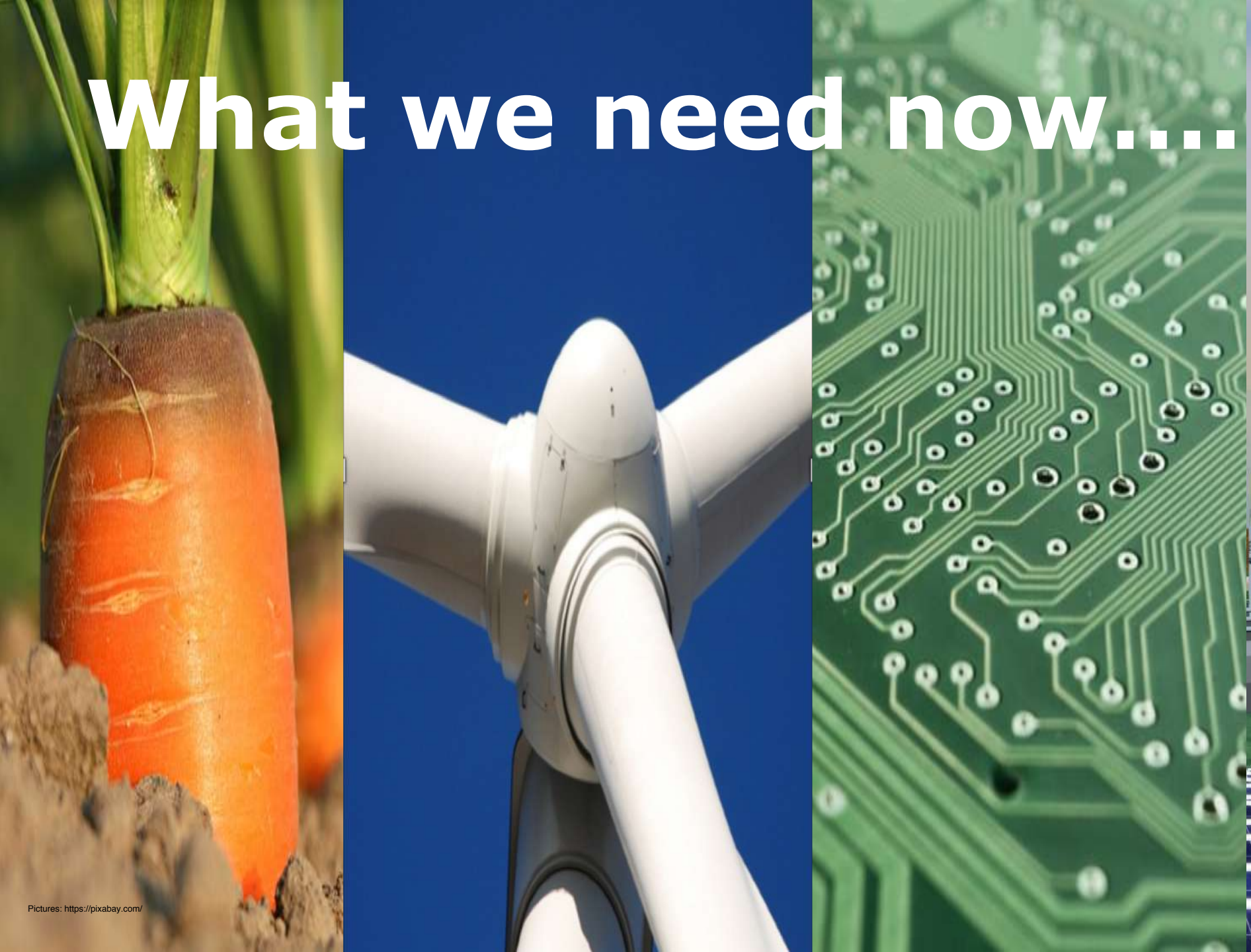
We've PLANNED…
We are well PREPARED…
We want to PERFORM!

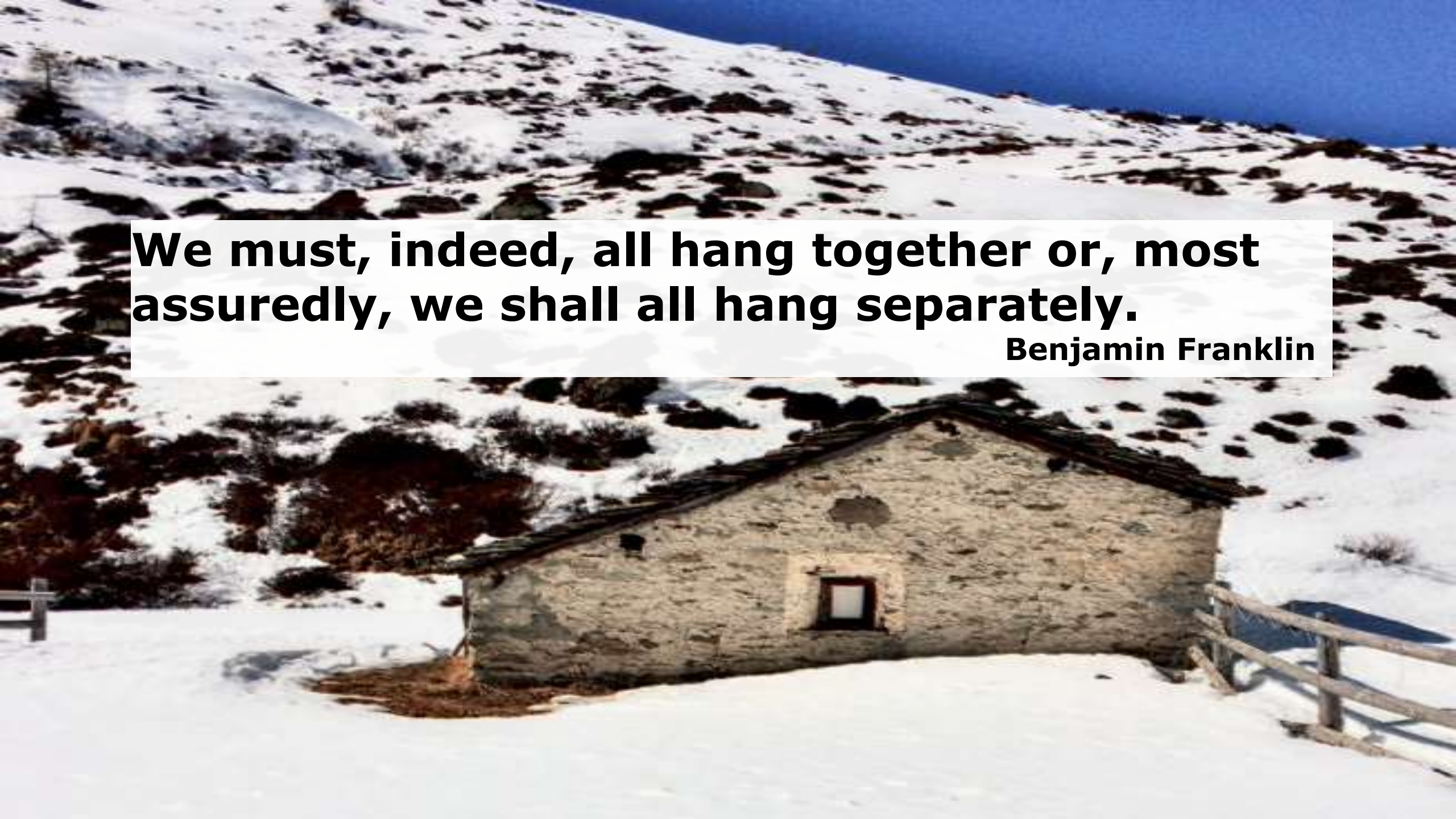
RGI Workshop · Plan, prepare, perform: Best practices for operating the system with high shares of renewables · 7th November 2018 · Berlin · Dr. Constanze Adolf

