

# Global Trends and Initiatives in Energy Transformation

ICCI 2023

15:30-16:00

24 May 2023

Istanbul, Turkey

Hans Korteweg, Managing Director, COGEN Europe &  
Executive Director, COGEN World Coalition





# COGEN World Coalition (CWC)

An Introduction

# Mission

The COGEN World Coalition (CWC) aims to create and expand a global community of firms, companies, institutions and people focused and interested on cogeneration/CHP. We advocate for an efficient and sustainable use of energy. Acting as the global reference point for the sector, we are supporting the sustainable growth of continents and countries that have only recently entered this specific market and that are developing this technology already mature and widely used in different areas of the world.

The background of the right side of the slide is a photograph of an industrial facility, likely a cogeneration plant. It shows a complex network of pipes, valves, and large industrial motors. The image is overlaid with a semi-transparent blue filter. The text "Building a resilient, decentralised and carbon neutral global energy system." is superimposed on this background. The words "resilient", "decentralised", and "carbon neutral" are each enclosed in a colored rectangular box: yellow for "resilient", red for "decentralised", and green for "carbon neutral". The words "Building a" and "global energy system." are in white text on a dark blue background.

Building a **resilient**,  
**decentralised** and  
**carbon neutral** global  
energy system.

# Aims



To create and foster dialogue with relevant intergovernmental organizations including the United Nations (UN), International Energy Agency (IEA), World Trade Organisation (WTO), World Bank, International Monetary Fund (IMF), etc.



To support initiatives in order to lobby policymakers and regulators; to exchange, discuss and develop positions on issues of common interest including energy efficiency, climate change, sustainable development, financing and more.



To connect companies, entrepreneurs, associations and professionals active in the field of energy efficiency; to exchange information and experiences related to cogeneration technology; to promote a wider use of cogeneration worldwide.



To support the establishment and development of national and continental associations/ networks linked to cogeneration.



# Members

## National Associations



## Corporate



# Vision





# Recent News



## **COGEN World Talks: Industrial Cogeneration Around The World (FREE webinar on 13 June 2023 at 14:00 CEST)**

The COGEN World Coalition presents the 2nd edition of its 'COGEN World Talks' series of webinars, focusing on the use of cogeneration technologies in industrial applications. The webinar will take

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19/05/2023



## **Thomas Smith begins term as President of the COGEN World Coalition**

Thomas Smith has been elected President of the COGEN World Coalition (CWC), effective May 2023. He takes over this role from the CWC's first President, David Gardiner. The CWC will

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15/05/2023



## **COGEN World Coalition expands membership to include national industry associations in Germany, India and Japan**

The COGEN World Coalition, which was established in April 2021 to promote the benefits of cogeneration globally, is proud to announce the addition of 3 new members. These are: ACEJ

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15/02/2023

# CHP 360°



## Producing sustainable paper with cogeneration

Italian multinational Lucart is a European leader in the production of tissue, air-fil, and machine-glazed papers. It's also a pioneer of energy-efficient solutions in the pulp and paper industry – and waste.

[LEARN MORE](#)



## Making Mexican farms more sustainable with biogas cogeneration

Rancho La Brea Apaxtepec is a dairy cattle farm and milk production plant in Mexico. Its owners installed a biogas production unit and cogeneration system to make their production and

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## Heating and powering local communities in Italy with CHP and biomass

Farmholzwerk Toblach-Itzichen in South Tyrol, Italy, operates a biomass plant in which wood chips, bark, and residues are fed to a combustion boiler to produce thermal energy. CHS member Turboden

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## From olives to energy

The Agresti family, in Andria, Apulia, has been producing superior quality extra virgin olive oil for more than three generations. The Agresto oil is today considered an Italian excellence, recognized.

[LEARN MORE](#)



## Quenching your thirst with CHP

Spruzovic, an Italian beverage company owned by the Raffaele brand, is based in Italy and consists of five production facilities. The main one is in Cavalese di Pieve, where around

[LEARN MORE](#)



## Producing biofuels with cogeneration in Malawi

ProsoCase Limited is an ethanol distillery in Malawi and its cogeneration plant, provided by CHS member Clark Energy, will generate its renewable electricity and power with biogas produced from a

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## Cows and CHP driving the energy transition

Clark Energy USA and BioTown Biogas Work on First Project to Diversify Energy Portfolios into Renewable Natural Gas (RNG). The project will help to reduce emissions from the farms and

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## CHP = Cucumbers with Heat and Power

The AGR Glasshouse and Energy Centre in the United Kingdom has a massive surface of 317,000m<sup>2</sup>, and will be able to grow 10% of the cucumbers consumed in Britain. It

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# COGEN World Talks Webinar Series

COGEN  
World Talks



# COGEN EUROPE

## An Introduction



**COGEN**  
EUROPE

# Members

## National Associations



## Corporate Members




# Our Vision

The cogeneration sector is committed to creating a resilient, decentralised, carbon neutral European energy system by 2050, with cogeneration as its backbone:



