PROMISING IMPLEMENTATION AREA

Autonomous power supply

Waste heat and excess pressure energy at gas-compressor stations

Associated petroleum gas excess pressure energy

Excess pressure energy from process gas: nitrogen, blast furnace gas, coke gas, etc.

Waste heat and low-grade fuels

Renewable energy sources (solar, geothermal, Power2Gas)

ACHIEVEMENTS

- 2 medals and more than 30 honorable diplomas for various contests and exhibition events
- The project relevance is confirmed by:
  - State and technological expert council
  - 2 pilot projects implementation with potential customers
  - Agreements and Memorandums with strategic partners
- Certified technology

FORMS OF COOPERATION:

- Clients and consumers
- Partners
- Investors
- R&D
- Local and international research programs

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Turbogenerator unit

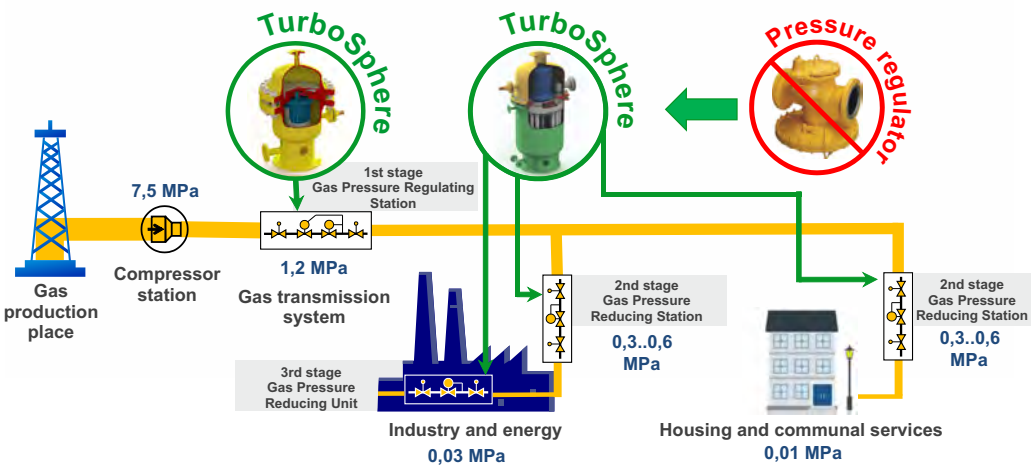
TurboSphere

THE GROUP OF INNOVATIVE COMPANIES

LLC «Scientific and Engineering Center «EnergoTech»
Resident of «Science and Technology Park BNTU «Polytechnic»
Belarus

LLC «TurboEnergy»
Skolkovo participant
Russia

CONVERSION OF NATURAL GAS EXCESS PRESSURE ENERGY INTO ELECTRICITY



TurboSphere - generates electrical energy by converting natural gas overpressure energy. TurboSphere are mounted in parallel with gas pressure regulator on the Gas Pressure Regulating Station and Gas Pressure Reducing Station. It is possible to install either single unit or several of them one by one or parallel to each other. TurboSphere can be used for pressure utilization of other gases. All the parameters are selected according to the object features.

TURBOSPHERE FEATURES

Advantages:

- Clean and green technology
- Operates from pressure differential without gas combustion
- Gas heating by low-grade streams
- Multi-stage gas expansion on the one turbine wheel
- High reliability and effectiveness
- Constant power supply
- Independence and no constant service required

Technical features :

- Working pressure 0,3-6,3 MPa
- Output pressure 0,03-1,2 MPa
- Gas flow rate 400-40 000 m³/h
- Number of expansion stages 3-8
- Engine speed up to 3600 rpm
- Electric power 5-400 kW

Economics:

- Lifetime - 15 years
- Cost of energy from 1¢/ kWh

TEST LABORATORY

ENERGY-EFFICIENT TURBOSPHERE SYSTEM

TGU-15-06-H

Purpose: electricity production by means of natural gas excess pressure energy utilization
Installation site: Gas Pressure Reducing Station and Gas Pressure Reducing Units

Equipment set:

- Turbogenerator "TurboSphere " "3 in 1"
- Automatic control system
- Gas supply system
- Warming heat carrier supply system
- Power recuperation system
- Block-container (if necessary)

Technical features :

- Input pressure 0,3-1,2 MPa
- Output pressure 0,03-0,6 MPa
- Electric power 15 kW
- Gas heating type – built-in

AUTONOMOUS POWER SUPPLY SYSTEM BASED ON TURBOSPHERE

TGU-11-54

Purpose: autonomous uninterruptable power supply
Installation site: Gas Pressure Regulating Station

Equipment set:

- Turbogenerator "TurboSphere"
- Automatic control system
- Gas supply system
- Power recuperation system
- Storage system
- Emergency diesel-generator
- Block-container (if necessary)

Technical features:

- Input pressure 2,0-6,3 MPa
- Output pressure 0,3-1,2 MPa
- Electric power 5-11 kW