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**HIGH EFFICIENT ENERGY SUPPLY OF CITIES AND INDUSTRIAL CENTERS
BASED ON A NEW ENERGY-ENVIRONMENTAL PARADIGM**

The project will include researches aiming at solving fundamental and urgent problems of complex improvement of environmental safety as well as energy efficiency of energy generation.

The aim of the project is developing new scientific approaches for analysis and modification of existed and planned heat and power technological schemes of energy units by means of innovation technologies and installations operating on hydrogen fuel based on a new energy-environmental paradigm.

Project implementation is based on the idea and hypothesis of developing new integrated solutions for the latest hydrogen technologies.

The latter are planned to be integrated into existing and planned energy systems. These include new high-performance and environmentally "pure" innovation cycles and technologies. These are Organic Rankine Cycle (ORC), heat cycle based on "cold fusion" taking place in low-energy nuclear reactor LERN (LERN technology – low energy nuclear reactions), contact hydrogen fuel heat generators, installations and power systems based on renewable energy sources (sun, wind, biomass, etc.).

Hydrogen energy technologies can be used as **energy storage systems** and should provide uniform power systems load.

The project envisages developing new scientific methodology based on **systematic and logical implementation** of the principle of qualitative and quantitative complex analysis of data on existing technological and thermal power generation schemes.

Development of new approaches in assessment of **environmental and energy appropriateness** for new installations, units and energy systems in existing and planned energy facilities are planned in the project based on this methodology.

New approaches (methodology) based on new integrated indicators and performance criteria, new methods for the integrated power implementation management by means of **balances of eco-energy and exergy** installations and energy production cycles.

Project implementation will contribute to realization of **ecological balance principle**. Latter was developed earlier by the author.

In fact, development of **new ecological-energy paradigm (NEEP)** to ensure high performance of power systems operation is planned to be realized in the frames of the project.

Creative approach in NEEP implementation is based on sophisticated use of integrated ecological and energy effects of innovative hydrogen energy technologies.

NEEP has the properties of **commonality and versatility**. It will allow getting to the higher level of management in energy sector and objective optimization of energy production.

NEEP will enhance economic and social impact of innovative energy technologies implementation, to predict the state of energy facilities and environmental background.

Social effect of the given project involve the use of created methods that give objective conditions and motivation for improving environmental cleanliness and energy generation profitability, reducing harmful environmental impact of energy generation on the health of today's and future generations.