ρυθμιστική αρχή ενέργειας κύπρου
cyprus energy regulatory authority

Ο ρόλος του φυσικού αερίου προς την επίτευξη των αειφόρων ενεργειακών συστημάτων

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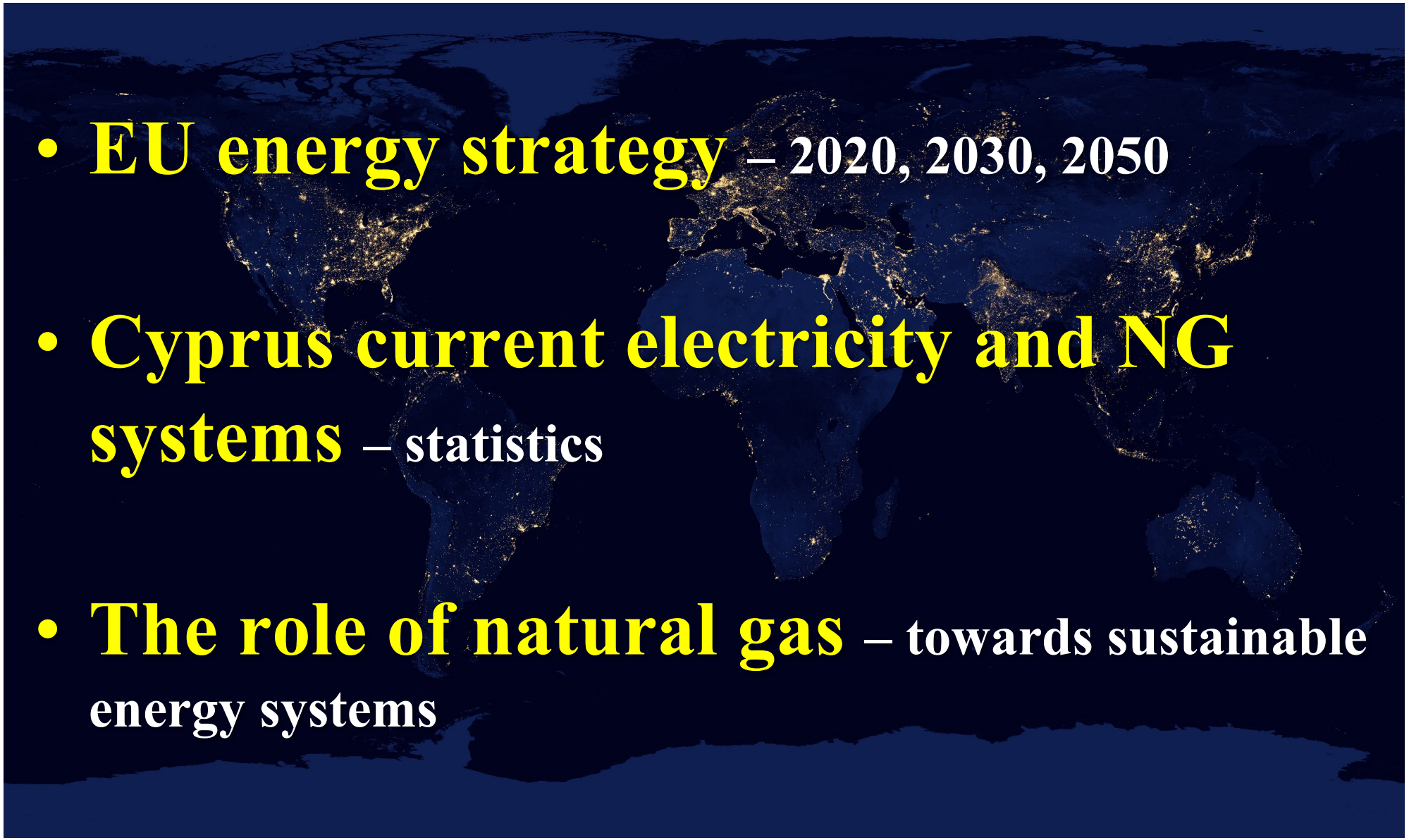

- **EU energy strategy** – 2020, 2030, 2050
- **Cyprus current electricity and NG systems** – statistics
- **The role of natural gas** – towards sustainable energy systems

EU energy strategy

2020, 2030, 2050

Future energy systems

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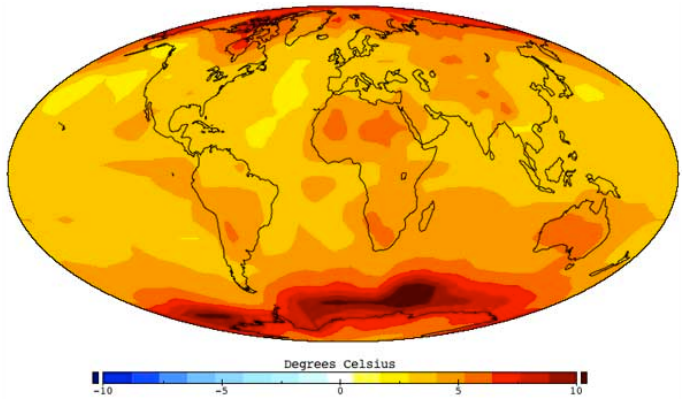
- **Climate change**

