

# Opslag in Toekomstige Energiesystemen

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# Jos Blom



life

Info



Energy



€



## CAN I DO IT AGAIN?

- Former CEO of Booking.com
- Key-role in Uber's international growth
- Current CEO of Koolen Industries

**Booking.com**

**Uber**



**KOOLEN INDUSTRIES**  
SMART ENERGY





**KOOLEN INDUSTRIES**  
Clean energy for everyone

## Vision

Enable everyone to contribute to the energy transition.

- Small and large end users of energy,
- Neighbourhoods,
- Cities, Regions
- Industrial area's,
- Landowners
- Countries

## Strategy

Become the largest energy transition enabler

Capture new markets with a holistic portfolio  
covering the entire energy market

Build a global network of strong partners





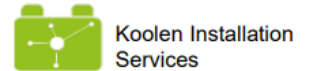
# Koolen Industries Overview of Activities

## Solar



**Bongo Solar & Novavolt**

B2C solar PV installation brands



**Koolen Installation Services**

Installation company for solar panels



**Koolen Industries Solar Development**

Development of large-scale solar PV projects

## Energy Storage



**Super-B**

Li-On battery production for high quality applications



**Smart Grid**

Production of industrial scale energy storage systems (Li-On)



**Elestor**

Flow batteries



**Green Battery**

Rental batteries (events, construction, etc.)



