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Internet of energy – the new efficiency

Cedrik Neike, Member of the Managing Board, Siemens AG

Why do we need it?

Highest Temperatures in Europe 2018

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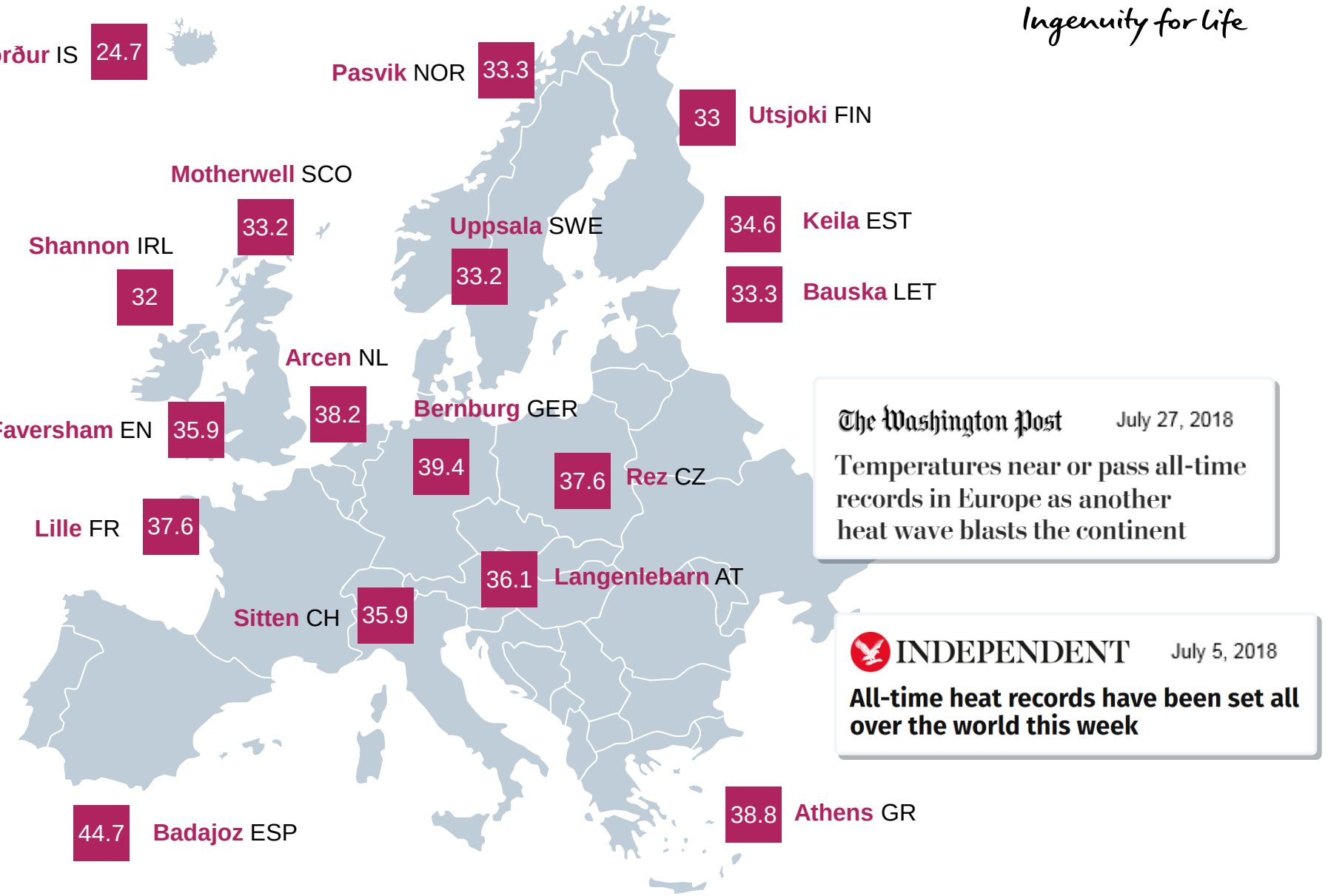

THE TIMES Sept 6, 2018
A summer of record-breaking extremes

CNN Sept 3, 2018
2018 was England's hottest summer ever

The Washington Post July 27, 2018
Temperatures near or pass all-time records in Europe as another heat wave blasts the continent

