

3S Technology | Gas conditioning & enrichment

3S (SuperSonic Separation) Technology*, offers an advanced gas processing solution. The technology enables high-efficiency separation of gases using supersonic flows and is a proven alternative to traditional methods like turboexpanders and chillers (see Appendix 1.1).

3S Technology was developed in 1997 and patented worldwide in more than 30 countries. It is applicable for both offshore and onshore facilities.

With more than 10 installations across Russia and China, processing more than 10 billion cubic meters of gas annually, 3S Technology has been proven to substantially raise efficiency and increase revenues of the existing Gas Processing Plants (GPPs), as well as raise production capacity and reduce capital expenditures for the construction of new GPPs by 20-40%

Gas conditioning & enrichment

3S Technology provides gas conditioning to meet the standards for pipeline transportation and / or gas enrichment to increase efficiency and eliminate bottlenecks at new or existing GPP.

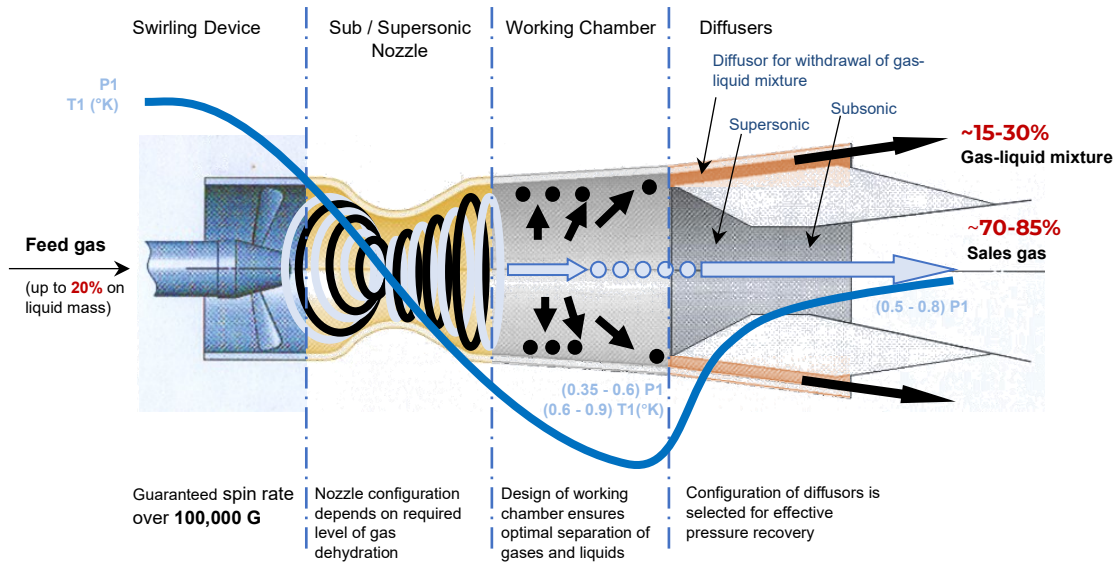
1. *Gas conditioning:* 3S Technology allows to perform efficient natural gas conditioning to meet the standard parameters for further transportation via general pipeline (separation of NGL & water) (see Appendix 1.2).
2. *Gas enrichment:* 3S Technology allows to increase concentration of the target components in the gas (including ethane), therefore enriching it to raise gas processing efficiency, as well as to eliminate bottlenecks at a GPP, radically increasing its processing capacity (see Appendix 1.3).

Key Features

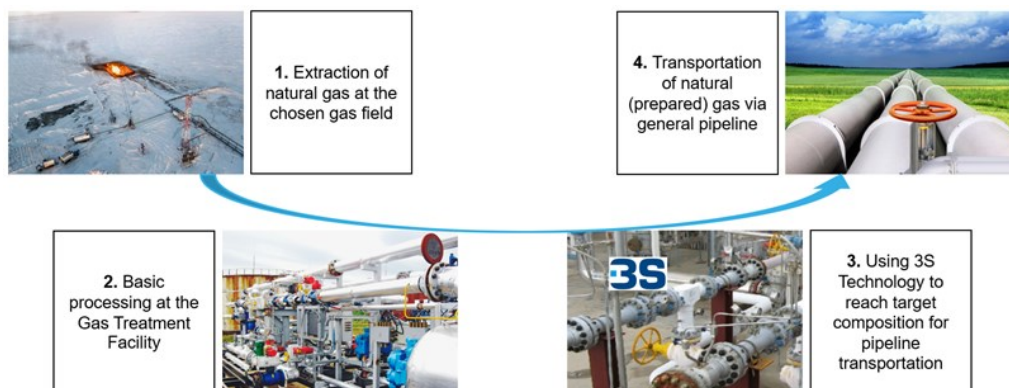
- *Efficiency & Compactness:* 3S Technology provides a compact solution for deep recovery of target components, including propane-butaness and ethane or CO₂ separation from the gas with CO₂ content up to 80% and reducing it to 3%.
- *Easy to operate:* 3S Technology has low cost of installation, operation & maintenance. It can be installed on a wide pressure range and is highly tolerant to flow variation. No rotating parts = minimal wear and tear.
- *Increase of processing capacity:* 3S Technology provides a solution for processing excessive volumes of gas using existing capacities of a GPP through gas conditioning and enrichment with target component(s).

* For more information, please visit <https://engo3s.com>

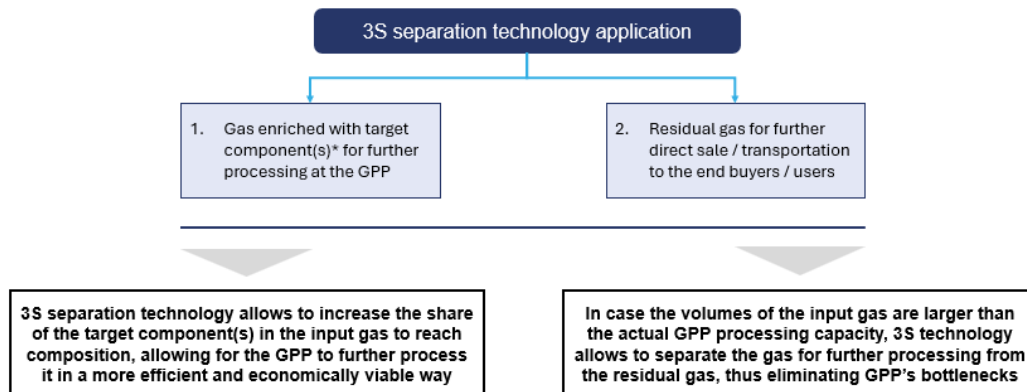
Appendix 1.1: 3S Technology Unit Overview



Appendix 1.2: Gas Conditioning Process with 3S Technology



Appendix 1.3: 3S for Enrichment and Bottleneck Elimination



* Ethane extraction is one of the best examples of 3S Technology application for gas enrichment