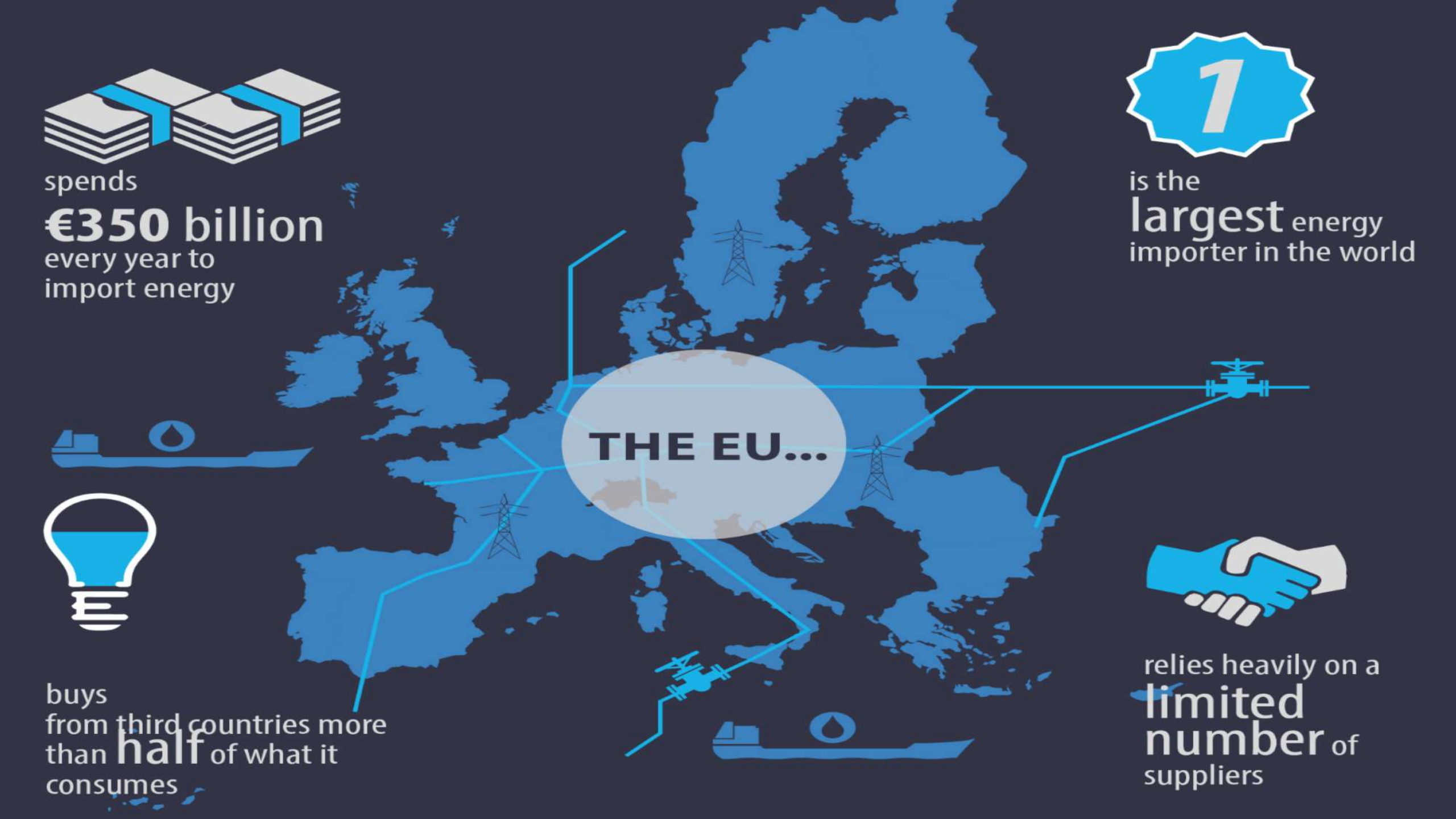
Lumenion was founded in 2015 in Berlin and today has 15 employees. We develop high temperature grid scale storage systems to deliver heat and electricity to industries, public utilities and communities – reliably and sustainably.