INDEPENDENT July 5, 2018
All-time heat records have been set all over the world this week


1.5 °C


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11 billion people

The need for electric power worldwide is rising immensely and quickly …

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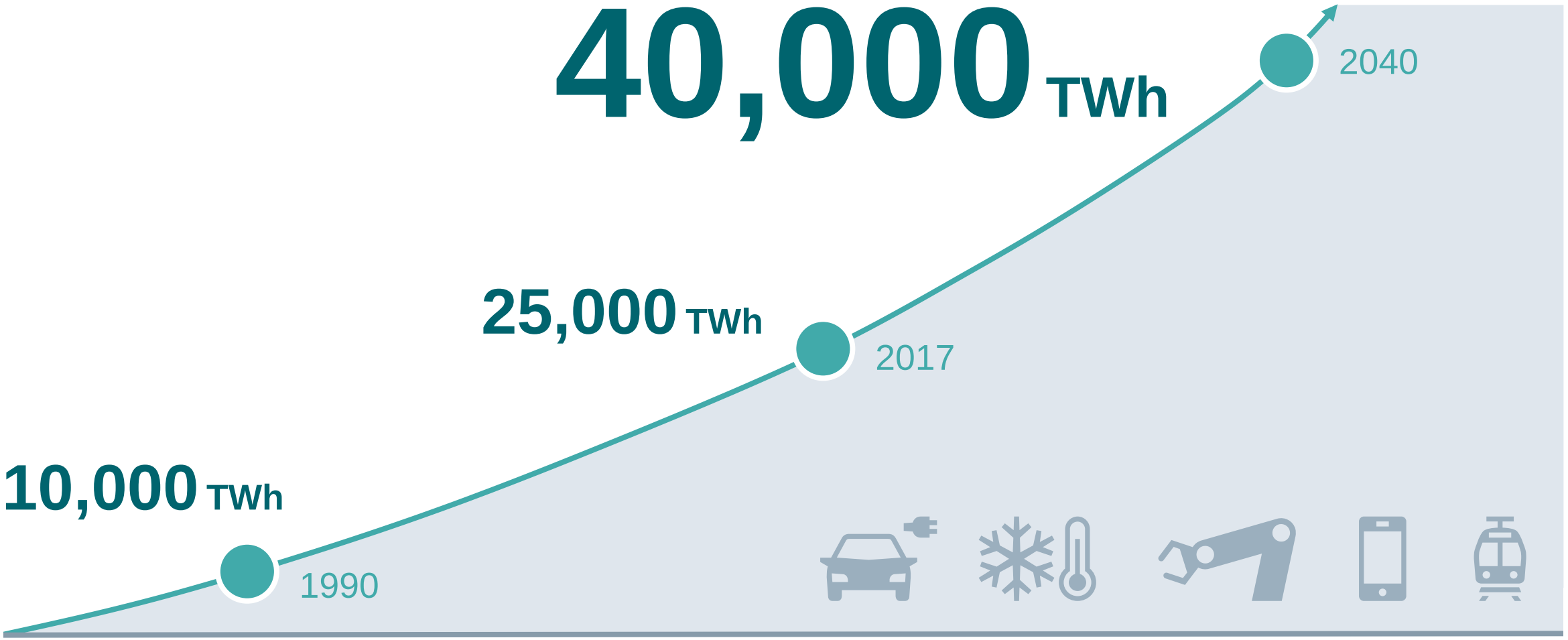

Sources: UN Projections 2016, Global insight, IHS Autonomy (July 2018), rounded figures