**Kraftblock**

Efficient heat storage up to 1.300°C, from 1MWh to 10 GWh

## Power to X X to Power



**Proton Ventures**

Green chemicals, such as hydrogen and ammonia



**Battolyser**

Production of hydrogen through electrolyses



 eMobility



**Floading**

Charging infrastructure for electric cars and buses



**Urban Mobility Systems**

Electric (industrial) vehicles

 End users



**Aziobot**

Autonomous cleaning robots



**Hardt Hyperloop**

Hyperloop transport

 Software



**Skoon**

Battery software platform, SaaS for Batteries



**Sympower**

Software solution for energy grid optimisation

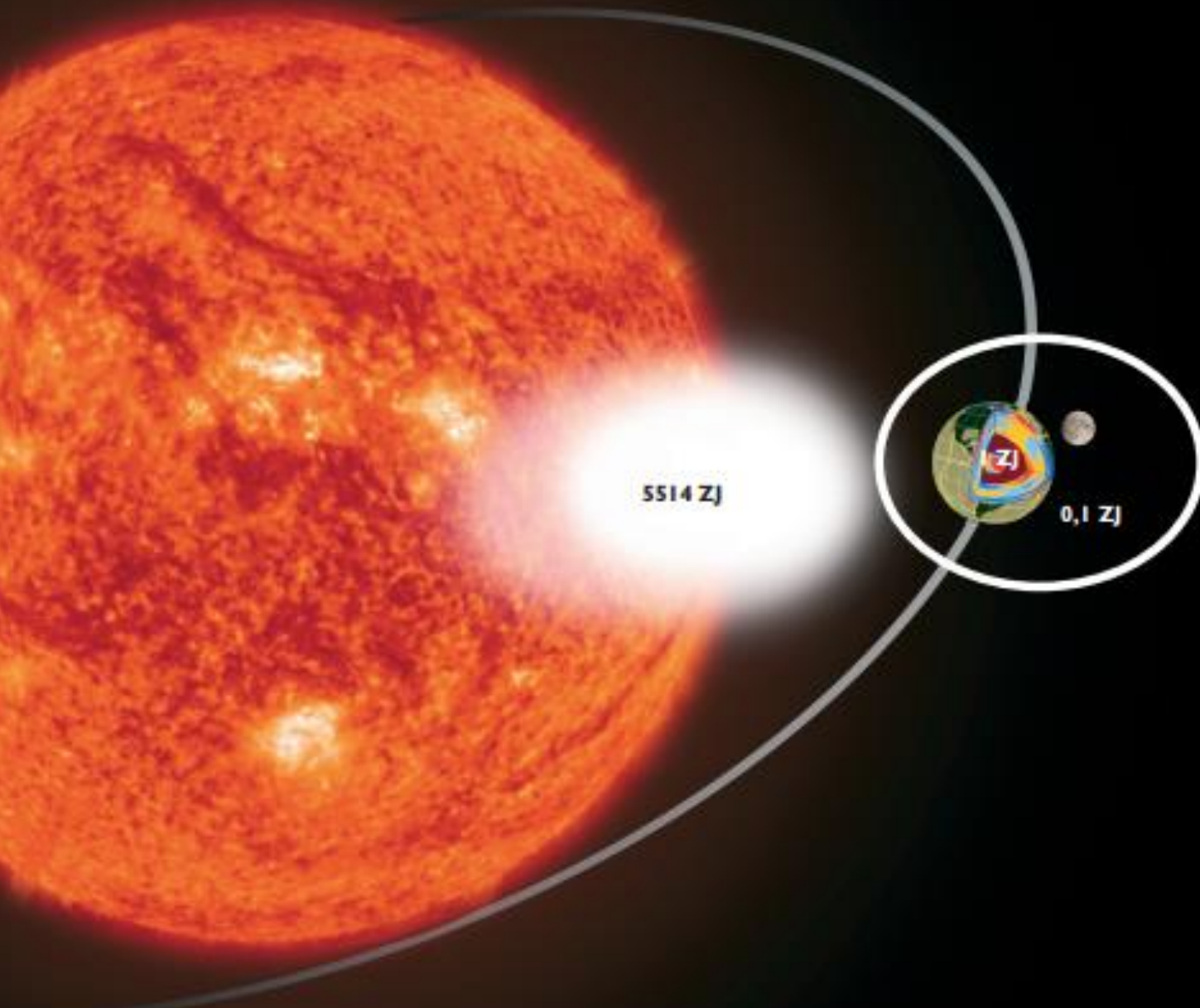


**Deftpower**

Electric vehicle charging software platform



# Future Energy Sources



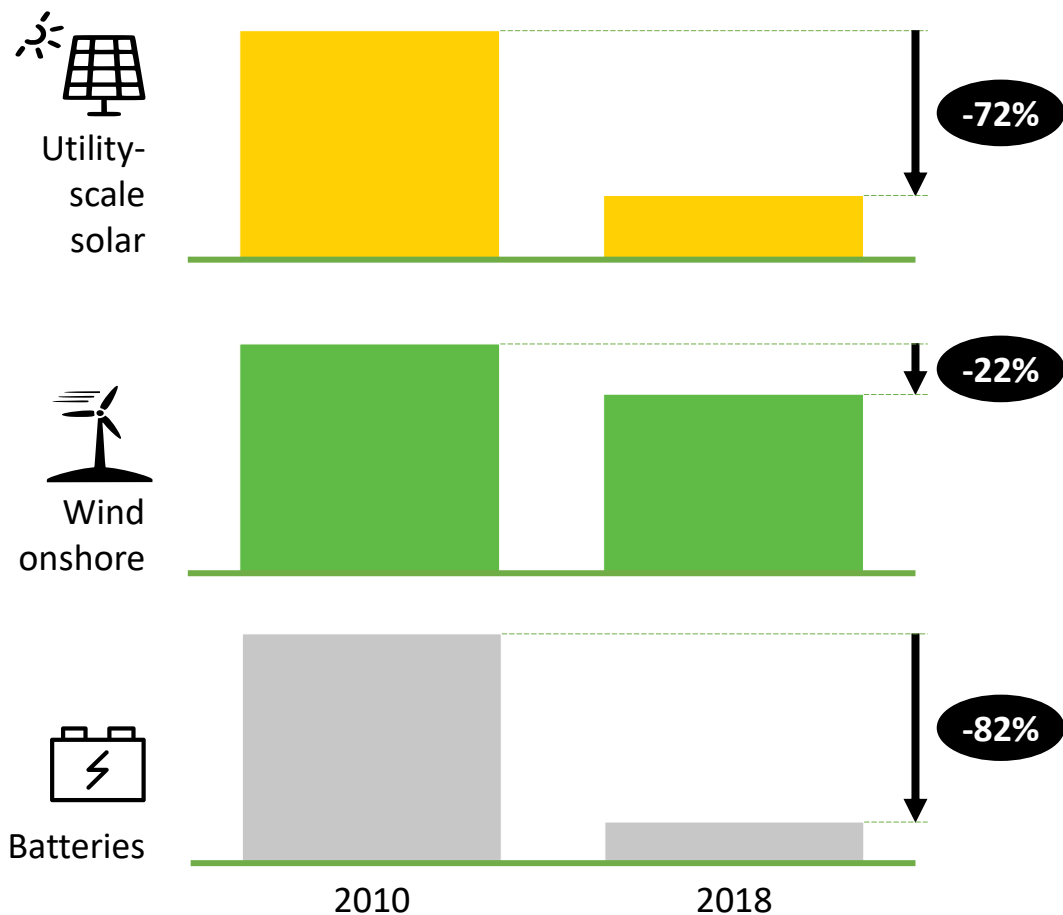
- 5514 ZJ Op de aarde ontvangen straling
- 1 ZJ Geothermische energie
- 0,1 ZJ Getijdenenergie
- 0,4 ZJ Menselijke economie
- ??? ZJ Kernenergie