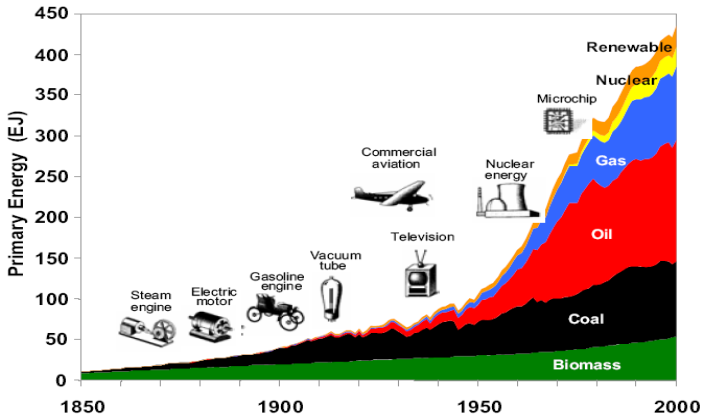


- **Third energy revolution**

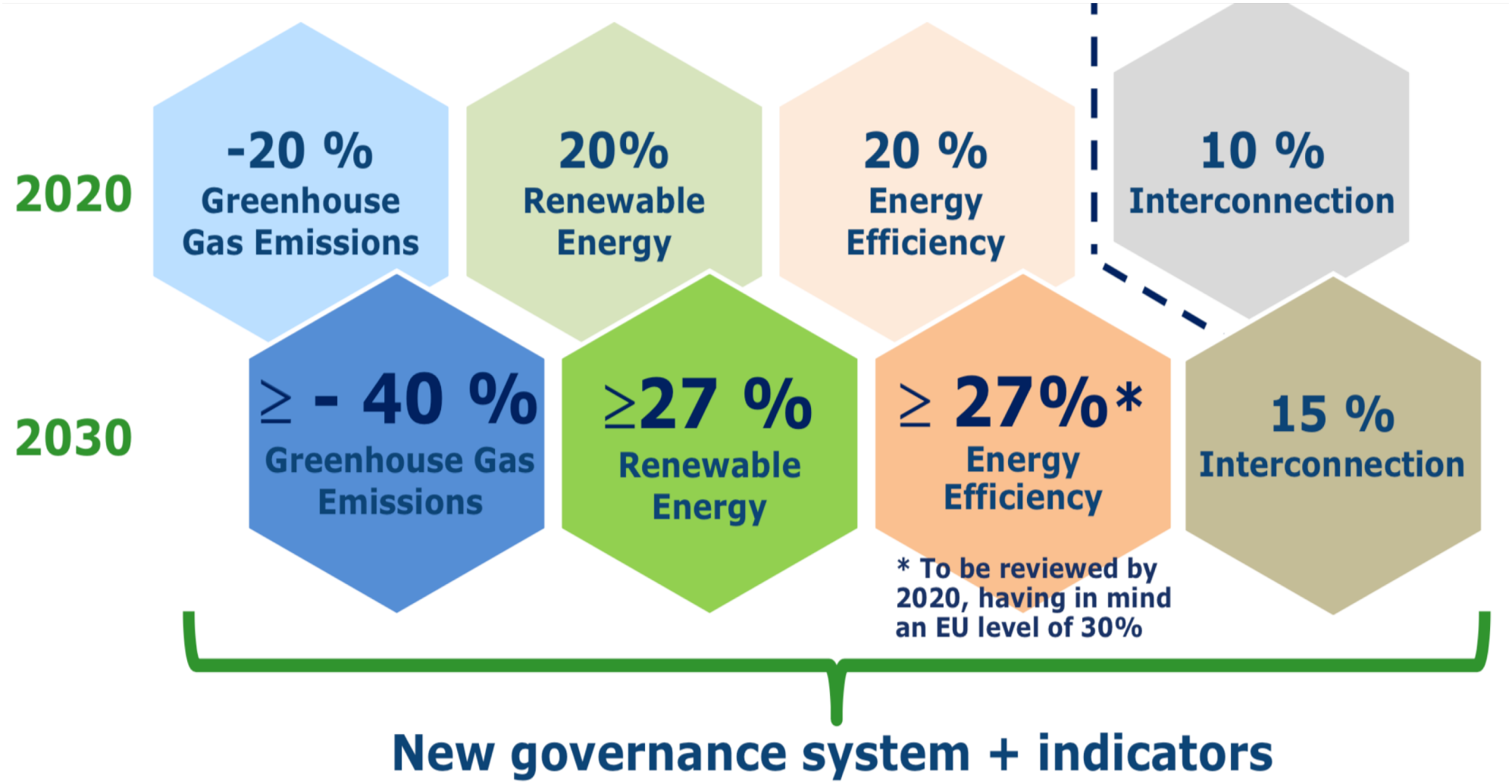
- **Future energy economics**

EU energy objectives

- greenhouse gas reduction
- sustainable production and consumption
- competition in electricity and natural gas markets
- security of supply

