the unusual case that there is not enough load, braking resistors must be used to minimize regenerated energy.

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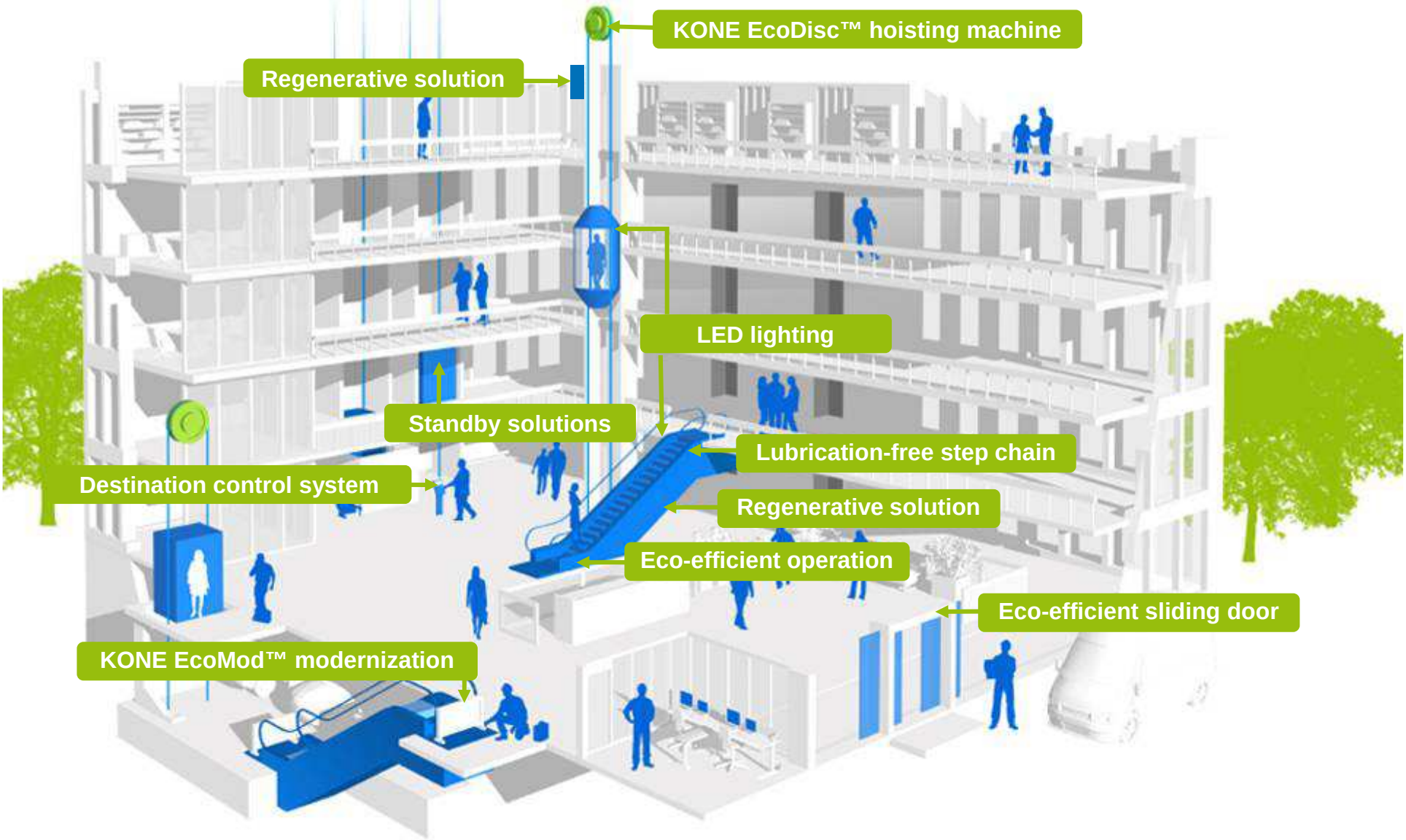


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OPTIONS FOR ELEVATORS

People Flow efficiency in operation

ECO-EFFICIENT SOLUTION FOR ELEVATORS AND ESCALATORS



People Flow efficiency in operation

INDUSTRY-LEADING ENERGY EFFICIENCY RATINGS ACCORDING TO VDI 4707

The VDI 4707 is a guideline published by the Association of German Engineers (Verein Deutscher Ingenieure), which aims at classifying elevators based on their energy consumption.



