

Installation of autonomous generating capacities

Basic directions of energy saving in energy complex of industrial or housing and utility sector facility are the following:

Installation of autonomous generating capacities:

1. Use of renewable energy sources:

- Energy of wind, water, solar (light) energy, geothermal energy,
- Use of synthetic fuels on biological basis: biogas, liquid synthetic biofuels (biodiesel, biogasoline), biocoal, wood pellets and bricks, obtained by recycling of organic industrial, agricultural and domestic wastes, or plants, cultivated intendedly for this purpose,
- Use of temperature drop between water or hard rock layers (heat pumps).

2. Use of less scarce types of non-renewable fuel using modern energy efficient technologies of their use:

- Carbofossils: boosting of energy efficiency of poor quality brown and black coals by their concentration and thermal treatment, use for burning of water and coal mixes (emulsions),
- Heavy fuel - bottom fractions of oil refining: burning as water emulsions,
- Liquid synthetic fuel on the basis of coal or oil shale,
- Associated oil gas or gas condensate, etc.

3. Use of modern energy efficient heat and electricity generating complexes of variable capacity and furnishing (gas turbine and gas reciprocating units, cogenerating systems, etc.),

Gain in performance of existing energy complex:

1. Use of solutions that ensure rational use of electric energy (smooth start systems, variable frequency drives, intelligence lighting systems, reactive power compensation, etc.)
2. Use of waste gas and cooling liquids heat recovery systems, for example, on the basis of substances, boiling at relatively low temperatures,
3. Increase of average actual efficiency factor of heat engines during operation by making them work at nominal or near modes,
4. Reduction of energy need in systems by decreasing of heat, hydraulic and aerodynamic losses in pipelines,
5. Decrease of needs in operation of energy systems as a result of reduction of pumped media discharge,
6. Use of high efficiency equipment for heating of industrial and residential premises, that allows to control generation or transfer of heating energy depending on users' needs (infrared heating elements (gas radiant heating), modular boilers, automatically controlled heating stations, etc.).
7. Use of local climate control systems on the basis of modular vortex tubes, operated by compressed air, that allow temperature variations at the range of -120 degrees Centigrade to + 120 degrees Centigrade, for cooling or heating of electronic or electrical cabinets, individual work places, operating tools, as well as mediums, materials and products in different industry sectors.