Vol. 9 (1): 1-10 (2019)

TURKEY'S RENEWABLE ENERGY OUTLOOK AND A GENERAL ASSESSMENT OF RECENT DEVELOPMENTS

Fatma Canka Kilic[1*], Mehmet Keskin Kilic[1], Muharrem Eyidogan[2], Durmus Kaya[2]

[1]Department of Electrical and Energy, Kocaeli Vocational School, Kocaeli University, Kullar Beldesi, Mahmutpaşa Cad., No: 1, P.K.: 41140, Kullar/Başiskele/Kocaeli, Turkey;*
[2]Department of Energy Systems Engineering, Faculty of Technology, Kocaeli University, 41380 Umuttepe, Kocaeli, Turkey;

*Corresponding author Fatma Canka Kilic, e-mail: fatmacanka@hotmail.com;

Received June, 2018; Accepted July, 2018; Published January, 2019;

DOI: https://doi.org/10.31407/ijees9101
UOI license: http://u-o-i.org/1.01/ijees/85195921

ABSTRACT

Turkey is the world's 17th and Europe's 6th largest economy and the country has made significant advances and breakthroughs in its economy since last two decades. Turkey is a very rich country in terms of geographical location and geological structure due to renewable energy sources. The country has planning to take advantage of these resources to the maximum extent aiming both will contribute to security of energy supply and prepare the ground for the creation of new jobs. The installed power of renewable energy sources, which was 12,305 MW in 2002, has reached the value of 36,702 MW in the third quarter of 2017 with an increase of 198%, approximately. This is an indicator that the renewable energy can be a solution to achieve the country's future goals of energy. This paper presents an overview of Turkey's renewable energy appearance and a general examination of renewable energy status with the latest figures, which determined according to the recent developments. It is also aimed to contribute to all fields, businesses and the industry working on renewable energy, not only to whom seeking the newest developments and latest numbers, but also planning to produce green energy and create green jobs for the country's sustainable development.

Key words: Renewable Energy, Turkey, Energy Developments

Vol. 9 (1): 11-16 (2019)

AN EXAMINATION OF MEASURING AND CONTROL SYSTEMS IN AN INDUSTRIAL BIOGAS PLANT IN TURKEY

Mehmet Keskin Kilic[1], Nurettin Abut[2], Fatma Canka Kilic[1,*], Muharrem Eyidoğan[3], Durmus Kaya[3]

[1]Department of Electrical and Energy, Kocaeli Vocational School, Kocaeli University, Kullar Beldesi, Mahmutpaşa Cad. No: 1, PK: 41140 Kullar/Başiskele/Kocaeli, Turkey;
[2]Department of Electrical Engineering, Faculty of Engineering, Kocaeli University, 41380 Umuttepe, Kocaeli, Turkey;
[3]Department of Energy Systems Engineering, Faculty of Technology, Kocaeli University, 41380 Umuttepe, Kocaeli, Turkey;

*Corresponding author Fatma Canka Kilic, e-mail: fatmacanka@hotmail.com;

Received June, 2018; Accepted July, 2018; Published January, 2019;

DOI: https://doi.org/10.31407/ijees9102
UOI license: http://u-o-i.org/1.01/ijees/59170144

ABSTRACT

As an alternative method to the classical energy productions, the concept that energy can be consumed where it is produced has been successfully applied today to minimize the increasing energy costs and use more efficient and clean energy. Even though the fossil-based energy sources are gradually decreasing, they continue to harm the environment with many negative effects such as air, water, soil pollution and global warming. Protecting the environment from these harms, and reducing these negative effects has become the most important targets of many countries in the world. The solutions can be found via renewable energy sources by producing "green power". As these types of solutions increase, the ratio of greenhouse gas emitted at the atmosphere decreases, which is an extremely environmentally friendly approach. Despite the possibility that fossil fuels will end up in a certain period, these alternative energy productions need to be spread over a wider area to achieve sustainable green energy productions. As a good alternative choice, biogas production by evaluating organic wastes in an industrial biogas plant, methane gas is produced and converted into heat and electricity energy in cogeneration systems. Measurement and control systems are needed for the biogas production and cogeneration systems. In this context, pressure, level, temperature measurements are made and biogas content is analyzed, successfully. The pump, mixer, blower and heating system are controlled according to the information obtained from the measuring systems. In this study, an examination of measuring and control systems in an industrial biogas plant in Turkey is discussed in detail.