What we need now....

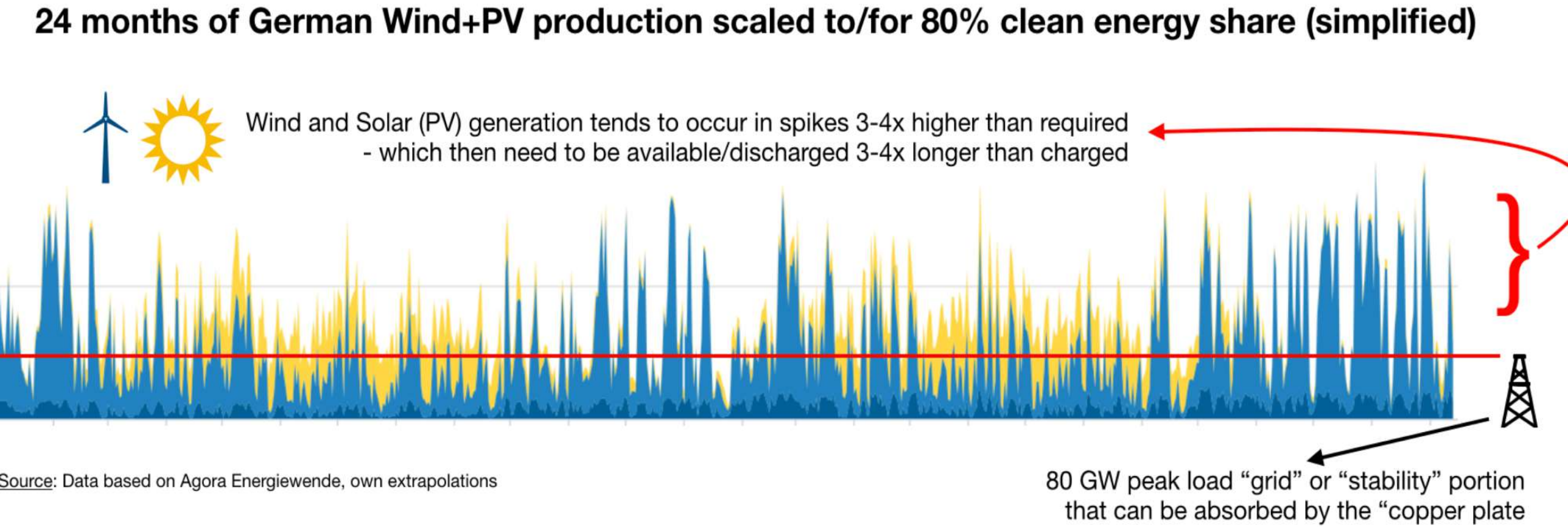


Pictures: https://pixabay.com/


We must, indeed, all hang together or, most assuredly, we shall all hang separately.
Benjamin Franklin


spends
€350 billion
every year to
import energy
1
is the
largest energy
importer in the world
THE EU...
buys
from third countries more
than half of what it
consumes
relies heavily on a
limited
number of
suppliers

BUSINESS CASE FOR STORAGE



Source: Bundesnetzagentur 2018

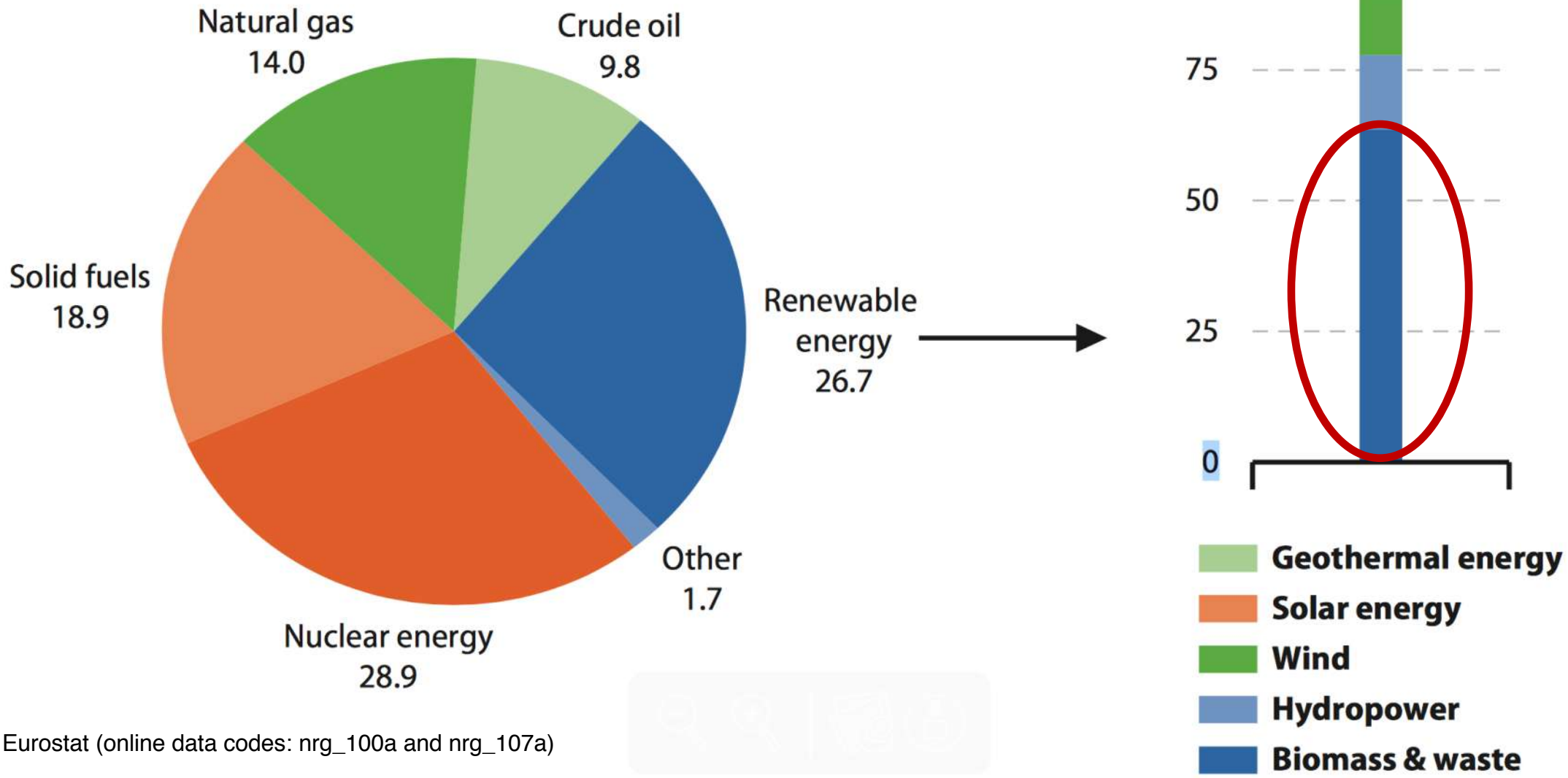
“Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”