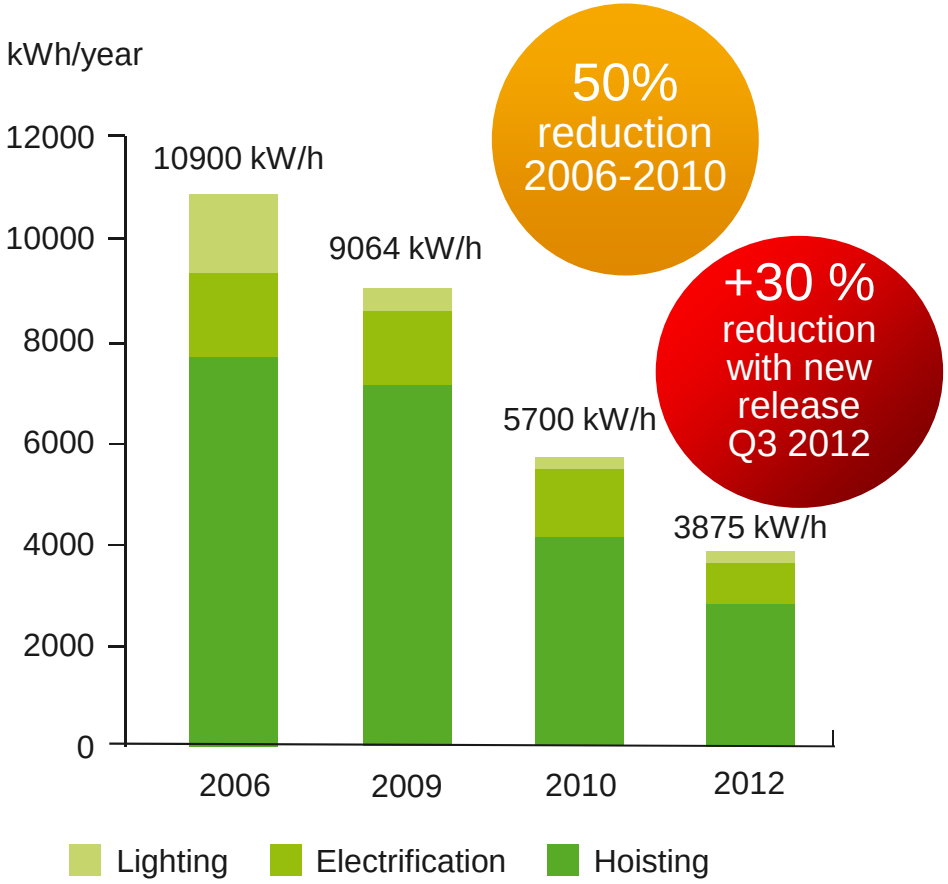
KONE MiniSpace™
KONE MonoSpace®

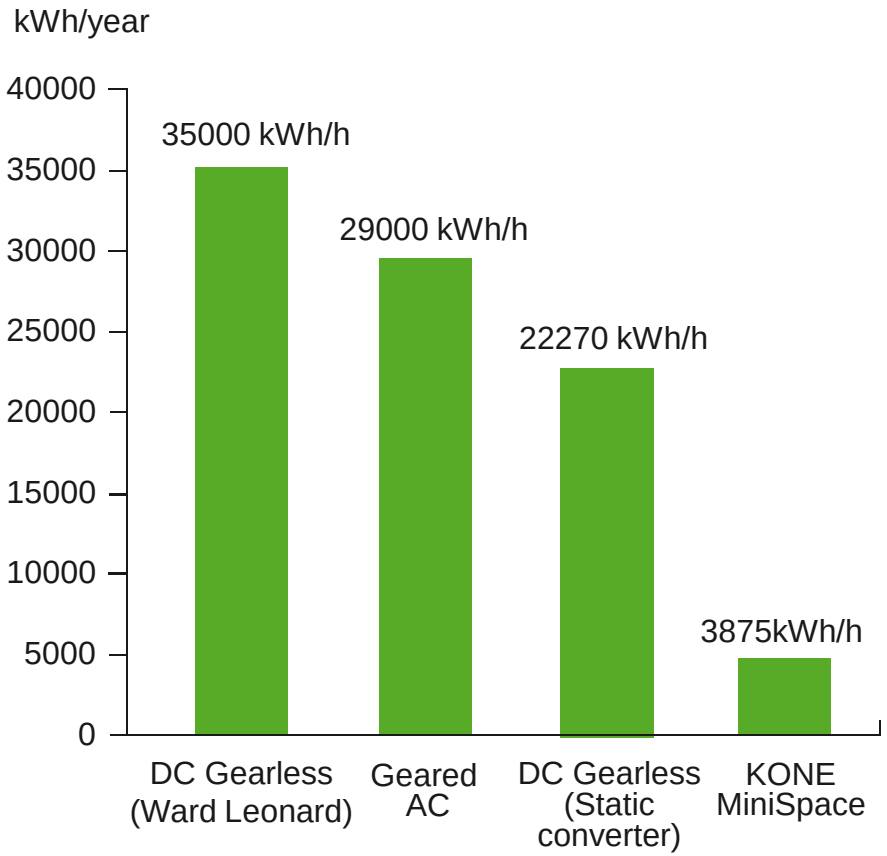
- **Over 30% more efficient.**
  The renewed KONE MonoSpace® and MiniSpace is over 30% more energy efficient than KONE's previous already industry leading elevator.
- **A-class, first in the industry.**
  KONE was the first company in the industry to receive A-class certification for its volume elevator range. We now offer this A-class energy efficiency for our whole elevator range

