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Complementarity of energies leads to flexibility

The natural gas network contributes to reducing seasonal demand on the electric power grid especially during winter, limiting CO₂ emissions and preventing important investments in the power sector. It can be considered as a “macro-flexibility” for the global energy system. This advantage is reinforced by the exponential development of renewable gases like hydrogen produced from renewable electricity and like biomethane produced from biomass. Renewable gases could represent 30% of the global French gas consumption by 2030 (about 70 TWh) and could reach 100% by 2050, according to studies carried by the French Energy Agency in 2017 and 2018. Considering that the gas storage capacity in France is about 150 TWh, gas self-sufficiency is a realistic French scenario!



Today, the emergence of smart technologies using the gas network, referred to as sector coupling through “Gas/Electrical flexibilities”, represents an opportunity for electrical DSOs to also take advantage of the complementarity of gas and electricity for their localized needs. Within Nice Smart Valley, the French gas DSO, GRDF, implements these “Gas/Electrical flexibilities” through high efficiency gas appliances. Installed in residential and non-residential buildings, these devices provide extensive flexibilities to the power grid without any impact on end user comfort. The tested flexibility portfolio includes two product families: hybrid heating solutions coupling heat pumps with condensing boilers and mini Combined Heat and Power systems based on engine, turbine or fuel cell technologies.

The project partners will be able to measure the competitiveness of hybrid flexibilities in the energy transition, in terms of renewable shares in the final consumption (renewable gases included).

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