

Linearantriebe – Energieeffizienz durch innovative Technik

Effizienz-Gipfel 2018

Andreas Schierenbeck, CEO thyssenkrupp Elevator
Stuttgart., May 14, 2018

engineering.tomorrow.together.



thyssenkrupp

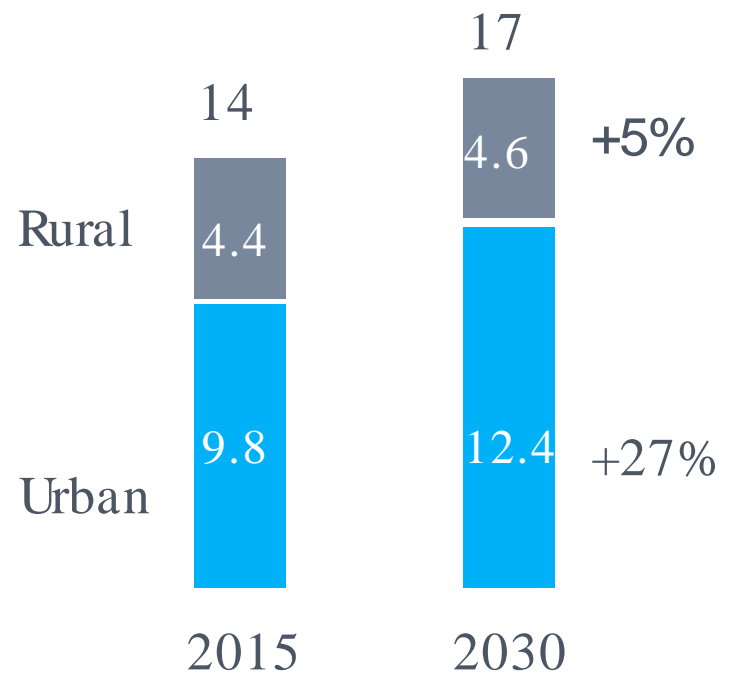


Metropolitan Century

Size of Manhattan being built every day

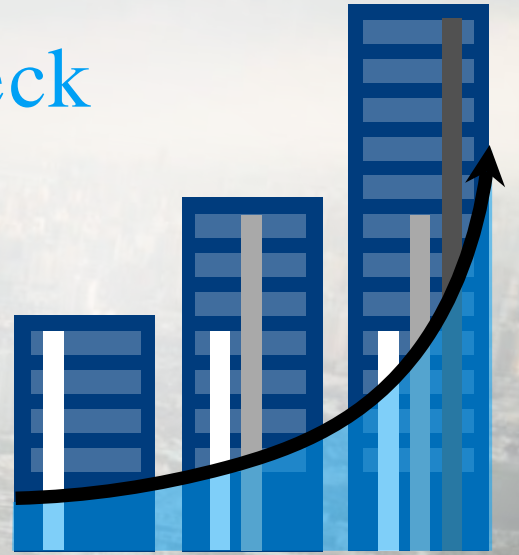
Cities consume 2/3 of global energy

Energy consumption
[Mtoe]



Elevator became
a bottleneck

40%
usable space
are used by
elevator shafts



How to increase passenger transportation

Transport
capacity




Speed



First idea

P A T E R N O S T E R





First answer
TWIN

Our know-how

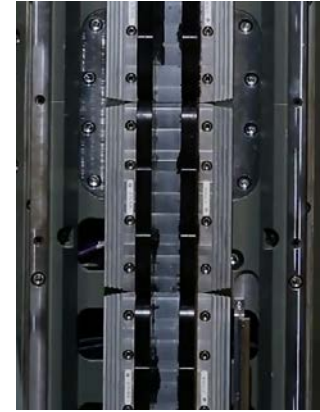
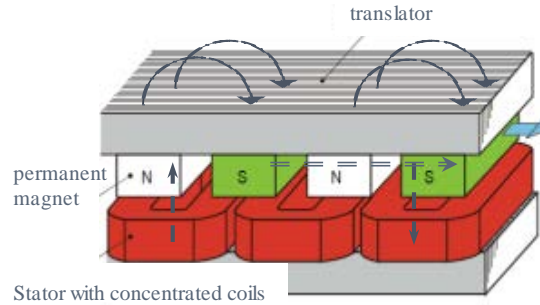
LINEAR MOTOR TECHNOLOGY