**empowering European citizens and industry to generate their own efficient, reliable and affordable clean heat and power locally**



**bringing together heat, electricity and gas networks, allowing the efficient integration of substantial amounts of renewable energy and providing energy when and where needed**



**enabling an integrated energy system and a cost-effective transition towards a sustainable future**

## Overview of CHP Globally



# COGEN World Talks: “First Global Market Report on CHP”



COGEN  
World Talks






**LAUNCH OF THE FIRST GLOBAL MARKET REPORT ON COGENERATION**

**Webinar Series Theme:** COGEN World Talks  
**Platform:** Zoom (virtual)  
**Moderator/Facilitator:** Hans Korteweg, Executive Director, COGEN World Coalition  
**Date:** 17 November 2022  
**Timing:** 14:00-16:00 CET

**Programme**

14:00 – 14:05	Welcome/Introduction: David Gardner, President, COGEN World Coalition
14:05 – 14:30	Presentation of CWC's First Global Cogeneration Market Overview: Simon Minnett, Managing Director, Chalco Energy
14:30 – 15:30	Snapshot of Cogeneration Around the World: <ul style="list-style-type: none"> <li>- European Market Overview: Alexandra Tudoroiu, Head of Policy, COGEN Europe</li> <li>- U.S. Market Overview: David Jones, ICH</li> <li>- Brazilian Market Overview: Newton Duarte, Executive Vice President, COGEN Brazil</li> </ul>
15:30 – 15:55	Q&A
15:55 – 16:00	Closing Remarks: Hans Korteweg, Executive Director, COGEN World Coalition

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 Rue de Atom 10, 1090 Brussels, Belgium





COGEN  
World Talks

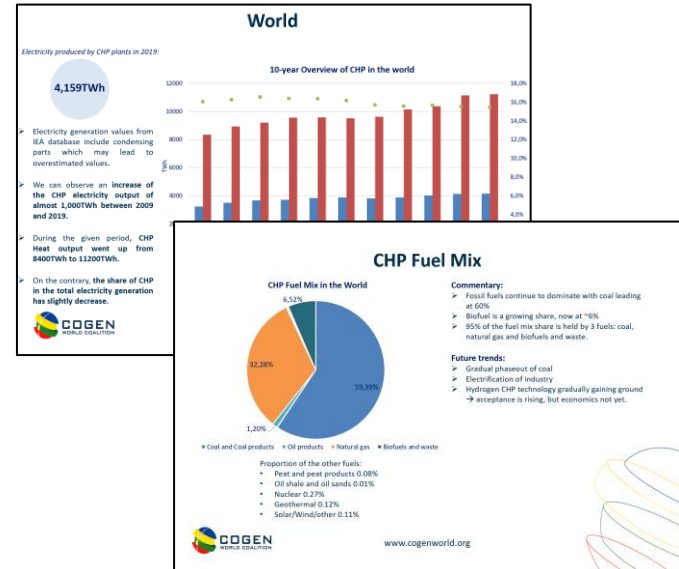





**Free Online Event**

**COGEN World Talks: Launch of the First Global Market Report on Cogeneration**

**Thursday, 17 November 2022**  
**14:00 - 16:00 CET (UTC+1)**





# World

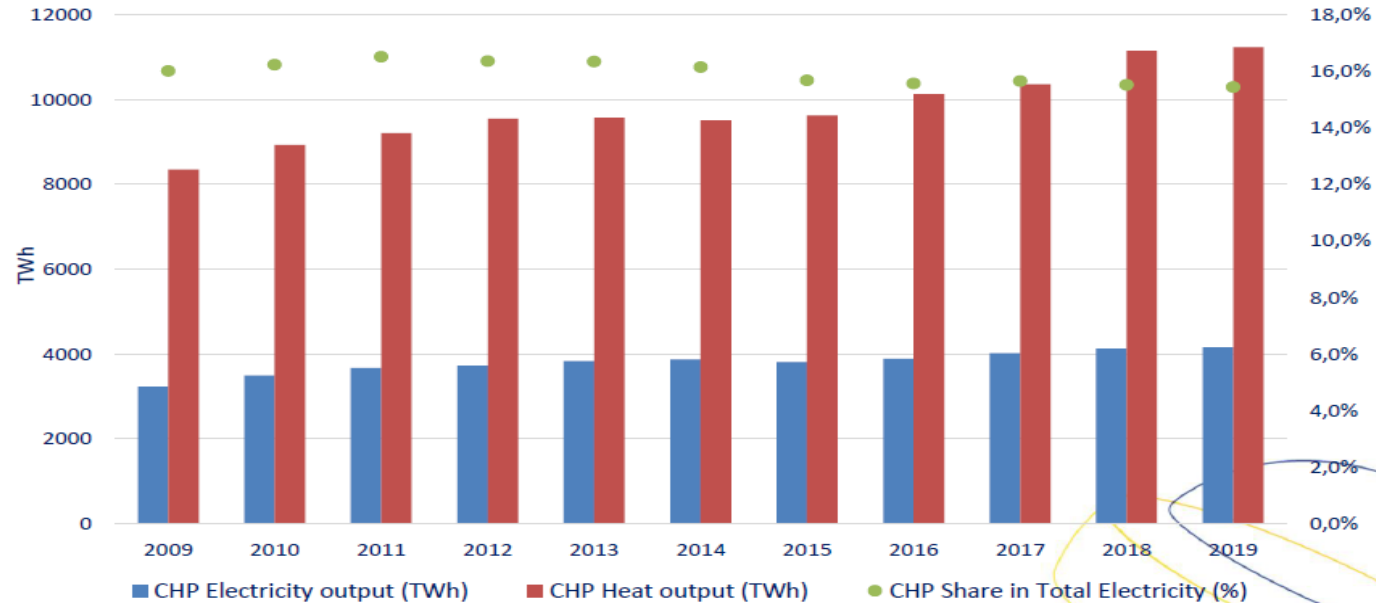
Electricity produced by CHP plants in 2019:

