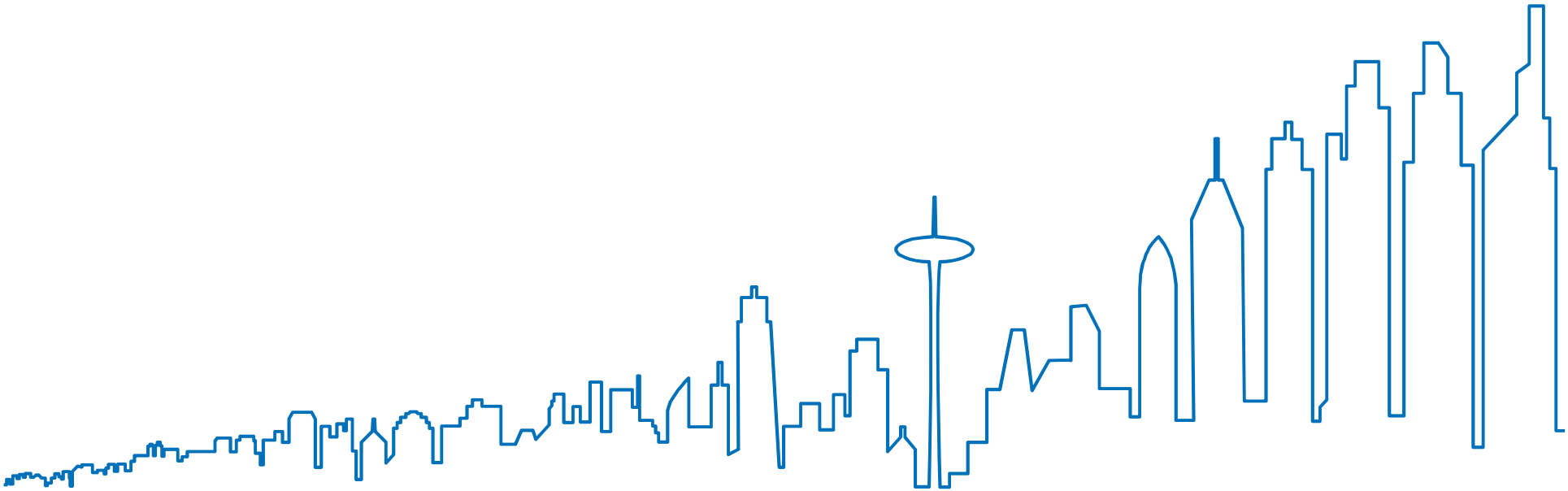


KONE ULTRAROPE – AWARD WINNING INNOVATIVE ROPE TECHNOLOGY FOR HIGH RISE

Johannes de Jong

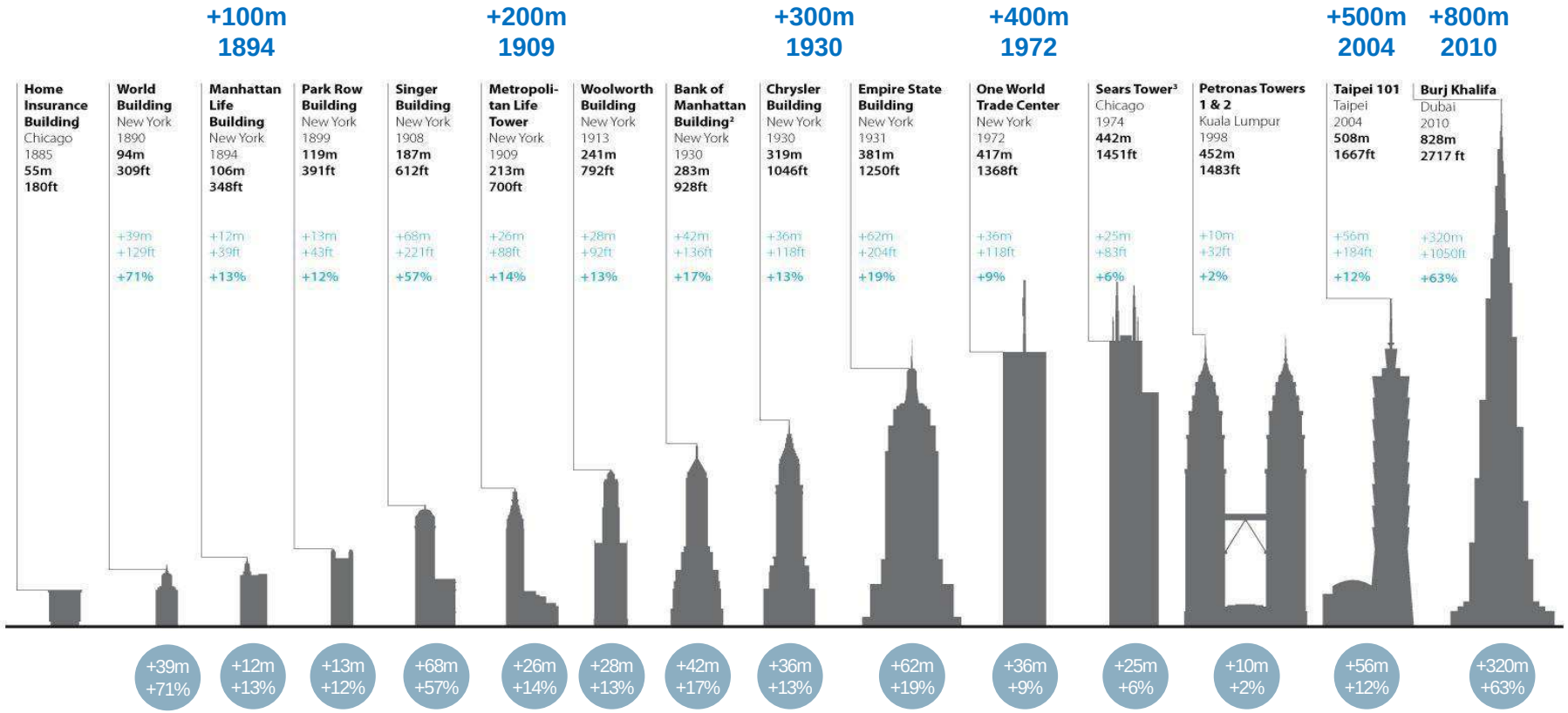
Head of Technology,
KONE Elevators Co. Ltd.