Key words: Industrial Biogas Plant, Measuring and Control System, Sensor

Vol. 9 (1): 17-22 (2019)

BIOMONITORING OF SO2 SPATIAL DISTRIBUTION ON THE TERRITORY OF THE REPUBLIC OF MOLDOVA

Begu Adam*

**University of Academy of Science of Moldova, Chisinau, Republic of Moldova;*

*Corresponding author Begu Adam, e-mail: adambegu@gmail.com;

Received June, 2018; Accepted July, 2018; Published January, 2019;

DOI: https://doi.org/10.31407/ijees9103
UOI license: http://u-o-i.org/1.01/ijees/35690804

ABSTRACT

Based on the Air Quality Assessment Grades (GECA) and the Lichens Toxicity Scale (STL) versus SO2, developed by us, was tested the air quality, in 2007 and 2017, from 60 and 107 forest ecosystems and stations, respectively, in order to achieve air quality monitoring at national and international level by non-instrumental methods, for honoring Republic of Moldova's obligations under the Geneva Convention (1979). It was established that the moldavian forest ecosystems do not contain reserves to critical loads of SO2 pollution, the annual average for the vegetation season for dendrological species is 0.02 mg / m3 air, and for communities of lichens and cyanobacteria (organisms sensitive to pollution) - only 0.01 mg / m3. Lichens indication demonstrated that the current level of air pollution with SO2 is between 0.05 and 0.5 mg/m3, what indicates long-term, adverse effects, manifested in all studied forest ecosystems. Over 10 years, air quality has improved, particularly in the northern and central areas of the country, while the southern and south-eastern areas remained practically unchanged. Of the 107 ecosystems and stations, evaluated in 2017, it was found that in 10 forest ecosystems the air quality is assessed as *clean air*, 24 - *low polluted air*, 54 - *moderate polluted air*, 15 - *polluted air*, 4 - *high polluted air* and those with *critical polluted air*, were missing.

Keywords: lichens, bioindication, air pollution, SO_2, monitoring.

Vol. 9 (1): 23-32 (2019)

A GENERAL EVALUATION OF TURKEY'S ENERGY DIPLOMACY AND THE LATEST CLIMATE CHANGE STUDIES

Fatma Canka Kilic[1*], Mehmet Keskin Kilic[1], Muharrem Eyıdogan[2], Durmus Kaya[2]

[1]Department of Electrical and Energy, Kocaeli Vocational School, Kocaeli University, Kullar Beldesi, Mahmutpaşa Cad., No: 1, P.K.: 41140, Kullar/Başiskele/Kocaeli, Turkey;*
[2]Department of Energy Systems Engineering, Faculty of Technology, Kocaeli University, 41380 Umuttepe, Kocaeli, Turkey;

*Corresponding author Fatma Canka Kilic, e-mail: fatmacanka@hotmail.com;

Received June, 2018; Accepted July, 2018; Published January, 2019;

DOI: https://doi.org/10.31407/ijees9104
UOI license: http://u-o-i.org/1.01/ijees/63075692

ABSTRACT

Energy imports in Turkey increased around 36.1 percent annually for the first 10 months of 2017, and this amount rose to 41.7 percent in the August-October period, which relatively high increase in oil prices was experienced as it is expected. The country aims to reduce the dependence on imported inputs, especially in energy and related matters. Also, it is targeted to continue structural reforms with stability, accelerating technology with intensive productions and reduce the ratio of current account deficit to the national income to the level of 3.9 percent by reducing this dependence on imported energy at the end of the Medium-Term Program. In this study, a general assessment of Turkey's energy diplomacy and the latest climate change studies are examined according to up to date developments and the numbers. Therefore, it is aimed to contribute to the energy diplomacy in Turkey and raise awareness on the climate change studies.

Key words: Turkey, Energy, Energy diplomacy, Climate change studies

Vol. 9 (1): 33-42 (2019)

AN ENERGY AUDIT AND OPTIMIZATION IN BAR MILL ANNEALING FURNACE

Mehmet Hadra[1], Ahmet Serhan Hergül[2], Durmuş Kaya[3], Muharrem Eyidoğan[4], Fatma Çanka Kiliç[5*], Necmi Cemal Özdemir[6]

[1-2-3-4-5]Kocaeli University, Technology Faculty, Department of Energy Systems Engineering, Turkey;*
[6] Kocaeli University, Engineering Faculty, Department of Electrical Engineering, Turkey;

*Corresponding author Fatma Canka Kilic, e-mail: fatmacanka@hotmail.com; mehmett_085@hotmail.com; serhan.hergul@kocaeli.edu.tr; durmus.kaya@kocaeli.edu.tr; muharrem.eyidogan@kocaeli.edu.tr; fckilic@kocaeli.edu.tr; necmi.ozdemir@kocaeli.edu.tr;

Received June, 2018; Accepted July, 2018; Published January, 2019;

DOI: https://doi.org/10.31407/ijees9105

ABSTRACT

Due to today's competitive conditions and rising energy prices, the efficient use of energy consumed by facilities is only possible with the energy savings that can be made by investing in time, updating the technology, optimizing operating conditions and constant controlling. In this direction, The Bar Rolling Mill authorities have started this work to detect possible energy losses on the site and to increase energy efficiency. Measurements and evaluation of the results were made on the surface insulation inspections in annealing furnace, annealing furnace flue gas and annealing furnace cooling water, compressors, compressed air lines, pumps and annealing furnace burning air fan and hydraulic motors in Bar Mill. In the studies of the measurements, each equipment and line were examined separately and necessary calculations were done. Some suggestions were made on determined points which cause energy losses, how much loss is realized through these points and necessary investments to compensate for these energy losses, the price information. In the light of these works carried out in the factory; It is possible to save a total of 1,767,120.04 kWh/year energy and 441,780.01 ₺/year saving of money. Total investment cost is 558,500.85 ₺. The average return on investment (ROI) for all application plans is 1.26 years. After all these improvements, CO2 emission values will be reduced to 1,030.23 tons per year.

