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# **BLACK SEA BALKAN SYMPOSIUM**

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# **2015**

**II. BLACK SEA AND BALKANS ECONOMIC AND POLITICAL STUDIES SYMPOSIUM**

## **ABSTRACT BOOK**

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# THE IMPACT OF OIL REVENUES ON THE IRANIAN ECONOMY AND THE GULF STATES

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## ABSTRACT

*Persistent streams of oil revenues might have a long lasting impact on GDP per capita in the oil exporting countries, as they might trigger higher investment activities. In this paper, the relationship is explored for Iran and the countries of the Gulf Cooperation Council (GCC) using (panel) cointegration techniques. Several results emerge from the analysis. Cointegration between oil revenues, GDP and investment can be established for all countries. While the cointegration vector is found to be unique for Iran, long run equations for GDP and investment per capita are distinguished for the Gulf countries. While GDP and investment both respond to deviations from the steady state, oil income can be treated as weakly exogenous. The long run oil elasticities in the Gulf states exceed their Iranian counterparts. While oil revenues are closely related to investment activities in the GCC states, investment in Iran does not react to oil revenues in the long run.*

**Keywords:** Oil exporting countries, oil revenues, panel cointegration

**JEL Codes:** F43, O53, Q30, C33

**INTERACTION BETWEEN ALTERNATIVE ENERGY INPUT PRICE'S  
VOLATILITY AND SPILLOVERS EFFECTS: A VAR[MA]-MGARCH IN BEKK  
APPROACH TO TURKISH ECONOMY**

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**ABSTRACT**

*The interaction of the energy unit costs which is considered to be the most effective factor for the realization of economic growth and the extent of these interactions to the production process has become an increasing popularity issue in recent years. Especially because of the scarcity of energy resources, shortages in energy supply are experienced. Consequently, the use of alternative energy sources becomes necessary. Therefore the realization of simultaneous production of different energy input emerges to an interaction between the factors of production and leads to diffusion effects. For this purpose, in this study by taking into account the effect of the spillover between the conditional variance and alternative energy input costs, alternative vector autoregression M-GARCH (VAR [-MA] - MGARCH) models will be estimated.*

# THE RELATIONSHIP BETWEEN ENERGY PRICES AND MACROECONOMIC VARIABLES: EVIDENCE FROM OIL-IMPORTER TURKEY AND OIL-EXPORTER RUSSIA

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## ABSTRACT

*For a country, energy is one of the most important inputs in terms of economic and social development. Demand for energy is rapidly increasing due to factors such as industrialization, urbanization and population growth. Therefore, it is extremely important having a sustainable energy policy and ensuring price stability in a market environment. By many theoretical and empirical studies have demonstrated that changes in energy prices have a significant impact on the economy. The most important studies in the literature by Darby (1982) and Hamilton (1983) which investigating the effects of energy prices on economic activity. Since 1980, a significant number of empirical studies have been published investigating the effect of energy prices on macroeconomic and financial variables. Recently, relevance of these studies shifted policy differences that might arise between the energy-importing and energy-exporting countries. Turkey is an energy-dependent country which is a net importer in terms of energy. The large part of these import which is result from this energy-dependence is with Russia which is a net exporter in terms of energy. Departing from this dependency relationship between Turkey and Russia, this study examined the relationship between energy prices and macroeconomic variables with an empirical analysis for a net-importer and a net-exporter country. Additionally, it is aimed to reveal potential similarities and differences of macroeconomic variables through energy prices.*

**Keywords:** Energy Prices, Monetary Policy, Economic Activity

**JEL Codes:** Q430, E52

## SECTORAL CO<sub>2</sub> EMISSIONS IN TURKEY: AN INPUT-OUTPUT ANALYSIS

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### ABSTRACT

*The greenhouse effect is a natural process that provides the heat required for the existence of life on the Earth. In this process, Earth's temperature is caused by gases in the atmosphere by keeping the rays from the sun. There are two main sources of degradation of atmospheric heat balance. The first is the nature itself and the other one is the human intervention. The most significant part in anthropogenic greenhouse gas effect are originated by industrial production.*