Paris Agreement, Article 2

Source: https://goo.gl/H7mQZ9

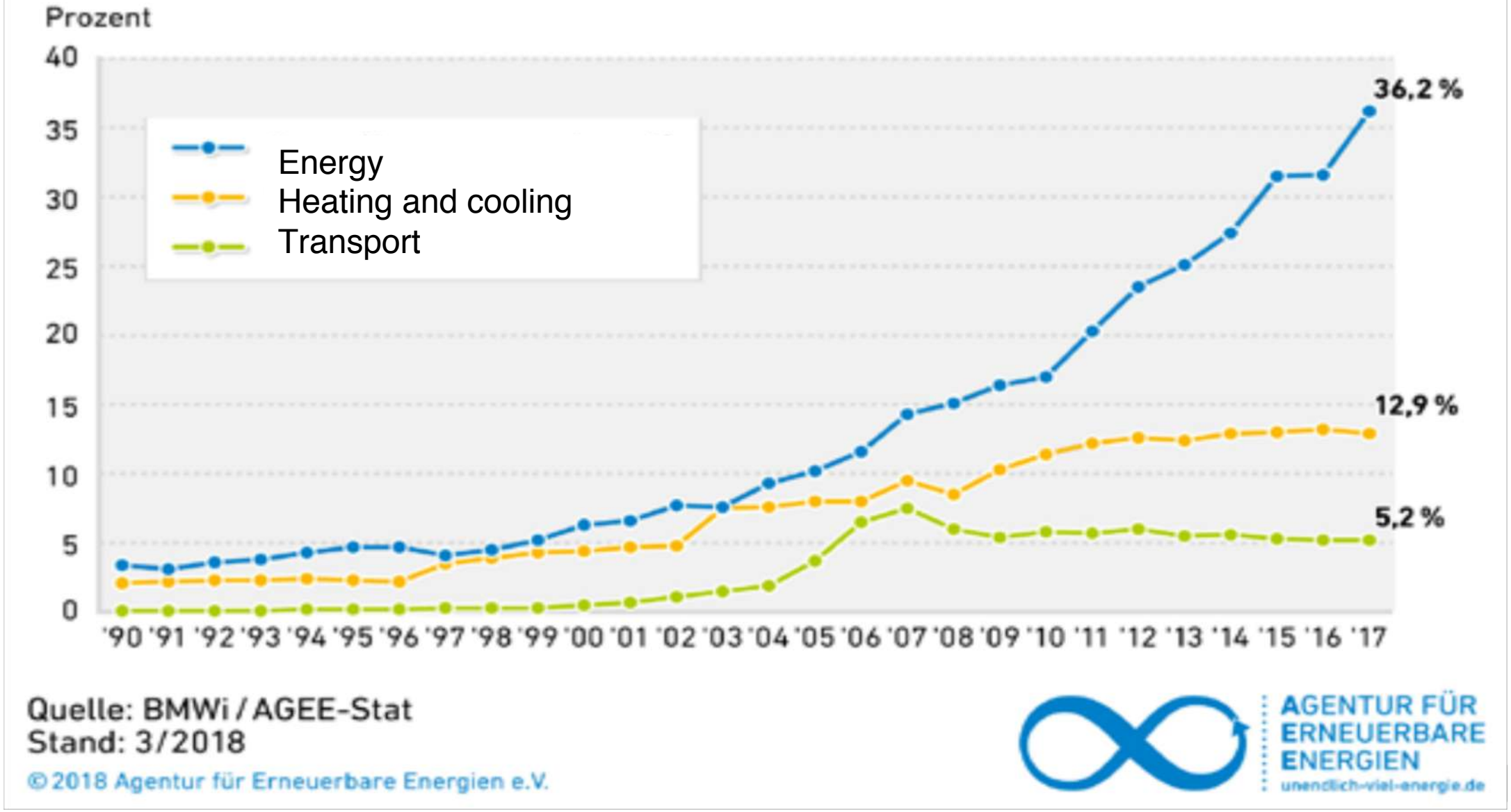
Production of primary energy, EU-28, 2015

(% of total, based on tonnes of oil equivalent)