1,4 billion more people
living in urban areas by 2030



High-rise building trend: an increase in building heights

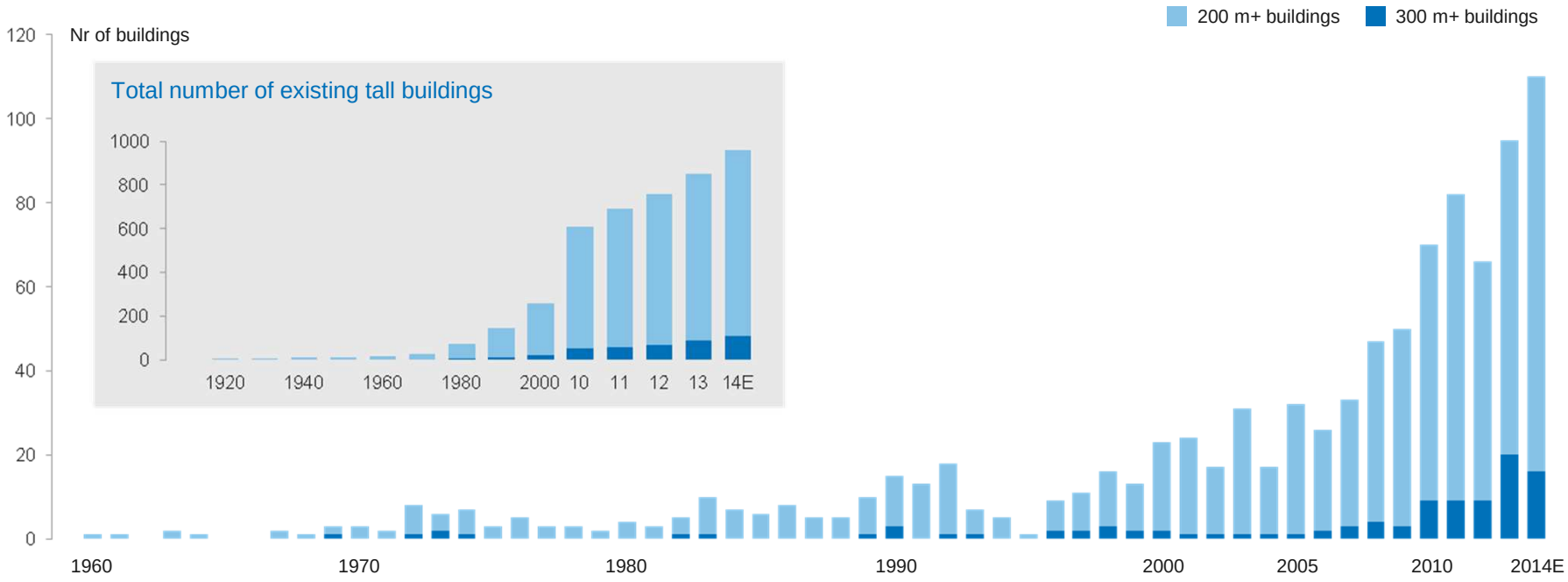
Incremental height changes in the world's tallest buildings (as of April 2013)