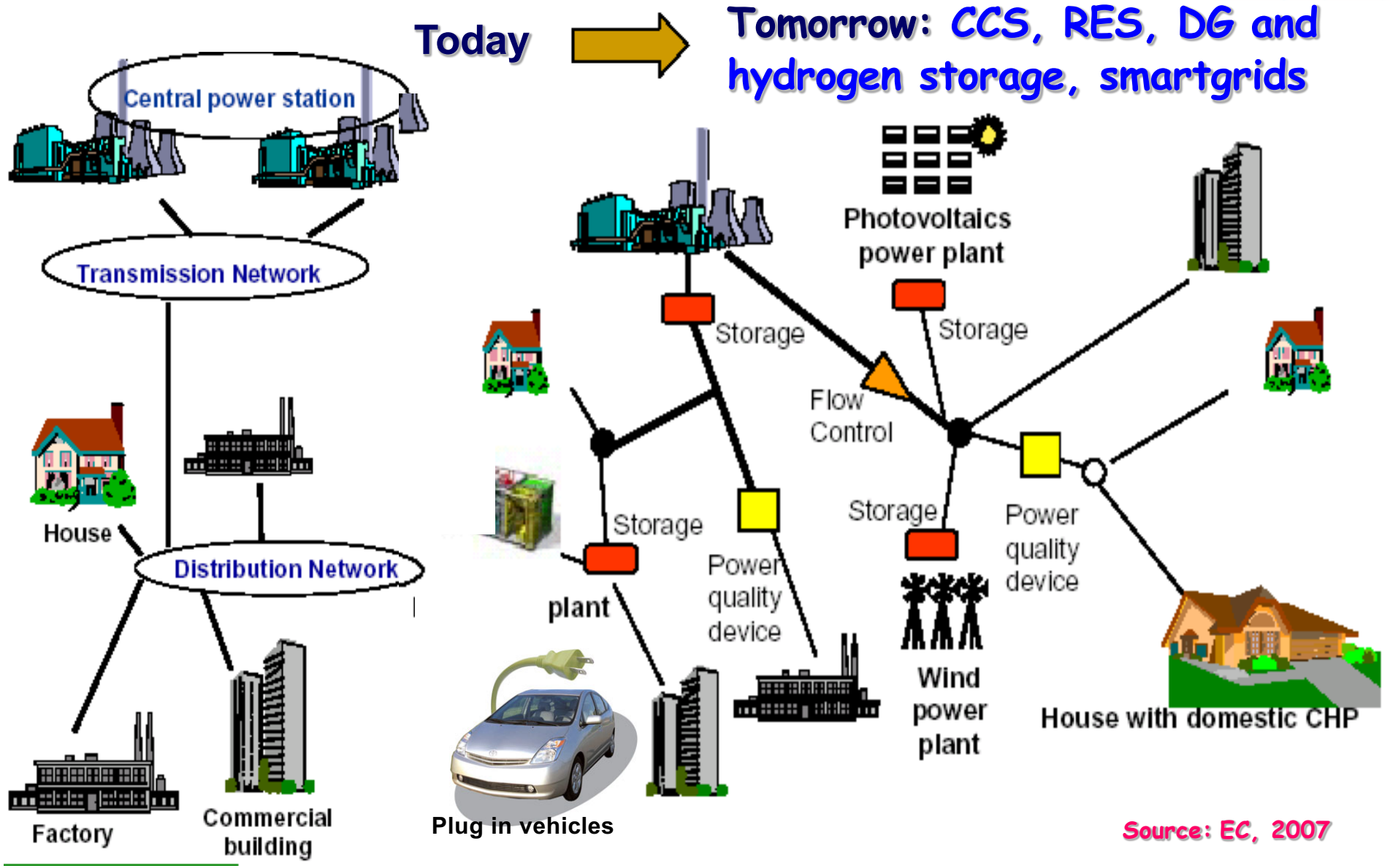


EU medium and long term targets



2050 -80% Greenhouse Gas Emissions

Future power systems

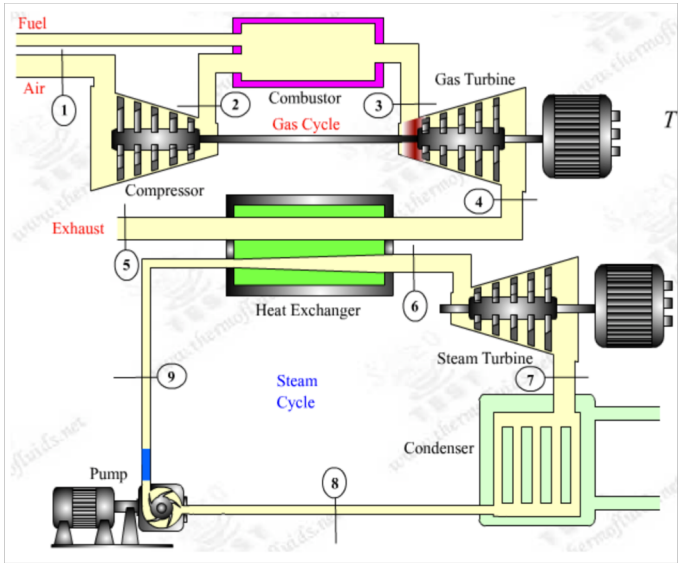


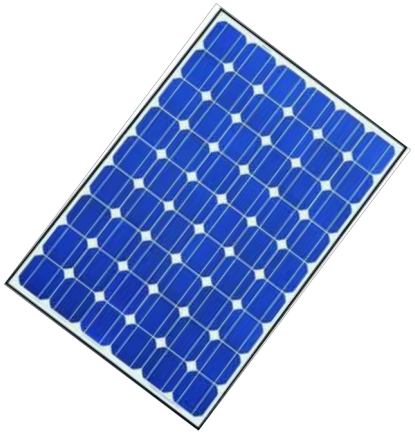
Cyprus current electricity and NG system