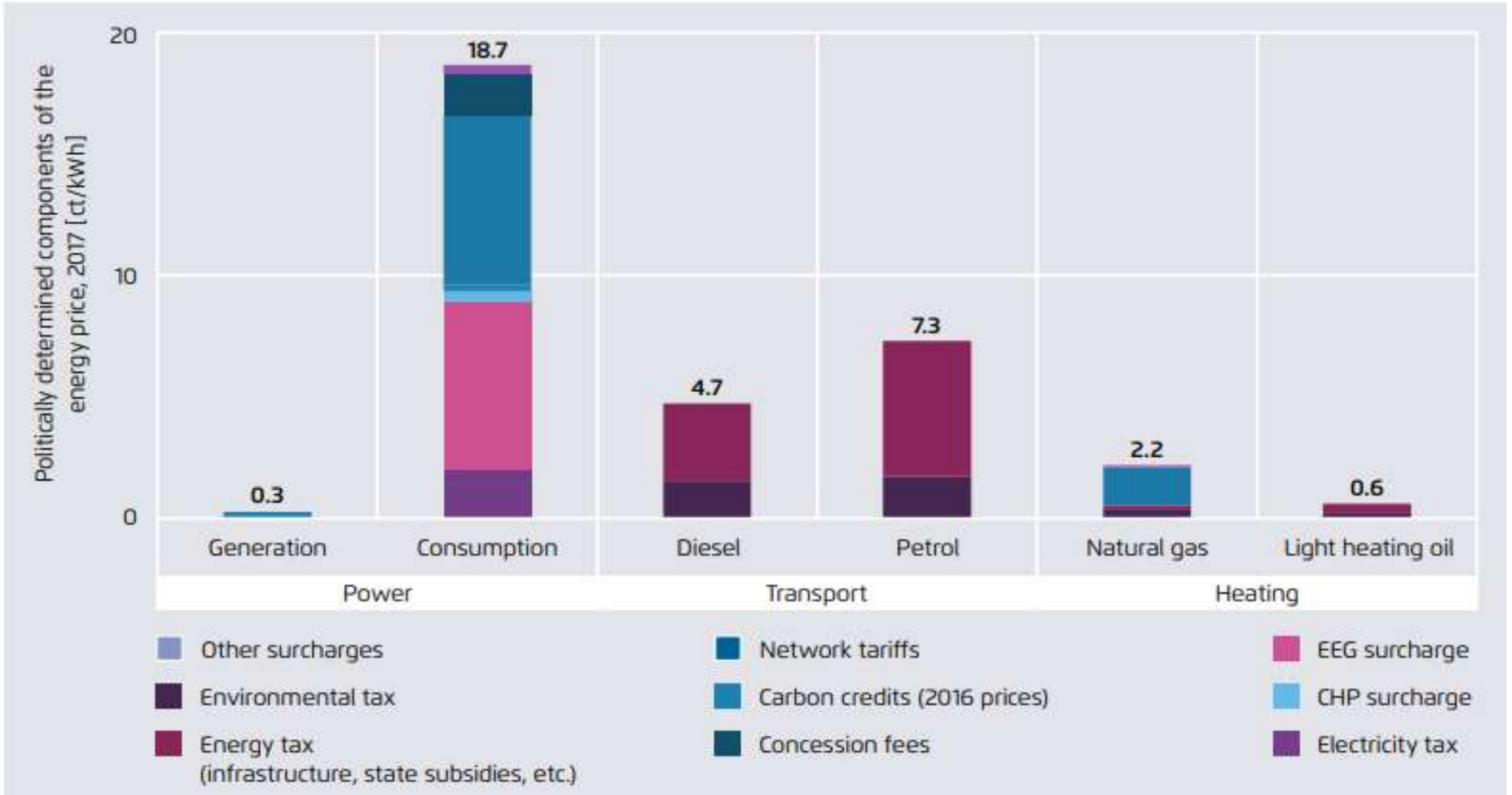


Source: Eurostat (online data codes: nrg_100a and nrg_107a)

