



# SMART SECTOR COUPLING: FUTURE PICTURE AND START OF IMPLEMENTATION

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# POWER-TO-GAS – AN ECONOMICALLY VIABLE OPTION

Using the power-to-gas technology supplemental to the electric infrastructure in an overall optimized energy system has benefits in comparison to an all-electric system:

**Negative** CO<sub>2</sub> avoidance costs of

15 €/t  
to 25€/t

Accumulated economic  
**savings** until 2050 of

up to  
€2  
trillion

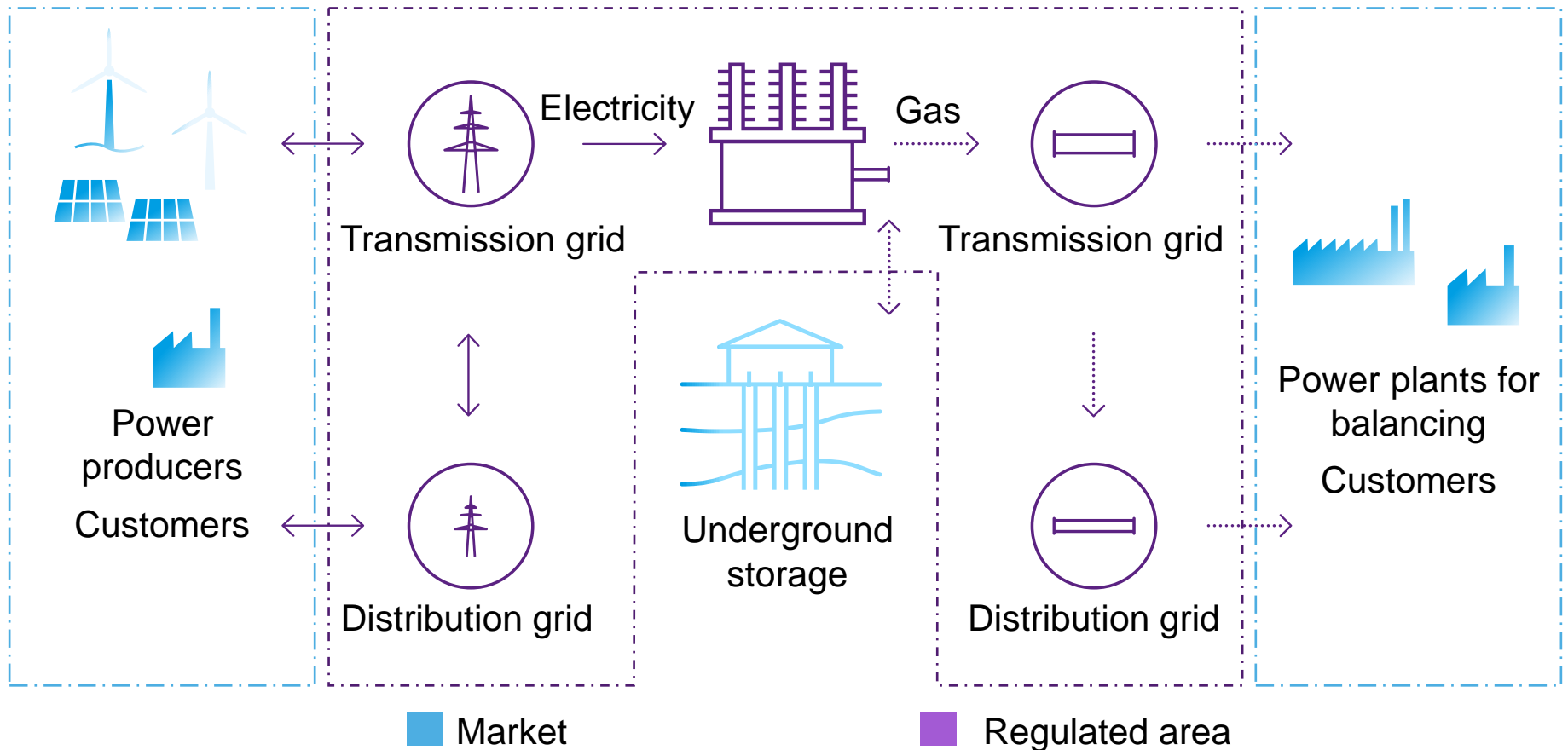
➤ Study and management summary can be downloaded here:

[www.amprion.net/Sektorenkopplung](http://www.amprion.net/Sektorenkopplung)

[www.open-grid-europe.com/sektorenkopplung](http://www.open-grid-europe.com/sektorenkopplung)

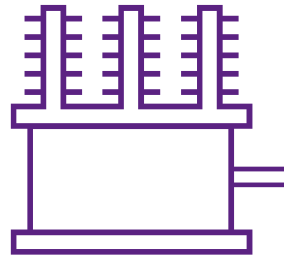
# ELECTROLYZERS AS SECTOR TRANSFORMERS

## ELECTRICITY      SECTOR TRANSFORMER      GAS



# SECTOR TRANSFORMERS WITHIN THE REGULATORY FRAMEWORK

## SECTOR TRANSFORMER



How does the sector transformer fit in the regulatory framework?

- Non-discriminatory third-party access will be granted
- Auctioning of the capacity of the sector transformer



- Auction similar to the disposal of transmission rights and capacities in Europe
- Comparable to the activities of the Joint Allocation Office (JAO) and PRISMA



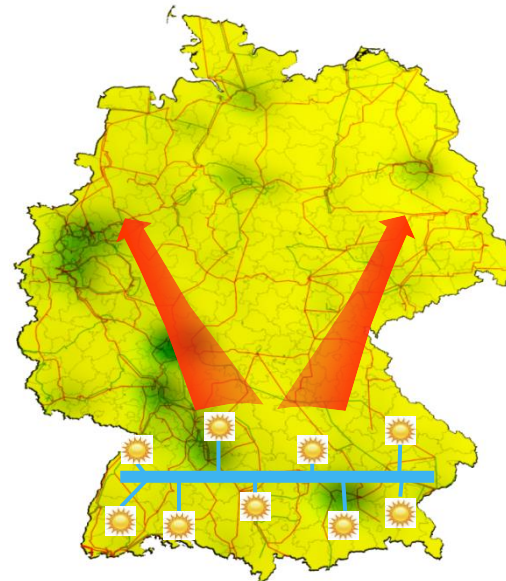
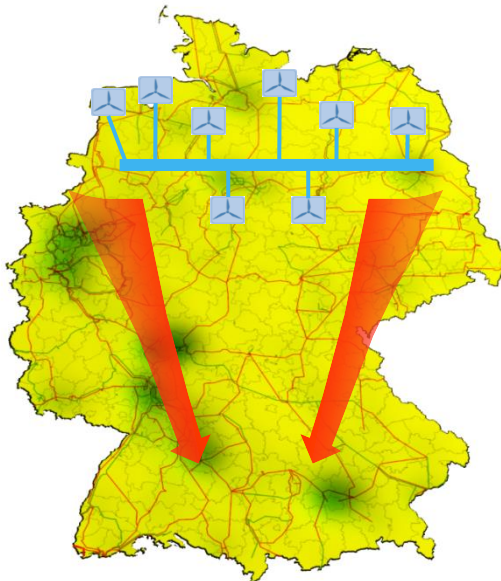
# PLACEMENT OF SECTOR TRANSFORMERS IS CRUCIAL

- Sector coupling at the highest system level enables economic benefits and sustainability: TSO need to manage size, location and technical operation of the units.
- Place sector transformers to make the best use of different RES for long operating hours.

Windy days are rarely sunny...