Linear motor technology



Magnetic flux from permanent magnets



Active principle of linear motor
with permanent magnets

MULTI[®] Permanent
Synchronous Linear Motor
Ironless
Distributed along shaft

MULTI first ROPE-LESS
elevator

INNOVATION

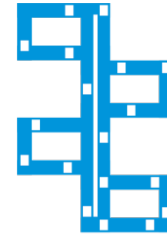




Innovative Benefits



Increasing capacity by 50 % and reducing the elevator footprint within a building by half



Scalable transportation

Freedom for architects

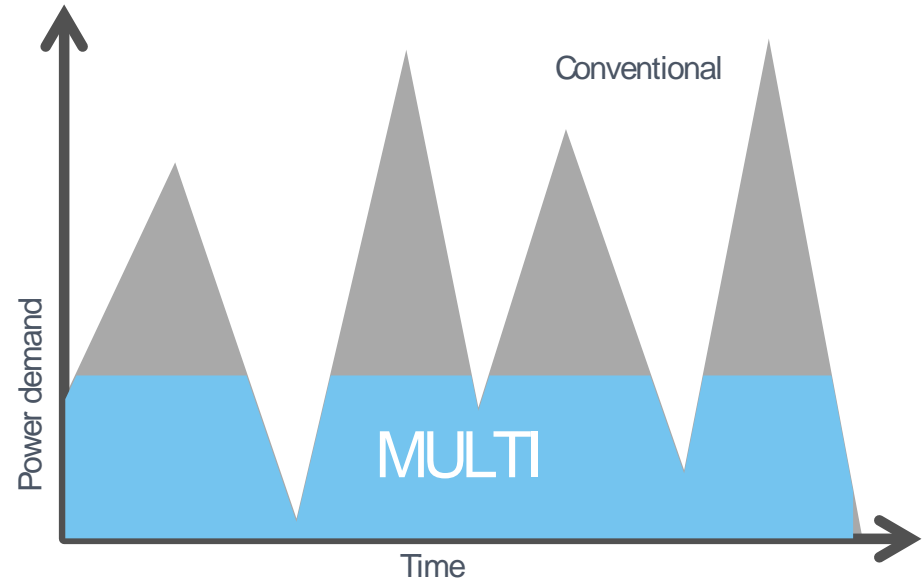


No limit in heights



Smarter energy usage

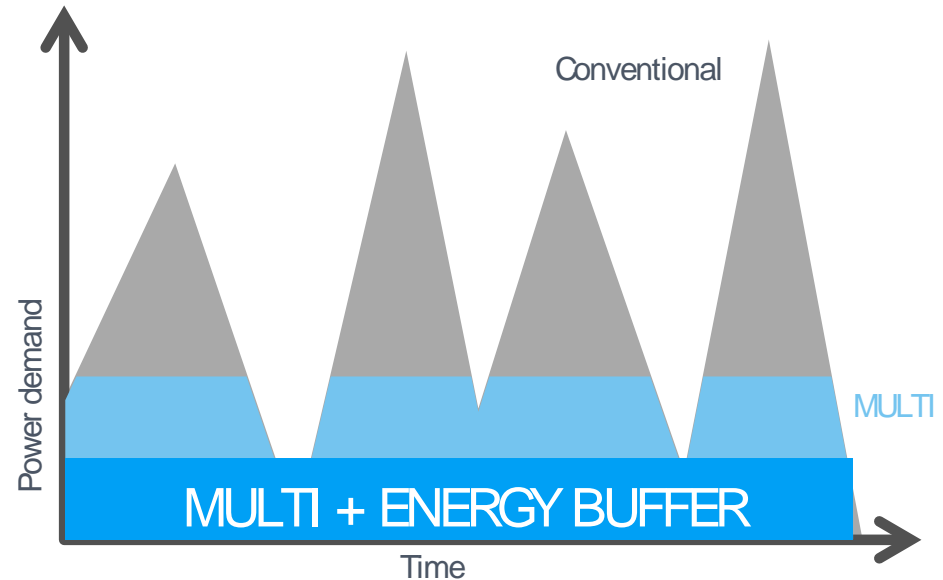
- **up to 75%** reduction in peak power
- Multiple smaller cabins & fewer shafts lead to distributed power demand