4,159TWh

- Electricity generation values from IEA database include condensing parts which may lead to overestimated values.
- We can observe an **increase of the CHP electricity output of almost 1,000TWh between 2009 and 2019.**
- During the given period, **CHP Heat output went up from 8400TWh to 11200TWh.**
- On the contrary, **the share of CHP in the total electricity generation has slightly decrease.**

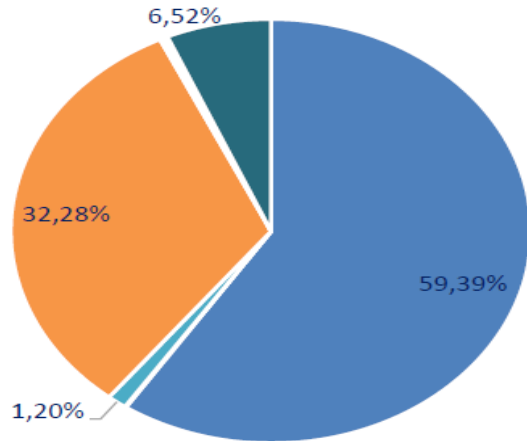


10-year Overview of CHP in the world



# CHP Fuel Mix

CHP Fuel Mix in the World



■ Coal and Coal products ■ Oil products ■ Natural gas ■ Biofuels and waste

Proportion of the other fuels:

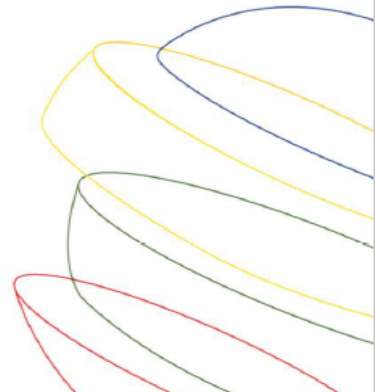
- Peat and peat products 0.08%
- Oil shale and oil sands 0.01%
- Nuclear 0.27%
- Geothermal 0.12%
- Solar/Wind/other 0.11%

## Commentary:

- Fossil fuels continue to dominate with coal leading at 60%
- Biofuel is a growing share, now at ~6%
- 95% of the fuel mix share is held by 3 fuels: coal, natural gas and biofuels and waste.

## Future trends:

- Gradual phaseout of coal
- Electrification of industry
- Hydrogen CHP technology gradually gaining ground  
→ acceptance is rising, but economics not yet.