Statistics

Existing power generation system

- **Steam turbine units (HFO)**
  - Dhekelia power station 6x60MWe
  - Vasilikos power station 3x130MWe
- **Combined cycles (Diesel)**
  - Vasilikos power station 2x220MWe
- **Gas turbine units (Diesel)**
  - Moni power station 4x37,5MWe
  - Vasilikos power station 1x38MWe
- **Renewables**
  - PVs 121MWe
  - Wind 157MWe
  - Biomass 13MWe





Distribution of RES-E

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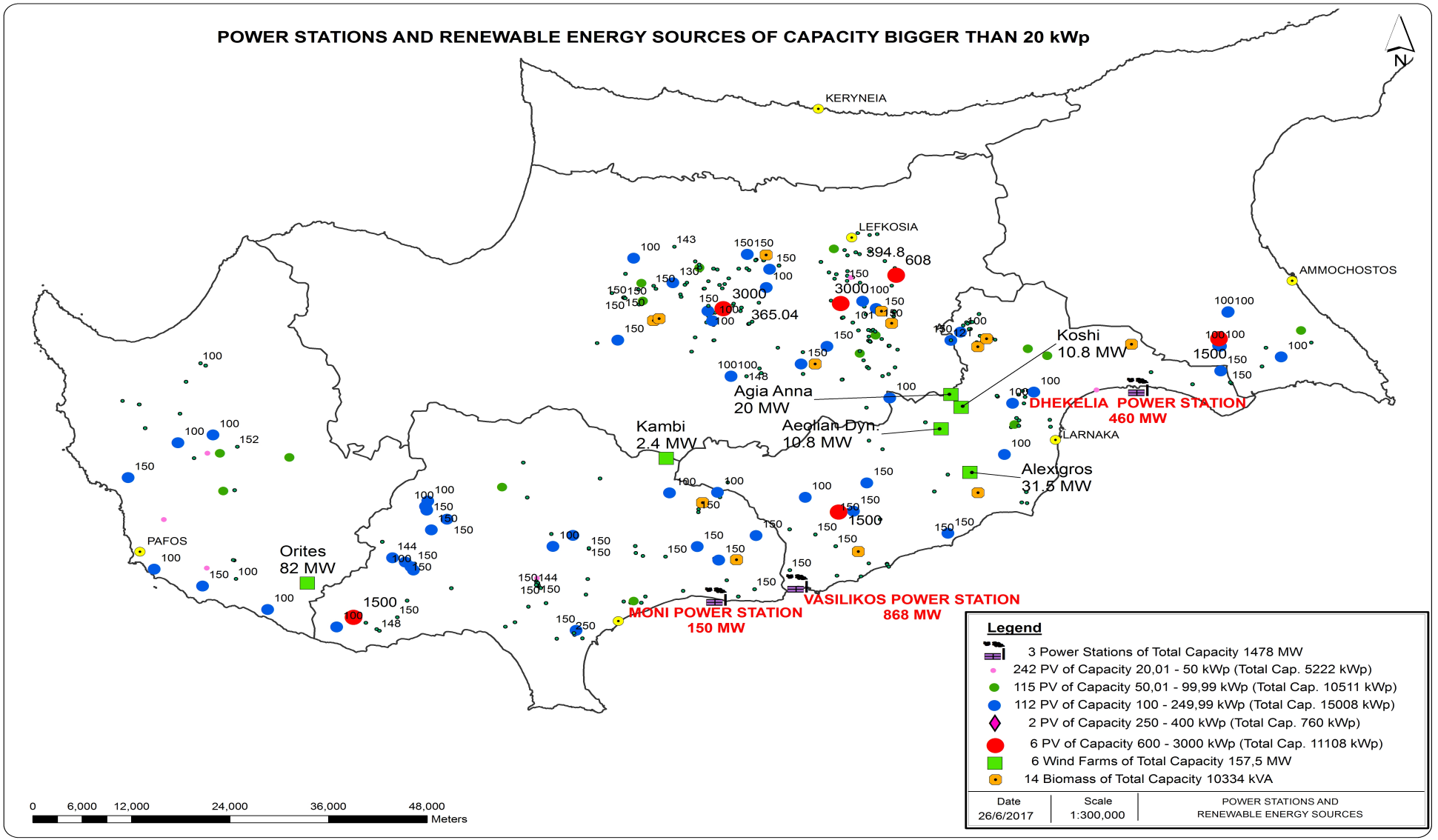


