

An aerial night view of a city, likely Jakarta, Indonesia, with a river and a large skyscraper. The image is overlaid with digital elements: glowing blue lines representing data or energy flow, binary code (0s and 1s), and circular icons representing various smart city applications like water, energy, and people. The Siemens logo and tagline are in the top right corner.

SIEMENS
Ingenuity for life

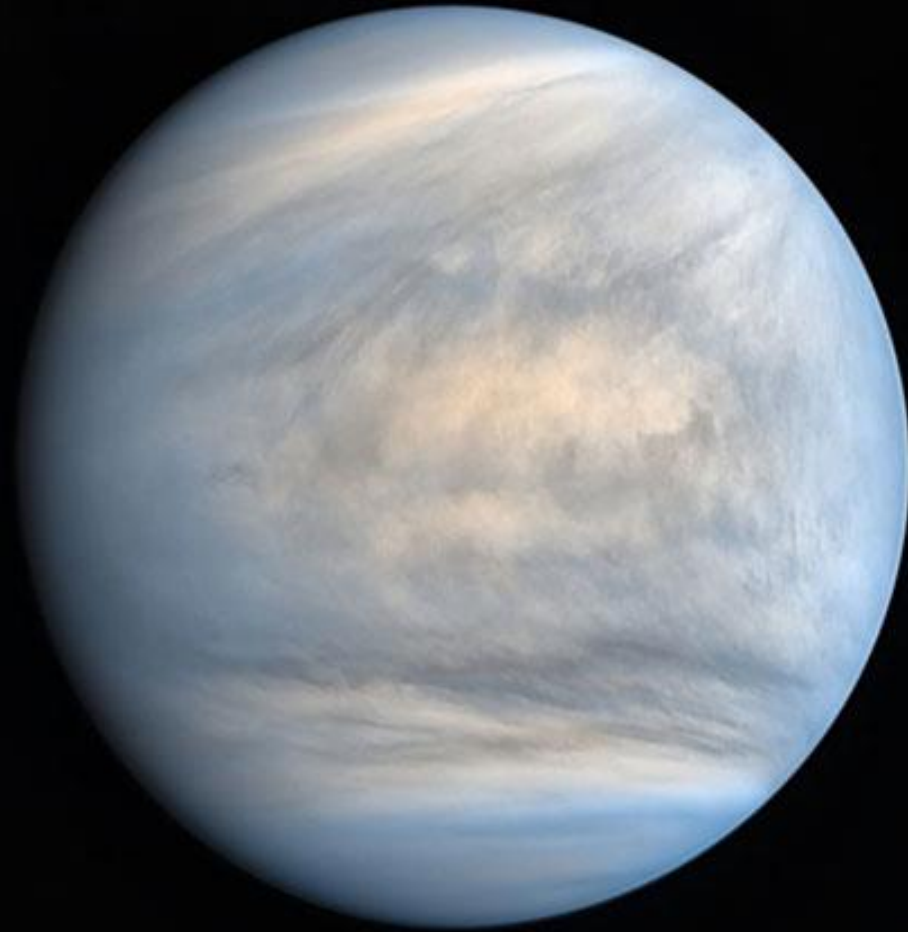
Energy Talks & Dinner

Andreas Pistauer
20 February 2020, Jakarta, Indonesia

Unrestricted © Siemens 2019

[siemens.com/gas-power](https://www.siemens.com/gas-power)

