



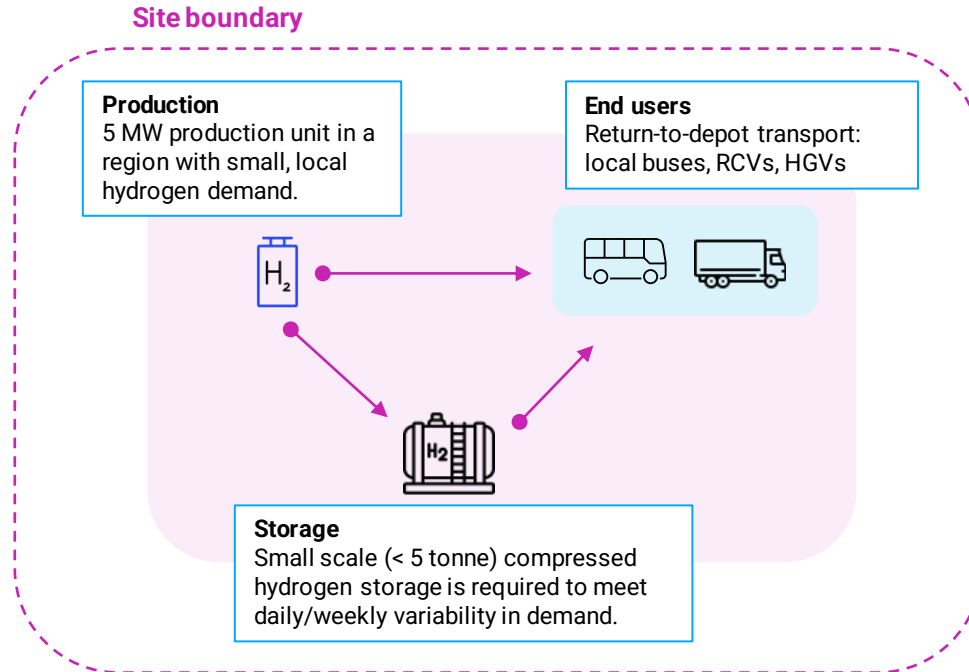
CLEAN HYDROGEN INNOVATION PROGRAMME

Supply Chain Archetypes

18 September 2023

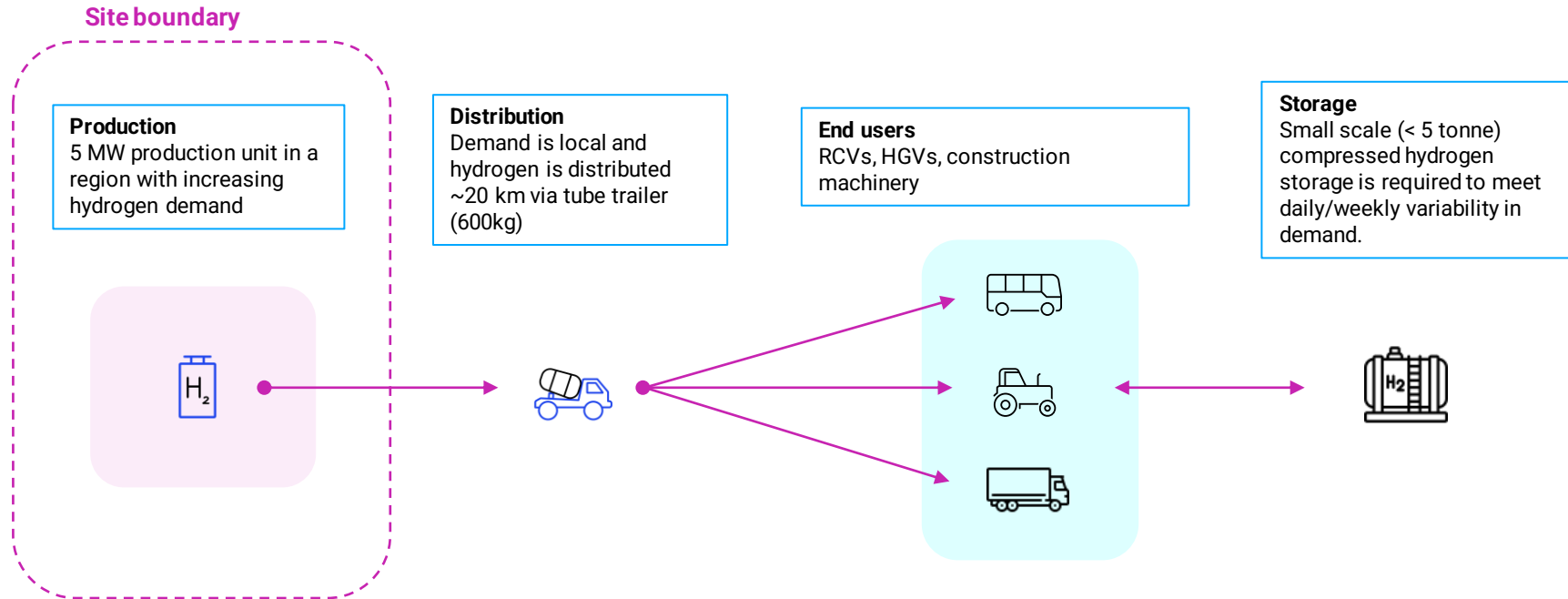
1. Distributed small production meeting local return-to-depot demand