RES-E targets

- **Current RES-E penetration: ~9%**

  - **PVs 121MWe**
  - **Wind 157MWe**
  - **Biomass 13MWe**

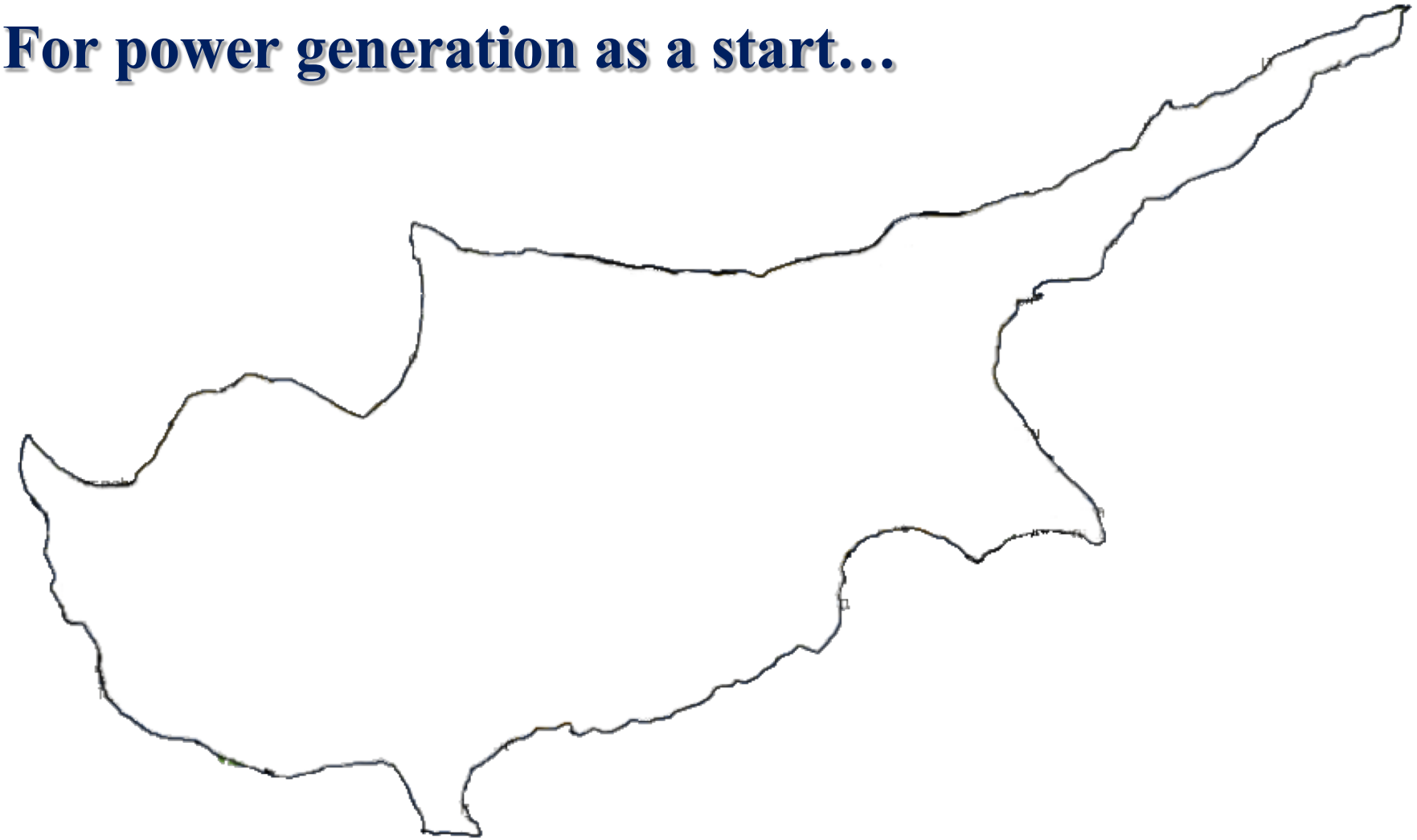
- **RES-E target for 2020: 16%**

  - **PVs 288MWe**
  - **CSP 50MWe or PVs 72MWe**
  - **Wind 175MWe**
  - **Biomass 15MWe**

- **RES-E target for 2030: not yet**

Existing natural gas system

- **Under development !**
- **For power generation as a start…**



The role of natural gas

Towards sustainable energy systems

Pathways to low emissions

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Why gas is perfectly suited to play a pivotal role in the energy mix of the future

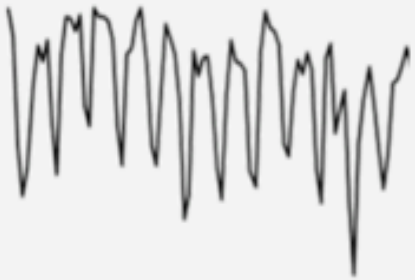
1. Gas is clean

gas produces less than half as much CO_2 per KWh than electricity

2. Gas is scalable

Gas is sufficiently abundant to continue to meet a large share of European and global energy demand

