

**Editor-in-chief**  
M.E. MARCHENKO

**EDITORIAL  
BOARD**

V.S. AGABABOV  
R.A. AMERKhanOV  
A.V. ANDRYuShIN  
Yu.V. BALABAN-IRMENIN  
P. BALTRENAS  
V.D. BUROV  
A.V. VOLKOV  
B.Kh. GAITOV  
M.Kh.-G. IBRAGIMOV  
V.I. KORMILITSYN  
Yu.A. KUZMA-KICHTA  
V.V. KULICHKhIN  
B.M. LARIN  
S.I. MAGID  
E.E. NOVGORODSKII  
V.F. OChKOV  
A.B. PERMYaKOV  
V.I. RACHKOV  
A.S. SEDLOV  
V.P. SPIRIDONOV  
B.G. TUVAL"BAEV  
L.A. KhOMENOK  
V.I. ShARAPOV  
E.B. YuRChEVSKII

**Founder:**  
LLC «ENIV»

*The magazine is issued in interests  
and on money of followers.*

*The magazine is registered  
State Committee*

*The Russian Federation on the press.  
Certificate No. 016042  
of April 30, 1997.*

*Certificate on a re-registration of  
PI No. FS77-44018  
of March 01, 2011.*

**Subscription indexes**

**П6414 -**

**Catalogue of Russian Post  
"Subscription edition"**

**Phone of Editorial Board:**

+7-915-4213768

E-mail: eniv2013@gmail.com  
info@energija.ru  
www.energija.ru

Signed  
31.07.2018  
The 1200 copies

It is printed in Printing houses  
Onebook.ru  
LLC «Sam Poligrafist»  
6 Protopopovskii per., Moscow

SCIENTIFIC-TECHNICAL MAGAZINE  
Published since 1997

# **ENERGYSAVING AND WATERTREATMENT**

**No. 6 (116)**

**2018, December**

## **CONTENTS**

<b>GENERAL ISSUES OF POWER AND ENERGY SAVING.....</b>	<b>3</b>
<b>Belkin A.P., Tretyakova P.A.</b> Example of implementation of principles of own power generation .....	3
<b>Zaripova A.R., Vildanov R.R.</b> Increasing of heat production efficiency by putting new boilers into operation .....	8
<b>Larkin D.K., Skorkin V.C., Karpov V.P.</b> Energy saving during milk heat treatment with a heat pump on carbon dioxide.....	13
<b>Usmonov N.O., Isahodzhayev H.S.</b> , Increasing the efficiency of cooling water treatment in the evaporative coolers in a pseudoinned layer .....	17
<b>RENEWABLES .....</b>	<b>22</b>
<b>Arefyev N.V., Mozhaev E.E.</b> Scalable complex of integrated generation of electric energy (scige) with the transformation of kinetic energy of air masses, thermal energy of air masses/soil and the use of solar radiation .....	22
<b>Kashin Y.M., Kopelyevich L.E., Samorodov A.B., Khristoforov M.S., Kim V.A.</b> Mathematical model electrotechnical complex, conversing energy of wind and sun .....	27
<b>RESEARCH, DESIGN, CALCULATIONS .....</b>	<b>33</b>
<b>Kuryanov V.N., Tyshkewich V.N.</b> Analysis of breaking strength of ASHP and ASHT wires .....	33
<b>Kabanova I.A., Kukharenskiy M.I.</b> Evaluation of the efficiency of two-stage combined plants .....	38
<b>Karpov D.F.</b> , Method for the quantitative analysis of the thermograms (thermal images) .....	43
<b>ECOLOGY AND SAFETY .....</b>	<b>47</b>
<b>Abdrakhimov V.Z.</b> Improving environmental safety through the use of inter-shale clay and steelmaking slag in the production of ceramic bricks.....	47
<b>Kormilitsyn V.I., Zhitkov A.N, Maslenkov A.A.</b> The experimental methodology of the development of alternative hydrocarbon fuels .....	52
<b>PROBLEMS OF ENERGY SECTOR .....</b>	<b>52</b>
<b>Akhmedzhanov R.A., Fedotov A.A., Komarov V.A., Kabanov S.V.</b> Identification of unauthorized impact on pipeline .....	60
<b>Myasoedov Yu.V., Bodrug N.S., Myasoedova L.A.</b> Methodical approaches to energy audits of state and municipal unitary enterprises, and small businesses .....	66
<b>EDITOR'S IN CHIEF CHAPTER.....</b>	<b>74</b>
<b>Marchenko M.E.</b> Beginning: G.M. Krzhizhanovsky about electrification of Russia .....	74
<b>LITERARY PAGE.....</b>	<b>80</b>