The Inverse Life Insurance

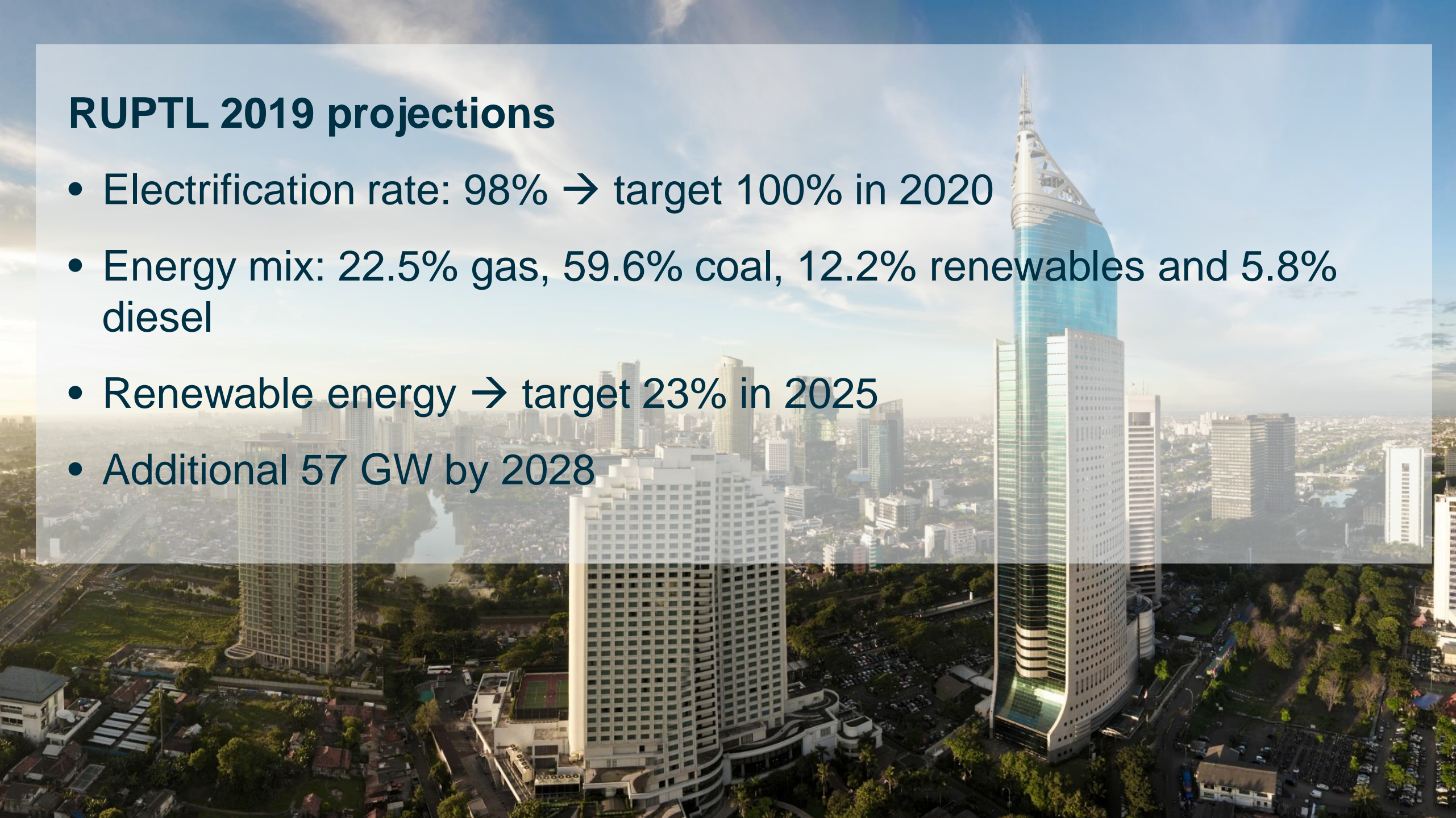


Temperature: 470 degC

CO₂ content: 97%

RUPTL 2019 projections

- Electrification rate: 98% → target 100% in 2020
- Energy mix: 22.5% gas, 59.6% coal, 12.2% renewables and 5.8% diesel
- Renewable energy → target 23% in 2025
- Additional 57 GW by 2028



Global energy demand to grow by 50% until 2050

thereof Asia accounting for >66%

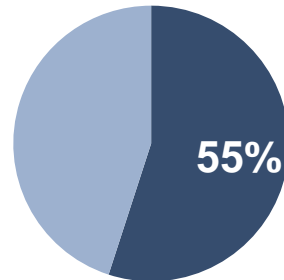
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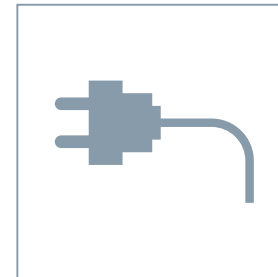
GDP