# Current and Future Trends of the CHP Market

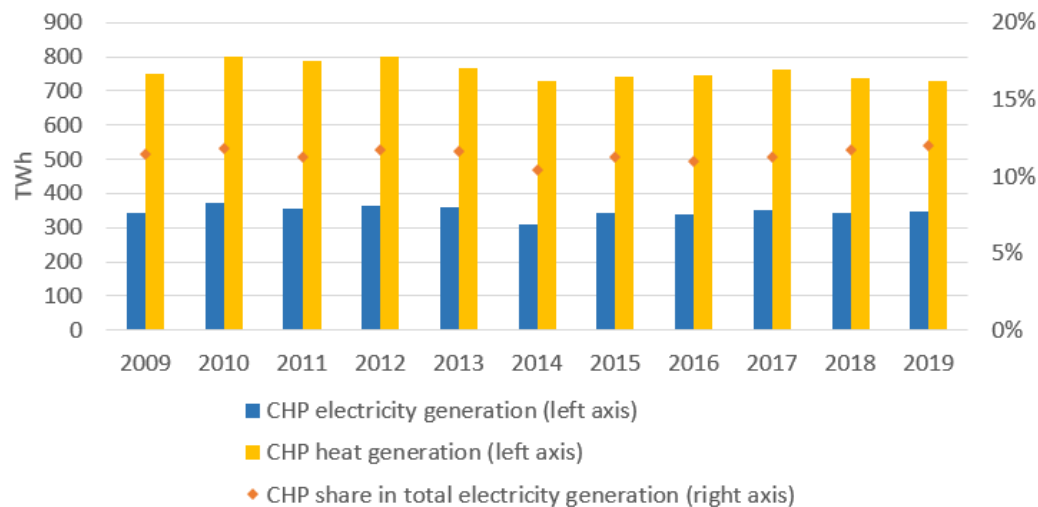
	Geography	Technology	Fuel	Size	End-Users
Current situation	<p>Asia Pacific accounted for a 55.7% share of the CHP market in 2020.</p> <p>Europe and North America have also a developed CHP market.</p>	<p>Gas and steam turbines are the two main technologies on the market.</p>	<p>Natural gas and coal are currently the most used fuels in the world.</p>	<p>Large capacity plants dominate the market because of the important use of CHP in the industrial sector.</p>	<p>Industries such as chemicals or pulp and paper are currently the main end-users of cogeneration.</p> <p>Commercial and residential facilities (hospitals, universities, district heating) in lesser measure.</p>
Forecast	<p>Growth in India and China due to the industrial expansion and technological innovations.</p> <p>A growth in South America, particularly in Brazil, is expected to continue.</p>	<p>Fuel cells are expected to be increasingly used in the next years, as it is a technology with clean by-products (water and heat).</p> <p>Micro-CHP fuel cell have already emerged on the market. Larger CHP fuel cells begin to be installed in the US, Japan and South Korea.</p>	<p>A transition from coal-based generation to cleaner powered generation is assumed. Gas should still have an important part to play because of its relatively low greenhouse emissions compared to other fuels. However, some part of the world such as the EU are establishing greenhouse emissions regulations which could be a barrier for new CHP running on fossil fuels.</p> <p>Consequently, it is expected to observe an increase of the use of renewable resources like solar, geothermal or biofuels.</p> <p>Hydrogen should experience a rapid growth linked to the fuel cell emergence in the CHP sector.</p>	<p>High demand for up to 10MW capacity from residential and commercial end-users.</p> <p>Use of Micro-CHP to replace domestic boilers.</p>	<p>Increase in the commercial and residential CHP installations: CHP as a key technology for city and district level utilities. Power or Heat produced by utilities can be used on-site, distributed to the local facilities or transmitted to the grid/district heating.</p>

## Overview of CHP in Europe

# CHP in Europe - Overview

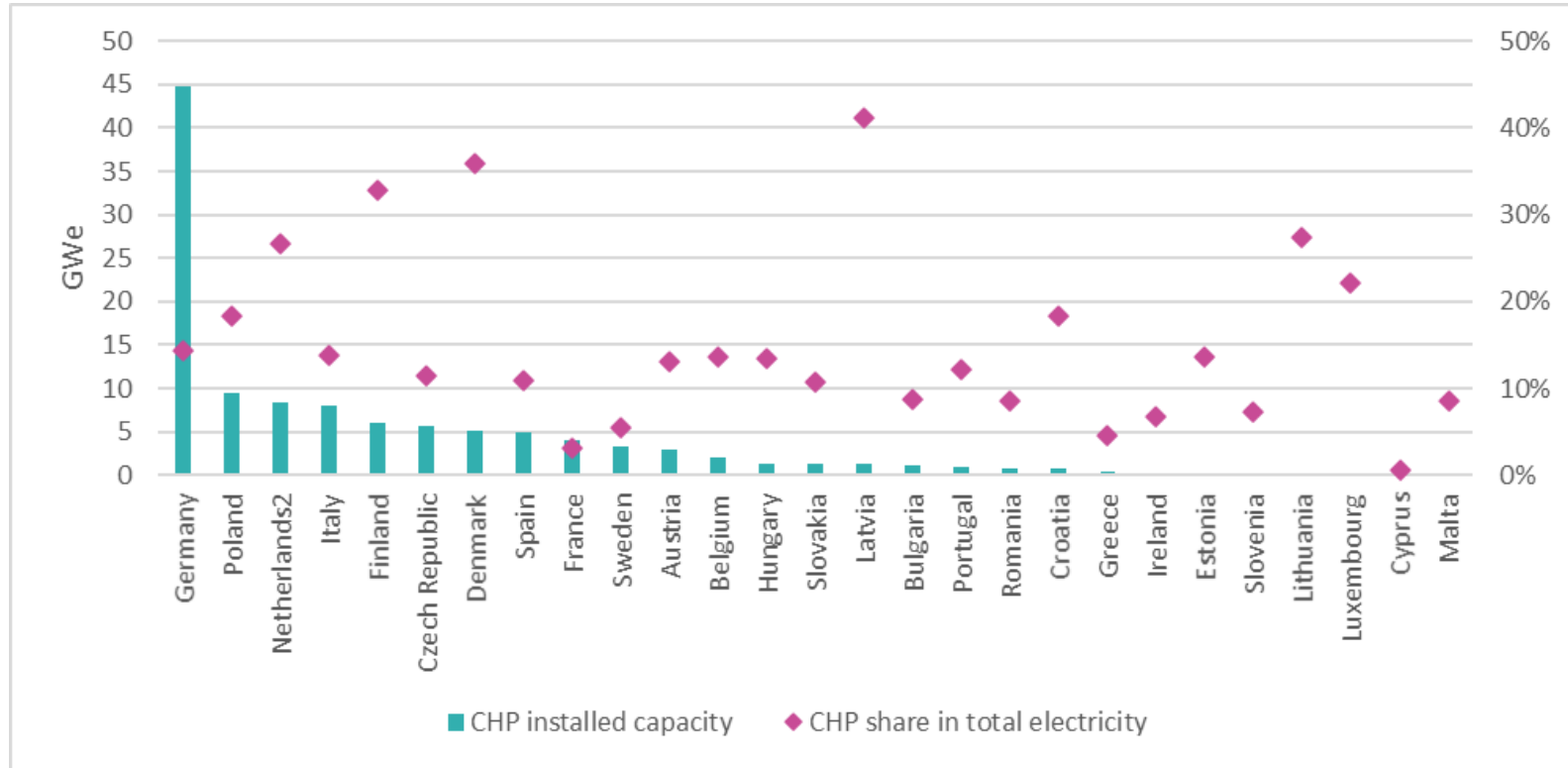
- 113 GWe of high efficiency CHP installed in 2019.
- CHP represents 12% of total electricity and ~14% of the heat in EU27, with potential for it to double by 2030.
- CHP across the EU reduces up to 150 Mt of CO<sub>2</sub> & ~30 Mtoe of primary energy today (equivalent to the emissions of ~90 million cars).