*It has become necessary to increase the industrial production in order to meet the needs of the world's rapidly increasing population. This increase in production means more production of energy resources and more consumption of it. Although the production, exchange and consumption of energy resources has a positive impact on industrial production, compare to the others, it has some negative environmental impacts created by the greenhouse effect. Despite having the lowest share on the process of natural greenhouse effect, carbon dioxide (CO<sub>2</sub>) has the highest share among the others regarding the use of energy. Although adverse effects of CO<sub>2</sub> accumulation in the atmosphere on the greenhouse effect are known long before, the studies for the elimination of these effects are concentrated in the nearest time frame. The most important international arrangement made for this purpose is Kyoto Protocol. Legal emission reduction commitments for Parties was introduced by this Protocol. Greenhouse gas emissions in the atmosphere has the same effect no matter where in the world. In contrast, the costs of reducing greenhouse gas emissions varies in each country. However, under the protocol, countries with higher costs are able to fulfill its obligations by developing projects for reducing greenhouse gas emissions in countries with lower costs. In this case the amount of CO<sub>2</sub> emissions of each country becomes very important and this necessitates the calculation of the CO<sub>2</sub> amount.*

*Input-output analysis is one of the mathematical methods used for the planning of industrial production. With this method, CO<sub>2</sub> industrial production can be calculated mathematically by using the relationship between energy use and emissions.*

*Input - output model is basically a general equilibrium model to examine interdependence of production and consumption units that form economic structure together with a multi-sectoral and quantitative approach in economy level. In the input-output analysis, the total production amount which is needed for each particular sector to meet a final demand is calculated. The input-output model which was used in many areas of economic planning has been applied to the use of energy and environment relationship after the late 1960's.*

*In this study, based on the pioneering studies examining the input-output relationship in energy and the environment, the amount of CO<sub>2</sub> emissions resulting from energy use in industrial production in Turkey was calculated under three headings. These are the amount of CO<sub>2</sub> emissions for the production for final domestic demand in Turkey, for the production made to meet the export demand and the production for direct private and public consumption.*

*Turkey's most recently published Input-Output table belongs to 2002. Therefore, all other data sources used in this study is also arranged on this year. In addition, though input-output table of Turkey is determined for 59 sectors data on energy use was published for 48 sectors. Input-Output table were aggregated as 48 sectors in order to ensure sectoral equity of two data sources.*

*According to the calculated results, it has been a total of 206 501 + 11 teb CO<sub>2</sub> emissions in Turkey as sourced from domestic and overseas demand in 2002. The biggest proportion of the total with 63% CO<sub>2</sub> emissions caused by domestic demand while 26% caused by export and 11% caused by fuels used for enlightenment, transportation, heating purposes of private and public consumption.*

*For the convenience of readers, 14-digit sectoral classification was used to display the calculated results. Accordingly, the manufacturing sector is the sector with the highest share of 70.33% in CO<sub>2</sub>emissions in Turkey. This is followed by transport, storage and communications sector with 12.39% share. On the other hand, financial intermediation activities sector has the least share at CO<sub>2</sub> emissions by 0.25%. These sectorial CO<sub>2</sub> emissions calculated for Turkey has also separated into three sub-headings. The first one is the CO<sub>2</sub> emissions originated from production made to meet the domestic final demand. In this context, manufacturing of other non-metallic mineral products (cement-glass) sector ranks first with 43.83%. This is followed by basic metal industry sector with 13.3%. Secondly, CO<sub>2</sub> emissions originated from production to meet the export demand was calculated. Non-metallic mineral products (cement-glass) sector and basic metal industry sector take first places in production for export. The share of responsibility in CO<sub>2</sub> emissions of the first sector is 34.3% whereas the latter is 34.24%. Finally, the amount of CO<sub>2</sub> emissions caused by the production for direct private and public consumption were calculated. The share of other non-metallic products industry ranks first with 36.17% whereas basic metal industry takes the second place with 18.14% in this calculation.*