SHARE OF RENEWABLE ENERGY BY END USERS IN GERMANY 1990-2017

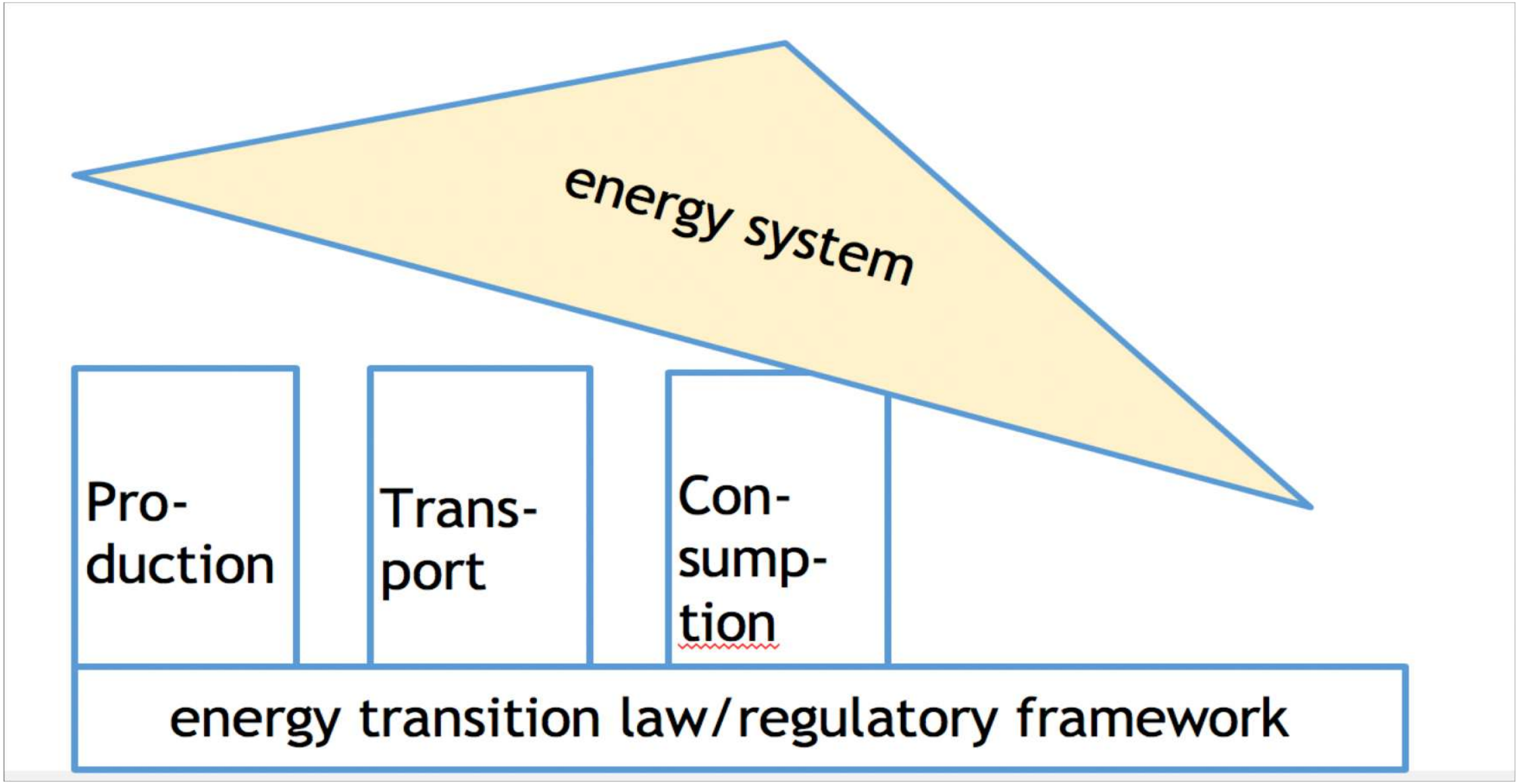


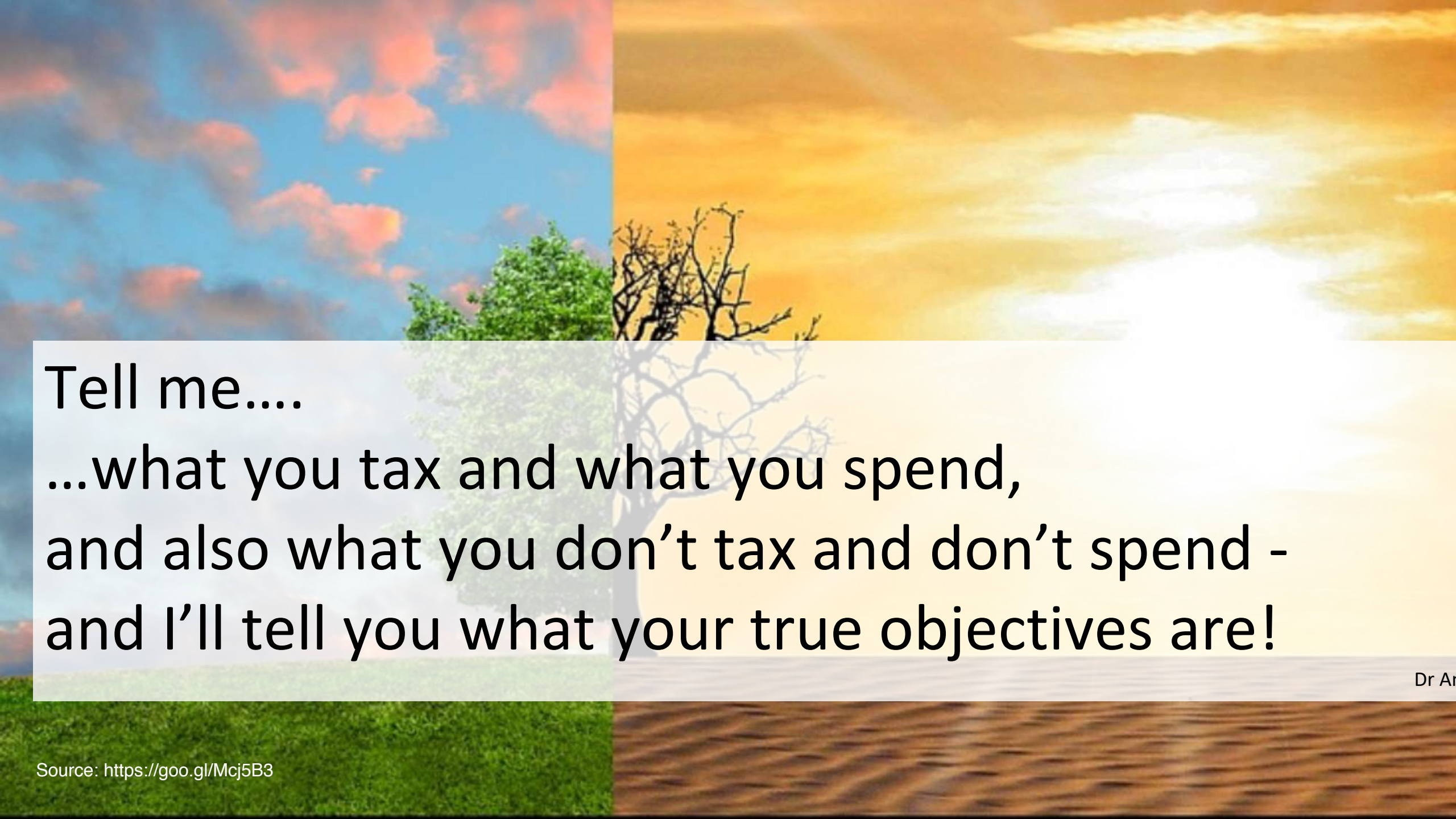
TAXES, LEVIES, SURCHARGES AND TARIFF S IN THE ENERGY SECTOR ARE DISTRIBUTED VERY UNEVENLY, WITH THE MAJORITY FALLING ON POWER CONSUMPTION



Source: Agora Energiewende (2017

3 PILLARS OF THE ENERGY SYSTEM – ENOUGH TO GO NET-ZERO?





Tell me….