The energy world is changing fundamentally

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Decarbonization

- Renewables → Fluctuating infeed
- e-Mobility
- Storage

Decentralization

- Distributed generation
- Prosumerization

Digitalization

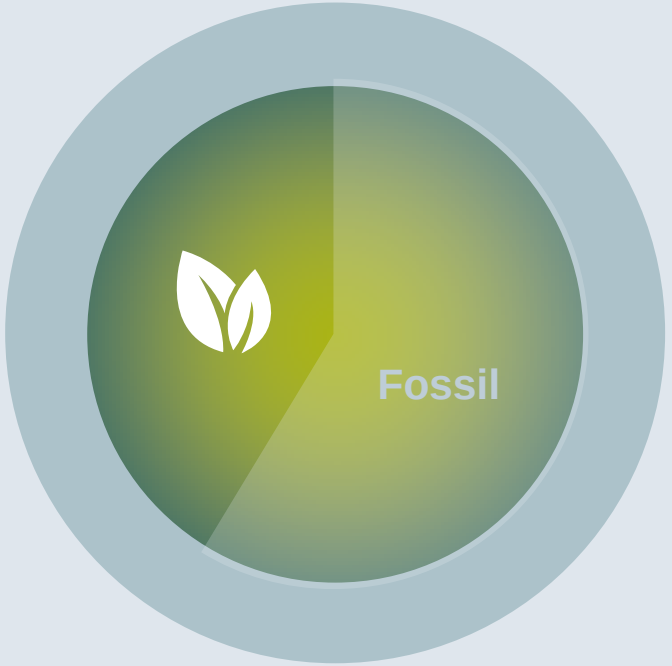
- Connectivity esp. grid edge
- Market platforms
- End-to-end cyber security

Generation | Transmission | Industrial and Commercial | Infrastructure | Distribution | Residential

Energy transition works

24% Renewables

2018



40% Renewables

2040

There's a huge potential for further electrification

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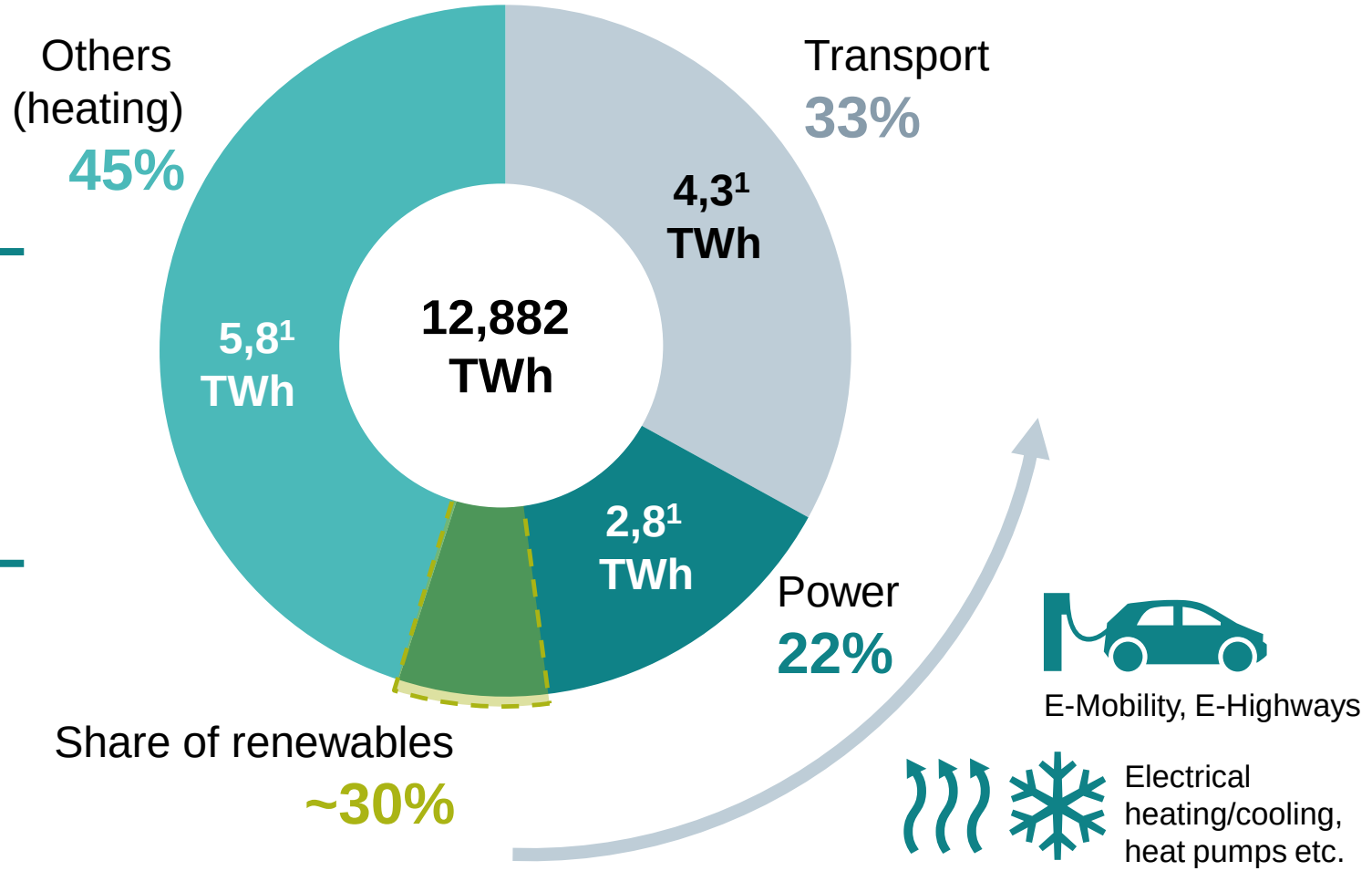
Final energy consumption EU28 in 2016