**Keywords:** *Input – Output Models, Input-Output Analysis, Carbon Dioxide(CO<sub>2</sub>) Emissions.*

**JEL Codes:** *C67, D57, Q49*

# ENVIRONMENTAL KUZNETS CURVE: THE EVIDENCE FROM BSEC COUNTRIES

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## ABSTRACT

*Environmental Kuznets Curve hypothesis observes the linkage between environmental quality and income per capita. It argues that environmental quality decreases in early periods of GDP growth per capita and from a certain point it begins to increase. This paper examines the presence of Environmental Kuznets Curve in Black Sea Economic Cooperation (BSEC) countries by using the variables energy consumption and CO2 emissions for the time period of 1992-2012. We use panel data in order to test if there is a relationship which supports Environmental Kuznets Curve hypothesis.*

**Keywords:** *Environmental Kuznets Curve, CO2 Emission, Energy Consumption, Panel Data*

**JEL Codes:** *C32, F18, Q56*

12 November, 15:45  
Hall 2

## THE TURCO-RUSSIAN RELATIONS: PIPELINE POLITICS AND GEOPOLITICAL ISSUES

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### ABSTRACT

*This paper discusses the dynamics of the Turco-Russian relations by focusing on pipeline politics, that is basically the Turkish Stream Project and political hurdles including Crimea. The paper also will examine the implications of the hurdles of the trans-Caspian gas transits which can also impact Turkey's overall relations with Russia. Combined with infrastructure developments in the Iranian and Iraqi natural gas sectors Turkey could become less dependent on Russia. Other hurdles include Ankara's participation in the Black Sea exercises with Bulgaria and Romania which unnerved Moscow. In Transcaucasus Moscow cultivated a close relationship with Yerevan, while Ankara considered preservation of close ties to Baku vitally important. Russia's annexation of Crimea also did not help, although the parties generally opted to keep their disagreements rather quiet, preferring to negotiate rather than bring their disagreements to the public. Nevertheless, symbolic gestures implied ominous outcomes. In April 2015 Putin attended Armenian commemorations of the 1915 events while on the same days Turkey hosted government representatives from former foes who participated in the 1915 Gallipoli battles. All in all one can characterize relations between the two as rather complicated. There are positive characteristics, like close economic relations, including existing and potential pipelines. There are also potentially harmful obstacles, including opposing policies on the Transcaucasus and Crimea.*

**JEL Codes:** Q35, Q48, Q41, Q49, Q40, Q38, Q35

**CONSIDERING PIPELINE POLITICS IN EURASIA: TANAP, SOUTH STREAM  
AND TURKISH STREAM**

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**ABSTRACT**

*After the dissolution of the Soviet Union, the newly independent Republics entered the international arena. As a result, the Caucasus-Caspian region, which possesses enormous natural resources such as natural gas and oil, has become an important region of the world. The first part of this study gives a historical overview of the oil industry of Tsarist Russia and the Soviet Union. The second part explains the energy policies in Azerbaijan after that country's independence. The third part examines pipeline politics in Eurasia, especially in regards to the some projects of Azerbaijan and Russia, such as South Stream and TANAP. Lastly, this study has focused on abandonment of South Stream project and initiation of new project; Turkish Stream. Importance and effects of those three projects will be analyzed.*

**Keywords:** Energy, Russia, Azerbaijan, South Stream, TANAP, Turkish Stream

**Jel Codes:** Q48, F51, F52

## NATO AND ENERGY SECURITY

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### ABSTRACT

*Energy has become one of the critical strategic assets as world globalized and economically blossomed. Energy is considered a strategic asset for its two important aspects. First it has become the essential asset of modern societies and has played a crucial role in their evolution. Energy also becomes a securitisation' issue as its deficiency or disruption causes destabilizing factor that might led insecurity of a society or a nation. Thus, the limited raw materials constituting the energy source and concentration of energy in certain regions, the difficulty of developing alternative energy sources, the extreme grow of some developing states in the last 20-30 years and the increase for energy need because of this growth, and using the energy reserves as a tool in foreign policy by some states in the new century have led to the securitization of energy. The challenge of energy security will increase more in the years ahead, because the scale of the global trade in energy will grow substantially*

