

CERP3 Decarbonization Procurement family 09

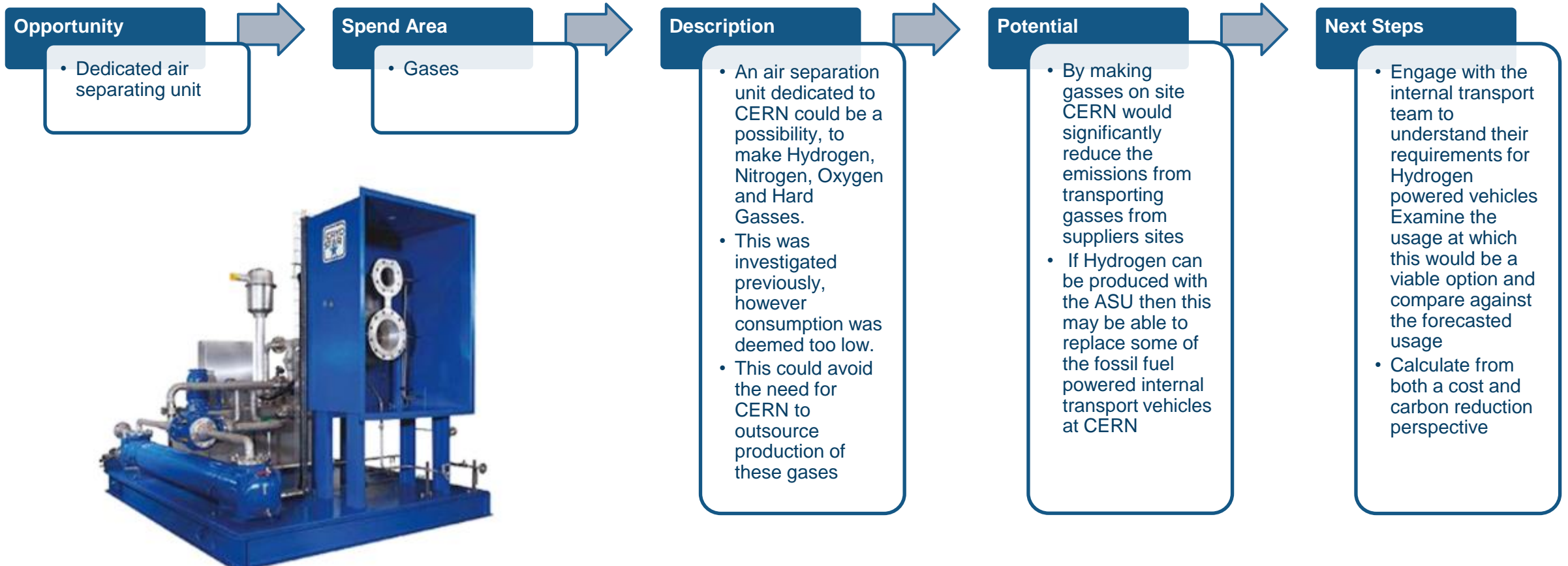
Gases, chemicals, radiation and waste equipment