3. Gas is flexible

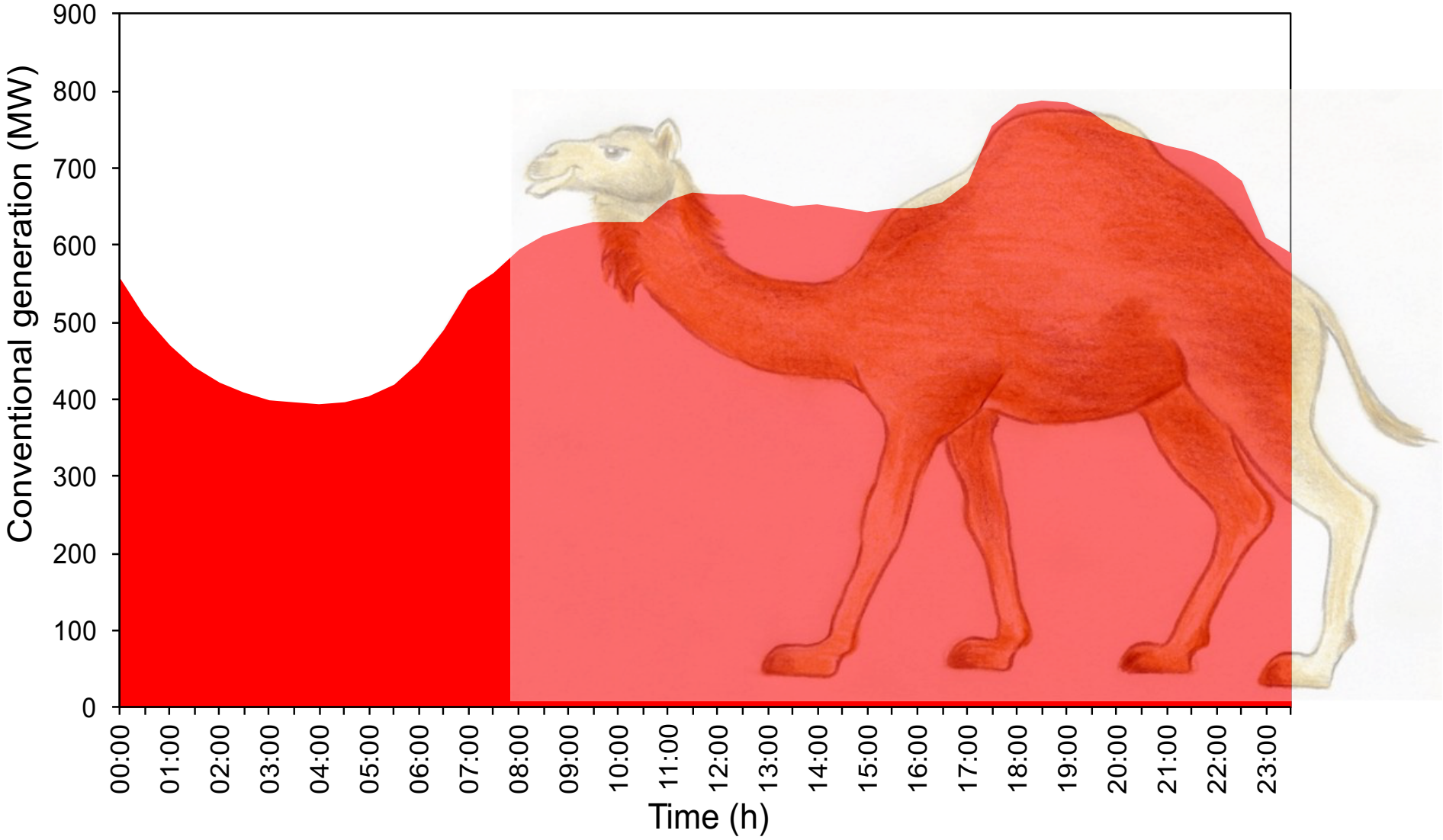


Gas can quickly meet short term fluctuations in power demand where other power sources can not