*Historically, the strategic dimension of energy seems to have become obvious when trends towards an increasing consumption of fossil fuels and thus a dependence on these energy sources started to be perceived as a challenge by the West. The 1973 oil crisis and the subsequent OPEC oil embargo put the economic models of several Western countries at risk and triggered strategic reflexions around energy supplies. However, as the Russia has made a strategic use of national resources in order to restore the country's stature as a world power in Ukraine has caused the Western World to tackle energy issue with more serious manner.*

*While the West has seen the energy security to be handled with a wide-range tool and methods that might cover the use of NATO, as it NATO is attempting to become a global security organization, while disregarding its essential tasks. NATO is not merely a military alliance; it also has a strong political-security agenda, which was emphasized in the 2010 Strategic Concept. A stable and secure energy supply is important for Allies' national security and therefore of interest to NATO.*

*However, energy security is not entirely new to NATO; its concept has evolved through years. For example, NATO's Strategic Concept from 1999, which is the overall strategic document for NATO's activities, for example, speaks of the "...disruption of the flow of vital resources" which implies the importance of energy flow. However, the main event caused the West was the Russia's use of natural gas as weapon against Ukraine government in 2006. The international context of 2008 and 2009 has contributed significantly to the "securitisation" of energy supply. So, NATO has started to tackle with energy issue which might destabilize NATO members. The framework of NATO's energy security position was underscored by the declaration released after the Alliance's Strasbourg-Kehl summit in April in 2009. Reflecting the process begun at the Riga summit (2006) of drafting a coherent and suitable role for the alliance, the declaration notes the principles agreed at Bucharest Summit in 2008. Thus the Alliance affirms its support for safe and secure energy flows which cover importance of diversification of routes, suppliers and energy.*

*The other reason led NATO to involve energy issues have been a growing threat to energy security such as terrorist attacks against energy infrastructure, especially in supplying*

*regions outside NATO, growing cyber risks to critical energy infrastructure, piracy that affects the security of maritime supply routes, risks to secure and effective energy supply to NATO missions and operations, disruptions of vital energy supplies within NATO, regional instabilities that could affect stable energy supplies to NATO nations. Therefore NATO has enhanced its role in energy security in order to prevent any threat disrupting the energy flow.*

*NATO's role in energy security can be carried according to mandate, strategic concept and the interests of member nations. NATO deals with energy security in coordinator aspect; taking into consideration energy security is essentially a matter of national sovereignty. With this in mind, NATO collaborates common policies, provides member states with counseling and training support without interfering their internal affairs. In this context, the NATO's major tasks for the energy security are political consultations among Allies and with partners; intelligence sharing and strategic analysis on the energy security; sharing best practices on critical infrastructure protection; providing training and education (NATO Defence College in Rome, NATO School in Oberammergau) and conducting or coordinating crisis and consequence management exercises; promoting energy security through interoperability and efficiency in the military; supporting the activities of the NATO Energy Security Centre of Excellence in Lithuania; dialogue with other stakeholders (EU, IEA, UN, OSCE, private sector; scientific cooperation (NATO Science for Peace and Security Program); and coordinating and implementing public diplomacy. On the other hand, it also contributes to the energy security with its ongoing operations that might also help energy security.*

*In this context, NATO attributed significant importance at summits, of which declaration covered the NATO's future role and function at energy security. The principles and guidelines refining NATO's role in energy security which were outlined agreed in Bucharest Summit in 2008 which gave the direction to subsequent Summits and the Strategic Concept. So, finally at the Wales Summit (September 2014) NATO Heads of State and Government promulgated that the stable and reliable energy supply, the diversification of routes, suppliers and energy resources, and the interconnectivity of energy networks remain of critical importance and NATO closely follows relevant developments in energy security, including in relation to the Russia-Ukraine crisis and the growing instability in the Middle East and North Africa region.*

*As a result, NATO looks at the energy security as military task which foresees employment of force in nature. NATO takes into account no militarization of energy security which is a market-driven issue, no duplication of other stakeholders' roles and responsibilities and no interference with national economic policies.*