Current Situation in Procurement family 09

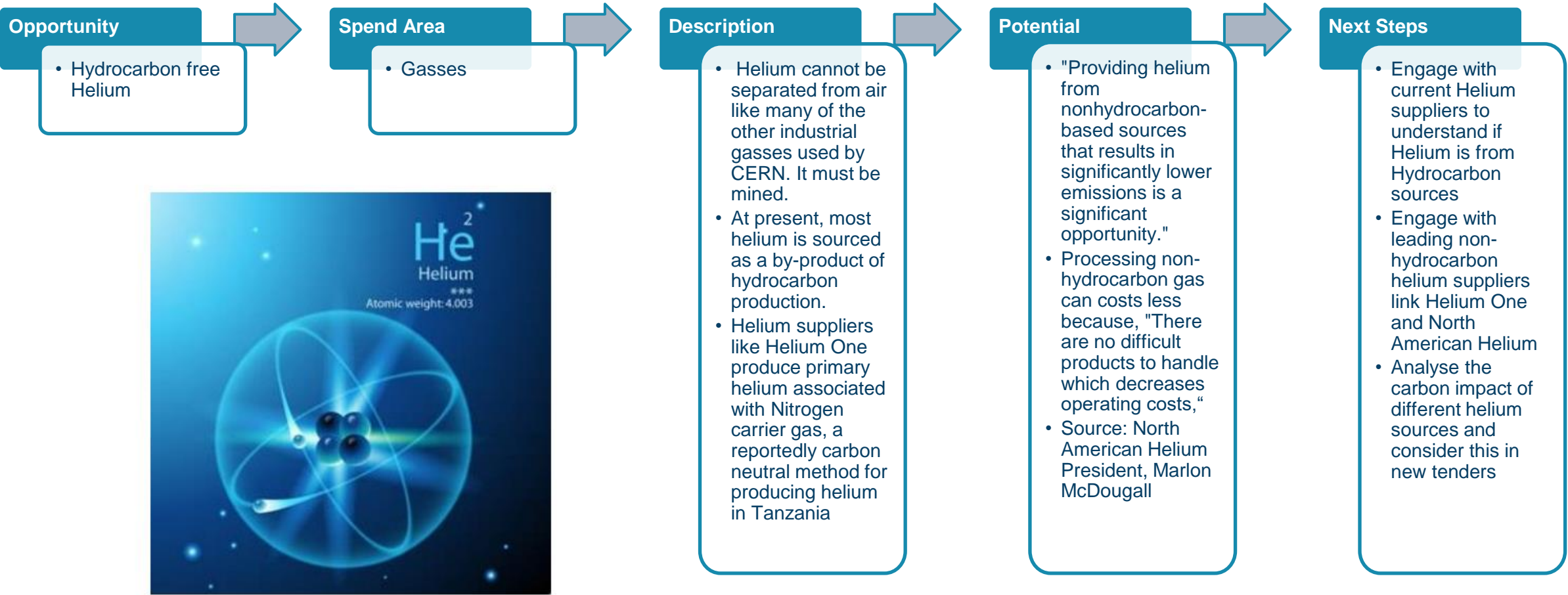
Gases, chemicals, radiation and waste equipment

- ▶ The majority of spend within this category is on industrial gases, including Nitrogen, Helium, CO2 and Argon.
- ▶ Gases are mostly delivered by trucks, with frequent deliveries to 120+ delivery points on site.
- ▶ CERN has influence with suppliers as a desirable partner organisation for suppliers and as a major consumer of Helium (buying up to 1% of global demand at peak usage).
- ▶ Spend is variable and peaks when LHC is cooled.
- ▶ Sustainability has not been a focus of procurement exercises historically.

Re-explore the feasibility of implementing a dedicated CERN air separation unit, including Hydrogen generation for internal transport



Consider the production method of Helium when making sourcing decisions



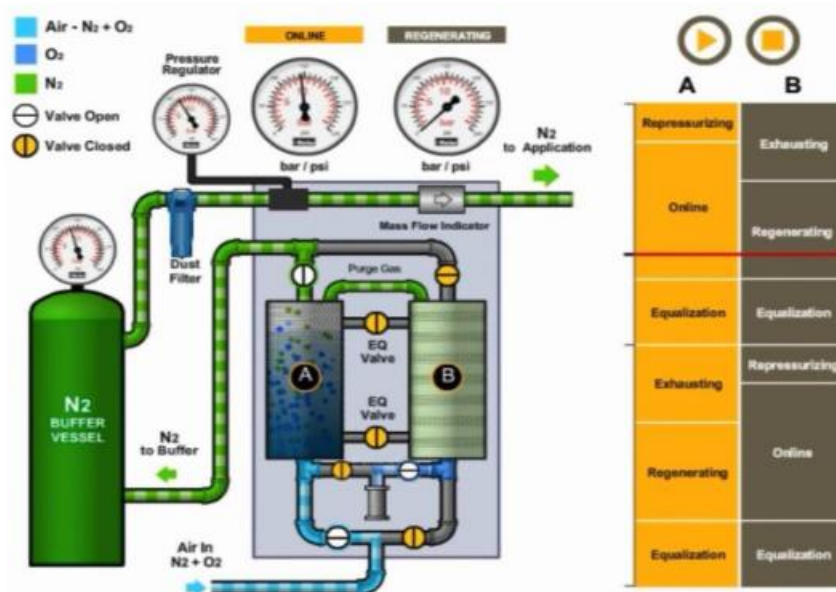
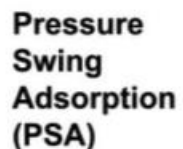
- Liquid Nitrogen Production Methods

- Gases

- Obtaining nitrogen using the fractional distillation of air is an energy intensive process because it is necessary to condense the ambient air into liquid air by cooling and compressing. It is necessary to employ additional energy to purify it to the desired level and fill the desired container.
- The tank is then transported, generally by trucks, to the end user