…what you tax and what you spend,

and also what you don’t tax and don’t spend -

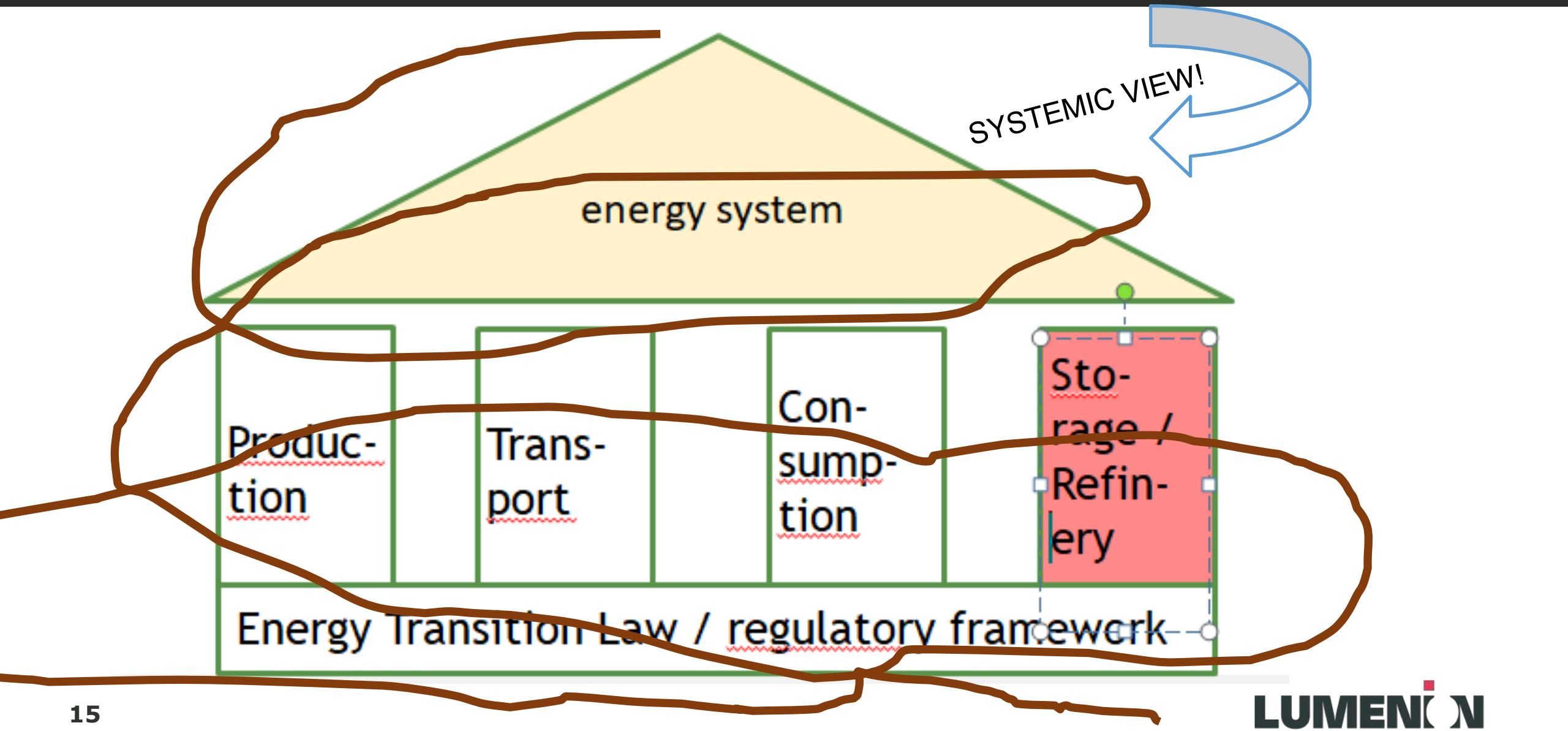
and I’ll tell you what your true objectives are!

Dr Ar

Source: https://goo.gl/Mcj5B3


… overcoming barriers

3 PILLARS OF THE ENERGY SYSTEM – ENOUGH TO GO NET-ZERO?



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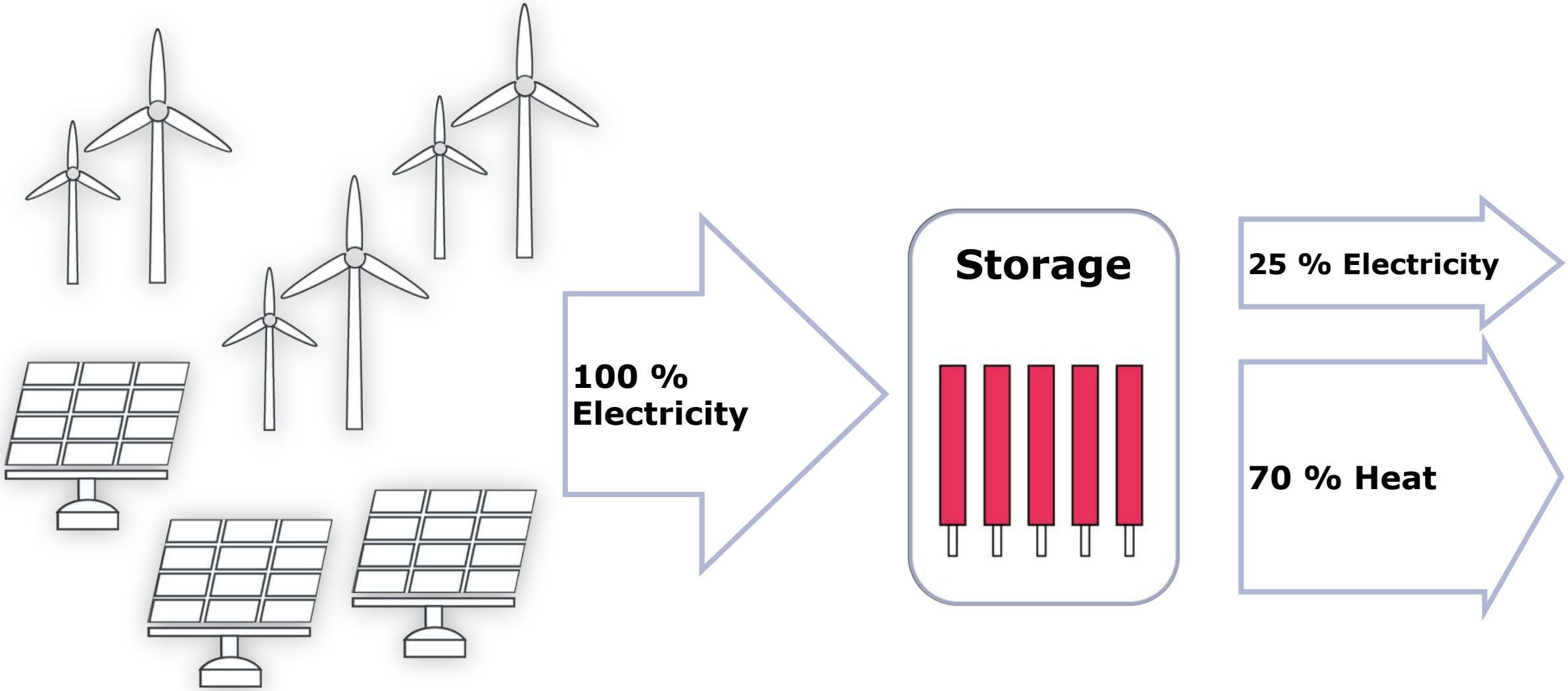
Technology

