European Engine Power Plants Association

Meeting with Energy Commissioner Kadri Simson

29 June 2020, Web meeting

Agenda

29 June 2020

European Engine Power Plants Association EUGINE

1. Introducing EUGINE
2. Our contribution to the EU energy system
3. Transitioning towards climate-neutrality
4. The EU strategies on energy system integration & hydrogen
5. The EU Taxonomy of sustainable economic activities
6. Discussion & take-aways

Introducing EUGINE

Representing manufacturers of engine power plants

European Engine Power Plants Association

ABB

CATERPILLAR

EC POWER

JENBACHER

LIEBHERR

MAN Energy Solutions

Rolls-Royce

Rolls-Royce Power Systems AG

WÄRTSILÄ

Emergency back-up

Dispatchable renewable energy

Cogeneration in industry & buildings

Flexibility

Cogeneration for flexible district heating

flexible energy

Introducing EUGINE

A technology everywhere in in Europe

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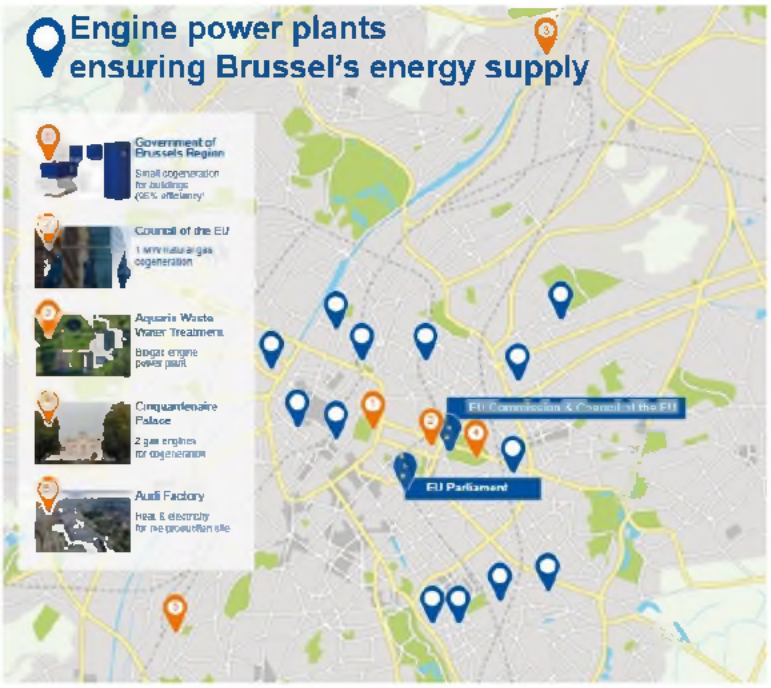
Everywhere, also in Brussels, …



… and in all sizes

EIB funded CHP plant - Kiel (DE)

- 20 gas engines
- 190 MWel & 192 MWth
- 92% energy efficiency
- Heat storage

2. Our contribution to the EU energy system

Energy efficiency at its best

Cogeneration with gas engines

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Energy Efficiency First
- a principle also for the supply side!

- Generating both electricity & heat/cold
- Up to ~ 95% energy efficiency
- From micro-CHP to district heating
- Less primary energy needed

Source: EnBW

Cogeneration is supported by articles 14 & 15 of the Energy Efficiency Directive

Cogeneration gas engines contribute to the EU energy efficiency target

Providing renewable energy

The technology behind biogas plants

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The Facts

- 18 000 biogas plants across Europe
- Current biogas production: ~ 170 TWh/year
- Biogas is converted by gas engines:
  - Total electric capacity: 11 GW
  - Total electricity generated: 65 TWh/year

Source: Gas for Climate study

Source: Liebherr

Dispatchable renewable energy

Large biomethane potential

Biogas engines contribute to the EU renewable energy target

flexible energy

Flexibility and reliability for the energy system

From short to long term flexibility – whatever the system needs

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Gas Engine Power Plants - the universal flexibility solution for a system dominated by variable wind and PV

- Available within minutes
- Starts & stops several times per day
- Can deliver over long periods
- No increased maintenance costs

Source: AS Merko Ehitus, Wärtsilä

Dispatchable - Flexible - Affordable! Contributing to the security of supply

3. Transitioning towards climate-neutrality

Towards climate-neutrality

A two-step approach to decarbonise dispatchable power

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Immediately

Replacing coal plants by gas engine plants

- Quick reduction of emissions: approx. -50% CO2 emissions
- Paving the way for more variable renewables
- No carbon lock-in

As fast as possible

Switching gas plants to renewable gases:

