

Gas Let-Down Expander Power Generation System Overview



C2 Technology's

Gas Let-Down Expander (GLDE)

power generating system is for businesses, who receive natural gas (NG) directly from the high-pressure distribution network. GLDE power generating system can help them reduce their energy bills or even sell electricity to the grid, minimise their carbon footprint and improve their operational efficiency.

What is a Gas Let-Down Expander Power Generating System?

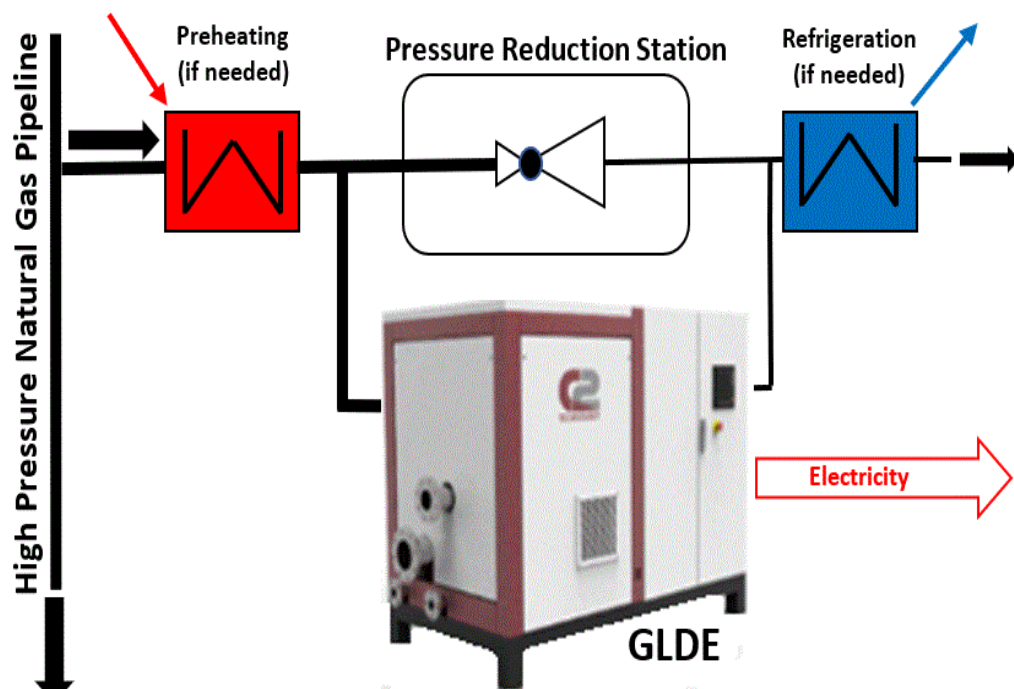
The C2 Technology **GLDE** power generating system is a gas pressure to power (P2P) conversion system consisting of a backpressure turbogenerator, control & power subsystems, valves and ancillary equipment. The package has a compact plug and play design and is used to convert energy wasted during pressure reduction process into useful electricity.

GLDE is a configuration of modular energy conversion system (**MECS**) suitable for retrofitting into many existing NG PRS installations and capable of generating 50kW or more of grid compliant electricity.

Why Install a Gas Let-Down Expander Power Generating System?

The high-pressure NG pipeline network normally operates at pressures of up to 85bara (over 1250psi), whereas industrial facilities and utilities generally use NG at pressures between 2 and 44barg. The distributed NG

supply is lowered to a working pressure by a PRS comprising gas preheating, throttling valves and associated controls and ancillaries. Passing NG through a turbogenerator, typically installed in parallel to a conventional PRS throttling valve, enables use of the energy released by the resulting pressure drop to supplement their electricity supply internally or trade it out. Clients possessing combined heat & power (CHP) installations or any other waste heat source implementable for preheating NG would receive even greater economic benefits.



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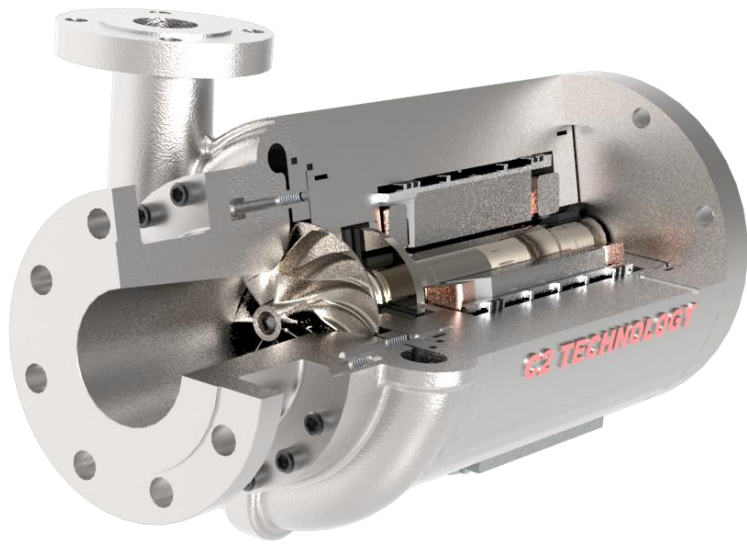
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What are the Benefits of a Gas Let-Down Expander?

- **Additional source of electricity.** Generate from 50kW of electricity from existing PRS for using it internally or selling to the grid
- **Reduced carbon footprint.** Eliminating energy waste will reduce total carbon emissions



- **Integrity of power supply.** Generating own electrical power means less reliance on external supply
- **Optimised plant efficiency.** Utilising other sources of waste heat to maximise overall plant operational efficiency
- **Low capital cost.** Fast return on investment with no reliance on subsidies
- **Automated control.** Maintains downstream pressure whilst generating optimal electrical output and maintaining safety and integrity of the system. Making it easy to use with little training.

How Does a Gas Let-Down Expander Work?

The core of the C2 Technology **GLDE** is a backpressure turbogenerator that expands high-pressure NG. Shaft power is produced when a nozzle directs jets of high-pressure gas through a highly efficient radial turbine. The turbine is integrated in one casing with a permanent magnet electrical generator. The power and control subsystems transform the generated electrical energy into a grid compliant form.

The gas turbine does not consume any NG. It simply reduces the pressure that is subsequently exhausted downstream of the PRS for distribution to the consumer units. Thermodynamically, a **GLDE** package achieves isentropic efficiency greater than 65%, which is well in excess of the average electricity grid generating efficiency.

Who Could Use C2 Technology's Gas Let-Down Expander?

NG is used extensively throughout many different industries including paper, food and beverage, pharmaceuticals and many others for their power plants.

The C2 Technology **GLDE** package is ideally suited to all of the NG users with a PRS and NG flow rates more than 2000Nm³/h.

How Can I Get a C2 Technology Gas Let-Down Expander?

C2 Technology supports each installation by a full set of expert services starting with a thorough analysis of the site and calculations of the projected savings from a **GLDE** installation.

To arrange a free consultation please call or email us.

Please visit our website
or email us for more
information

**C2 Technology Is Your Partner
for Smart & Eco-friendly Solutions
Bringing Tomorrow's Technology into Today**