

CO₂-DISSOLVED:

from prototype to full scale

1 Pi-CO₂: an innovative CO₂ capture system

This process, which uses water as the capture solvent, is fundamentally different from other technologies, having: smaller footprint and greater scaling flexibility, lower energy demand, in-process SO_x/NO_x & Hg removal, no chemicals or chemical degradation waste, and lower total cost.

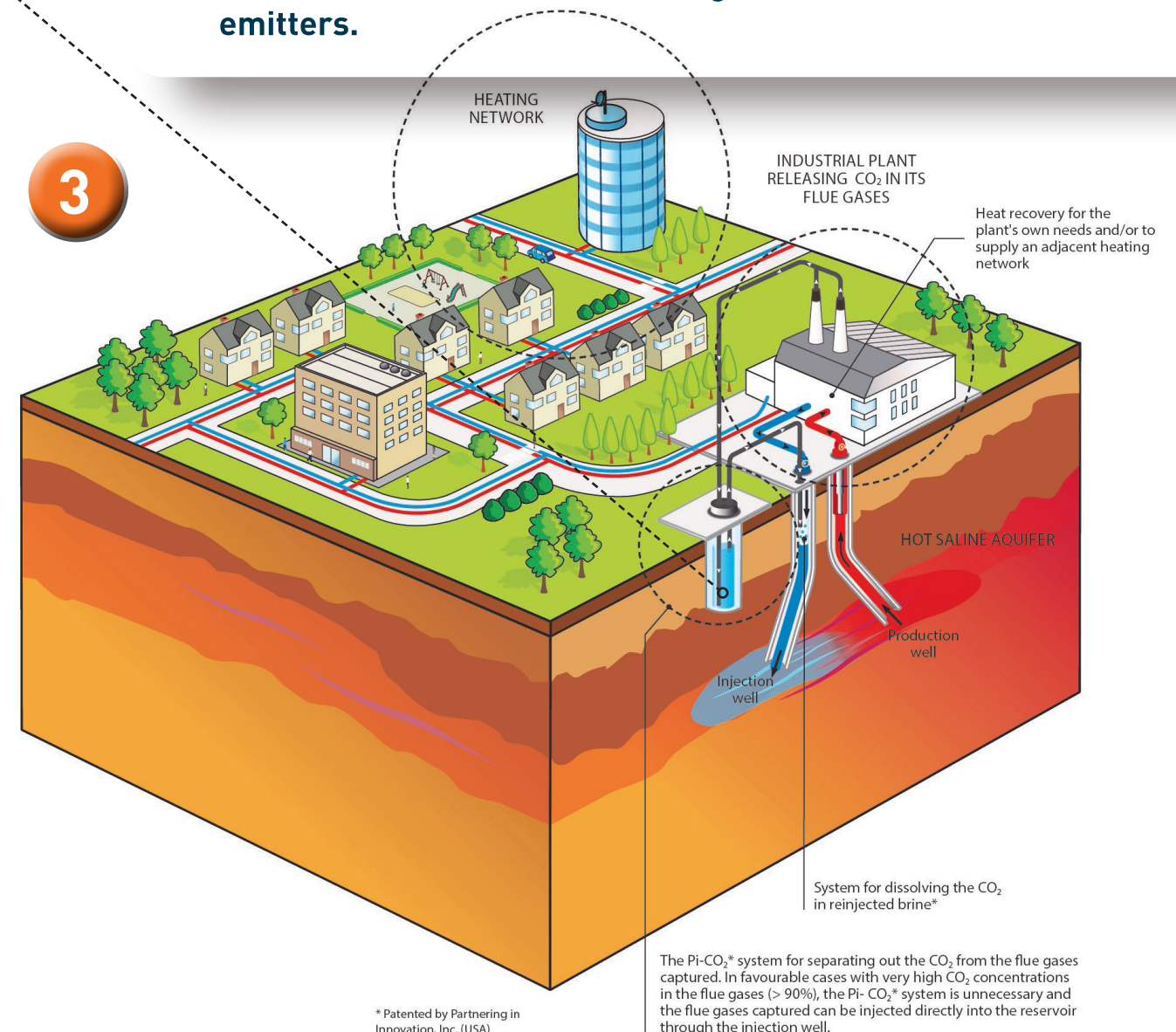
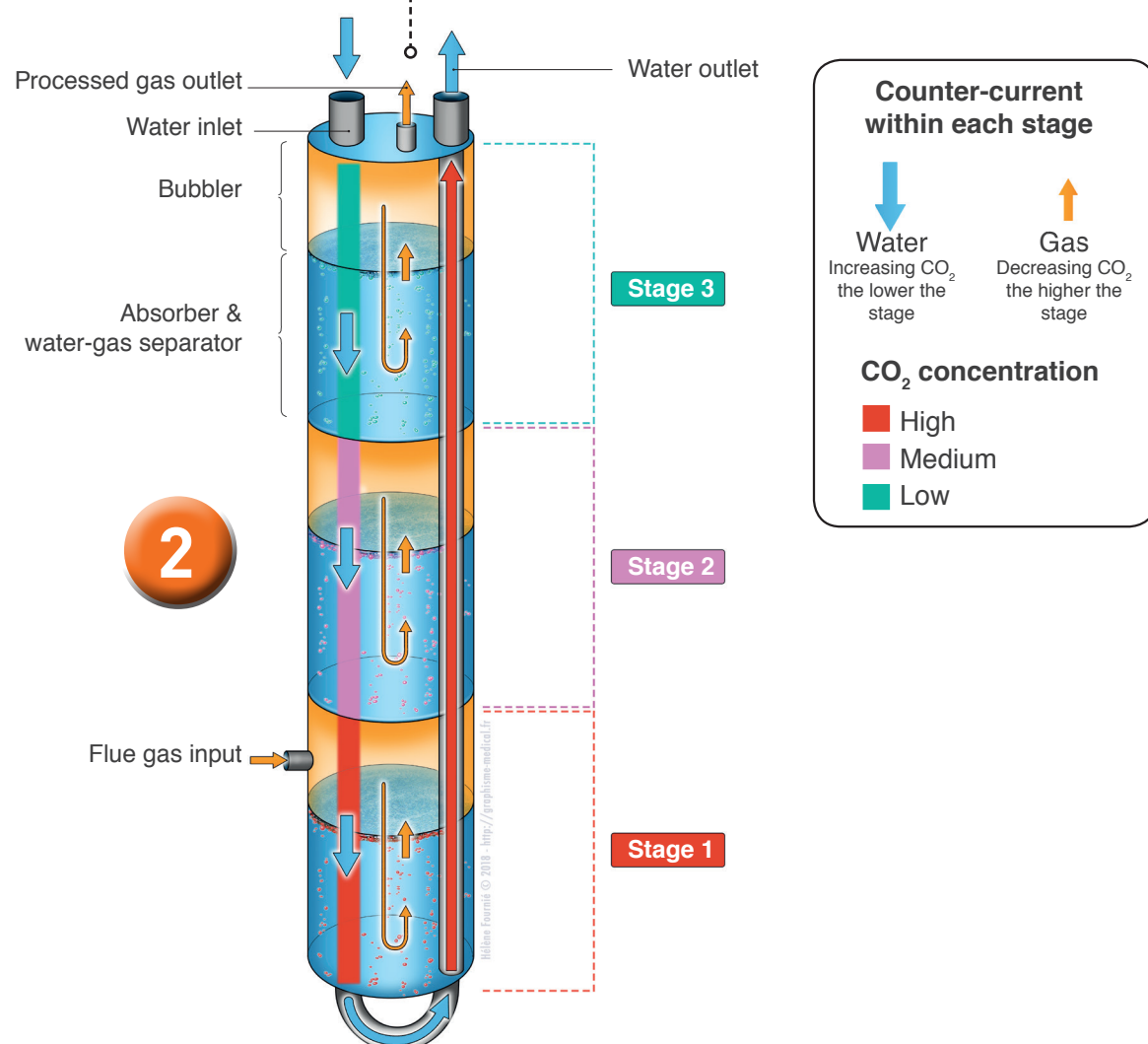
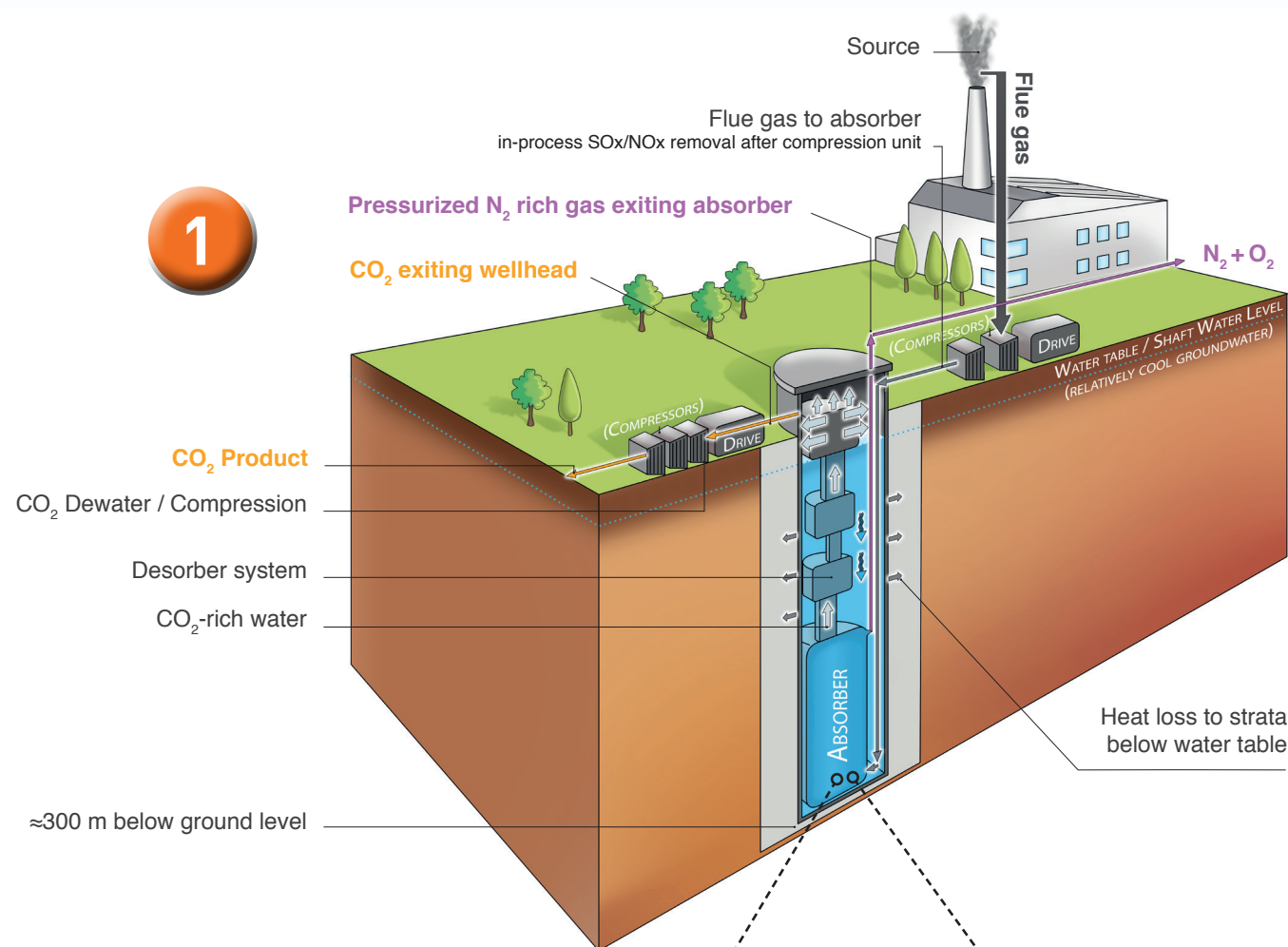
2 The Pi-CO₂ prototype: proof-of-concept

This absorber prototype is a milestone towards development of a full Pi-CO₂ capture system (see 1). The tests use compressed air (instead of flue gas) at ambient pressure in a smaller-scaled, 3-stage-design, to demonstrate: - liquid/gas flow dynamics, - system stability, - complex flow simulation results (model predicts 98% CO₂ capture). The next step will be pressurised tests to confirm the CO₂ mass transfer modeling from gas to water.

3 CO₂-DISSOLVED: combining geothermal energy with safe geological storage of CO₂

The Pi-CO₂ process (see 1.) can be used in the CO₂-DISSOLVED context to supply high concentration CO₂ that is dissolved in brine before injection in the storage reservoir. This leads to solubility trapping and eliminates buoyancy risks inherent to supercritical CO₂, thus removing a primary concern in CO₂ Capture and Storage (CCS).

A local solution for decarbonising small-scale industrial emitters.



The Pi-CO₂* system for separating out the CO₂ from the flue gases captured. In favourable cases with very high CO₂ concentrations in the flue gases (> 90%), the Pi-CO₂* system is unnecessary and the flue gases captured can be injected directly into the reservoir through the injection well.

* Patented by Partnering in Innovation, Inc. (USA)



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