**JEL Codes:** F50, F53, F59

12 November, 15:45  
Hall 2

**TREND OF INEQUALITY CONCERNING HOUSEHOLD ELECTRICITY  
CONSUMPTION DISTRIBUTION IN IRAN**

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**ABSTRACT**

*Energy consumption of different households with different income are different. The main aim in this research is to evaluate the electricity consumption inequality trends in Iran during the period 2000-2011 concerning Rural, Urban and in country as a whole. Doing so, we have used the cross-section household expenditure micro data and the non-parametric Gini coefficients are estimated. The results show in general that rural electricity consumption inequality has been higher than that of in urban areas. The electricity consumption share in total expenditures has been higher among lower income.*

**JEL Codes:** D31, H31, Q41

## **THE CORRELATION BETWEEN SOCIAL POLICY and ENERGY POLITICS: AN ASSESSMENT ON THE BASIS OF GREEN COLLAR WORKERS**

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*The main objective of the study is to lay an emphasis on the correlation between social policy and energy politics particularly within the framework of green collar workers which have been discussed as the new worker class as a parallel to the occurrence of information society and renewable energy. Social policy which can be defined as the sets of policies that aim the welfare of the humans as a whole is an instrument and apparatus for justice, good will as well as sustainability of the societies. The magic term social policy occurred initially in the aftermath of Industrial Revolution as a sort of resistance to the employers' exploitation of the labour. Therefore, the first definitions of social policy were solely related to labour class. However, in the 21th century, social policy is not interested in the problem areas of employees; in the stark contrast; it focuses on everything that can be taken into account as a "social problem" such as immigration, human trafficking, family work, terrorism, social exclusion, inadequacy of home and so forth which pave the way that the meaning of social policy has been enlarged. In the last studies concerning social policy, energy, the energy oriented projects, and the usage of renewable energy are closely debated in regards to its contribution to the welfare as well as emergence of the new worker class; in other words green collar workers who are actually employed in the this sector. This new class has a large variety of workers from engineers of environment, computer operators, forest engineers, to landscape engineers. This study consists of three parts. In the first part of the study, social policy and the new trends in social policy is referenced. In the second part, the energy policies and its relationship with the social policy in terms of green collar workers and welfare are argued. As for the last part, some concluding remarks are given.*

**Key Words:** Social Policy, Energy Politics, Renewable Energy, Green Collar Workers, Welfare

**Jel Classification Codes:** J00, Q40

## **CLEAN GROWTH: THE CASE OF BANGLADESH**

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### **ABSTRACT**

*The motivation behind this paper is the observation that Bangladesh is transforming from an agricultural economy to service economy without spending much time as a manufacturing economy. Such development pattern can increase GDP without making the environment dirty. Our earlier study (Rahman and Porna, 2014) shows that CO2 Granger causes GDP for South Asian countries. In this proposed study we will try to check whether development in Bangladesh is clean or achieved making environment more polluted. Preliminary results show that energy consumption, CO2 emission and GDP growth does not have a clear one to one cointegrating relationship. Their causality is not strong. Urbanization has a weak long term relationship with CO2 emission. Regarding decoupling index (Bithas and Kalimeris, 2013) we found that only in 5 years out of 40 considered decoupling did not happen and in 9 years absolute decoupling happened. Similar measure with CO2 also shows high level of decoupling from growth. Such findings induce us to think that GDP growth is mostly service sector oriented (apart from still large agricultural sector) and growth is relatively clean. We suspect that (final results pending) that added CO2 emission is mostly due to increase in private consumption due to higher affluence fueled by service sector growth.*

**POTENTIAL IMPACTS OF OIL CONTAMINATION DAMAGE ON THE MARINE  
BIODIVERSITY CASPIAN SEA AND BLACK SEA**

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**ABSTRACT**

*Oil Industry is known to be a leading figure in industrial pollution. Like other types of industries, oil industry is damaging on both offshore and onshore ecosystem with its waste. Oil spills can caused a wide range of impacts in the marine environment and are often portrayed by the media as "environmental disasters" with dire consequences predicted for survival of marine flora and fauna. Accidental spills of the contaminants pose a very high level of risk for the marine ecosystem and coastline. The economic fish species are very sensitive to continued high fluxes of contamination as the both of Caspian Sea and Black Sea is essentially a closed basin. The spilled oil could be contaminated not only shorelines of oceans and lakes but also some of rivers and streams and other ecologically sensitive habitats along the water's edge.*