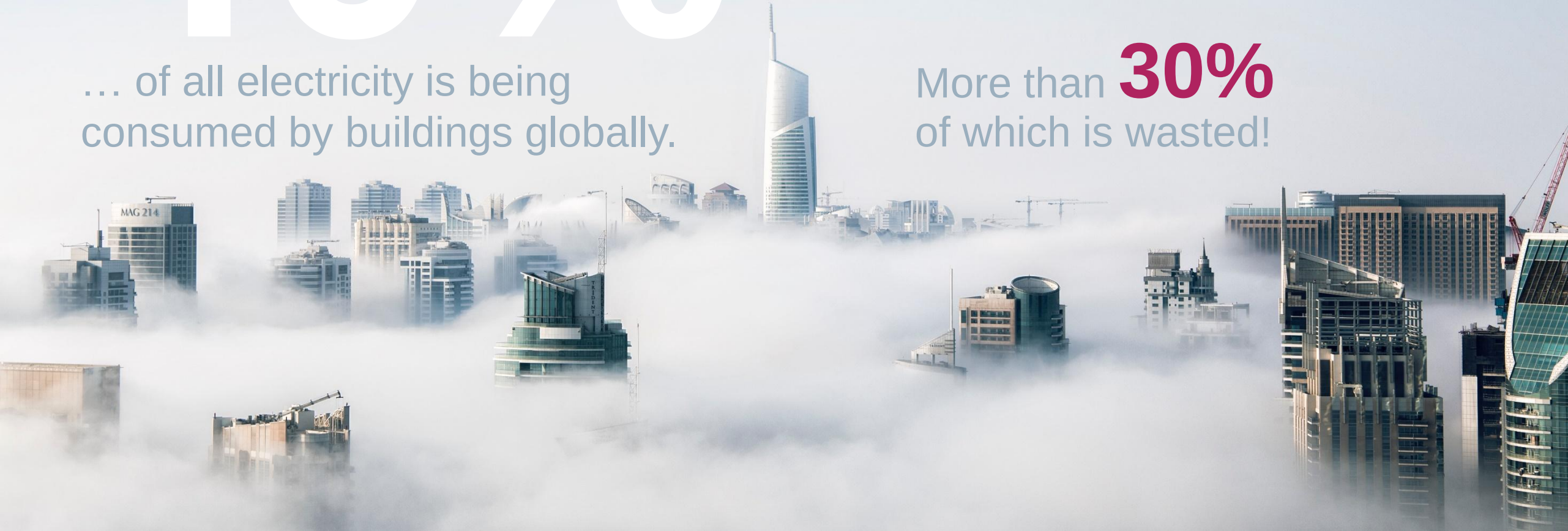


Source: eurostat; **1** In thousands

40%

… of all electricity is being consumed by buildings globally.

More than **30%** of which is wasted!



