

Cogeneration becoming a cornerstone of our future energy system

24 April, Hannover

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COGEN

EUROPE The European Association
For the Promotion of Cogeneration

Who We Are

COGEN Europe...



...is the **European Association** representing the cogeneration sector.



...aims at promoting the **benefits and wider use of cogeneration in Europe.**



...works **together with EU Institutions, Member States and other stakeholders** to develop sustainable energy policies.



...is a **membership based organisation** with over 50 members (13 national associations and over 40 corporate members).



...was established in 1993 as a not-for-profit organisation under Belgian law.



...is based in **Brussels.**



...has a **Secretariat** of 7 staff.



COGEN Europe's Vision

"Through the promotion of cogeneration, to grow an industry which changes the way Europe provides heat and electricity for a sustainable future"

More than 50 members representing the whole supply chain

Our National Members
(representing over 75% of CHP capacity in Europe)

Belgium (Flanders)		Hungary		Slovenia	 Jožef Stefan Institute, Ljubljana, Slovenia Energy Efficiency Centre
Czech Republic		Italy		Spain	
France		Poland	<i>Kogen Polska</i>	Turkey	
Germany		Portugal		United Kingdom	
Greece					



Our Corporate Members
(covering the entire energy value chain)

How we Shape Policy

Public Affairs

-  Consultations and meetings in Brussels with EU Institutions and relevant stakeholders to present point of view of cogeneration sector.
-  Targeted Public Affairs campaigns.
-  Active involvement in Brussels stakeholder platforms such as the European Energy Forum, IDEAS, EEFIG, Decarb Europe, Brussels Electricity Club.

Projects

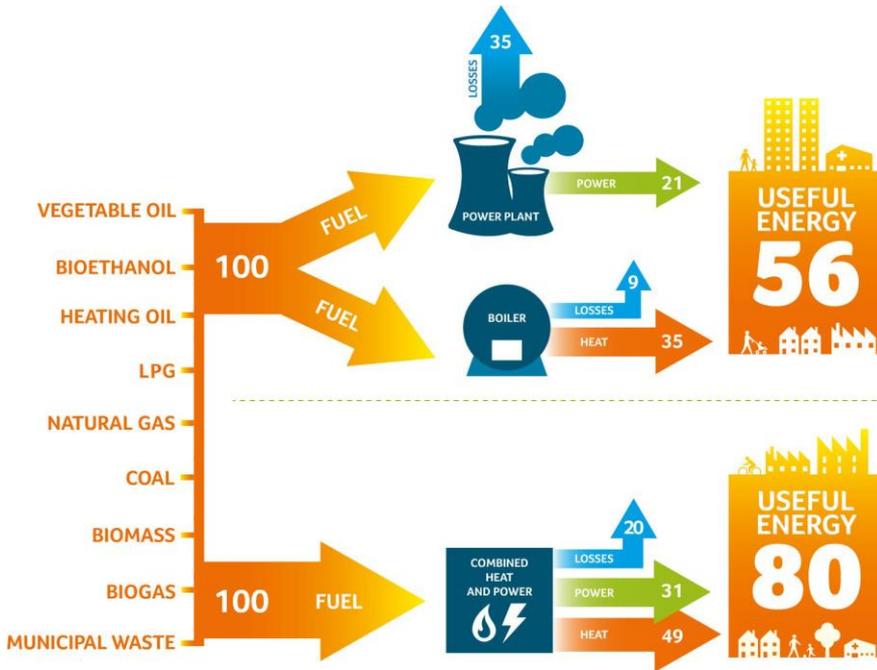
-  Managing EU co-funded projects to support further advancement and deployment of cogeneration technologies and solutions.

Information Dissemination

-  Sharing the latest cogeneration policy and Europe-wide market developments with our members.
-  Promotion of our positions and activities via relevant specialised media (Decentralised Energy, Cogeneration Channel) and social media.



Cogeneration – Efficient



- Transforms more than 80% of the energy into useful heat and electricity for industry, tertiary sector and homes.
- Saves between 15-40% energy compared to the separate supply of electricity and heat from conventional power stations and boilers.

Empowering consumers



Contributing to Europe's Competitiveness

- **100,000 people are directly employed** by the cogeneration sector.
- **Majority of refineries, paper mills and chemical manufactures use cogeneration** to produce their own efficient, secure and low-carbon electricity and heat.



Local & Flexible

Distributed

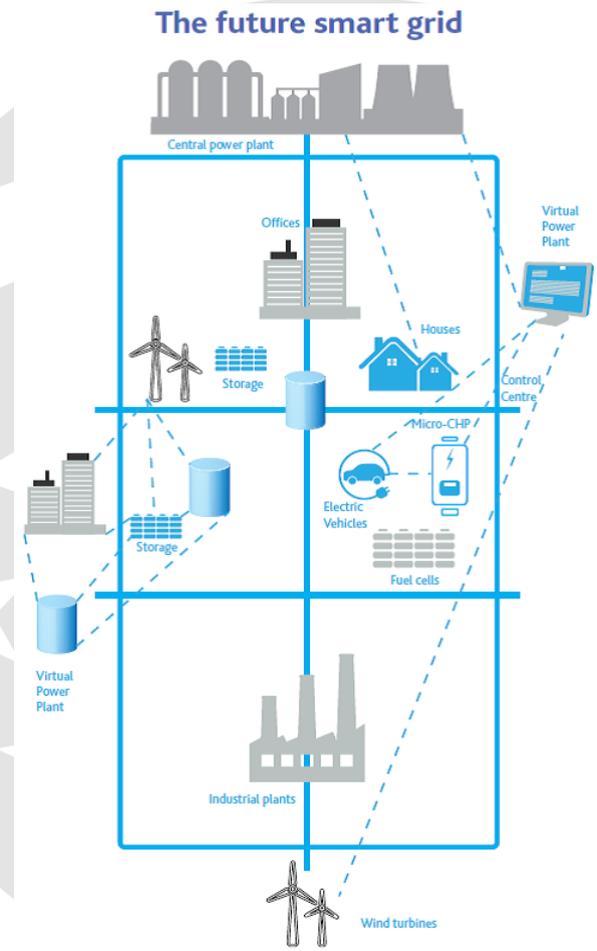
→ Located near or at the point of consumption, reducing generation and costs.