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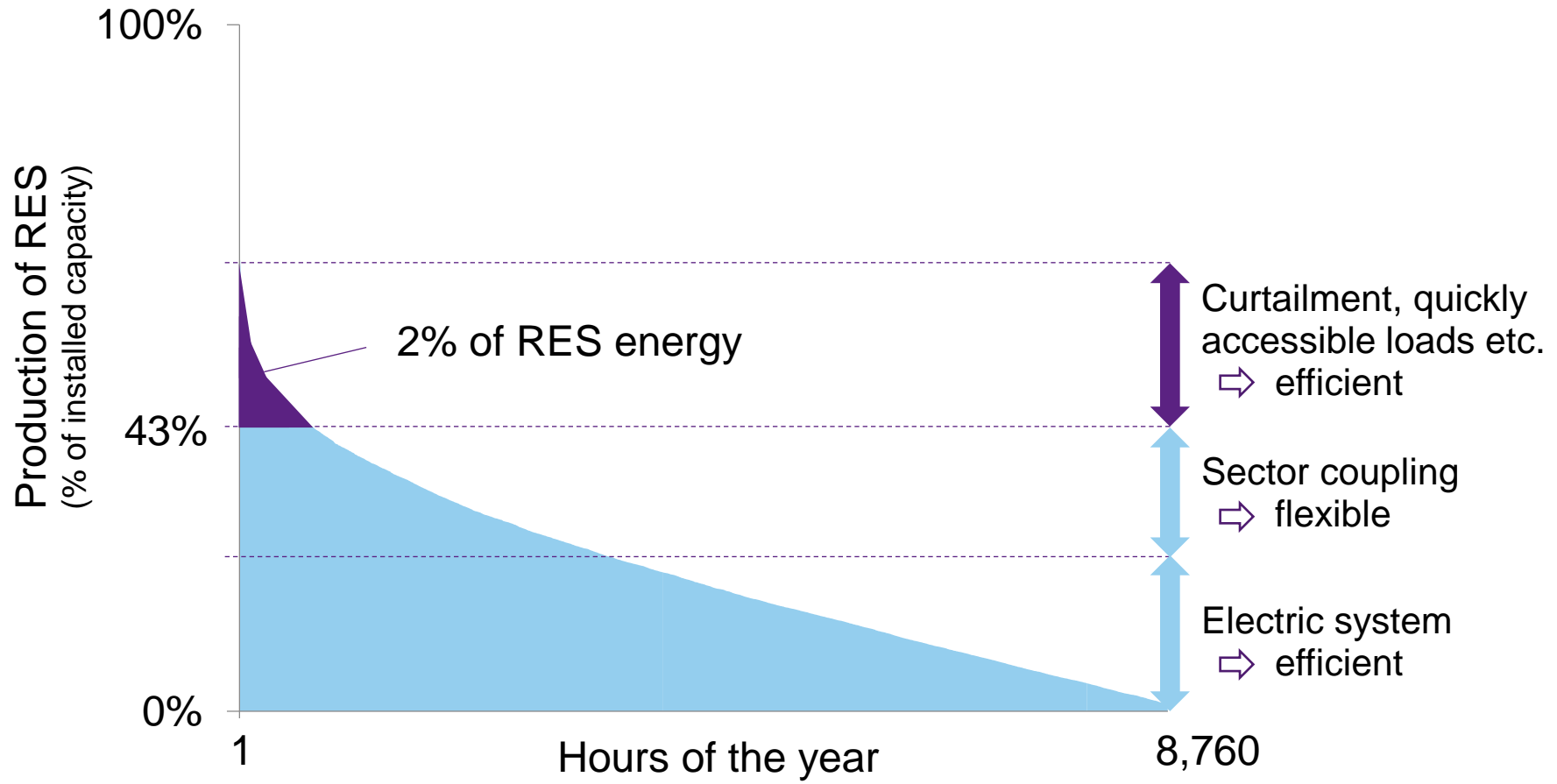
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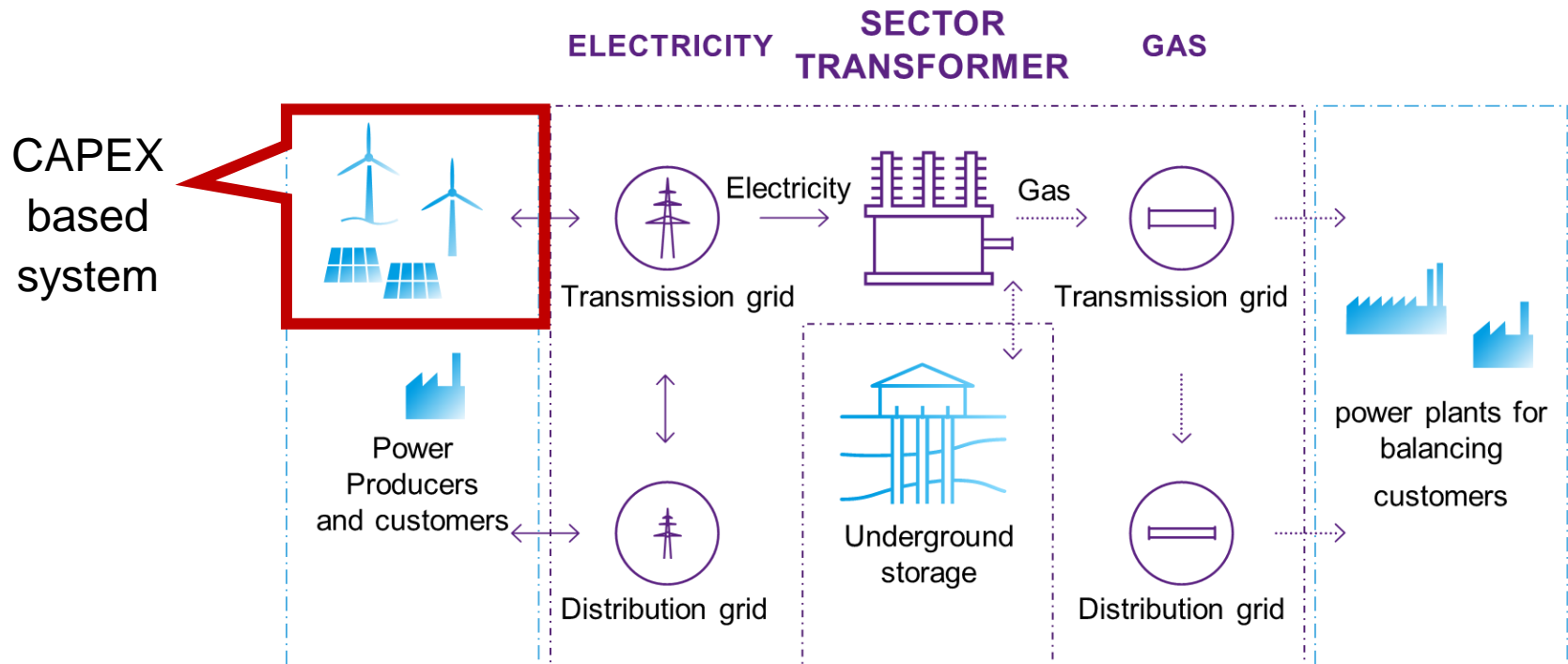
- Place sector transformers to make the best use of electricity and gas infrastructure.

# MOST EFFICIENT INTEGRATION OF RES INTO THE ENERGY SYSTEM

- Simplified demonstration of the idea based on a RES duration curve:



# POWER-TO-GAS IN A GLOBAL PERSPECTIVE



- Cost structure of RES and power-to-gas is similar worldwide.
- Efficiency of the overall system depends on the availability of competitive RES.
- Due to global competition:

Time to take action is now if Europe wants to be a major player!

# THE IMPLEMENTATION HAS TO START NOW

Germany alone needs an upscaling of more than 500 times of today's unit capacity until 2030:

- Start now
- Develop political and regulatory framework parallel to the initial large-scale project with policy makers and stakeholders



Electric power  
50 – 100 MW



Total investment  
€100 – €150 million



Commissioning  
2023



**THANK YOU FOR YOUR ATTENTION.**

**FOR MORE INFORMATION ABOUT THE PROJECT VISIT:**

**[WWW.AMPRION.NET/SEKTORENKOPPLUNG/](http://WWW.AMPRION.NET/SEKTORENKOPPLUNG/)**

**[WWW.OPEN-GRID-EUROPE.COM/SEKTORENKOPPLUNG/](http://WWW.OPEN-GRID-EUROPE.COM/SEKTORENKOPPLUNG/)**