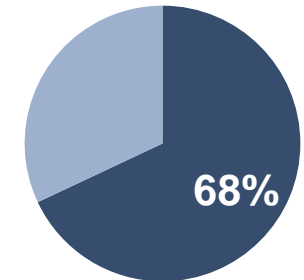
+112 %
globally



Electricity Generation



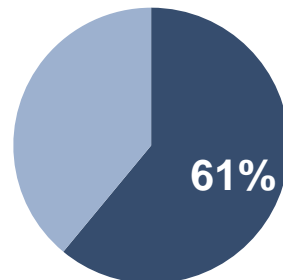
+79 %
globally



Industrial Energy Consumption



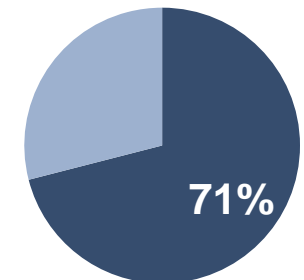
+33 %
globally



Energy Consumption in Transportation



+37 %
globally



Global growth figures and Asia's contribution to the total growth (2018-2050)

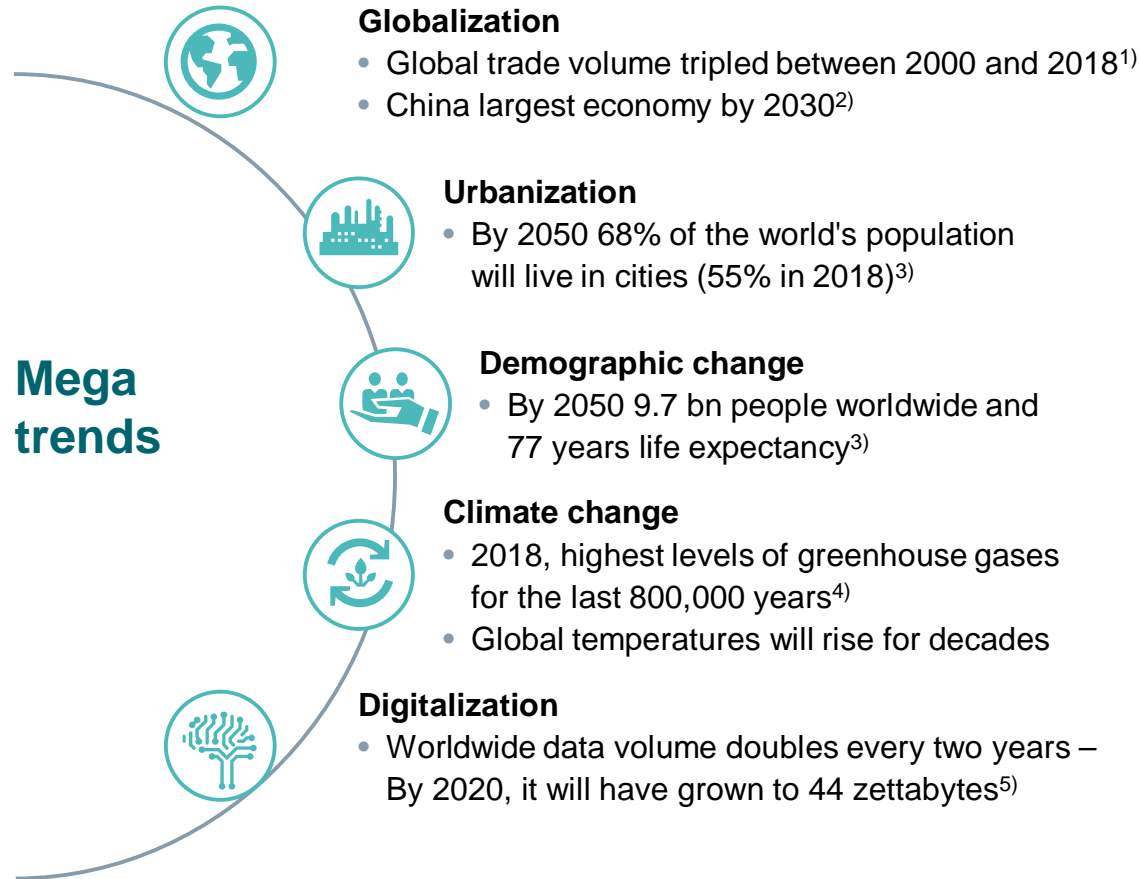
■ Share of Asia ■ RoW

Asia plays a critical role in shaping the future of the global energy landscape incl. total emissions