New businesses: When grids and buildings meet

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E-Mobility DES Storage Data Center

The new efficiency: Example Aspern

Vienna 2030

MindSphere

The operating system for a city

Electric bus fleet

With auomated high-power charging stations

Energy trading/ Blockchain

100% sustainable: PV on all roofs and more offshore wind power

Driverless metros

increase transport capacities and energy efficiency significantly

Building automation

80% of the buildings are fully automated; annual savings potential of € 1.2 billion for heat and electricity[1]

Smart grids

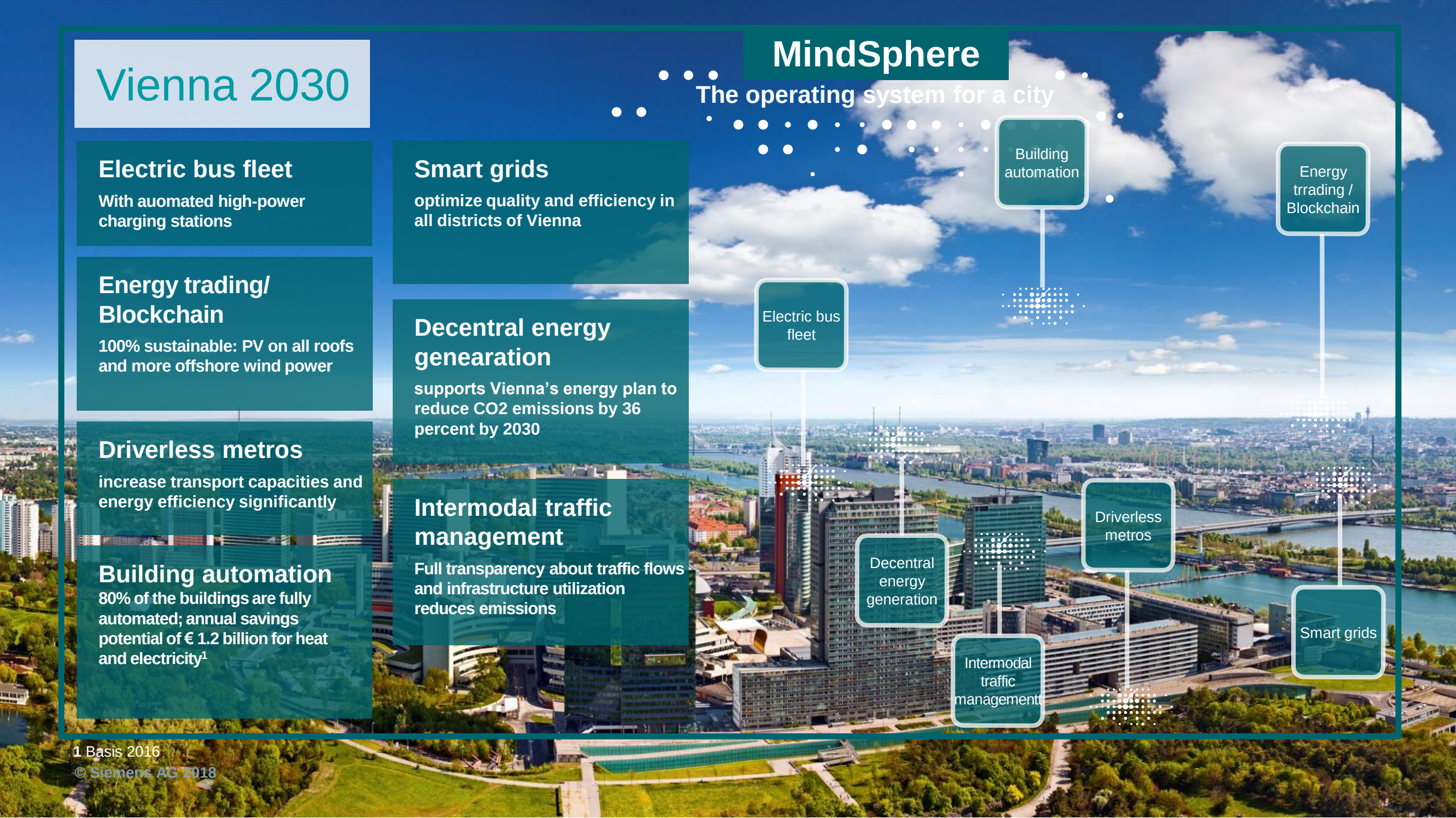
optimize quality and efficiency in all districts of Vienna