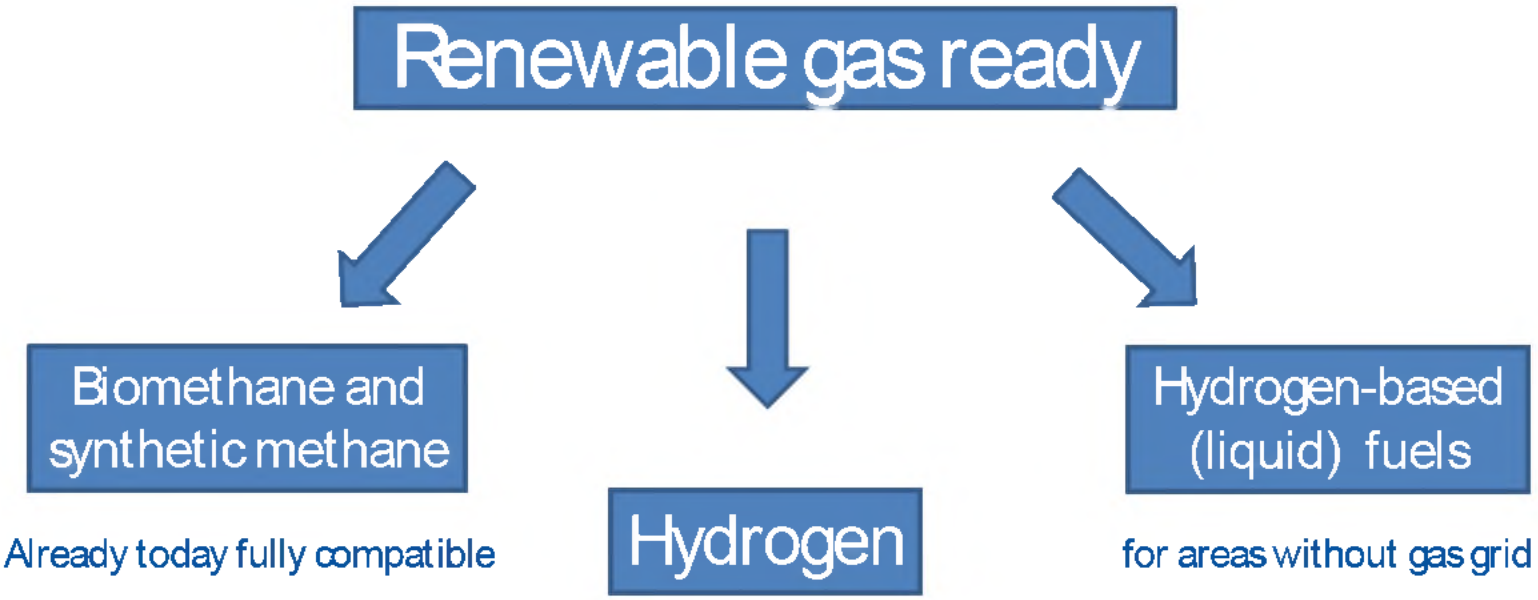
- Use of existing infrastructure
- Retrofitting possible
- Dispatchable renewable energy
- Future proof technologies, ready for the climate-neutrality

GHG accumulate in the atmosphere !!!