Smart Building grid – Energy Buffer

- **add. 50%** reduction in peak power with Buffer
- No power feedback to grid
- Reduce infrastructure cost



First MULTI project

East Side Tower Berlin

140m

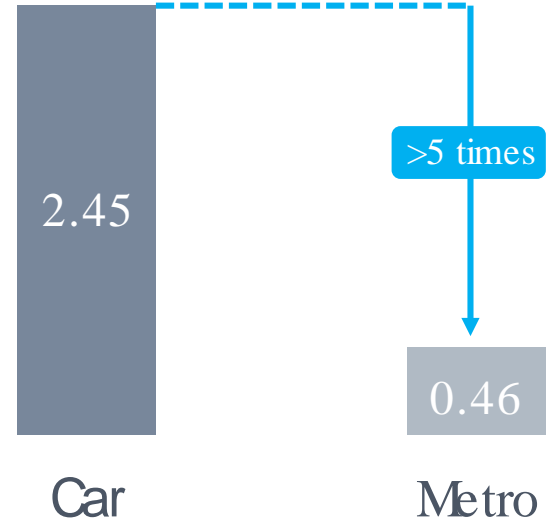




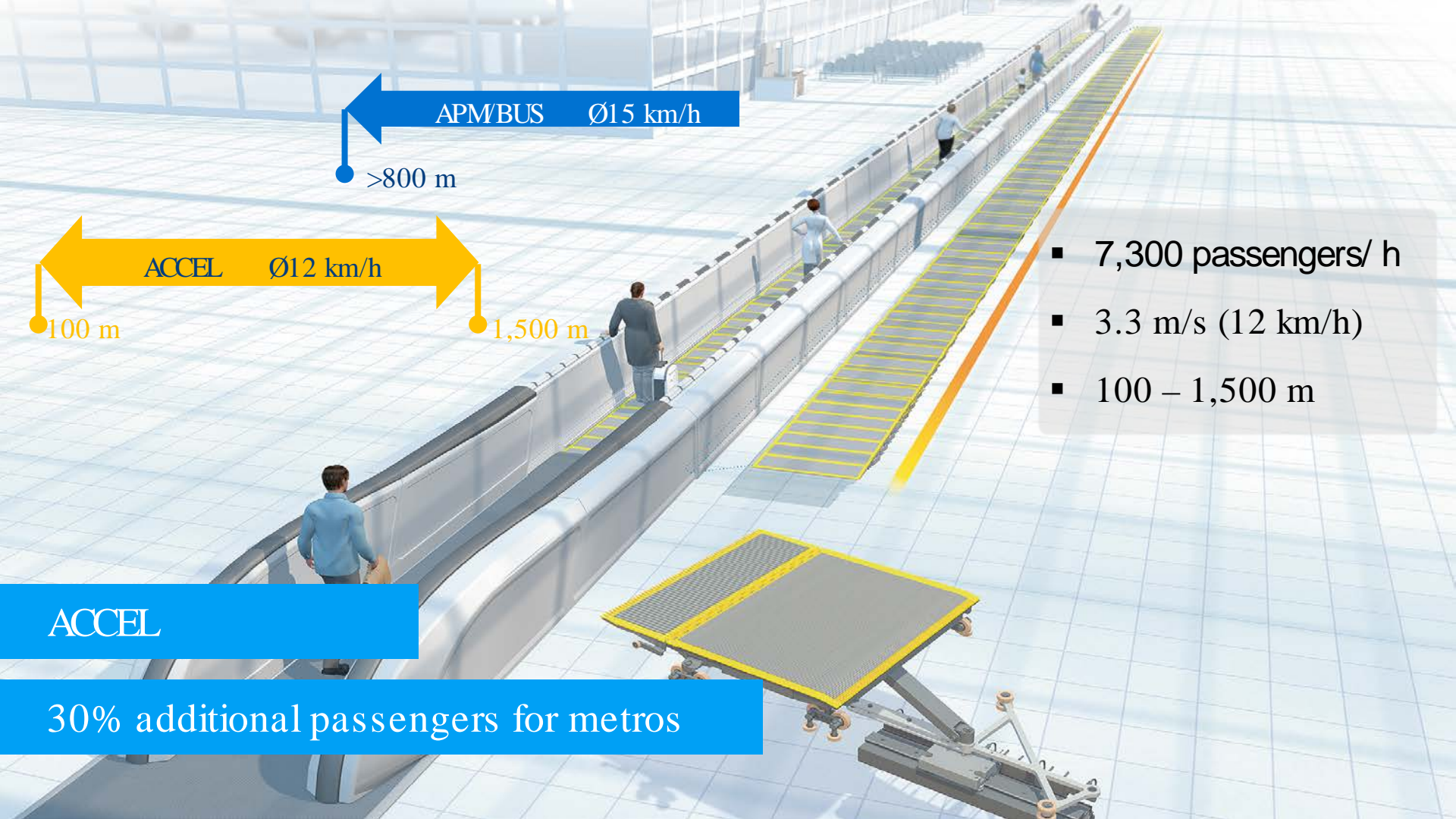
Manhattan

Average vehicle speed 13,7 km/h

Energy consumption
[MJ / passenger-km]







