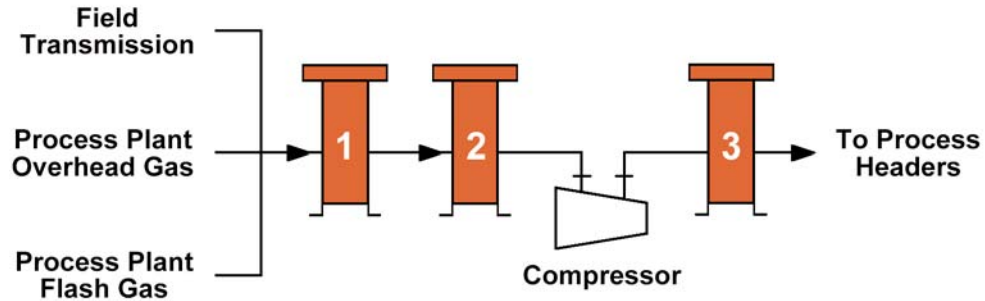




## Fuel Gas



The fuel gas system is one of the primary energy sources in a refinery or petrochemical plant. Fuel gases are typically a combination of process off-gas streams from within the plant and pipeline natural gas. Neither gas stream is typically treated on-site prior to inclusion in the fuel gas system and can contain solids such as pipe scale or catalyst fines and liquids such as hydrocarbons, amine or water.

### Operational Problems

1. Fuel gas compressor fouling
2. Fuel nozzle and combustor fouling

### Solutions

1. A Nowata Filtration Model GSX vane scrubber is used to remove any liquid slugs in the fuel gas stream prior to the fuel gas compressor.
2. A Nowata Filtration Filter/Separator using 1 or 0.5 micron NFG filter elements is used to remove hydrocarbon / water mists and solids from the fuel gas stream prior to the fuel gas compressor to prevent fouling of the compressor.
3. A Nowata Filtration Coalescer using 0.3 micron NFF coalescing filter elements is used to remove lube oil from the fuel gas that is introduced during the compression process. This will prevent fuel nozzle and combustor fouling in the plant process heaters.