- Hydrogen refueling station co-located with small scale production unit. Production of hydrogen is low and decentralised. Due to co-location of production and end use, there is no transportation or distribution of hydrogen. Small scale hydrogen storage is required to meet daily/weekly variability in demand.



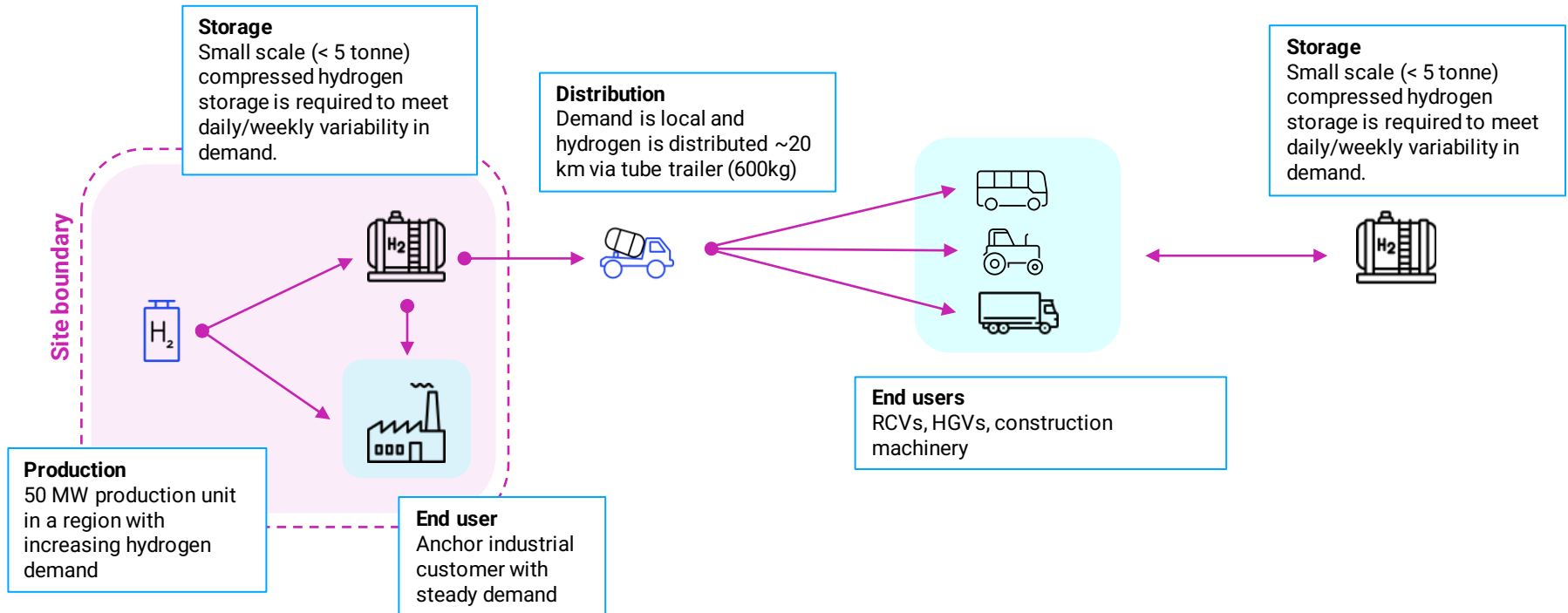
2. Small distributed production meeting local, distributed demand via tube trailer