Dispatchable

→ Controllable and predictable generation patterns.

Demand Response & Smart Grids Ready

→ Can ramp up or down, making use of controls and storage, to respond to energy system needs.



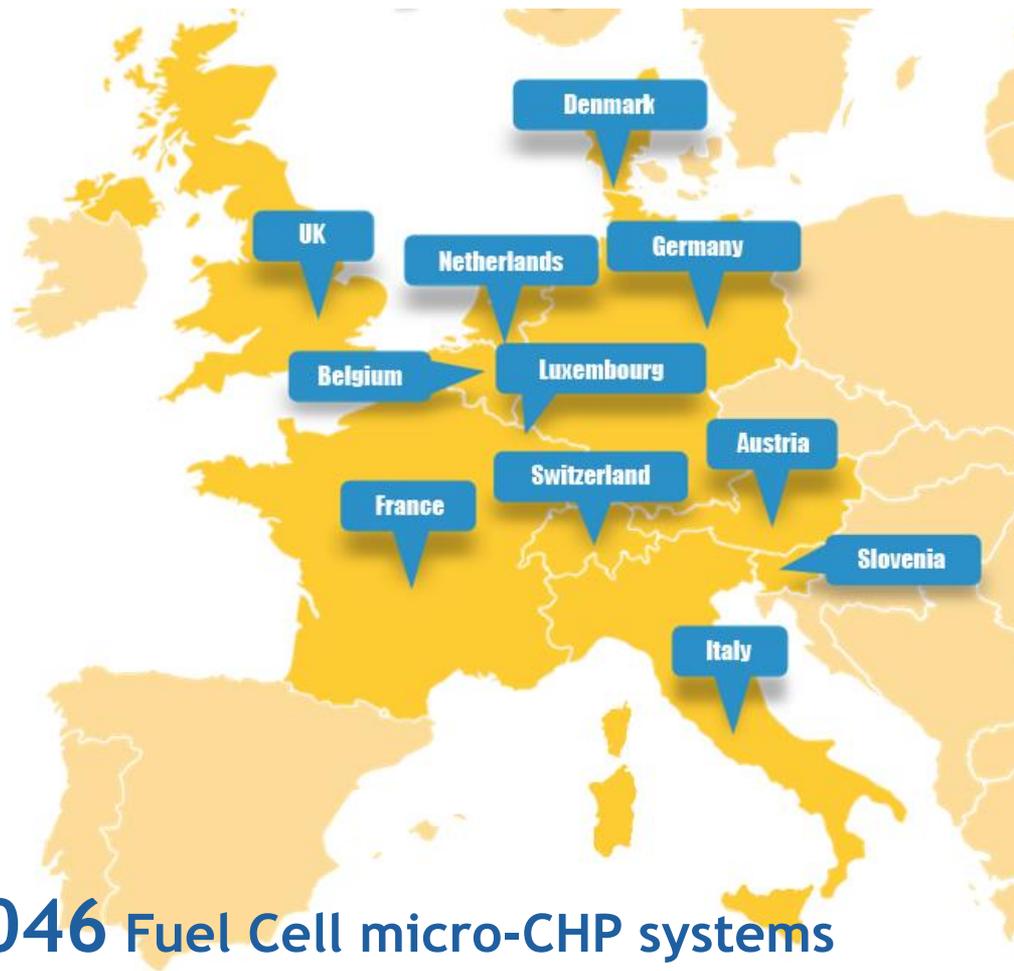
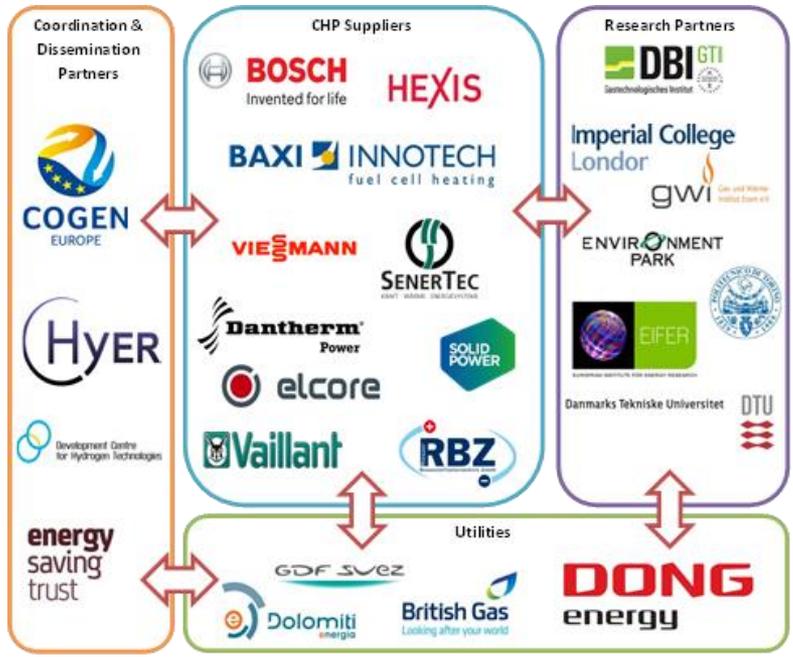
Innovative: Fuel Cell micro-CHP



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Fuel Cells x Combined Heat and Power

2012 - 2017



1,046 Fuel Cell micro-CHP systems deployed across 10 key EU countries.