flexible energy

A future-proof technology

Switching to renewable and low-carbon gases / fuels



Today: **>20% hydrogen** for most new engines

By 2025: many models **100% hydrogen-ready**

New engines will be **retrofittable**

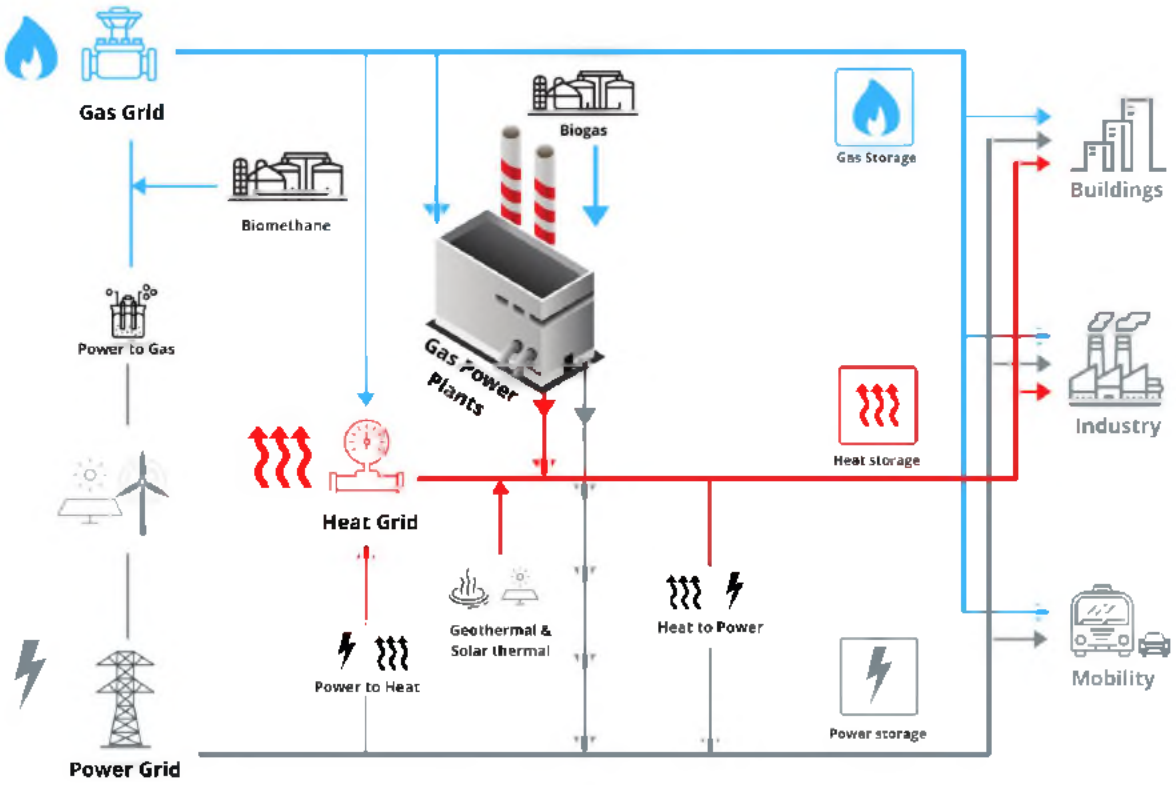
4. The EU strategies on energy system integration & hydrogen

4.1. How we see energy system integration

4.2. The necessary framework

How we see energy system integration

Offering sectors all options for decarbonisation



1 Acknowledging the role of clean gas power generation

Technology-open approach on the use of renewable and decarbonised gases in various technologies and sectors

2 Making renewable and decarbonised gases available & cost-competitive

A target for renewable and decarbonised gases
A reliable system for "guarantees of origin"
A support scheme to encourage investments in the transformation of the gas network and in the use of renewable & decarbonised gases

3 Ensuring a predictable & reliable blending of renewable gas in gas grid

A detailed and binding roadmap to provide predictability
Involvement of manufacturers of technologies connected to the gas grid
Flawless digitalised communication in the gas network

5. The EU Taxonomy of sustainable economic activities

Taxonomy and Power Generation

Ensuring a fair evaluation of gas power generation

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Taxonomy Regulation

- Excludes SOLID fossil fuels
- Foresees "transition activities"

Technical Expert Group Report on Screening Criteria

- Tries to exclude not only solid but also gaseous fuels in power generation without CCS
- Does not recognise the growing decarbonisation of gases and switch over time
- Looks only at activity itself, but not the benefits for a sustainable system
- Hand-selects technologies for "manufacturing of low carbon technologies"

Developing the delegated acts

- Stakeholder platform will be established too late for energy-related activities
- Proposal for recognising gas power generation as "Transition activity"

Taxonomy and Power Generation

Our Proposal for Delegated Acts

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Need for transition activities for power/ cogeneration with gas

- Dispatchable flexible generation is needed for integrating more renewables
- Availability of hydrogen defines capability to stay below 100gCO_2e/ kWh
- Technology is future-proof

Power generation with gas as "transition activity"

- Allow annual maximum amount (matching the 100gCO_2e/ kWh) of emissions in addition to limit per kWh
- Require hydrogen-readiness to avoid carbon lock-in

Cogeneration with gas as "transition activity"

- Connect to existing efficiency requirements in the EED – but require 20%
- Require hydrogen-readiness to avoid carbon lock-in

Manufacturing of low carbon technologies

- All technologies for "own performance" and "transition" activities should be included

5 Key Take-aways & Requests

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1. We add reliability and flexibility to wind and PV!