< 0,1 promille!

# We zitten in een exponentiële groei van PV

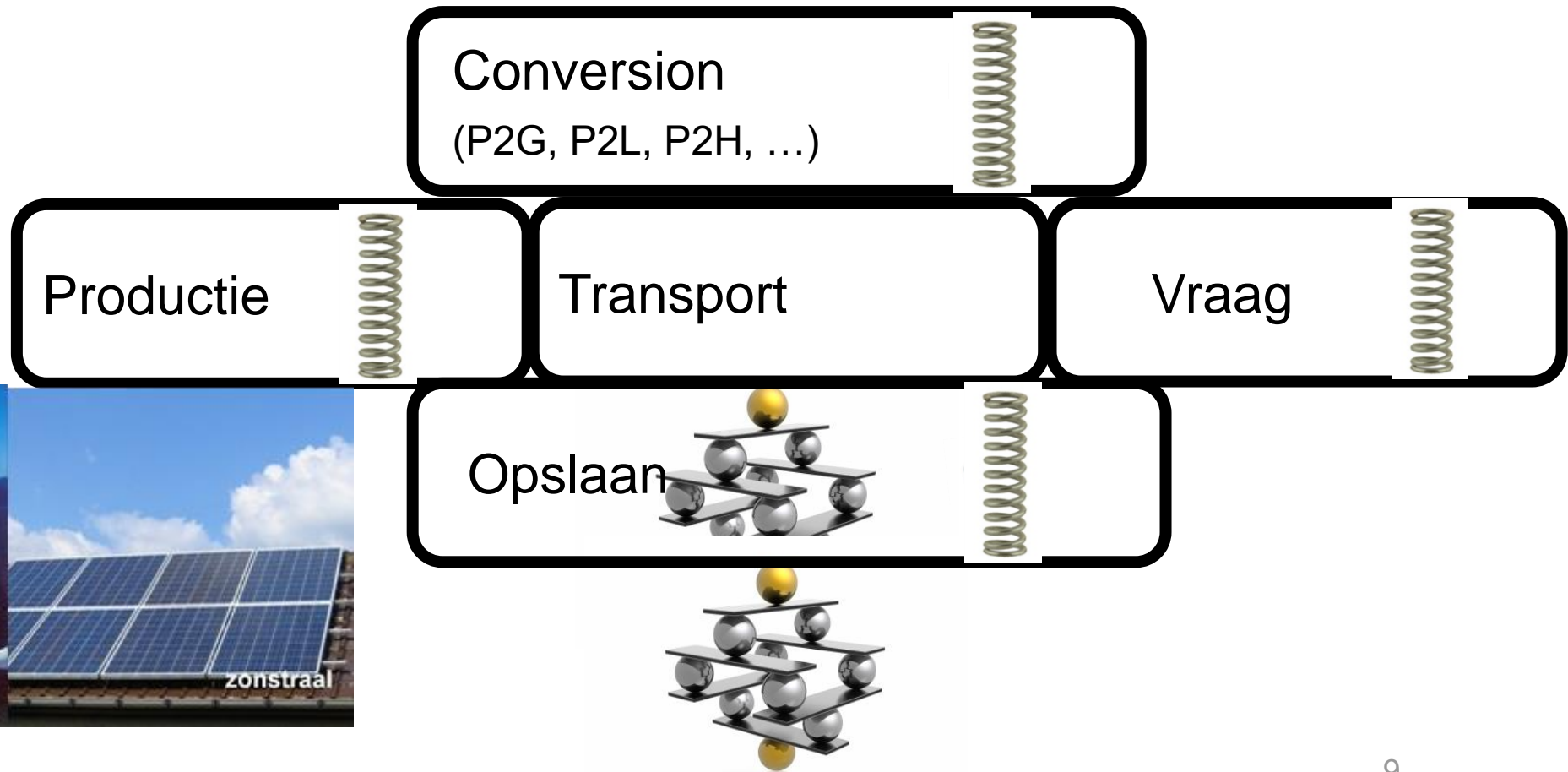
## Dalende prijzen

Renewable technologies LCOE<sup>1</sup> in Germany, Index of 2010 value

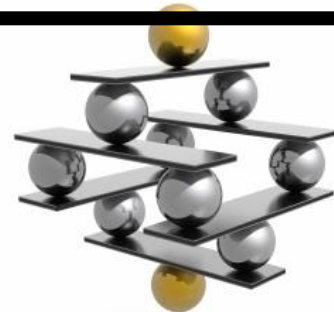
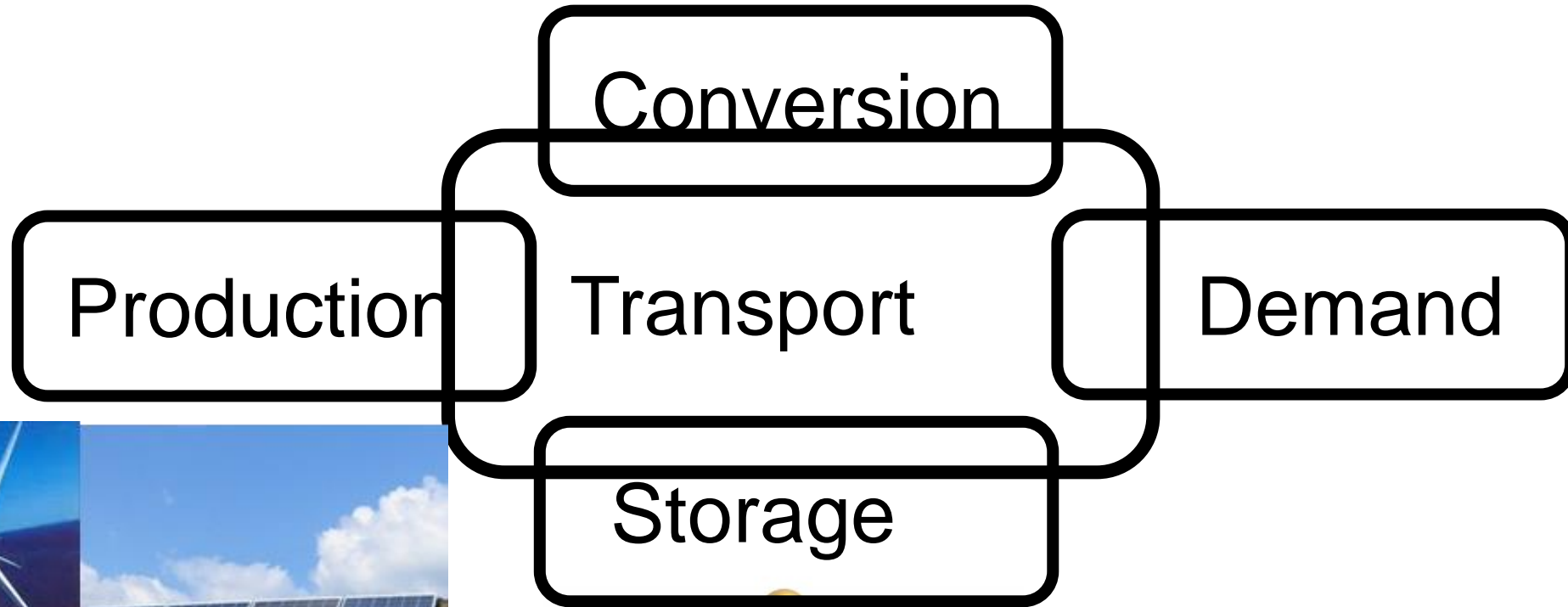