APM/BUS Ø15 km/h

>800 m

ACCEL Ø12 km/h

100 m

1,500 m

ACCEL

30% additional passengers for metros

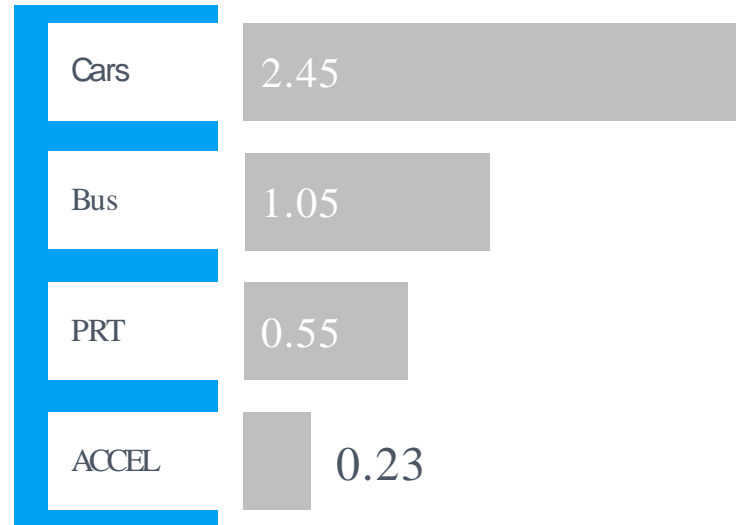
- 7,300 passengers/ h
- 3.3 m/s (12 km/h)
- 100 – 1,500 m



ACCEL

Leading energy-efficient transportation

Energy consumption
[MJ / passenger-km]





Buildings



Transportation

Efficient
Urban
Mobility