Decentral energy genearation

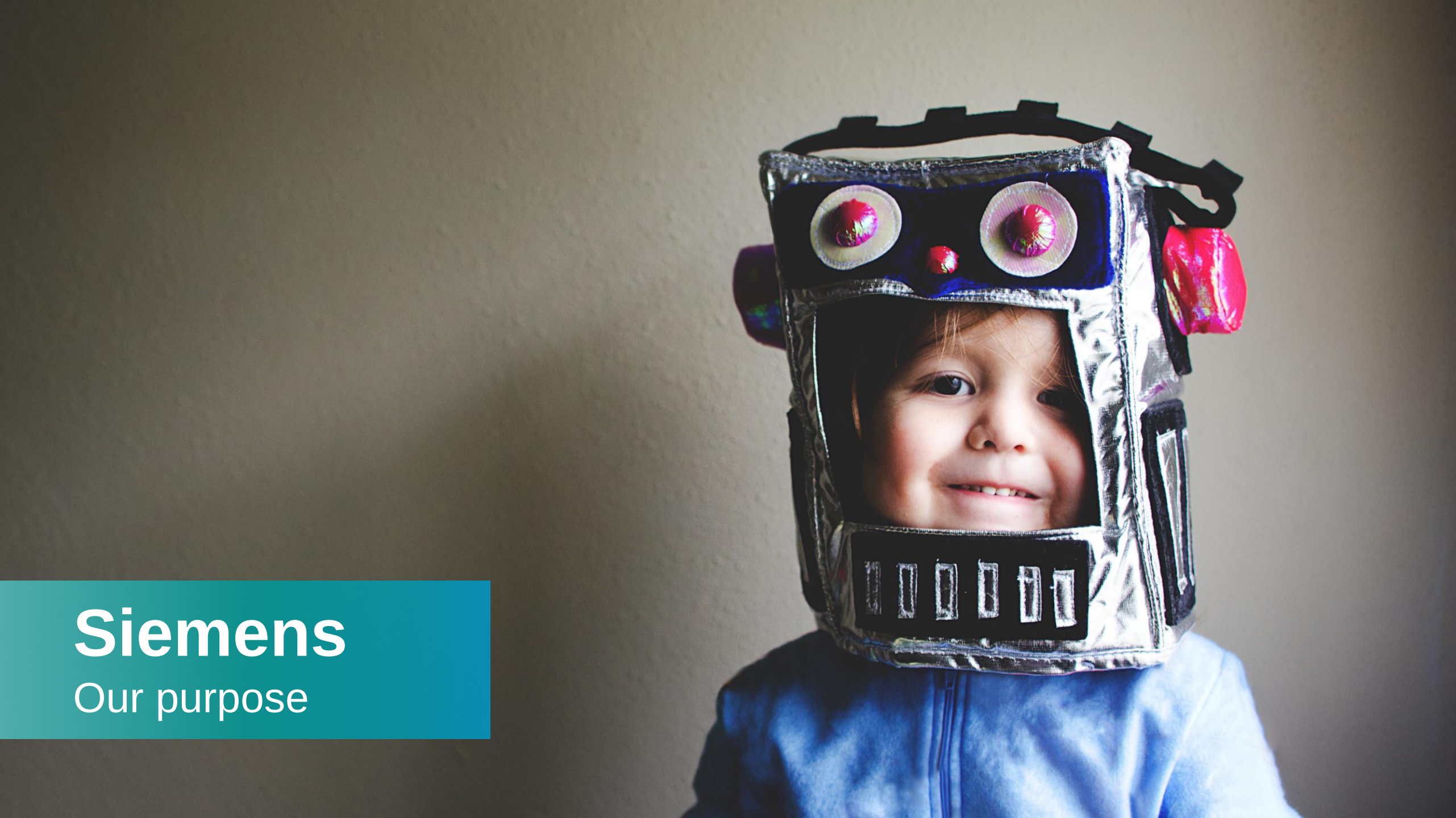
supports Vienna's energy plan to reduce CO2 emissions by 36 percent by 2030

Intermodal traffic management

Full transparency about traffic flows and infrastructure utilization reduces emissions



1 Basis 2016



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Our purpose