Innovative: Fuel Cell micro-CHP



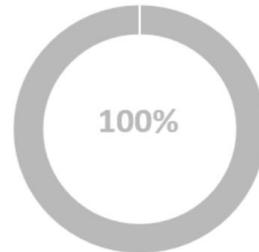
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Fuel Cells x Combined Heat and Power

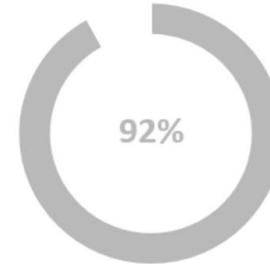
2012 - 2017

Customer satisfaction

Environmental performance



Comfort and warmth



Running costs



Important distribution network cost reductions

in 2030

Up to 31 GW
micro-CHP potential



€ 62 bn

in avoided grid
investments associated
with micro-CHP



Up to 28%

of EU's projected grid
reinforcements needs
potentially delivered by
micro-CHP

Micro-CHP displaces more carbon intensive power, while reducing grid losses



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Innovative: Fuel Cell micro-CHP



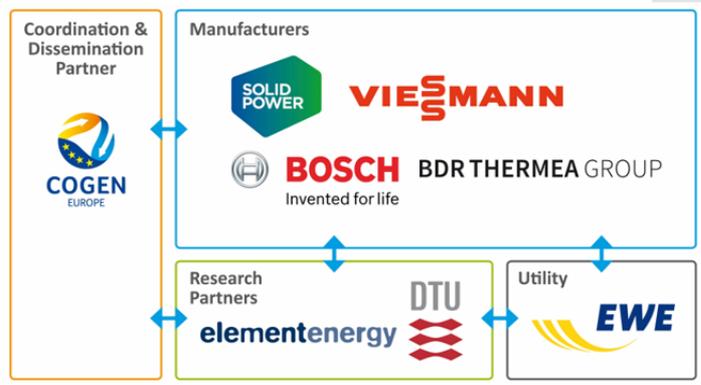
2016 - 2021

Pathway to a Competitive European Fuel Cell micro-CHP Market



- Field trial + installer training + targeted market & policy development activities
- Field trial + local installer training

8	> 2,500	>500	10	4	€90m
Partners	Fuel Cell micro-Cogeneration units	Systems per manufacturer	Countries	Countries	Total budget
Representing manufacturers, utilities & research community	To be deployed across Europe between 2016-2021	Established production capacity per manufacturer	Where the units will be installed	Selected for policy & market development (Belgium, Italy, Netherlands and UK)	Including €33.9m Horizon 2020 funding via FCH JU

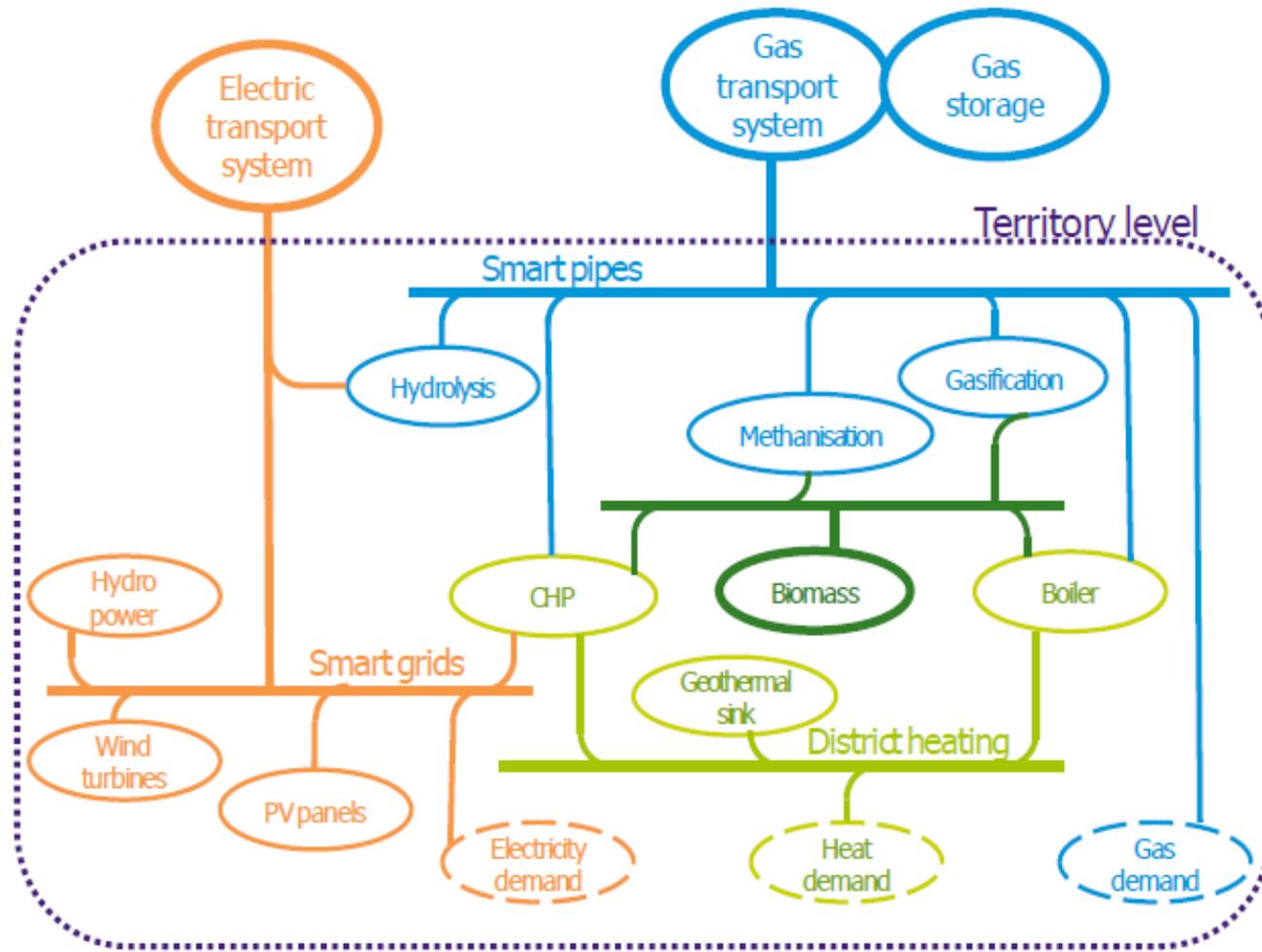


>10,000

FC micro-cogeneration units/year post 2020



CHP at the centre of an Integrated Energy System



Source: GrDF

Expert contributions from **20** CHP national experts...