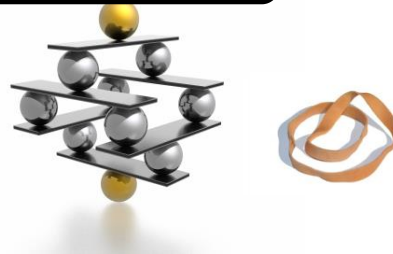
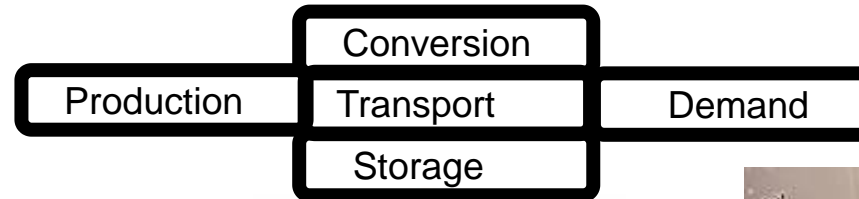
# Flexibility - Balance



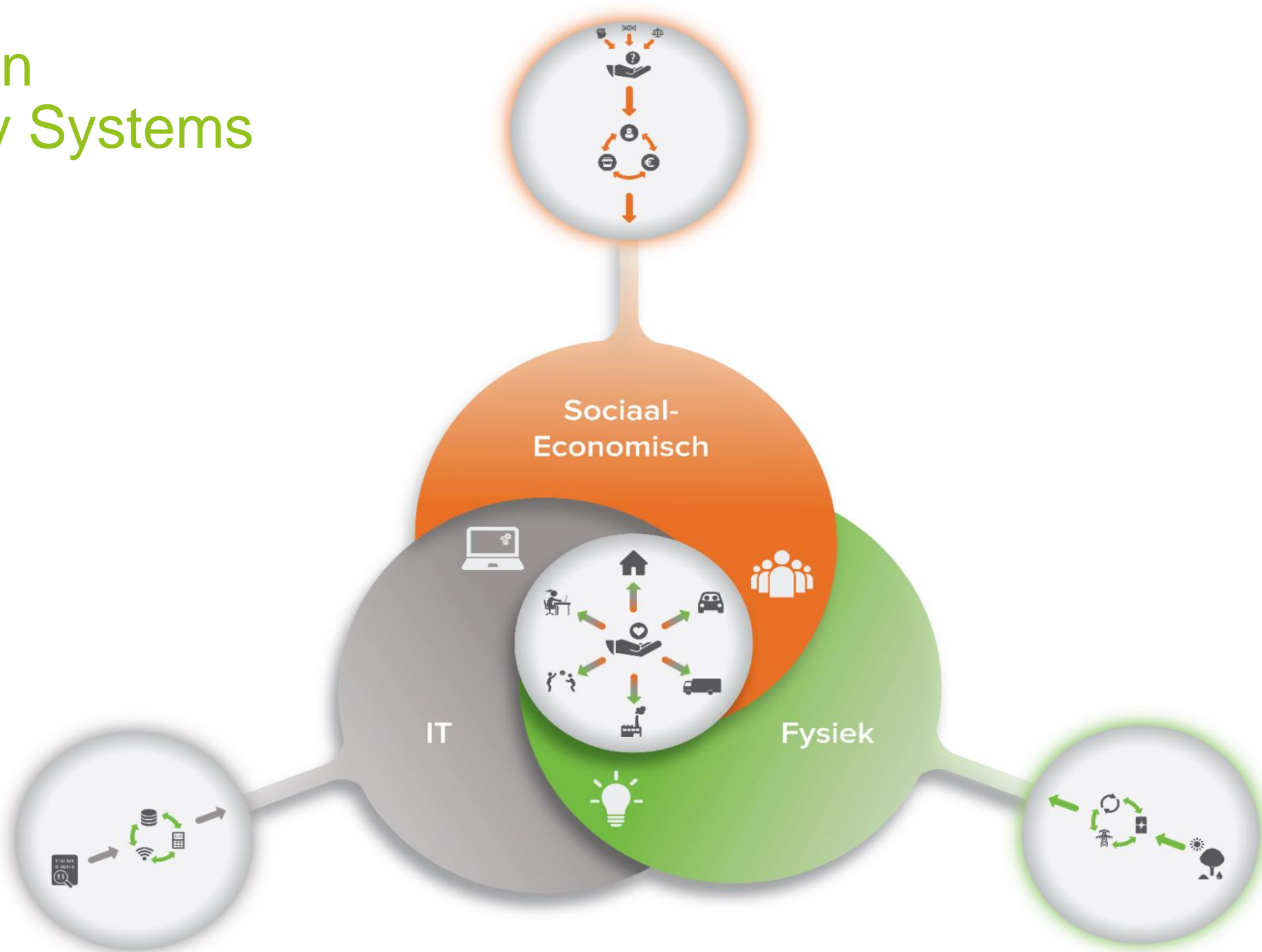