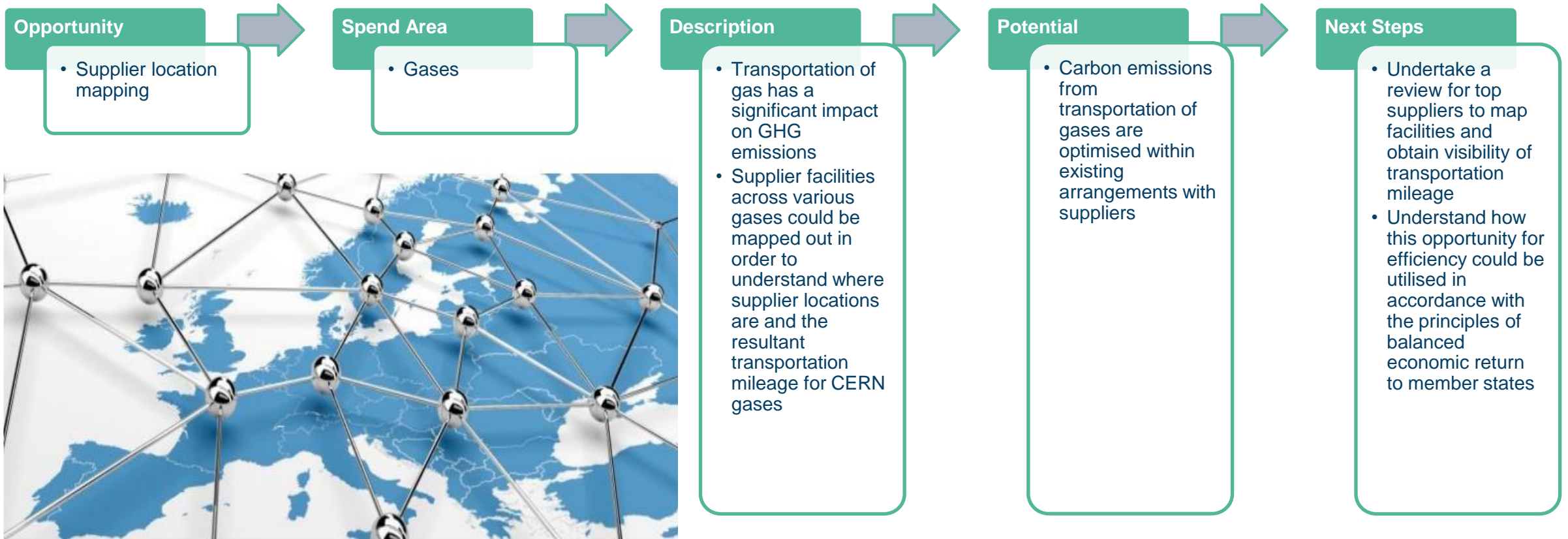
- Alternative on-site methods of obtaining nitrogen are less intensive and do not require transportation, therefore reduce carbon emissions
- These include a hollow fibre membrane system and a pressure swing adsorption system
- European Industrial Gas Association noted PSA used ~28% less energy than liquid nitrogen created by traditional air separation

- Examine opportunities for which this would be a viable option on a smaller scale
- Run pilots to identify initiatives where this may be feasible
- Calculate from both a cost and carbon reduction perspective