3. Gas technology is improving

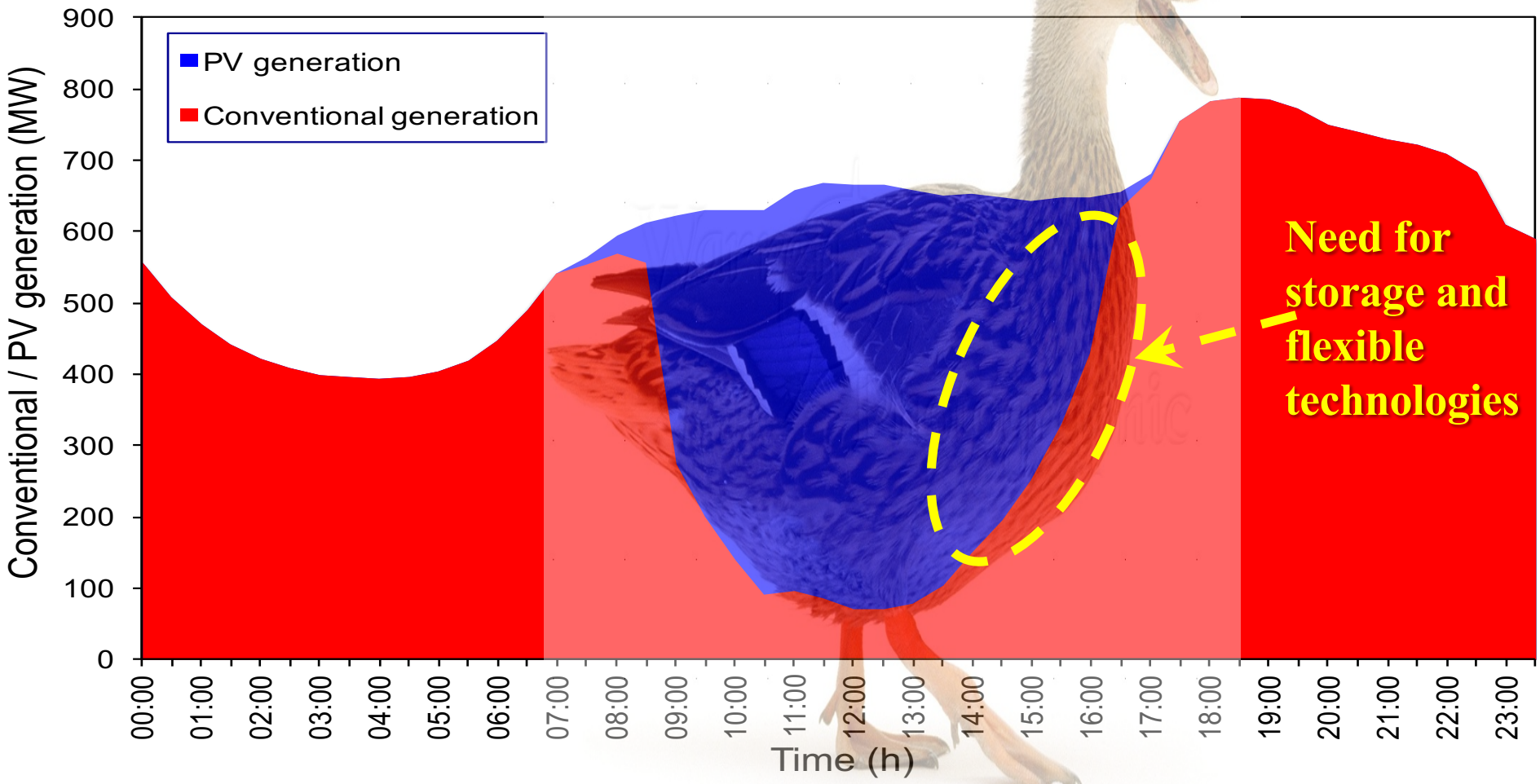
Gas technological improvements are driving energy efficiency gains

Daily load curve (the 'camel curve')*



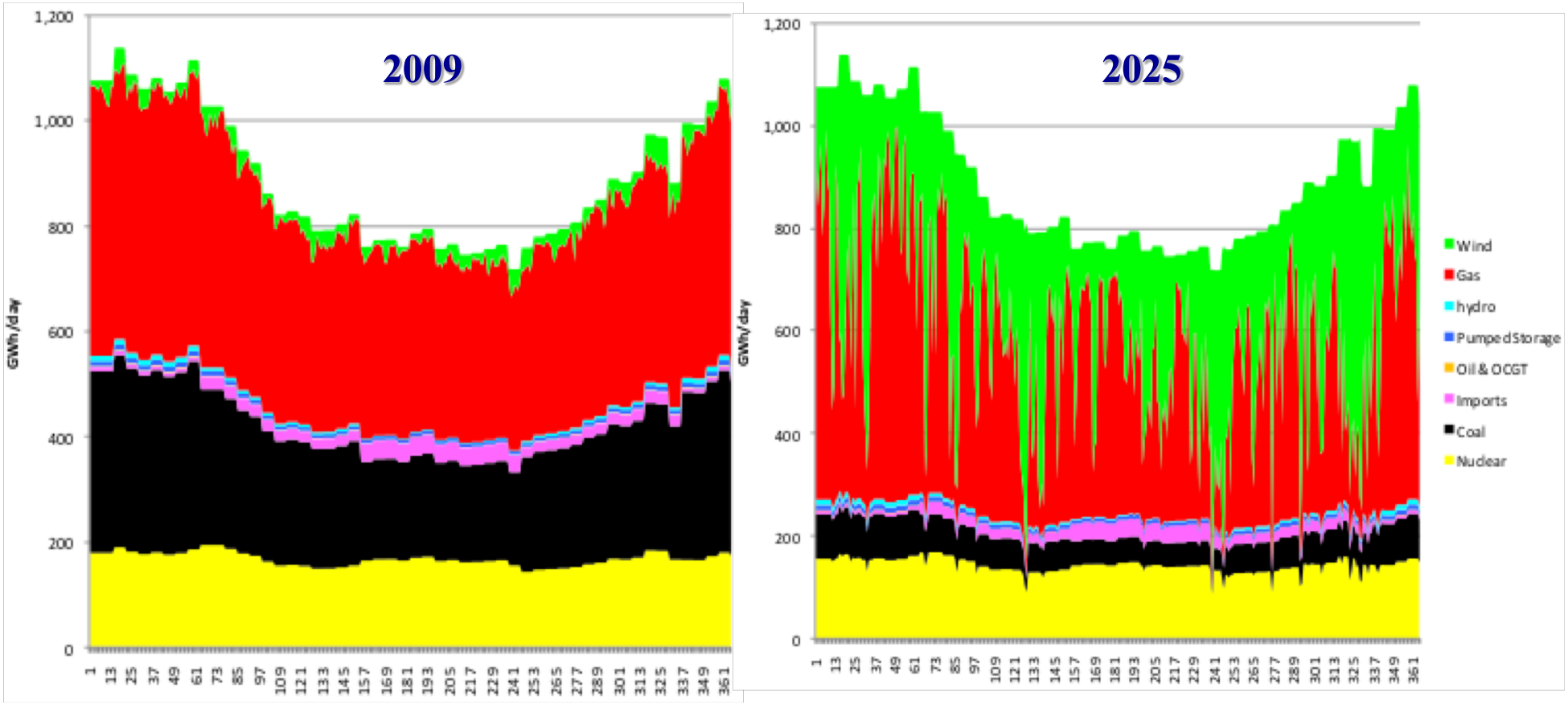
* Poullikkas A., 2016, "From the 'camel curve' to the 'duck curve' on electric systems with increasing solar power", *Accountancy*