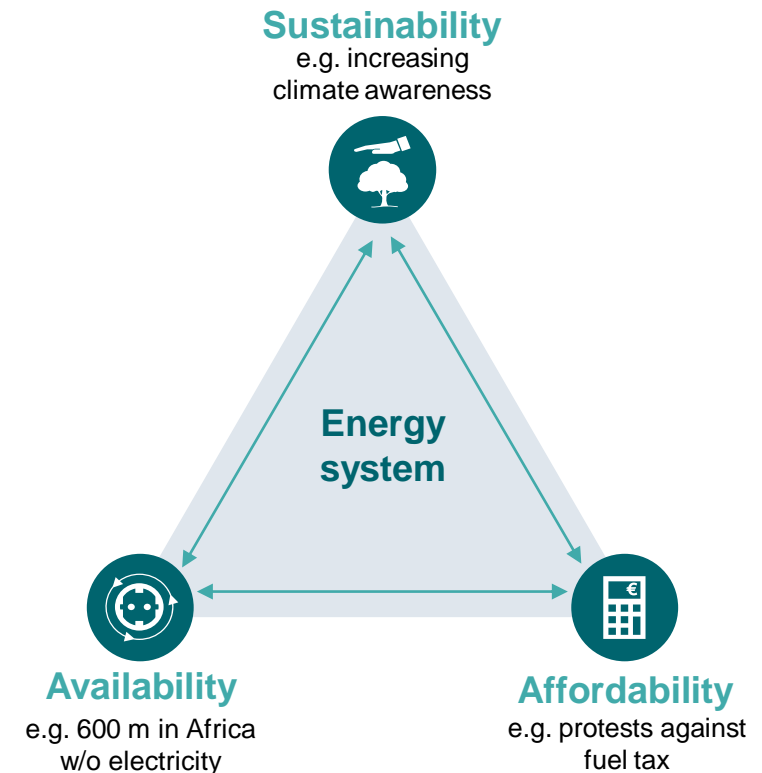
Today, five global megatrends driving the economy and changes in the energy sector



Mega trends resulting in ...



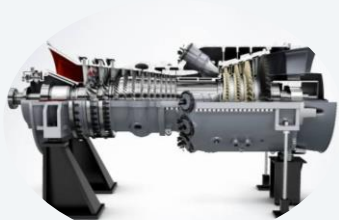
... conflicting targets within the energy system



Our most advanced technologies help reduce emissions and save costs in multiple applications



- **USC: most efficient and cleanest choice for coal power**
- **Jawa 9/10: 41.28% efficiency at 2 x 1000 MW output**
- **30% less emissions and coal consumption**
- **Annual savings: ~3.1 Mt of CO₂ and ~1.7 Mt of coal***