*In this study, the environmental pollution problems caused by oil reaching water bodies by accidents or intentional events during extraction, transportation or refining processes has been analyzed and for the case study area Caspian Sea example was investigated. As the same aim, Caspian sea and Black sea biodiversities are compared about the potential oil spill effect. Apart from the possible effects of such risks on endemic and economic species, the procedures towards reducing these effects have been discussed. Both of The Black Sea and Caspian Sea, which are among the most remarkable water basins in the world, are a unique ecosystem including endangered species and also other endemic and economic species detected by International Union for Conservation of Nature (IUCN). At this study oil contamination examples in Caspian Sea and Black Sea were researched and damage to Caspian region has been estimated for the case study. The other purpose of this research is to identify damages to ecosystems by oil industry wastes, to investigate prior studies conducted on this matter and make an evaluation.*

**THE COLLAPSE OF RATIONALITY/POSITIVISM IN ENVIRONMENTAL  
PROTECTION AND RELIGIOUS VALUES AS AN ALTERNATIVE PROTECTION  
METHOD**

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**ABSTRACT**

*Views on the interaction between human beings and environment go back to Christianity and even Ancient Greek philosophers. The dominant view in this era is that human beings are superior to environment and that the nature is created for them. The scientific framework for the organic worldview dominated until 1500s was based on two authorities: Aristotle and the Church. In the thirteenth century, Aquinas established the conceptual framework of the medieval system by combining Aristotle's thought with Christian theology and ethics. Unlike modern science, the scientific method here was based on reason and faith. Ancient and medieval philosopher established a tripartite balance between God, nature and man. During this period, what is important is not people's relation to natural world but to God. The purpose of knowledge is simply to explain the natural events.*

*The domination of human on nature in the modernist period disrupted irreversibly this equilibrium. The beginning of transition from organic view to the domination on nature (modernist view) is Renaissance. Renaissance which constitutes the source of modernity possesses a significant place in human beings' appreciation of nature. In this period when the foundation of human-centred orientation was established rather than God-centrism in the evaluation of nature, the organic worldview was completely disappeared together with scientific revolution. The relationship between human and nature involves violence against environment and the environment is now a hunt which has to be enslaved and serve people.*

*It has always been ignored the fact that environment has been damaged by a mentality which has not prohibited the environmental degradation, while the technological advances of modernity has been announced to be responsible for environmental issues. Environment is vulnerable to protection against human beings today while human beings were vulnerable to protection against nature in the past. The environmental degradation caused by mankind treats the world today.*

*Organizations have been established and scientific activities have been organized in order to protect environment against human and to draw attention to environmental issues through legal and administrative regulations. However, environmental protection cannot be achieved through technology, law, international organization and agreements. Environmental protection is possible by a change in the worldview, attitudes and values. Ecological view is the guide of human beings and the environment can only be protected through moral values.*

## CLIMATE CHANGE, DISASTERS AND LOGISTICS

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### ABSTRACT

*Disasters interrupt the regular life of people and overcome community's compliance ability. Disasters cause a high mortality rate, loss of property and injuries. Disaster management covers the phases before, during and after disaster. The main drive of disaster response is to minimize the impact of disaster on affected people and get better the conditions caused by disaster as soon as possible. Disaster management aims to prevent and reduce the physical and economic losses in any country. Another aim is to decrease people's suffering and speed up the reconstruction process. The foundation of a successful aid operation depends on timely, balanced and fast delivery of aid materials and equipment. Considering all disaster management activities, the great and also the most difficult part is logistics. Food, water and health services are the most vital systems of disaster region and need to be provided by logistics. Disaster logistics provide the bridge between aid materials and the areas of disasters. Disaster logistics ensure the efficient flow of aid to disaster areas. Logistics activities constitute the most important part of the humanitarian aid operations and disaster management. In this study, the strong relationship between climate change, disaster logistics and disaster response has been examined.*

**Keywords:** *Disaster Management, Disaster Response, Logistics Management*

**INCENTIVE SYSTEM IN TURKEY FOR ELECTRICITY PRODUCTION FROM  
SOLAR ENERGY: A SITUATION ASSESSMENT**

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**ABSTRACT**

*In the study the incentive system for the electricity production from solar energy that is one of the most crucial sources of renewable energy source is examined. It is aimed to determine the productivity of the incentive mechanism in Turkey for solar energy. Although Turkey is a productive country in terms of solar energy, it is seen that the energy source cannot be used sufficiently and the incentive system is inadequate.*

