Cogeneration becoming a cornerstone of our future energy system

24 April, Hannover
Alexandra Tudoroiu-Lakavice
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)

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

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

Customer satisfaction

Important distribution network cost reductions

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
Innovative: Fuel Cell micro-CHP

PACE
Pathway to a Competitive European Fuel Cell micro-CHP Market

2016 - 2021

8 Partners

> 2,500 Fuel Cell micro-Cogeneration units

> 500 Systems per manufacturer

10 Countries

4 Countries

€90m Total budget

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

Field trial + local installer training

Coordination & Dissemination Partner

Manufacturers

COGEN EUROPE

SOLID POWER

VIESSMANN

BOSCH

BDR THERMEA GROUP

Research Partners

DTU

elementenergy

Utility

EWE

Selected for policy & market development (Belgium, Italy, Netherlands and UK)

Where the units will be installed

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 electricity generation (left axis)
- Share of CHP in total electricity generation (right axis)
CHP in Europe - Overview

Data source: European Commission, Eurostat, 2017
## Available Support for CHP in EU28 & Turkey in 2015

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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

Today

- 11% of Electricity
- 15% of Heat
- 21% RES in CHP

Potential 2030

- 20% of Electricity
- 25% of Heat
- 33% RES in CHP

Source: EU Funded Project CODE2 (2014)
Cogeneration already delivers today...

Cogeneration can deliver key benefits for 2030

Climate & Energy Targets

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<td>11%-17% of EU Energy Efficiency target</td>
<td>up to 26% of EU Energy Efficiency target*</td>
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<td>16%-25% of EU GHG target</td>
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* Assuming a 35% energy efficiency target in 2030

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

Source: EU funded project CODE2

Source: EU Funded Project CODE2 (2014)
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)

**Network Codes**

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

- 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)

- Hardly any follow up in terms of additional policy to realise the identified potential

- Member States assessments of CHP/DHC potentials “nice to have”

Members States assessments of CHP/DHC potentials:

- Comprehensive Assessments
  - Positive
  - Negative
  - No change
  - Not clear

- Further support of CHP based on CAs
  - Positive
  - Negative
  - No change
  - Not clear

- Eligibility under Article 7
  - Positive
  - Negative
  - No change
  - Not clear

- Electricity rules for CHP
  - Positive
  - Negative
  - No change
  - Not clear
“Clean Energy for all Europeans” Package

- **European Commission** published major legislative package at the end of November 2016:
  - **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

- Key to focus on both primary and final energy
- Efficiency across the whole energy value chain
- Realistic EU Primary Energy Factor for electricity

Energy efficiency

- CHP main option for efficient use of biomass
- Waste heat should not exclude CHP, but prioritise it
- Dispatchable RES should be promoted

Renewable energy

- Active energy consumers (self-consumers) should be promoted
- Priority of dispatch maintained for existing CHP
- Fair curtailment & grid access rules for all CHP

Electricity Markets
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.
Join us!

Anniversary Annual Conference, Awards & Gala Dinner

5-6 June, 2018

Brussels, Belgium
Thank you for your attention!