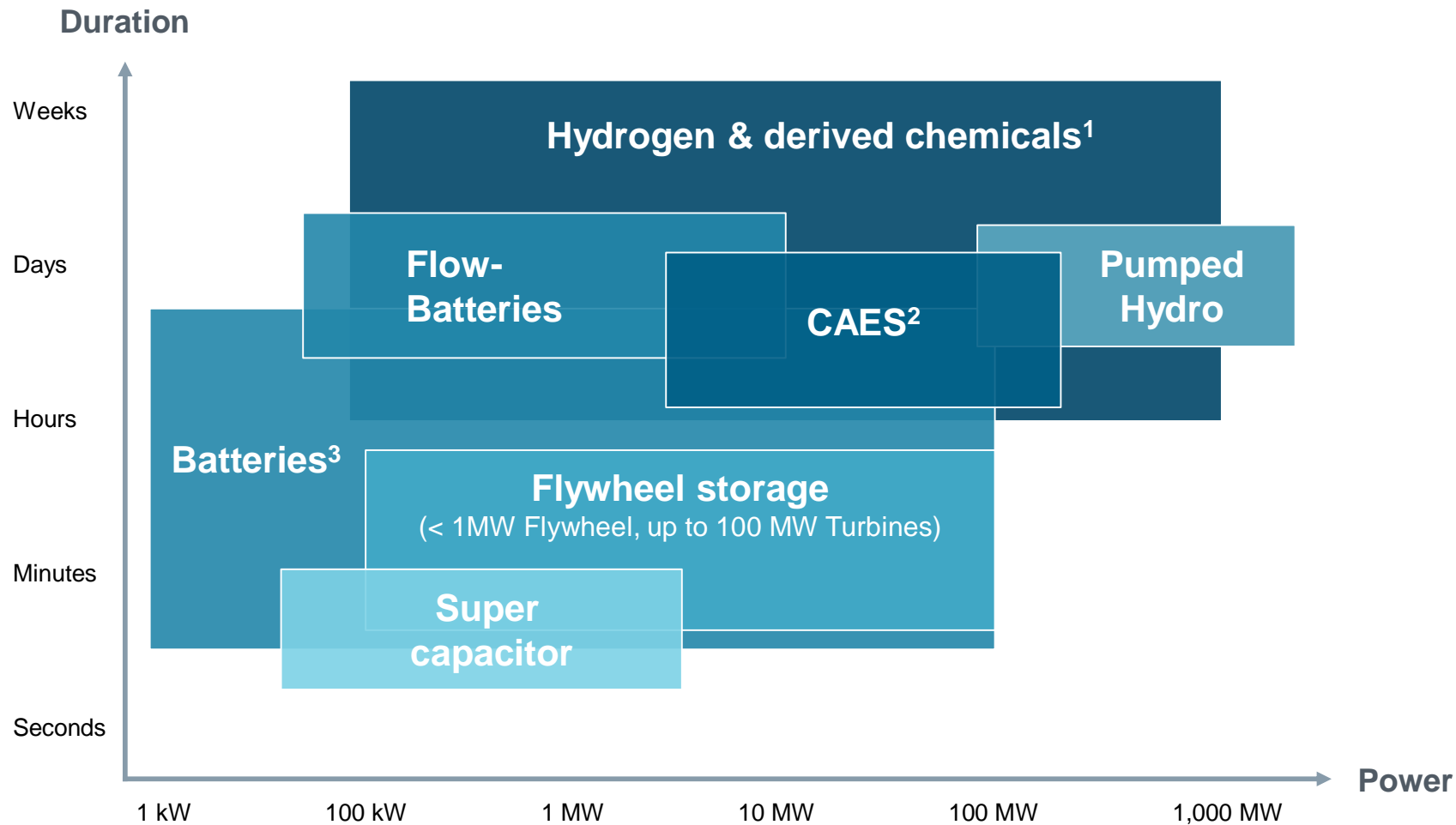


- **HL-class: most efficient and cleanest choice for gas power**
- **SGT5-9000 HL: >63% efficiency at 567 MW output**
- **26% less emissions and gas consumption****
- **Annual savings: ~0.51 Mt of CO₂ and ~0.163 Mtpa of LNG for 850 MW**

* compared to old coal plants with 32% efficiency

** compared to old CCGT plants with 50% efficiency

Hydrogen¹ provides a scalable mid- and long-term storage option to align seasonal power production with the demand side



Hydrogen can be stored cost-effectively on a large scale.

- Technology**
- Chemical
 - Thermal
 - Electrochemical
 - Mechanical
 - Electrical

¹ & derived chemicals such as Ammonia, Methanol or others;
² Compressed Air Energy Storage;
³ Li-Ion, NaS, Lead Acid, etc.

Your future built on



Technology leader



Global footprint



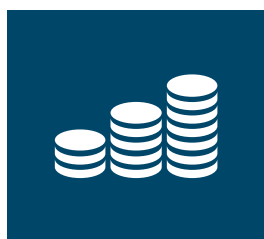
~88.000 people



Digital pioneer



Experience



**Backlog
~€70 bn**

**Orders
~€30 bn**

**Revenues
~€27bn**

Figures FY2018 pro forma, the portfolio additions announced in the Q42019 results are not reflected

Have a good evening!