 © KONE Corporation | KONE Eco-efficient™ solutions

People Flow efficiency in operation

KONE MiniSpace™





The basis for the calculations is an elevator speed of 2.5 m/s, a load of 1,000 kg, 400,000 starts/year, 1,000 running hours, a travel height of 99 m and 33 floors.

 © KONE Corporation | KONE Eco-efficient™ solutions

People Flow efficiency in operation

WHAT IS IMPORTANT WHEN MINIMIZING CARBON LEVELS



- Highest possible efficiency
  (Permanent Magnet Motors)
- Regeneration of braking energy
  (Regenerative drives)
- Minimizing standby energy
  (LED lighting, Sleep modes, etc)
- Minimizing moving masses
  (Light weight cars)
- Optimizing counterweight balancing
  (Adaptive balancing)

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KONE Eco-efficient™ solutions

REFERENCES



SHANGHAI, CHINA

International Financial Center

- LEED certification pending
- 99 energy-efficient KONE elevators
- Including four KONE DoubleDeck elevators – the first of their kind to be installed in China



BEIJING, CHINA

Olympic Village

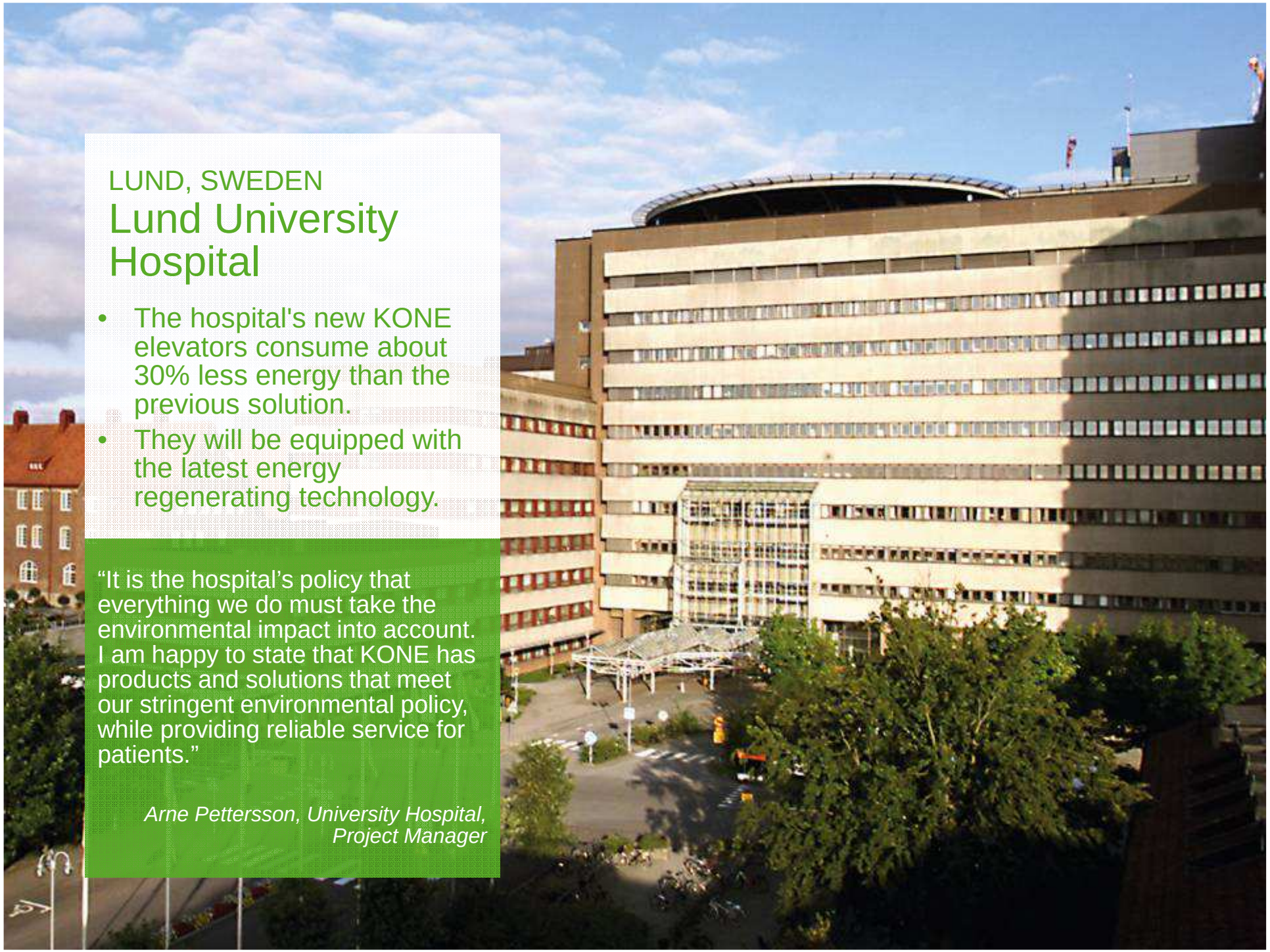
- 1st Olympic village with LEED Gold certificate
- Eco-efficient heating and cooling system
- Over 150 KONE energy-efficient elevators