2017 Cogeneration National Snapshot Survey

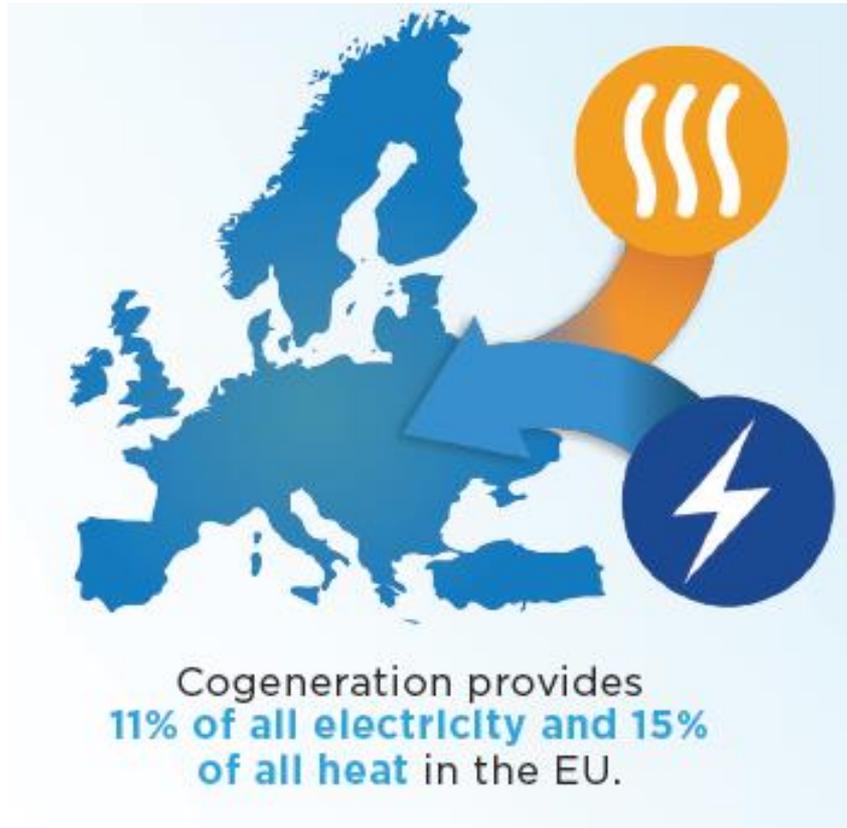
...representing **95%** of installed capacity **in EU28 & Turkey**