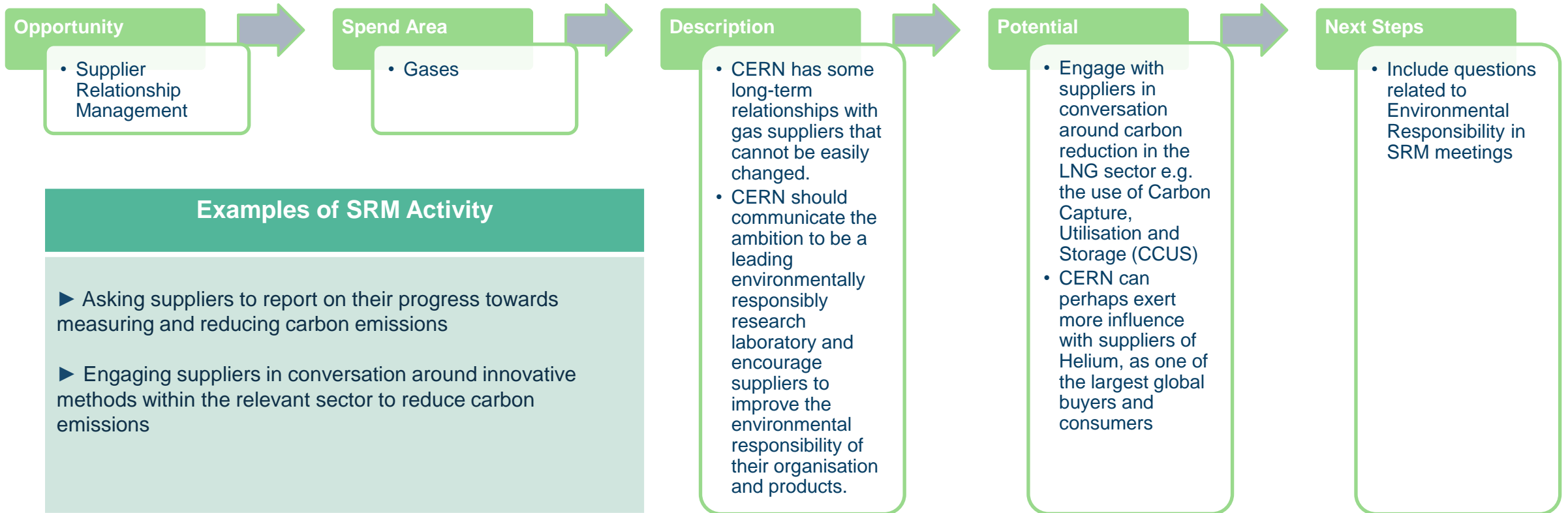


Source: [N2 Supply Research](#)

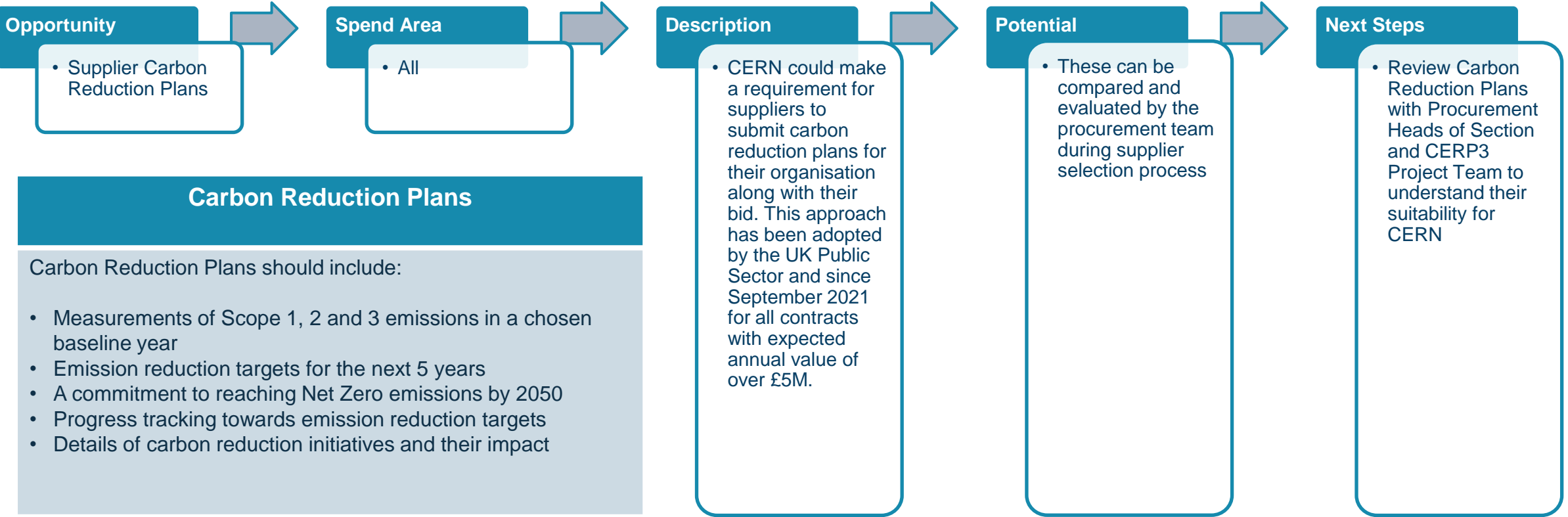
Map suppliers' facilities to reduce transportation mileage



Where CERN have long standing relationships with gas suppliers, time can be invested in SRM activities around Environmental Responsibility



For large contracts, require suppliers to submit carbon reduction plans and evaluate these as part of the bids if using BVFM adjudication



For Environmentally Responsible Procurement actions that rely on supplier collaboration CERN should prioritize working with engaged suppliers