© Council Tall Buildings and Urban Habitat

High-rise building trend: an increase in number and in height

Completion of high-rise buildings by year

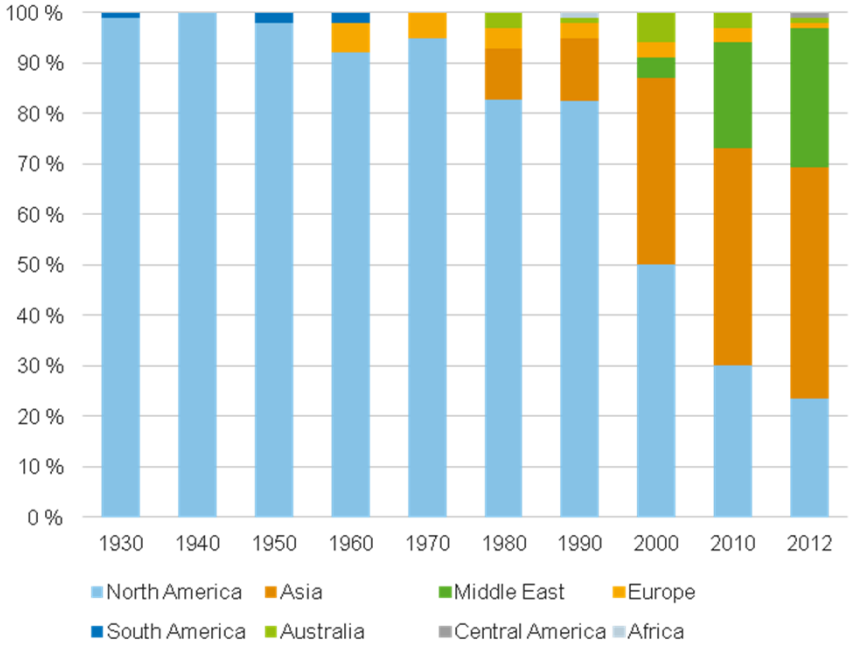


Source: CTBUH
Note: Figures for 2013 and 2014 are projections

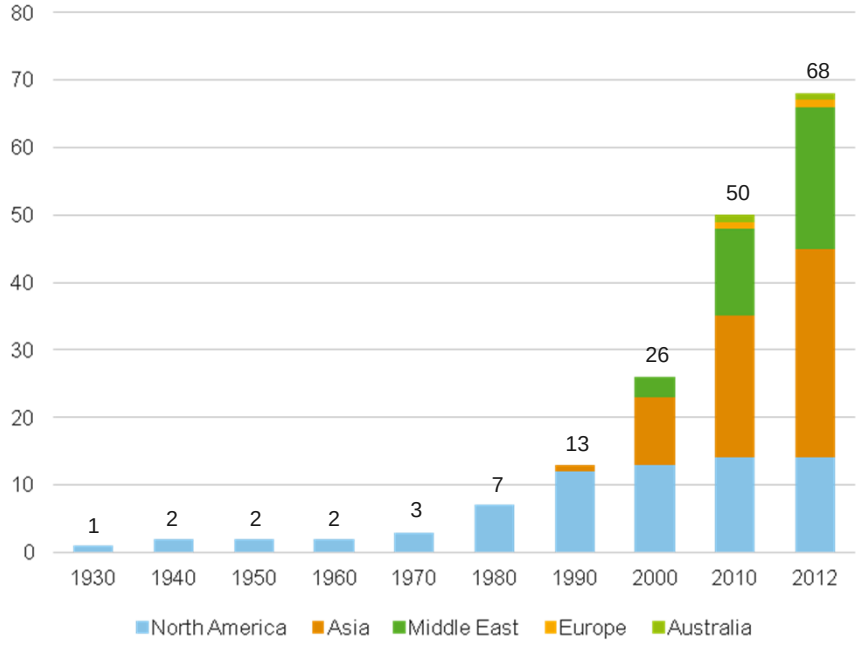
High-rise building trend: a change in location

Tallest buildings by location (as of January 2013)