- Small scale production facility developed in a region with increasing hydrogen demand. Hydrogen demand is not centered at single location but demand close enough to transport hydrogen from production site to end use site via tube trailer (dedicated pipeline is not economically viable). Small scale hydrogen storage at point of use is required to meet daily/weekly variability in demand.



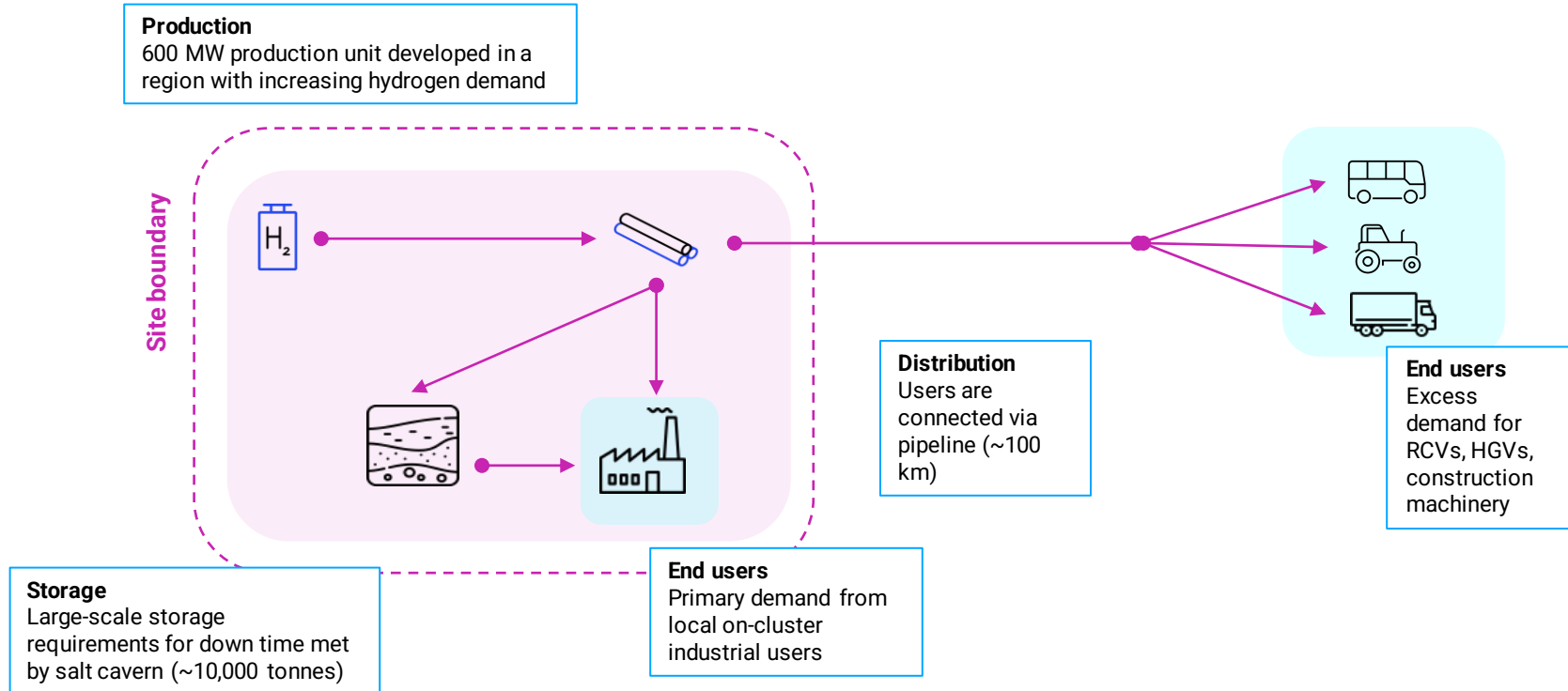
3. Medium centralised production meeting anchor customer demand and local, distributed demand via tube trailer