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

...expanding outside of Europe, with **guest contribution from Japan**

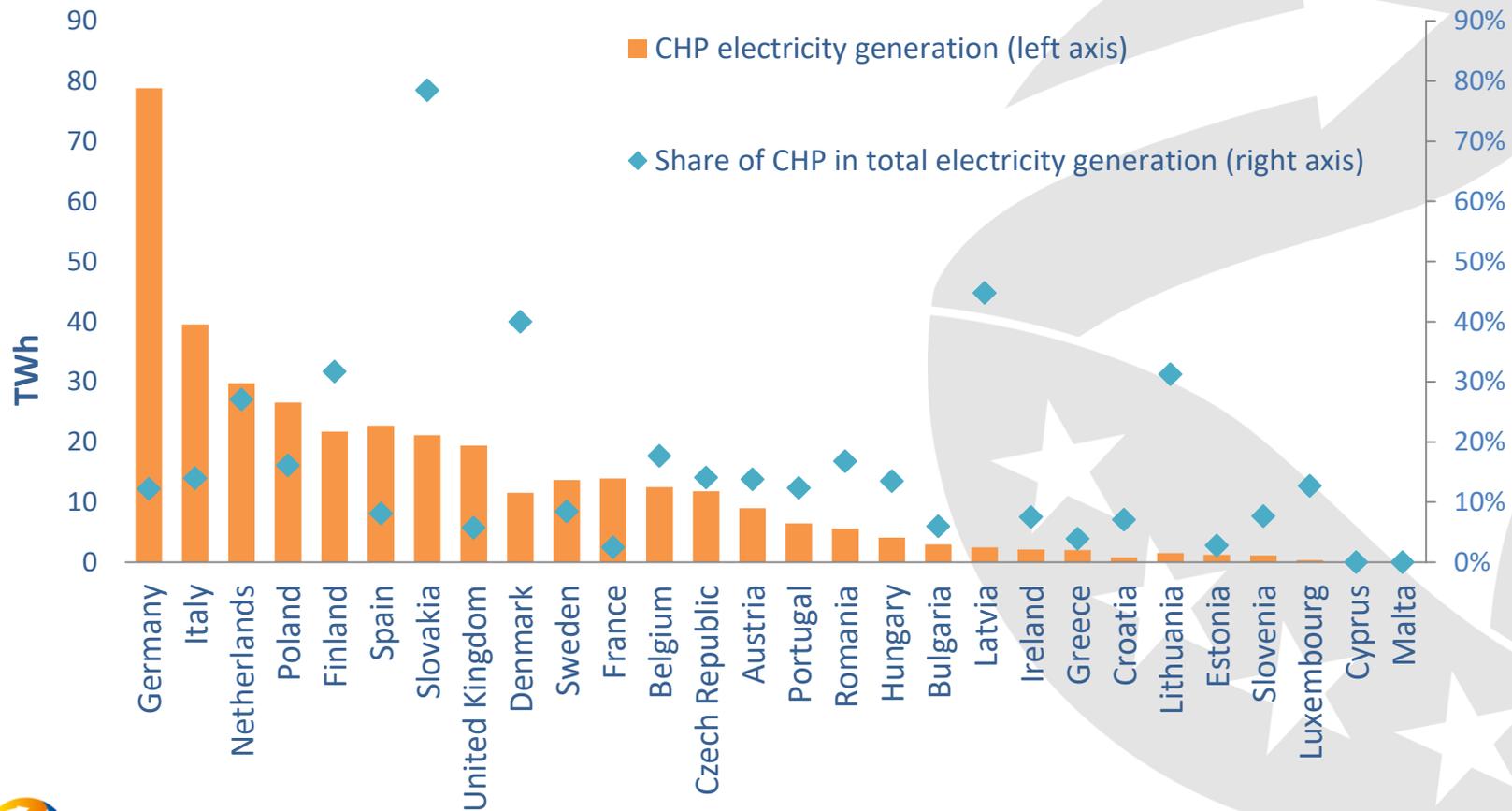


Cogeneration Today



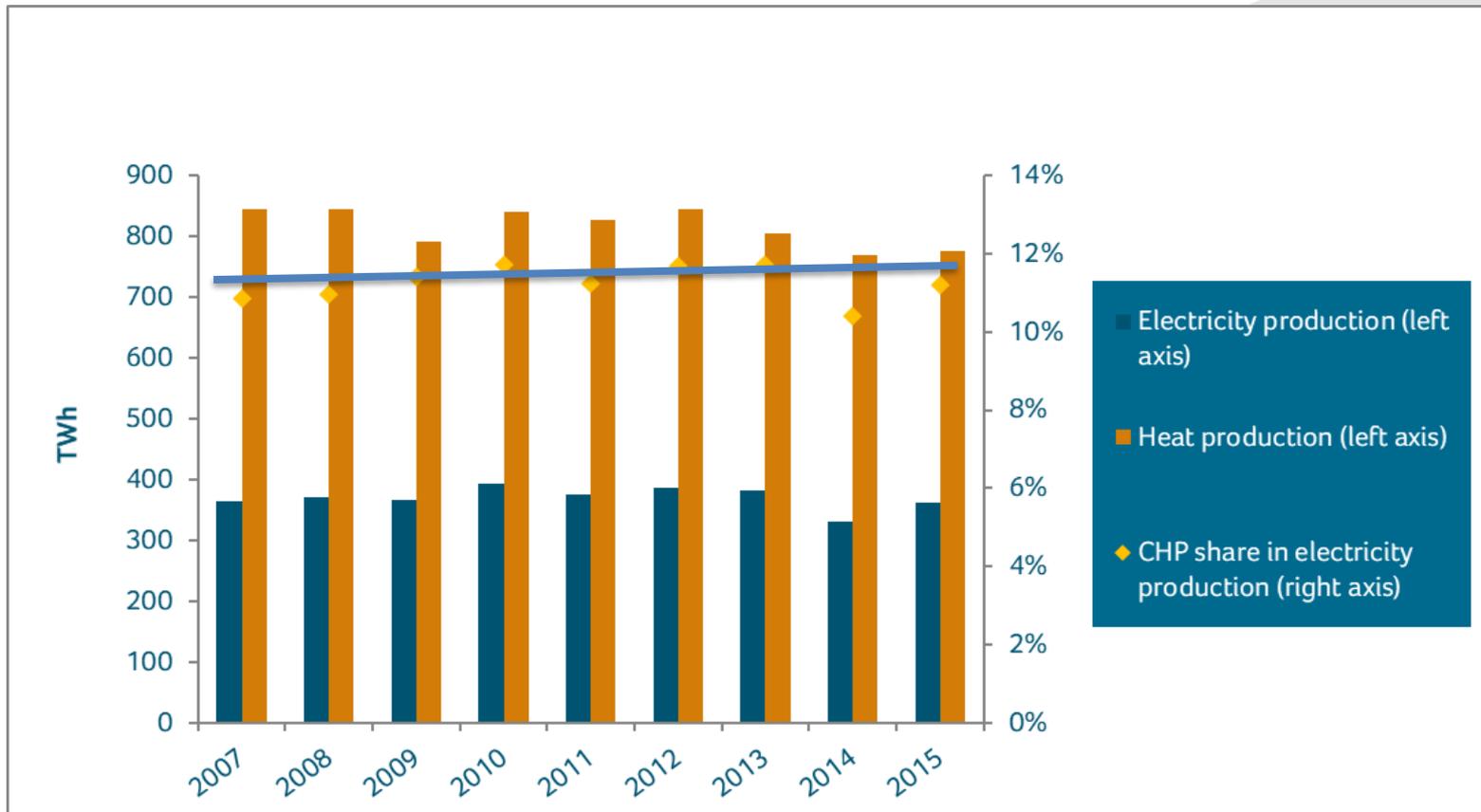
- More than 100,000 European consumers self-generate electricity and heat with cogeneration in their homes and businesses.
- 70 million Europeans use district heating, half of which is supplied by cogeneration.
- Delivers around 15% of EU's energy efficiency & 20% of EU's climate 2020 objectives.

Cogeneration Uptake Across EU



CHP in Europe - Overview

Electricity and Heat Generation (2007-2015)