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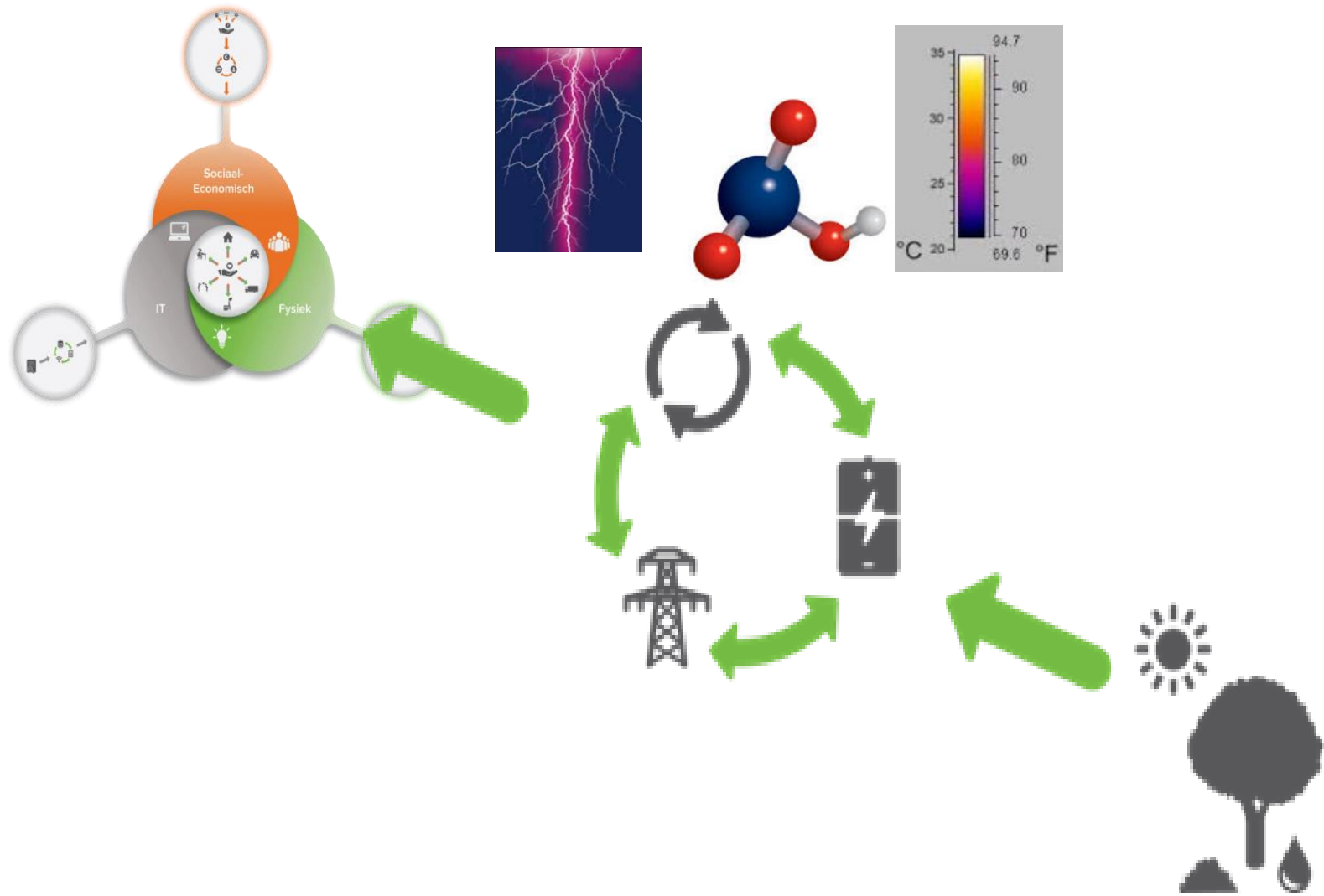
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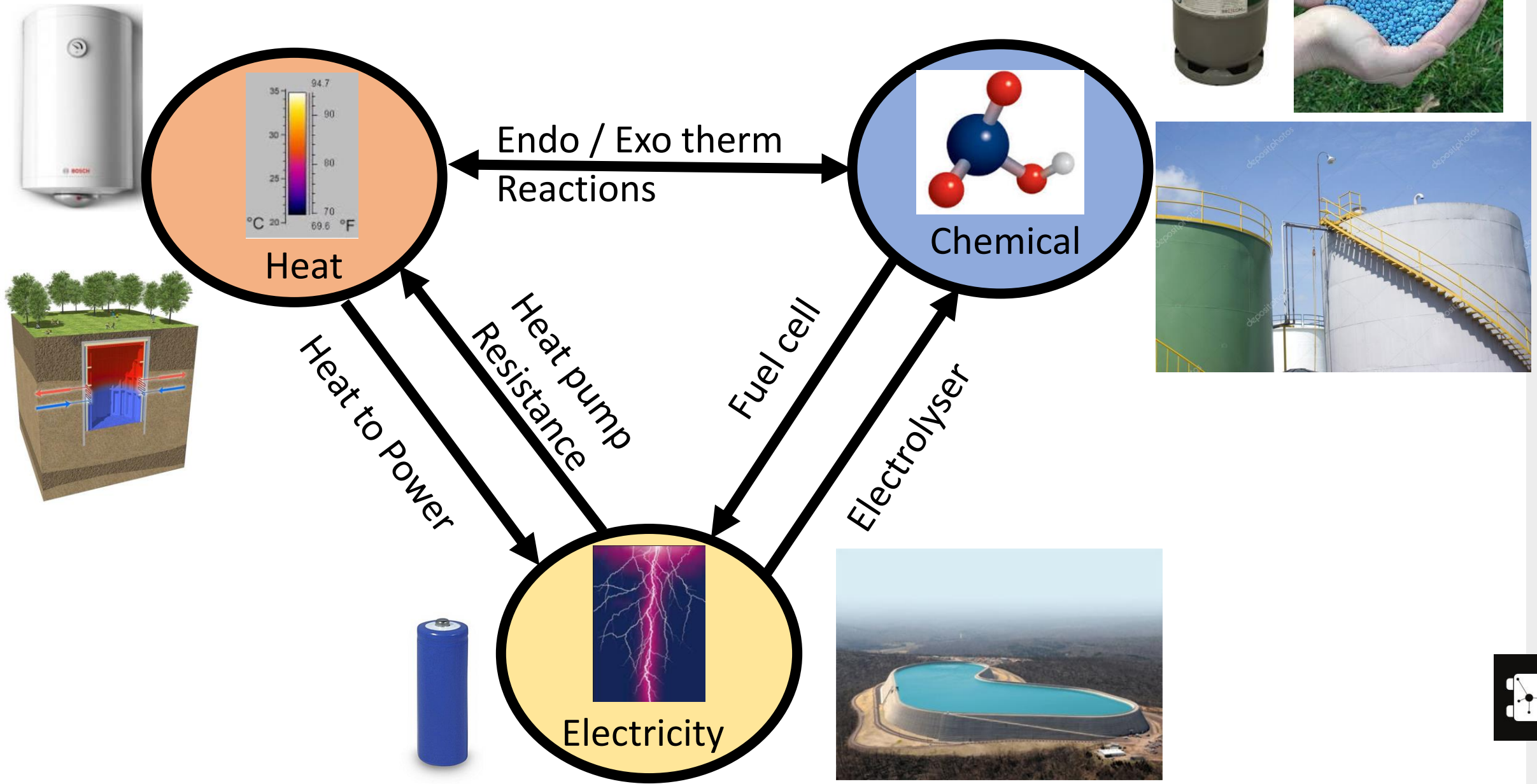
# View on Energy Systems







# Modern Energy Storage in future systems



# Values electricity storage



Motorisation hybride Toyota Prius



TRONQ Jean-Marc



Optimizing production