   Our request: Recognise the value of clean dispatchable gas power in EU strategies (eg energy system integration) and "technology assumptions"

2. Our technology runs on hydrogen and other green fuels!

   Our request: "Renewable gas - ready" gas plants should be eligible for all EU funding programmes (eg Just Transition Mechanism)

3. Investing in gas plants does not cause carbon lock-in!

   Our request: Support gas power generation to be included as transitional activity in the sustainable taxonomy delegated acts

4. Cogeneration gas plants help to decarbonise the heating sector!

   Our request: Recognise the role of gas plants / district heating in the energy system integration strategy

5. Greening gas power generation needs hydrogen!

   Our request: Integrate EUGINE in European Clean Hydrogen Alliance, Clean Hydrogen for Europe Partnership and similar initiatives

EUGINE

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Reserve Slides

Flexibility and reliability for the energy system

The cost-efficient partner of variable RES (wind & solar)

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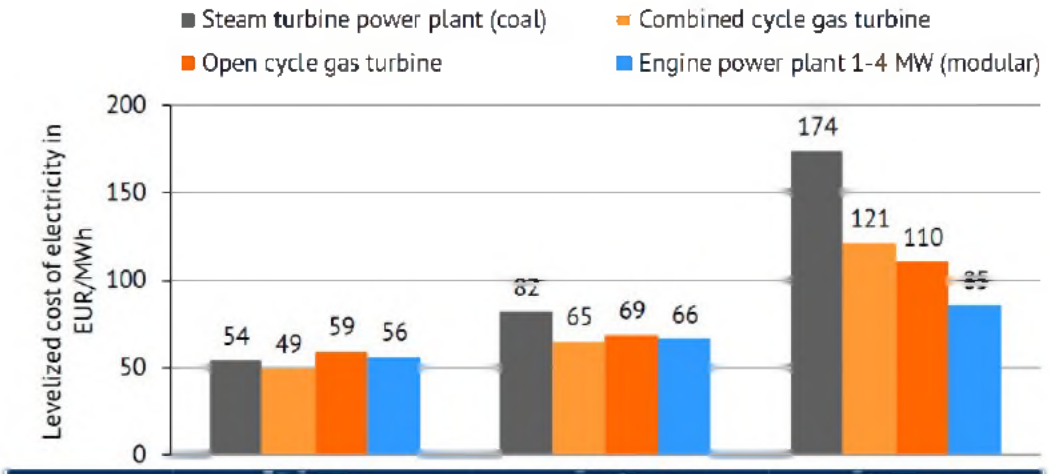


	high usage low flexibility	moderate usage medium flexibility	low usage high flexibility
Full load hours	6000	3000	1500
% full load operation	90%	90%	50%
Amount of start-stop cycles	5	50	700

Source: Energy Brainpool

A technology-open approach

Power generation with gas

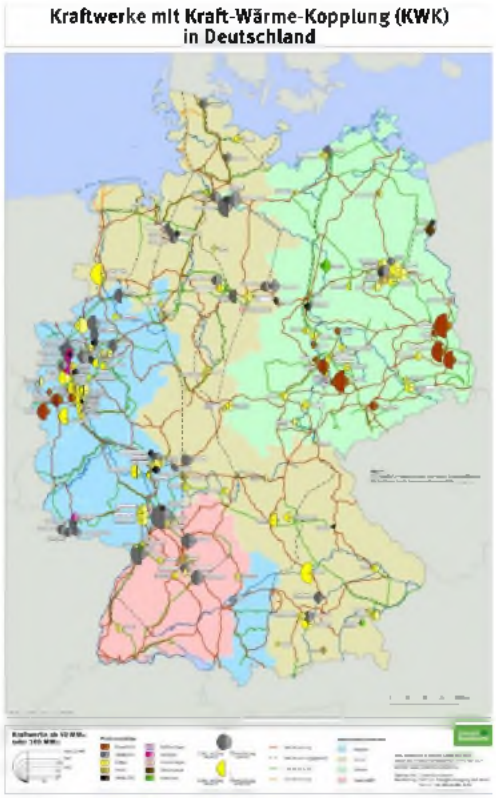
- 100g CO2e/kWh = 876 kg CO2e / year
- Avoiding carbon lock-in:
  - Today: 20% H2
  - By 2030: May be retrofitted for 100% H2

Cogeneration with gas

- "high efficiency cogeneration": primary energy savings >20%
- Avoiding carbon lock-in: today: 20% H2, by 2030 may be retrofitted for 100% H2

Manufacturing

- To be based on technologies recognised for "own performance" or "transition"



Quick coal-to-gas switch with gas engines in Germany

- Kiel: ~ 200 MW – inaugurated in January 2020
- Chemnitz: ~ 150 MW
- Mainz: ~ 100 MW
- Bremen: ~ 90 MW
- Dresden: ~ 90 MW
- Cottbus: ~ 50 MW
- Frankfurt (Oder): ~ 50 MW
- Saarbrücken: ~ 50 MW
- Stuttgart : ~ 30 MW – inaugurated in 2019

Cogeneration gas engines to decarbonise energy, in Germany, but not only…