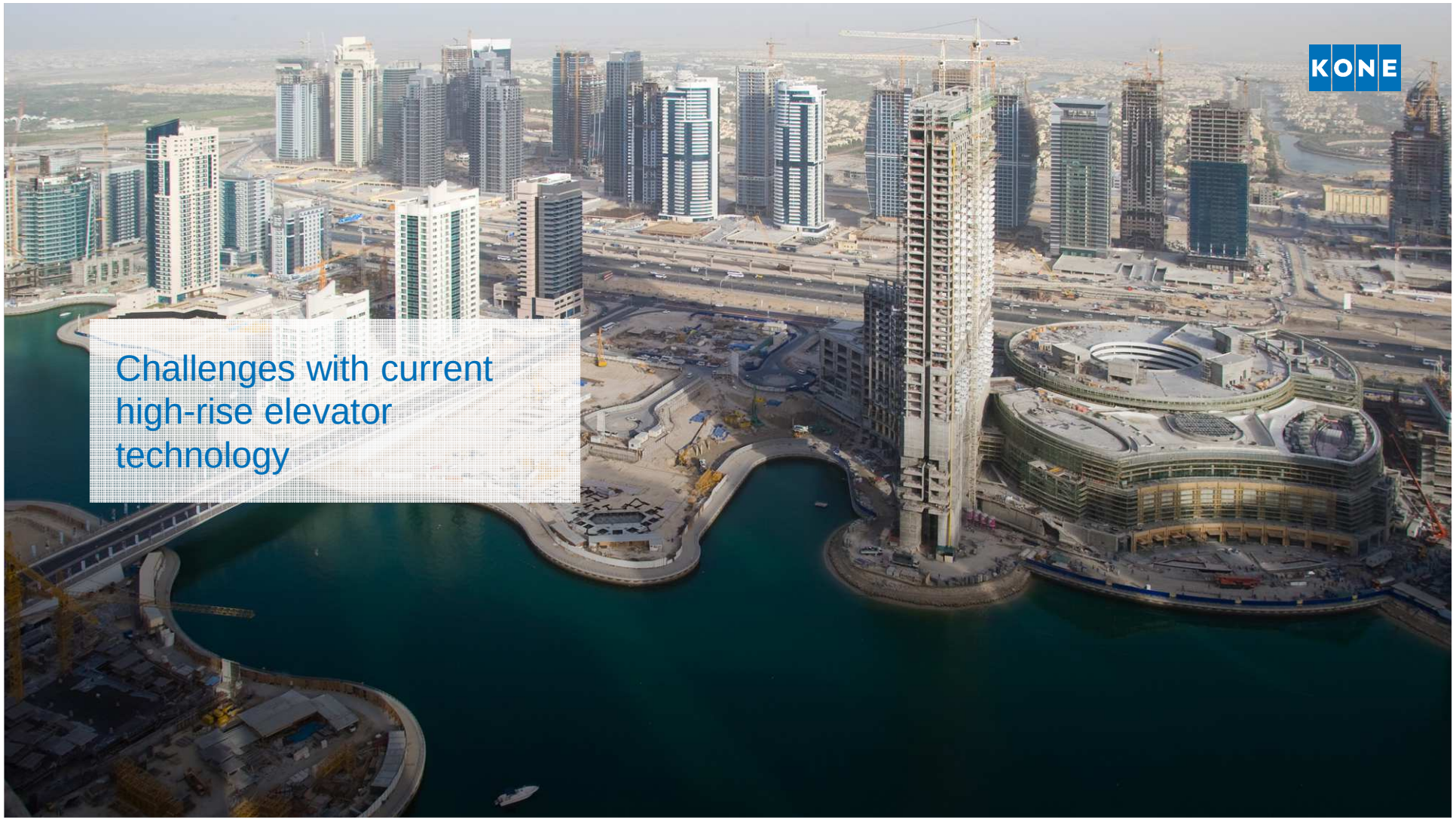
100 tallest buidings by location



Supertall buildings (300m+) by location

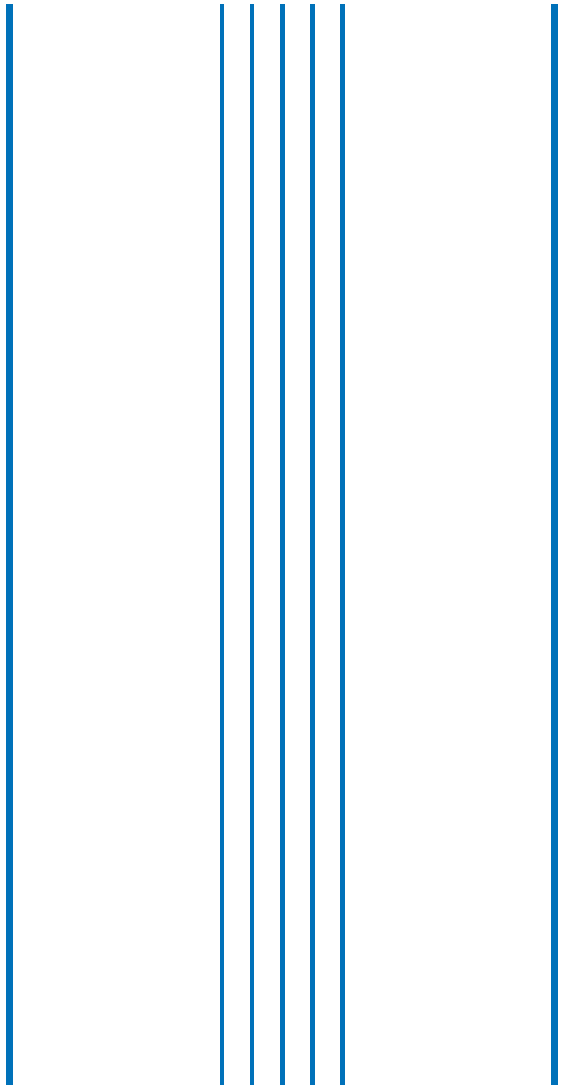