- Medium scale production facility developed in a region with increasing hydrogen demand. Hydrogen demand is anchored by a small industrial customer, but distributed demand locally justifies transport of hydrogen from production site to end use site via tube trailer (dedicated pipeline is not economically viable). Small scale hydrogen storage at point of use is required to meet daily/weekly variability in demand.



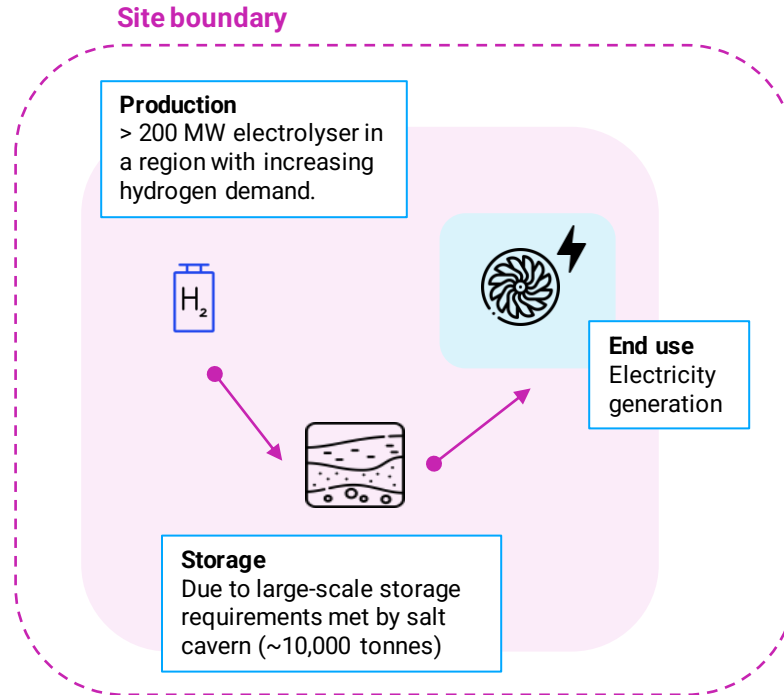
4. Large centralised hydrogen production for industrial cluster and oversupply to small local users via private pipeline

- Excess hydrogen from large cluster based production facility is absorbed by several small users. The end users will receive hydrogen via privately owned cluster pipeline.



5. Large electrolytic production for Power to X to Power

- Large scale electrolysis coupled with salt cavern storage to store renewable energy over days / weeks to provide dispatchable power for mitigating dunkelflaute.



6. Large centralised hydrogen production for meeting network demand

- Large centralised hydrogen production unit feeds into national hydrogen transmission pipeline. Regulated pipeline distributes hydrogen to multiple end users. Seasonal and daily variability in demand and electrolytic supply necessitates large scale storage via salt cavern.