SEGMENTS OF STORAGE SOLUTIONS

Peak load storage and **sector coupling** make it technologically possible to **implement an increasing share of renewables.**

POWER-2-HEAT & POWER APPLICATION - ENERGY RATIO



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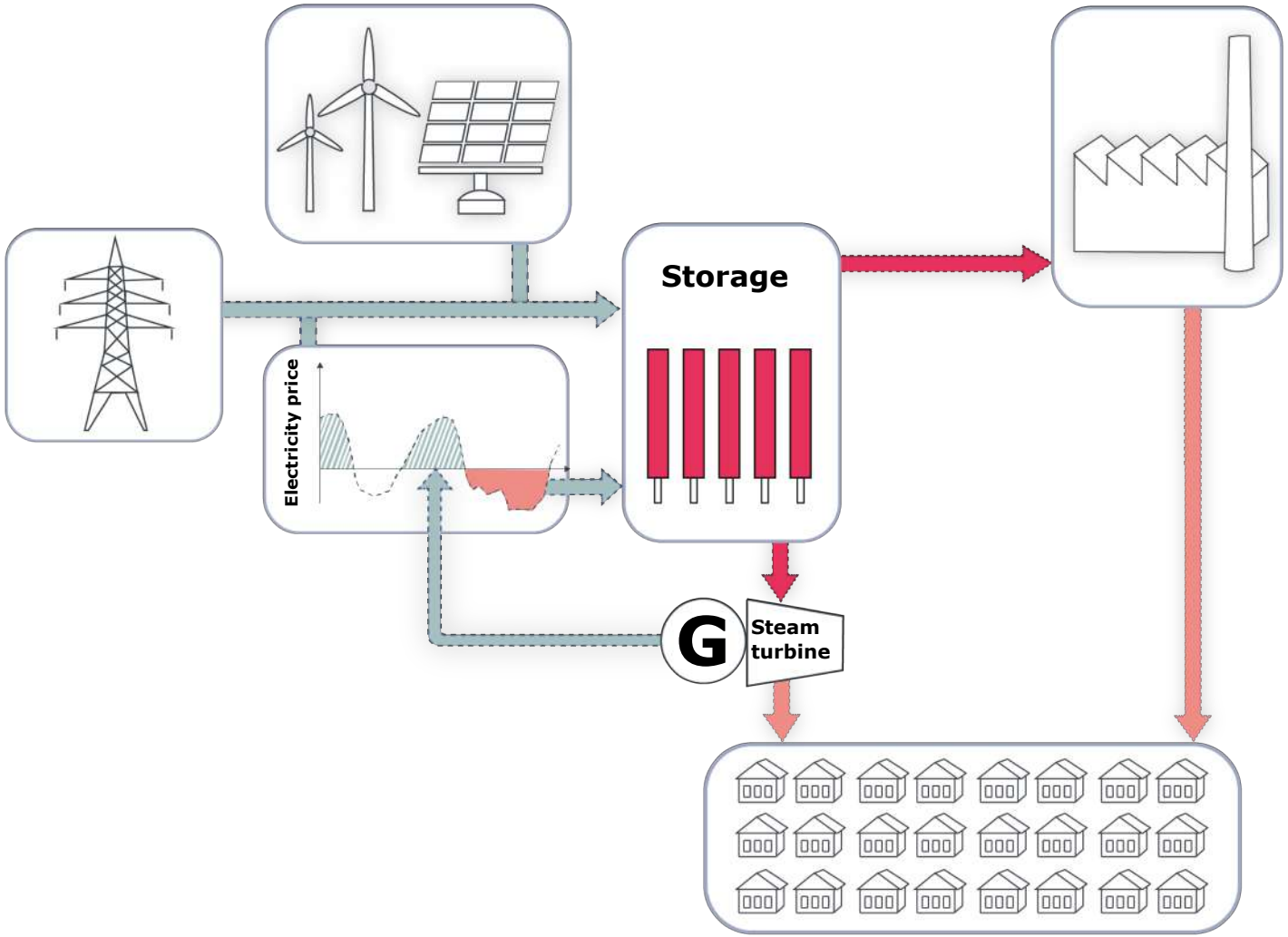
MENION REFINES INEXPENSIVE FLUCTUATING RENEWABLE ENERGY INTO HIGH-VALUE, JUST-IN-TIME AND FIT-FOR-PURPOSE ENERGY

Electricity sector

Heat sector



- Storing of energy thermally
- At 650°C in storage medium steel
- Charging for 8h out of 48h allows us to continuously supply thermal energy with temperature level of 80-550°C for approximately 48 hours
- Charging to discharging ratio of 1-5 to 3-5 depending on application
- 2 modes of usage:
  Power-2-Heat or
  Power-2-Heat&Power

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THANK YOU!

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