Source: CTBUH

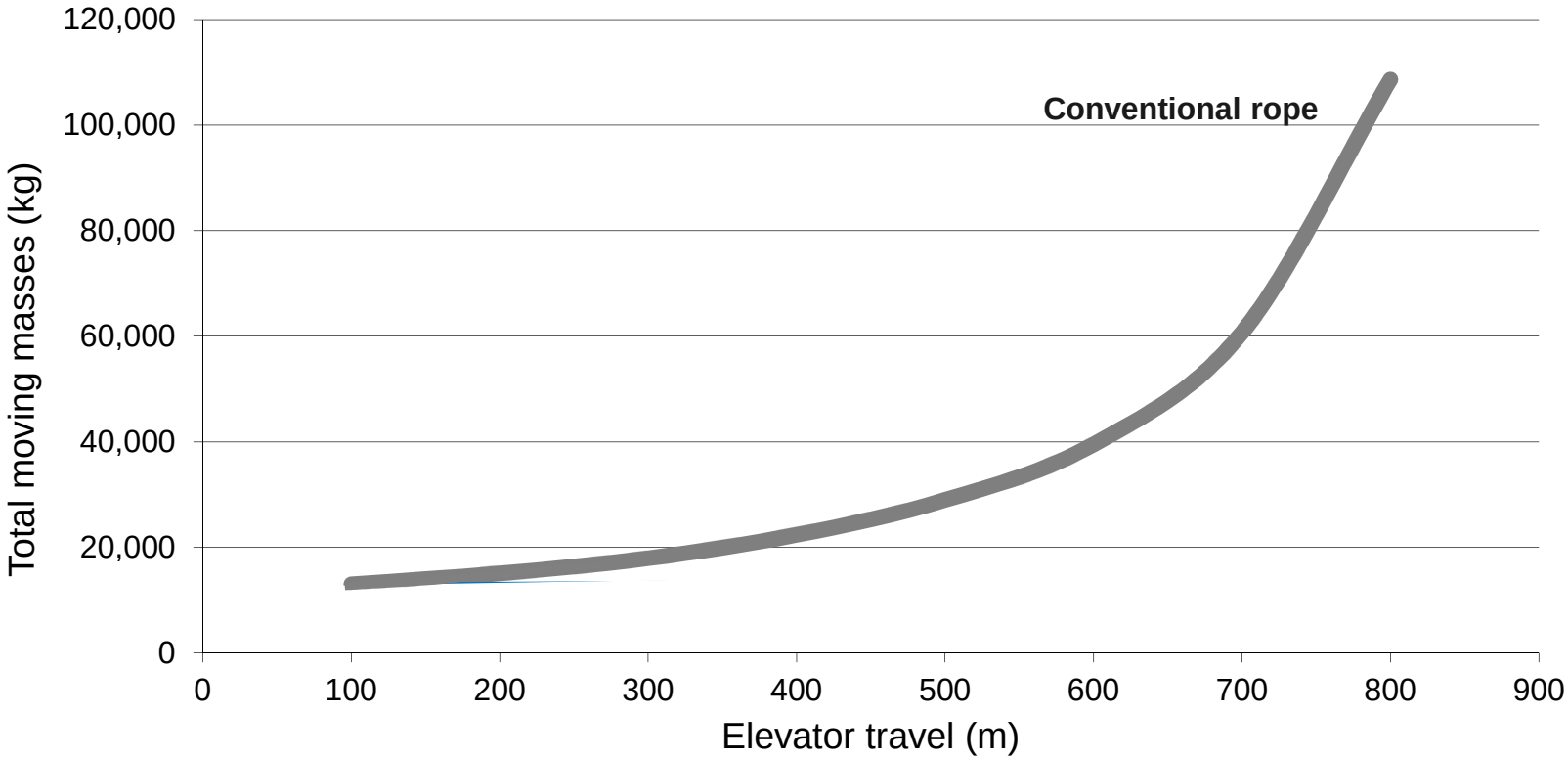

KONE
Challenges with current high-rise elevator technology

THE NEXT LEAP

High-rise elevator technology



Moving masses for a 2000 kg elevator




KONE UltraRope™
KONE
Reduction in MOVING MASSES
Reduction in ENERGY CONSUMPTION
Longer LIFETIME
LESS SENSITIVE to building sway