CHP in EU27 (2009-2019)



Source: Eurostat (2021).

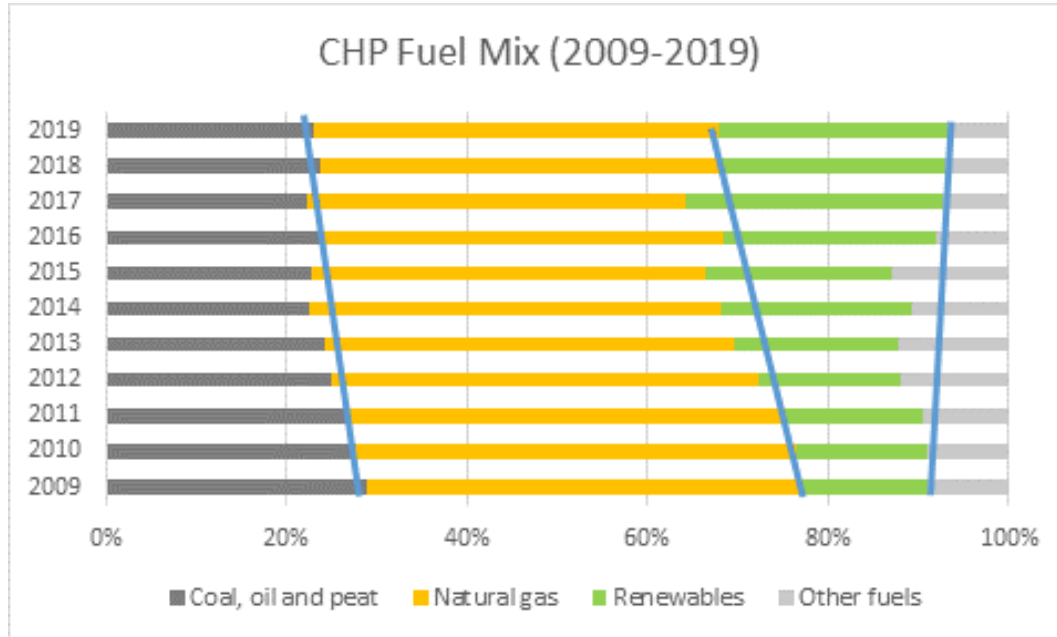
# CHP by Country in 2019



Source: Eurostat (2021).



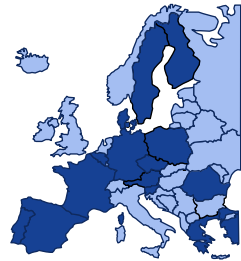
# Cogeneration Fuel Mix



Source: Eurostat (2021).

CHP fuel mix influenced by fuel price dynamics, support schemes and availability of renewable fuels at local level.

- Stable share of natural gas use in CHP.
- Rapid increase of RES, reaching close to 26% in 2019 (from 13% in 2009).
- Steady decline in solid fossil fuels and oil use in CHP.