Key words: Bar Rolling Mill, Energy Efficiency, Energy-Saving, Annealing Furnace, Pump, Hydraulic Motor.

Vol. 9 (1): 43-52 (2019)

BIOGEOGRAPHIC ASPECTS OF THE CHARACTERISTICS OF ZONALITY, HEIGHT BELTS AND EXTRAZONALITY IN THE STRUCTURE OF VEGETATION (LAKE BAIKAL REGION)

Alexander Sizykh[1]*, VictorVoronin[1], Alexey Shekhovtsov[2]

[1]*****Siberian Institute of Plants Physiology and Biochemistry of SB RAS, 664033, Irkutsk, Lermontov Str., 132, Russia;*
[2]*V.B. Sochava Institute of Geography of SB RAS, 664033 Irkutsk, Ulan-Batorskaya str., 1, Russia;*

*Corresponding author Alexander Sizykh: alexander.sizykh@gmail.com;

Received October, 2018; Accepted November, 2018; Published January, 2019;

DOI: https://doi.org/10.31407/ijees9106
UOI license: http://u-o-i.org/1.01/ijees/16264953

ABSTRACT

The ideas concerning continuity and discreteness of vegetation cover are always in the basis of numerous classification structures. The development of biogeography and geobotanic mapping as a method allowed to accumulate a huge experience for establishing of classification systems and approaches reflecting these or those peculiarities in territories under definite physical-geographic conditions. It starts with description of communities without ranges determining regional-zonal features of vegetation and results in establishing of formations characterizing historical-genetic links in formation and development of vegetation in concrete territories. Due to this fact, the revealed arealogical (geoelemental) and belt-zonal compositions of plants species in communities are basic criteria for assessment of structural-dynamic organization of vegetation under concrete physical-geographic conditions at any territory.

Key words: vegetation, biogeographic aspects, zonality, height belts, extrazonality, arealogical and belt-zonal compositions of plant species, key sites, Lake Baikal region

Vol. 9 (1): 53-58 (2019)

THE IMPACT OF HUMAN RESOURCES MANAGEMENT IN SMEs ON THE REPUBLIC OF KOSOVO

Shpresa Bajrami

State University of Tetova, Macedonia;

Corresponding author Shpresa Bajrami, e-mail: shpresa--m@hotmail.com;

Received October, 2018; Accepted November, 2018; Published January, 2019;

DOI: https://doi.org/10.31407/ijees9107
UOI license: http://u-o-i.org/1.01/ijees/17147919

ABSTRACT

In this paper we will talk about the impact of human resources management in the SMEs growth in Kosovo. Human resources management is the innovation and creativity that employees have for their organization. Human Resources play an important role nowadays in a modern and dynamic economy. The failure of an implementation of good HR strategy strongly affects society, if we consider the lost opportunities and the resources consumed. It is therefore necessary to better understand the importance of HR development for the global economy, something that we will try to highlight in this paper. For the company to succeed in the business environment and in their industry they have to be very creative and innovative. Companies have to come up with the new products, marketing strategy and new ventures etc. Unemployment rate in Kosovo is very high around 40% comparing to the young generation that enter the working market every year. So, SMEs are considered very essential in smoothing this unemployment rate and give this generation new possibilities on showing their working potential. Furthermore, finding work for this generation we also have impact on the so called brain drain, which is a concerning issue for Kosovo. So, SMEs are not having impact only in the economic growth but also in the aspect of keeping youth and their potential inside the country.

Key words: Human resources management (HRM), SMEs, innovation, creativity, society, global economy, new ventures.

Vol. 9 (1): 59-64 (2019)

IMPACT OF INTEROPERABILITY OF INFORMATION SYSTEMS – THE CASE OF INSTITUTIONS OF THE REPUBLIC OF KOSOVO

Kujtim Gashi

University of Tirana, Economy Faculty, Department of Statistics and Applied Informatics, Tirana, Albania;

Corresponding author Kujtim Gashi, e-mail: gashi.kujtim@outlook.com;

Received October, 2018; Accepted November, 2018; Published January, 2019;

DOI: https://doi.org/10.31407/ijees9108
UOI license: http://u-o-i.org/1.01/ijees/82995744

ABSTRACT

Interoperability of information systems as a conpcept witihin governmental institutions has been used by different governmental institutions around the World. Therefore, the main purpose of this was to identify the state and level of realization of interoperability of electronic systems by institutions of the Republic of Kosovo, with a deeper focus on creation of governmental gateway as an interface of e-services hub in a national level. Initially, academic literature was used to understand the importance of the most successful governance methods including e-Governance and rational management as well as to analyze the use of various e-services and interaction between them. Also, this paper is based on case study approach that the author has had the opportunity to directly interact during the implementation and management teams, which was used as the main research methodology and data collection.

Keywords: Information Systems, e-Government, Interoperability, Governmental Gateway

Vol. 9 (1): 65-70 (2019)