Data source: European Commission, Eurostat, 2017

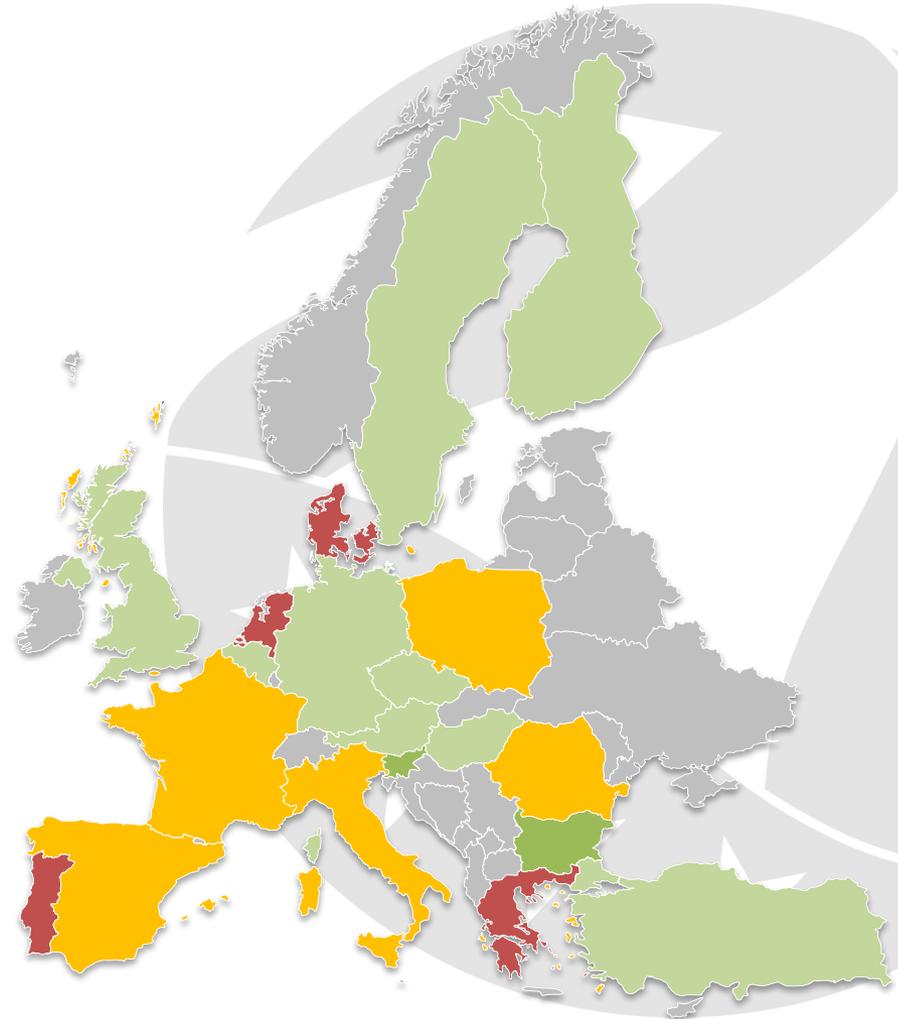
Available Support for CHP

in EU28 & Turkey in 2015

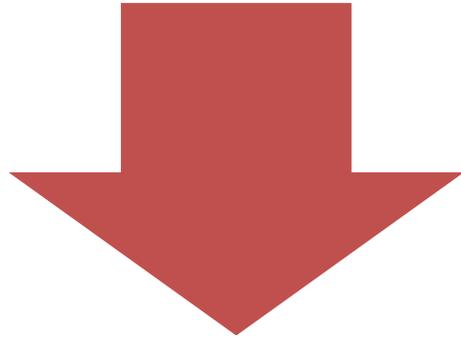
	Feed-in Tariff	Feed-in Premium	Quota Obligation & Certificates	Capital grant	Tax incentives	Other support	No support
Austria	✓			✓	✓		
Belgium - Flanders			✓		✓		
Bulgaria						✓	
Czechia		✓		✓			
Germany		✓		✓		✓	
Denmark						✓	
Finland		✓		✓	✓		
France	✓	✓				✓	
Greece	✓	✓		✓			
Hungary						✓	
Italy			✓				
Netherlands				✓	✓		
Poland			✓	✓			
Portugal	✓						
Romania		✓					
Slovenia	✓	✓					
Spain		✓					
Sweden			✓				
Turkey							✗
United Kingdom	✓		✓	✓	✓		

5-year CHP Markets Outlook

In nearly **60%** of the **CHP markets** in Europe, experts expect **steady and moderate growth** in the next 5 years.



Main Factors Affecting CHP Markets at National Level

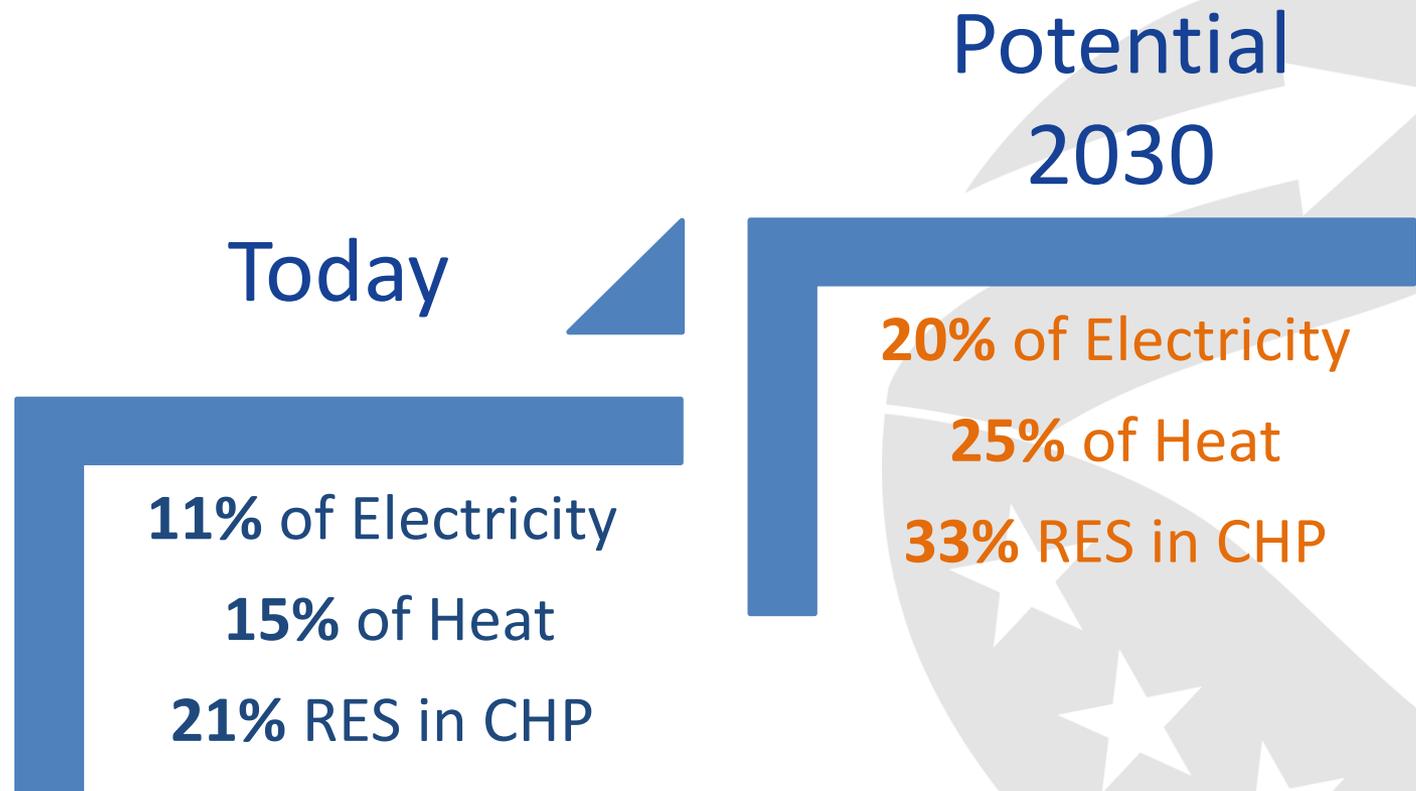


- Stable support schemes in some markets (especially for RES)
- Positive on-site spark spreads in key markets

- Depressed wholesale spark spreads/low wholesale el. prices
- Unpredictable regulatory framework



Untapped Cogeneration Potential in the EU



Source: EU Funded Project CODE2 (2014)

Cogeneration already delivers today...