Expert contributions from **16** CHP national experts...

## 2022 Cogeneration National Snapshot Survey

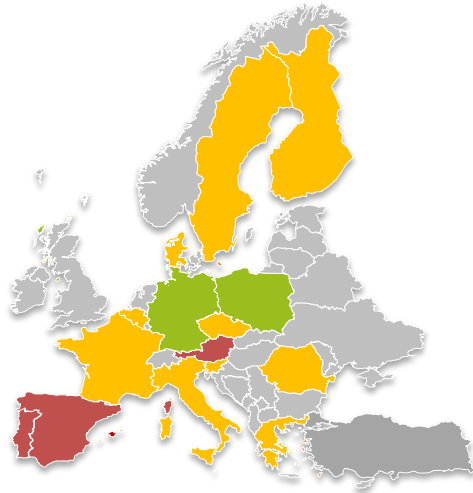
...representing **90%** of installed capacity **in EU27 & Turkey**

...capturing the **European CHP industry sentiment**

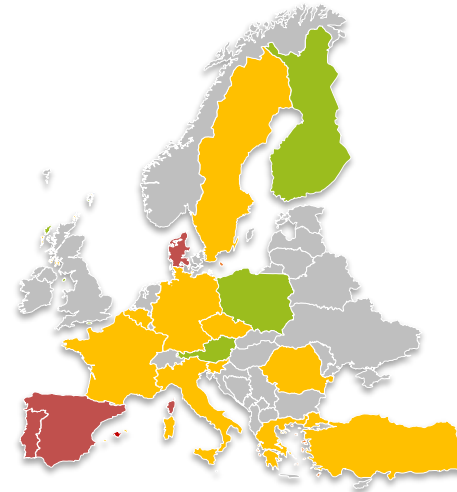
# CHP Market Developments in Europe

(2020-2021)

CHP Installed Capacity



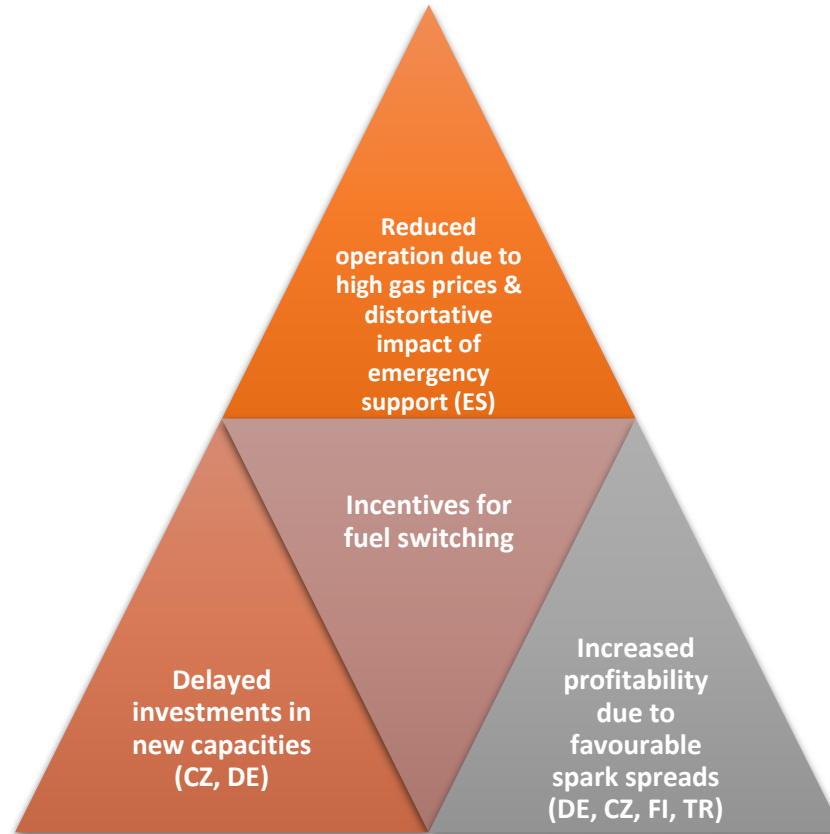
CHP Electricity Production



- CHP installed capacity growth in ~50% of markets & generation stable in 62% of markets
- Growth segments included natural gas & RES CHP, across industry & commercials sectors

