Contribution ID: **379** Type: **Poster**

The Relevance of Nuclear Energy for District Heating

Modernisation and expansion of district heating and cooling infrastructure is one of the most efficient measures to reduce consumption of fossil fuels in Europe.

Today, district heating (DH) systems use mostly fossil fuels, which account for 60% of total production. Other low-carbon options, such as biomass and geothermal energy, have limitations due to competing uses or local availability.

As many fossil-fired district heating systems are reaching the end of their life, they need to be replaced. Moreover, the EU aims to increase the share of DH in total heat demand from 12% in 2023 to 30% in 2030 and 50% in 2050.

Nuclear reactors can be used for DH. The Calogena company proposes a 30 MWt small modular reactor designed for DH applications. The Calogena® water-cooled reactor uses a very simple and intrinsically safe design inspired by pool-type research reactors. It operates at low pressure of ~5 bar and temperature around 100℃.

Calogena® has a small footprint and adapts flexibly to heating networks of different sizes. The DH infrastructure is deployed in urban or peri-urban areas, managed by municipalities and local energy companies. Calogena is confident that the simplicity and high level of intrinsic safety of the reactor will facilitate public acceptance.

Currently, biomass is the most common solution to decarbonize DH. Nuclear sources will also allow to reduce the consumption of biomass to eliminate air pollution in cities and reserve its use for other more noble applications.

Country OR International Organization

France

Email address

c.dulac@calogena.com

Confirm that the work is original and has not been published anywhere else

YES

Authors: DULAC, Cesar; Mr BARTAK, Jan (Calogena)

Co-author: Mr VALLÉE, A (Calogena)

Presenters: DULAC, Cesar; Mr BARTAK, Jan (Calogena)

Track Classification: Topical Group A: SMR Design, Technology and Fuel Cycle: Track 5: Non-Electric Applications for SMR