Cogeneration can deliver key benefits for 2030

Climate & Energy Targets



EFFICIENCY UP



EMISSIONS DOWN

Source: EU funded project CODE2

2020

11%-17%
of EU Energy Efficiency
target

16%-25%
of EU GHG target

2030

up to 26%
of EU Energy Efficiency
target*

up to 25%
of EU GHG target

* Assuming a 35% energy
efficiency target in 2030

...and will continue to contribute in 2030
with the right policy framework



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Source: EU Funded Project CODE2 (2014)

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Policy implementation: key to further CHP development

CHP/DHC Comprehensive Assessments

Member States should **introduce new policy measures to achieve CHP potential identified as part of Comprehensive Assessments** (Energy Efficiency Directive, Art 14)

Favourable electricity rules for CHP

TSOs & DSOs should **facilitate grid connection, access & priority of dispatch for CHP / simplified grid connection for micro-CHP** (Energy Efficiency Directive, Art 15)

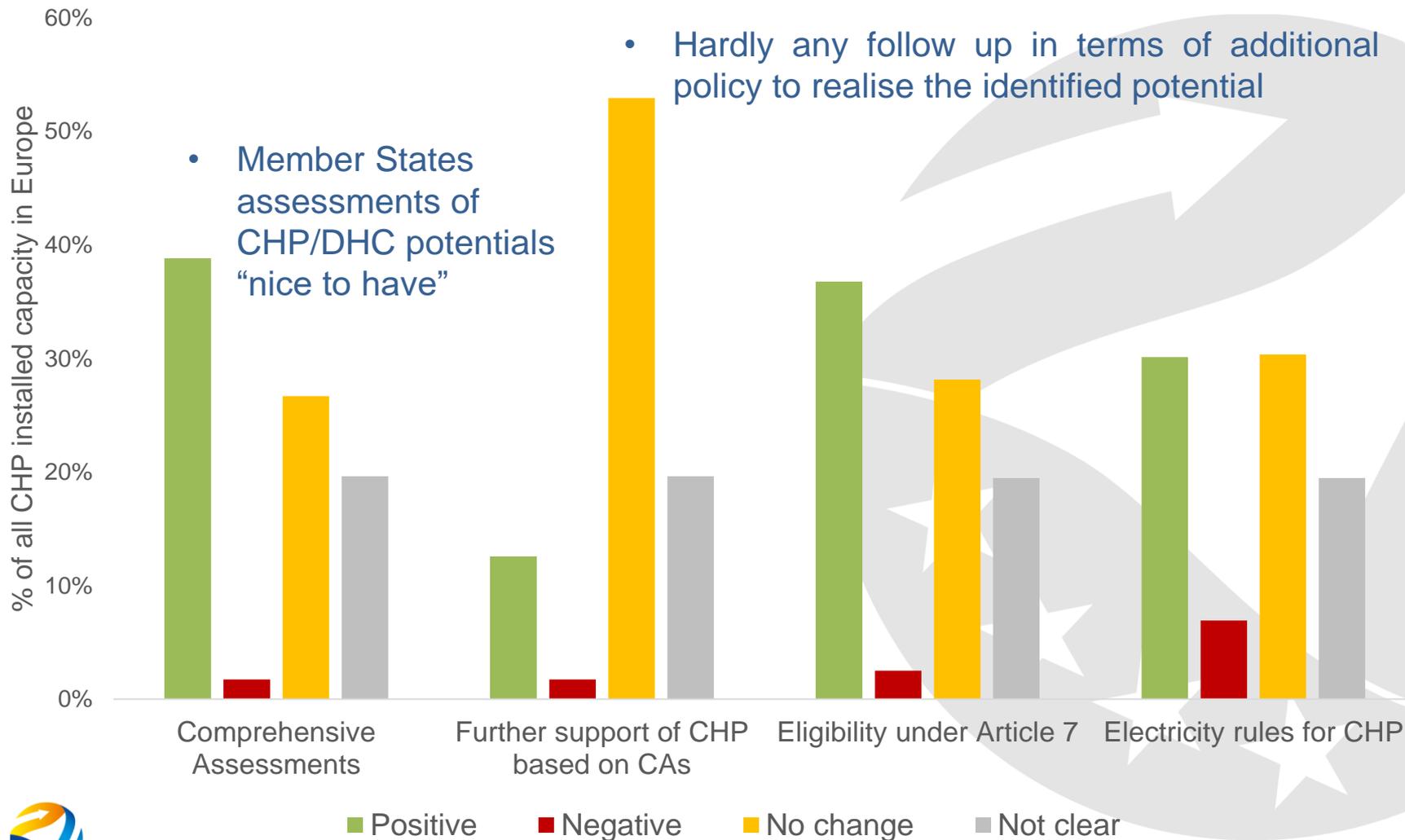
CHP enabled to contribute to Energy Savings Obligation

CHP & DHC eligible up to 25% of “Energy Savings Obligation”, which Member States could exploit more (Energy Efficiency Directive, Art 7)