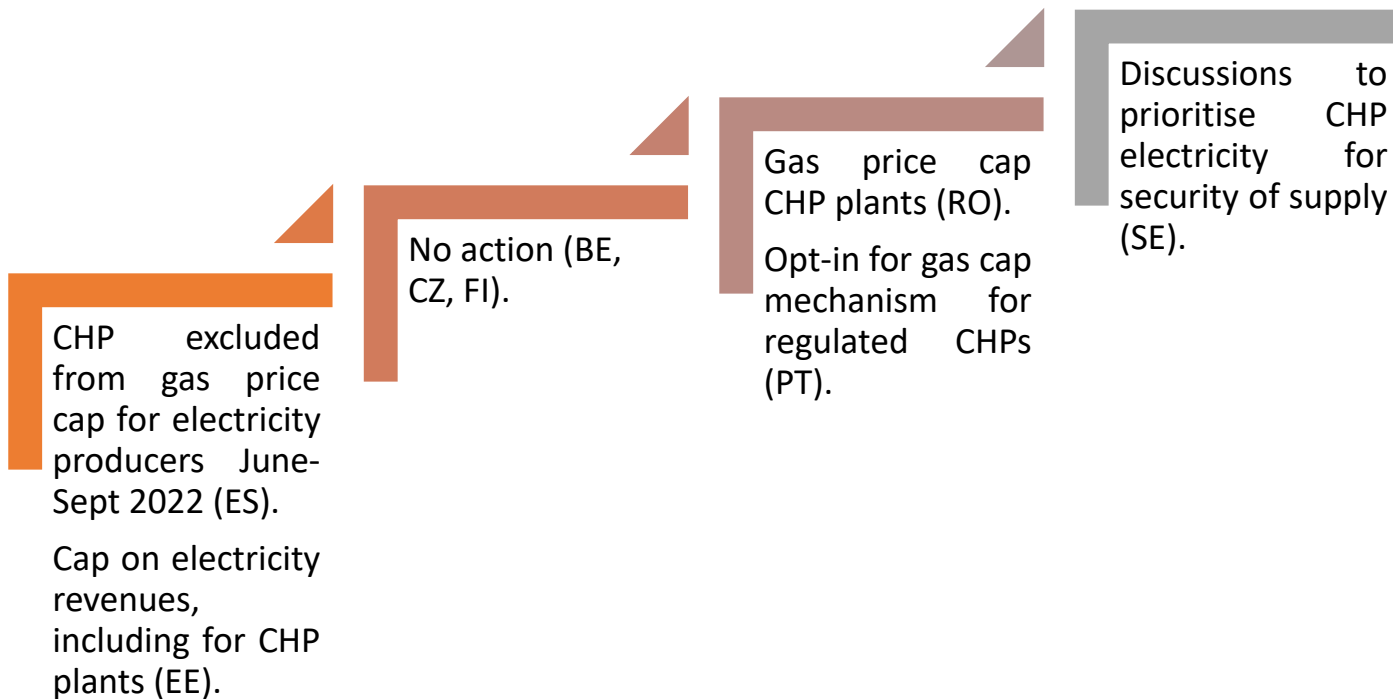
\* Percentages on all slides represent the aggregated answers weighted by the installed capacity in each country.