640 m
Building height

120
Elevators in building

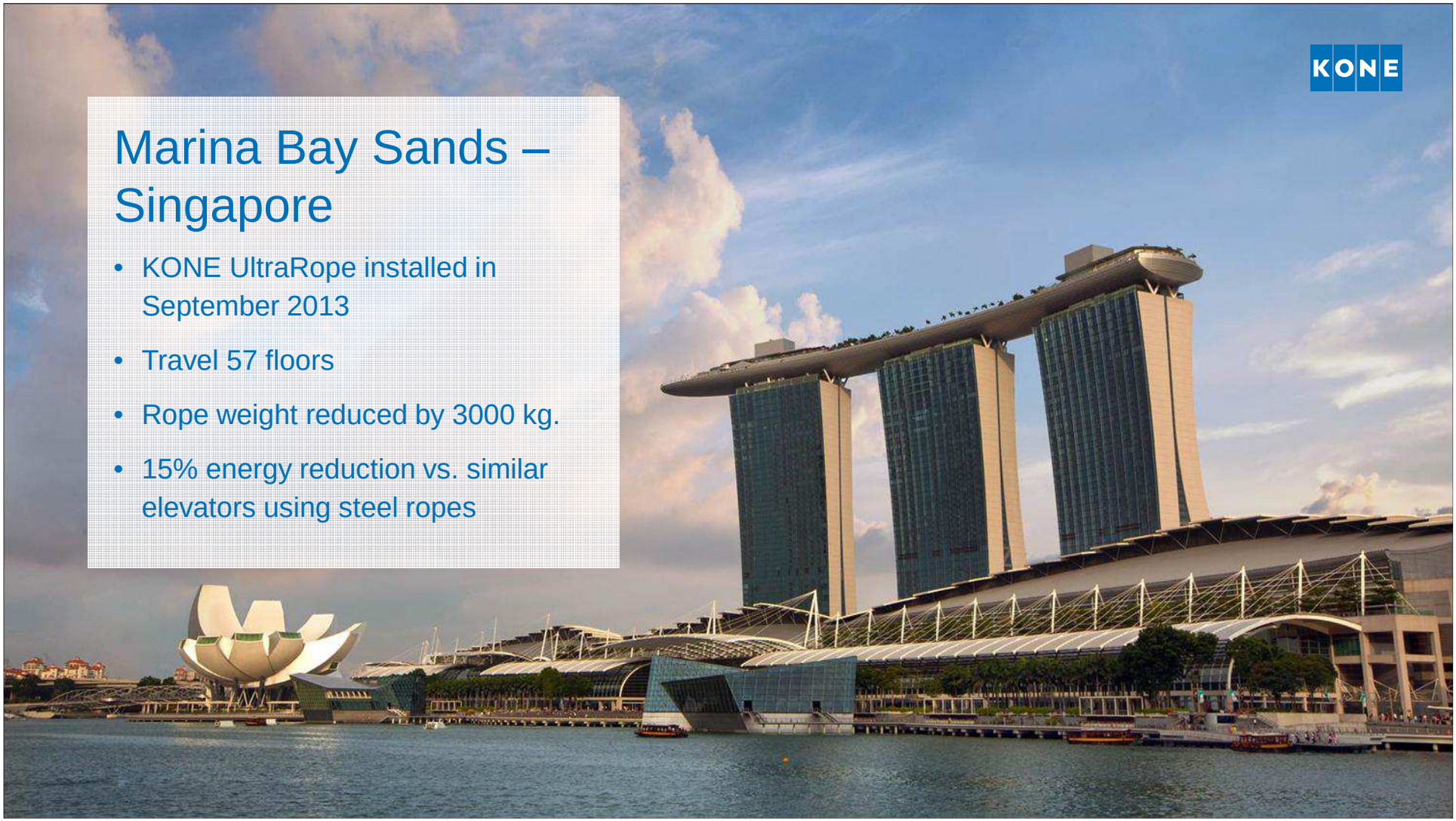
550 m
Highest elevator travel

10
Elevators with a travel height over 400m

KONE UltraRope vs steel ropes

CASE EXAMPLE

	10 elevators with highest travel equipped with steel ropes	10 elevators with highest travel equipped with KONE UltraRope
Total rope weight	186.500 kg	11.700 kg
Total moving masses	332.000 kg	157.000 kg
Total energy consumption	1.180.000 KWh	1.050.000 KWh
Line starting current (RMS)	Max 1125 A	Max 835 A


KONE
Marina Bay Sands – Singapore
• KONE UltraRope installed in September 2013
• Travel 57 floors
• Rope weight reduced by 3000 kg.
• 15% energy reduction vs. similar elevators using steel ropes


KONE