BEIJING, CHINA

Nokia China HQ

- 1st new office building in China with LEED Gold Certificate
- Eco-efficient design
  - Breathable glass curtain wall
  - 37% less water usage
  - 20% less energy usage
  - 77% natural light
- 12 eco-efficient KONE elevators and 1 escalator



LUND, SWEDEN

Lund University Hospital

- The hospital's new KONE elevators consume about 30% less energy than the previous solution.
- They will be equipped with the latest energy regenerating technology.

"It is the hospital's policy that everything we do must take the environmental impact into account. I am happy to state that KONE has products and solutions that meet our stringent environmental policy, while providing reliable service for patients."

Arne Pettersson, University Hospital, Project Manager

Emily Morgan Hotel, Texas, USA



"The energy savings this product delivers are a windfall for us. It wasn't on our radar. We were used to paying our electric bill and were interested in an upgrade to improve service and reliability. KONE showed us we could have more. I am comforted in knowing we will have elevator service for the foreseeable future that costs less and is more reliable."

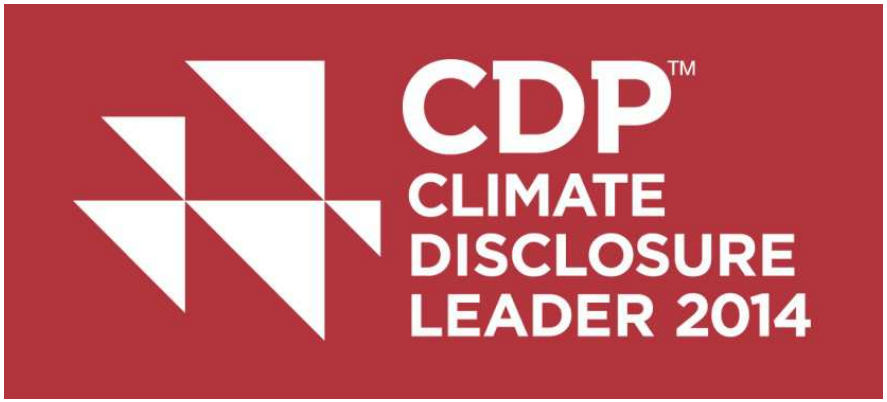
William P. Brendel
General Manager,
Emily Morgan Hotel

In addition to cutting electricity consumption by 46%, the KONE solution also enhances service with improved passenger handling capacity and modern controls.

 © KONE Corporation

KONE is industry leader in CDP reporting

- KONE scored 100/100 in CDP 2014 climate change reporting (2013: 98/100)
  KONE on the Carbon Disclosure Leadership Index (CDLI) featuring the best 10% of companies for the fourth year running
- KONE's score has risen for five years in a row



About CDP:

CDP is an independent not-for-profit organization holding the world's largest environmental reporting database and representing over 700 institutional investors

CDP requests information on greenhouse gas emissions, energy use and the risks and opportunities from climate change from almost 5,000 of the world's largest companies

KONE's CDP score

Year	Carbon Disclosure	Carbon Performance (scale A-E)
2014	100/100	A-
2013	98/100	A-
2012	90/100	B
2011	83/100	B

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Award winning eco-efficiency and innovation



KONE Corporation has been ranked the world's 12th greenest company by the American magazine Newsweek in 2014

Released by Newsweek and its research partner Corporate Knights Capital, the 2014 Newsweek Green Ranking evaluates the world's largest publicly traded companies using eight metrics that collectively provide a transparent measurement of overall corporate environmental performance

In the list, KONE is the only top 50 company representing the elevator and escalator industry

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Dedicated to People Flow™
KONE