Effect of PV generation on load curve (the 'duck curve')*



* Poullikkas A., 2016, "From the 'camel curve' to the 'duck curve' on electric systems with increasing solar power", *Accountancy*

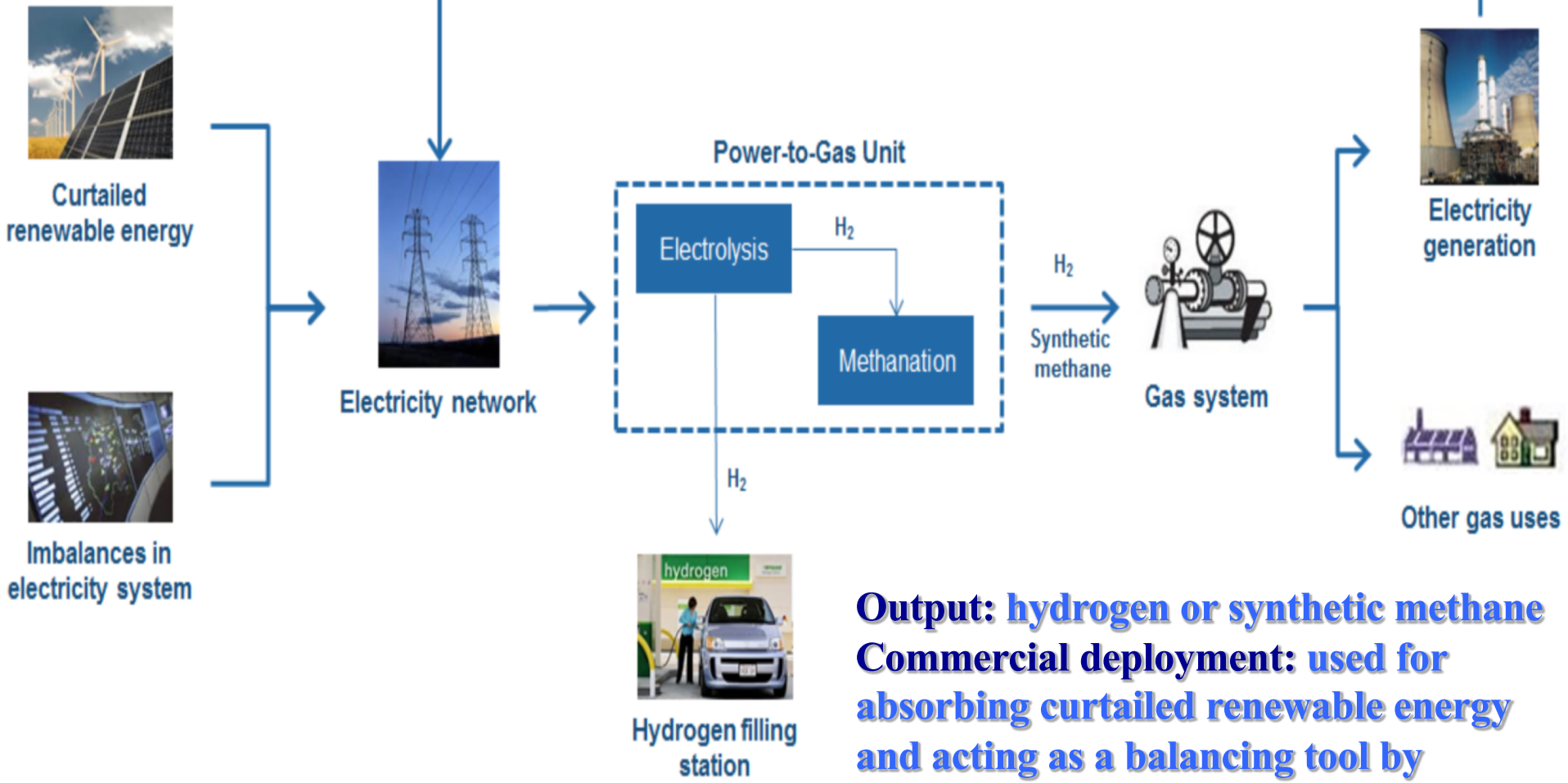
Gas is a pillar of renewable energy (power production in UK*)



* H.V. Rogers, 2011, *The Impact of Import Dependence and Wind Generation on UK Gas Demand and Security of Supply to 2025*, The Oxford Institute For Energy Studies

Power-to-Gas (P2G)

- **energy storage technology linking the electricity and gas infrastructure**



Output: hydrogen or synthetic methane
Commercial deployment: used for absorbing curtailed renewable energy and acting as a balancing tool by electricity TSOs