Network Codes

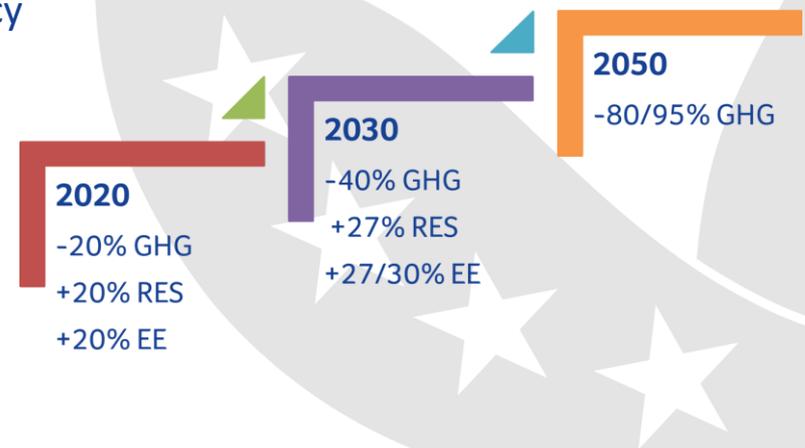
Derogation for must-run CHP & micro-CHP as part of the Network Code on Requirements for Generators.
Dedicated derogations possible for fault ride through

Energy Efficiency Directive Implementation for CHP (Articles 14/15)

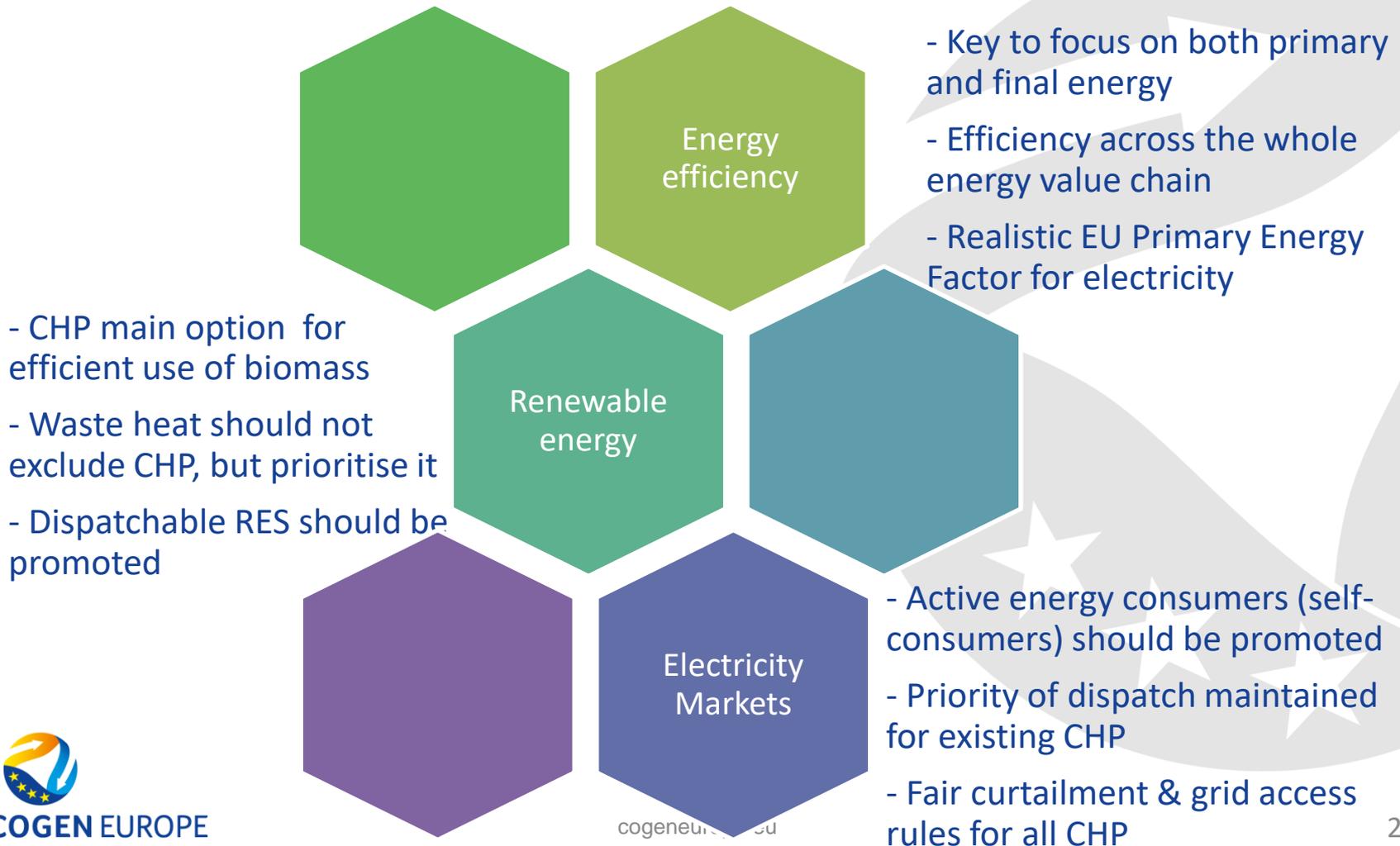


“Clean Energy for all Europeans” Package

- **European Commission** published major legislative package at the end of November 2016:
 - **Energy Efficiency:** Energy Efficiency Directive & Energy Performance of Buildings Directive Reviews
 - **Market Design Initiative:** Electricity Directive and Electricity Regulation Reviews, Sector inquiry into capacity mechanisms
 - **Renewable Energy Directive Review**
 - **Energy Union Governance Proposal (new)**
- Key legislative package, setting the 2030 policy framework for the energy sector.
- Three key aims:
 - Put energy efficiency (EE) first
 - Make Europe #1 in RES
 - Empower energy consumers



Opportunities & risks for CHP in the Clean Energy Package



COGEN Europe's High-Level Recommendations on the Clean Energy Package

Enabling cogeneration to contribute towards a consumer-led, secure, clean and affordable energy transition:

- Take a consumer-centered approach to policymaking;
- “Energy efficiency first” principle should be applied across the whole energy value chain, to energy conversion, transmission, distribution and final use
- Energy systems’ integration is key: policy should take a holistic approach & explore synergies between electricity, heat and gas networks.



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EUROPE

Celebrating 25 years

Join us!

**Anniversary
Annual
Conference,
Awards
& Gala Dinner**

5-6 June, 2018

Brussels, Belgium



Thank you for your attention!

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