# Impact of Energy Price Crisis on CHP Sector



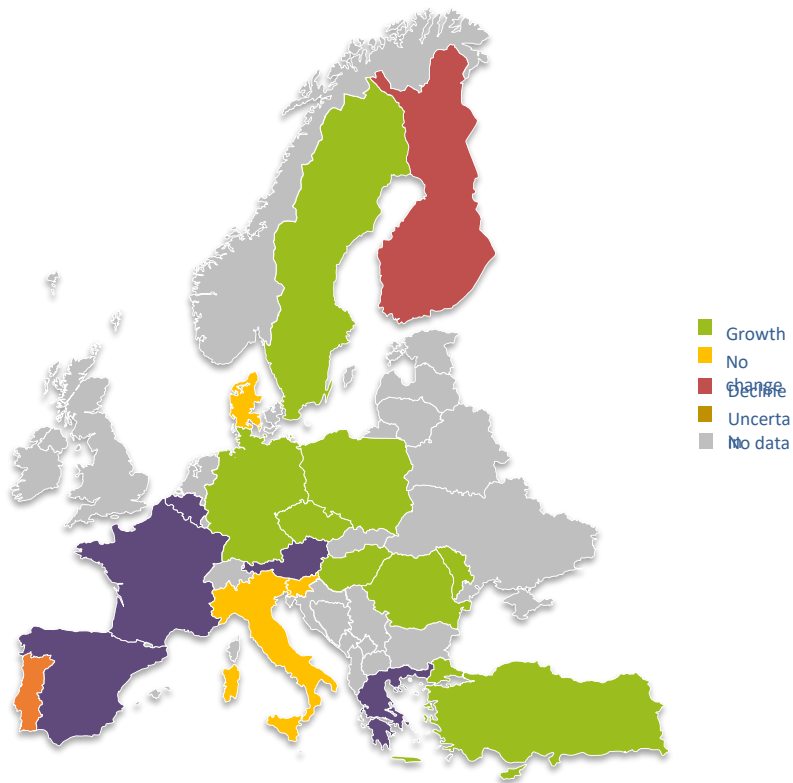
# 2022 Emergency Market Interventions

## Patchy Approach on CHP



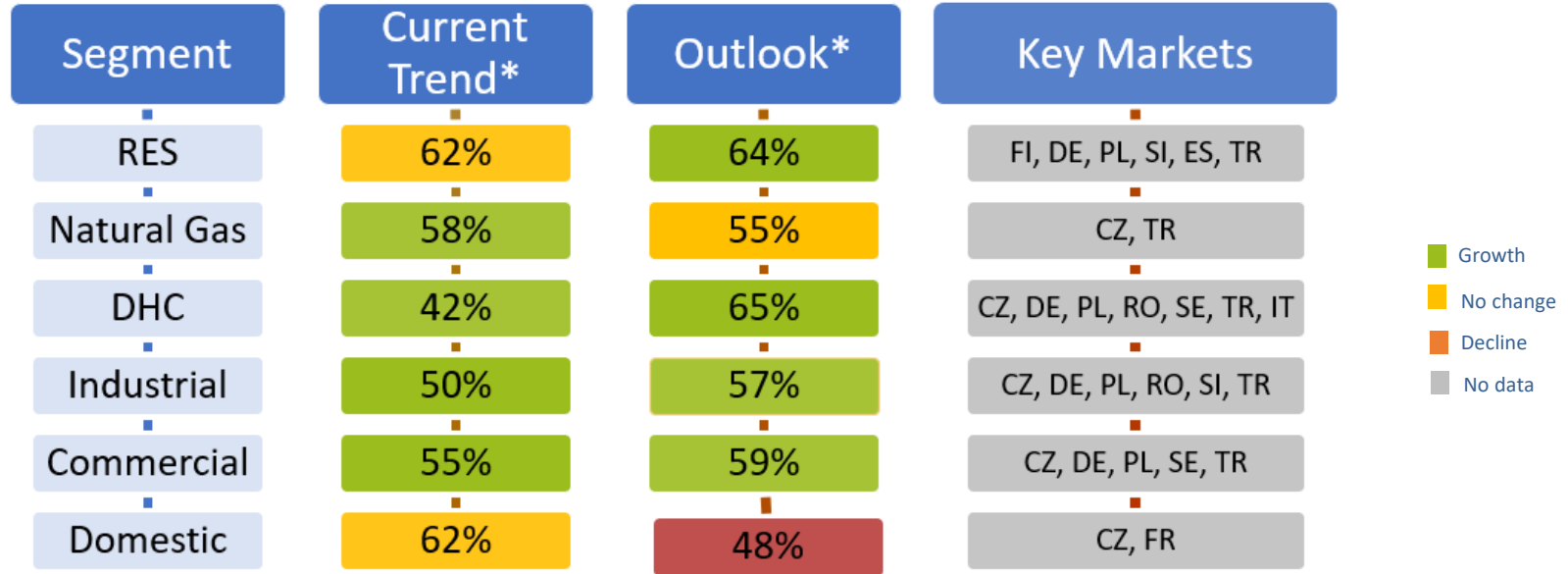
# 5-year CHP Outlook

Growth expected in **60% of the CHP markets** in Europe, in the next 5 years.





# CHP Growth Trends by Segment



# COGEN Europe Annual Conference & Gala Awards Dinner

29 June 2023 | Brussels

COGEN EUROPE



Promoting the benefits of  
cogeneration since 1993



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### Keynote speeches from

European Commission  
European Parliament  
Presidency of the Council of the EU  
COGEN Europe

### This year's sessions

Session 1: CEO Panel Session  
Session 2: Innovations and Technologies to Future-proof CHP  
Session 3: Policy Session: Electricity Market Reform

### What's new

Fireside Chat with EU Policy Maker

THIS  
YEAR

Expecting up to  
**150**  
attendees

From across Europe, including...  
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Germany, Spain, Finland, Sweden,  
Turkey, Czech Republic, Poland,  
Hungary, Romania and the UK

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Hans van Steen, European Commission  
René Nedella, Ministry of Industry and Trade  
of the Czech Republic  
Enzo Losito Bellavigna, AB Energy  
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Platinum (Gala Awards Dinner)	€ 8,000	1	Welcome Speech at Gala Awards Dinner	Yes (large)	Yes	Yes	Yes
Gold	€ 7,000	2	CEO Session + Panel Session	Yes (large)	Yes	Yes	Yes
Silver	€ 5,500	5	Panel Session	Yes (medium)	Yes	Yes	Yes
Bronze	€ 3,500	10	-	Yes (small)	Yes	Yes	Yes
Lunch & Refreshments	€ 4,000	1	-	Yes (large)	Yes	Yes	Yes
Gala Reception	€ 3,000	1	-	Yes (medium)	Yes	Yes	Yes

\* Opportunity to disseminate marketing materials (brochures, videos, link to your website).  
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[hans.kortweg@cogeneurope.eu](mailto:hans.kortweg@cogeneurope.eu)  
if you would like to discuss sponsorship opportunities.

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WORLD COALITION

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