

VOLODYMYR DAHL
EAST UKRAINIAN NATIONAL UNIVERSITY
Department "Logistics management
and traffic safety in transport»

PJSC «UKRZALIZNYTSIA»
Regional branch «Donetsk railway»

MANAGEMENT UKRTRANSBEZPEKA
IN LUHANSKAYA REGION

**GLOBALIZATION OF SCIENTIFIC
AND EDUCATIONAL SPACE.
INNOVATIONS OF TRANSPORT.
PROBLEMS, EXPERIENCE, PROSPECTS**

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CONTENTS

Albeschenko D., Popchenko E, Sotnikov D. OPTIMIZATION METHODS FOR DETERMING NOISE IN THE PROCESS OF CERTIFICATION OF WHEELED VEHICLES	13
Antonova G. ENGLISH FOR SPECIFIC PURPOSES WRITING SKILL FORMATION	15
Arsentieva O. DEFINITION OF THE NATURE OF LABOR LAW PRINCIPLES	17
Artemenko O., Volodarec N. HEATING OF THE DIESEL LOCOMOTIVE IN WINTER	19
Asmankina A., Loria M. AUTONOMOUS APARTMENT ENERGY CONTROL AND MANAGEMENT ENERGY SUPPLY COMBINED SYSTEMS.....	21
Babushkin G., Kuz'kin O., Kaplunovska A. FORMALIZATION OF MICRO-LOGISTIC INDUSTRIAL TRANSPORTATIONS CONTROL SYSTEM.....	24
Baranov I., Baranova V., Taratoryna A., Korolenko T. INCREASING CONSUMER PROPERTIES REGULATED CROSSROADS OF CITY STREET AND ROAD NETWORK.....	25
Baranov I., Bragin N., Korsun T., Pasechnik O. SELECTION RATIONAL VARIANT NETWORKING PLAN FORMATION OF ONE-GROWING TRAINS	27
Barvina N. EXTRACURRICULAR ACTIVITY OF THE STUDENTS OF NON-HUMANITARIAN SPECIALTIES IN THE UNIVERSITY THEATRE STUDIO.....	29
Belovol A., Vasilenko O., Tkachenko M., Gorobets V. MAJOR TRENDS OF THE DEVELOPMENT OF SOLAR ENERGY IN CONDITIONS OF TRANSITION PERIOD OF UKRAINIAN ECONOMY	32

3

Globalization of scientific and educational space. Innovations of transport.
Problems, experience, prospects.

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MAJOR TRENDS OF THE DEVELOPMENT OF SOLAR ENERGY IN CONDITIONS OF TRANSITION PERIOD OF UKRAINIAN ECONOMY

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The sun, as is known, is the main source of world alternative energy. Its amount exceeds the total reserves that can be obtained using all other sources: oil, coal, gas, peat and other energy resources (only 0,0125% of the solar energy supplied to the earth is enough to meet the needs of the entire world energy sector).

Due to the exhaustible availability of traditional sources (oil, gas, coal) in the foreseeable future, and the steady growth in their value in recent decades, solar energy is entrusted with considerable hopes, and many countries are investing heavily in modernizing and cheaper existing technologies, and searching New technical solutions.

Unfortunately, in the Ukrainian energy sector over the past 15-20 years, favorable conditions for the emergence of breakthrough technologies in solar energy have not been created. At the state level, there is no possibility to stimulate their development at the proper level, as well as subsidize their introduction into the industrial and housing sectors. But an interesting analysis of the direction and dynamics of the development of the world so-

lar energy industry is of interest. Based on this, experts make assumptions about the timeframe and real prospects of ensuring all the needs of the society with solar energy along with oil, gas, etc.

Two main factors that inhibit the intensive application of technologies for obtaining electricity by the photoelectric method are well known:

- high cost of silicon technology;
- bulkiness and high cost of accumulators accumulating excessively generated electric energy.

Since the 70s, silicon technology has fallen in price by 200 times and its energy efficiency has significantly increased. Further increase in the competitiveness of solar energy is closely related to the successful solution of problems in the following areas:

1. Reducing the costs (material and environmental) associated with the manufacture of silicon photocells.

2. Increase in the conversion coefficient of photovoltaic cells.

3. Development of photoconverters of solar energy on the basis of new physical and chemical effects.

Energy accumulators and batteries are a very important component both in the energy sector and in transport. And the reduction in their cost, significantly increase the competitiveness of the "green" energy.

Since 2009, investments in batteries began to increase and cheaper kWh amounted to 32%. Many large manufacturers (Space X, Tesla Motors, Foxconn, LG Chem, Samsung SDI) are withdrawing large financial flows from other areas and are sending to the development of innovative technologies to improve the technical performance of batteries and reduce their cost.

As the analysis shows, the development and implementation of solar energy at the initial stage needs support and stimulation at the state level. The cheapening of batteries depends on the investment of large businesses. In Ukraine in a period of unstable, so-called transition, economy, it is important to seek opportunities for joint research and development; seek investment in large commercial firms interested in developing alternative energy; experience in the implementation of developed countries to adapt to the national energy policy.