*It is determined that Turkey could not use solar energy productive enough and Turkey falls behind many develop countries having fewer sunrays. Turkey has completed legal regulations very lately and has fallen short in terms of solar energy incentives. On the other hand, together with recent attempts it seen that crucial steps have been taken for promoting solar energy.*

**Keywords:** Energy, Energy sources, Incentives, Solar energy.

**JEL Codes:** Q20, Q40, Q48.

## **SPATIAL DIFFERENCES OF SURFACE WATER ACIDITY AND LINKS TO SUSTAINABLE HYDROPOWER ENERGY MANAGEMENT**

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### **ABSTRACT**

*Energy management is vital for our planet. Renewable energy source and their effects and holistic best management ways have been often studied recently. Hydropower energy is one of the most important energy source. Acidity in water is indicated pollution parameter. On the way of Hydropower energy production, water acidity may have important role and could be considered in this process well. In Finland, acid leaching to watercourses is mainly due to drainage of acid sulphate (AS) soils. In this studies examined how different land-use and land-cover types affect water acidity in the northwestern coastal region of Finland, which has abundant drained acidic soils and peatland and agricultural dominated areas in Turkey. Especially in spring and autumn high runoff events, water quality and acidity was observed poor and showed large spatial variation. Water quality data were obtained partly from the HERTTA database of the Finnish Environment Institute and was monitored in Melen watershed in 2011. The lowest pH value (pH 3) was recorded. Besides there was also several sites at which pH was between 5.1 and 5.5 in the North location. Otherwise in warm climate and South location watershed (Turkey)' pH was observed usually more than 7 and even reached 9. This results Show that acidity is main water quality parameter and affects many other parameters such as metals. Especially too low pH values effects all ecosystem structure and need prevention in risky terms. And while hydropower energy production planned, decision makers should consider the water acidity level with its impacts even with corrosion, which seasonal and spatial changes, for best management way.*

*Water acidity changes spatial and seasonal in the world. Surface water acidity especially in main river pH is main indicate in watersheds. Because of the location and sun effect are very important for river pH level. In northern watersheds of world, interaction of soil and water effect and decrease the pH level than all ecosystem can effects. In south located watersheds are mostly has seasonal changes of pH.*

*The generation of electricity through hydropower can, along with other anthropogenic activities, degrade river hydromorphology and ecosystems especially effects to river ecosystem, physical and chemical parameters of water in different size. Hydropower was supposedly less polluting than coal-fired power stations. However, doubts have been raised (Bergkamp et al., 2000), based on reservoir greenhouse emissions (Warner, 2012).*

*Renewable energy issue is one of the emerging and trend study topic. For instance, Finland is to increase the share of RES (renewable energy sources) up to 38% in final energy consumption by 2020. With today's energy demand, the maximum feasible renewable energy for Finland is around 44-50% by an optimal mix of different technologies, which promises 35% reduction in carbon emissions from 2012's level. By exploring the flexibility of the existing energy system, we are to establish a signpost for energy experts and policy makers to build their future high-RES scenarios on a more realistic basis. The level of water resources is one of the key factors in Nordic electricity market prices, varying significantly year to year in Finland. While there is no projection for major changes in hydropower capacity in*

*Finland, less stringent environmental legislation for small hydro plants can promote them in the future. Finnish Energy Industries realizes a techno-economic hydropower potential of approximately 940 MW, of which 460 MW stays in protected areas. Based on current estimations that assume an extra hydro potential of 500-600 MW to account for future installations and/or upgrades in the existing fleet (Zakheri et al. 2015).*

*Understanding of acidity and pH effects to all ecosystem is very important. Most of the water quality studies have been examine acidity level. But still need many attention of this issue. Main purpose of the study is being attention of this topics importance and useful for all humankind, ecosystem and helps for decision makers. Besides to investigate this water acidity impact to hydropower energy management issues.*

*Water quality is very important for human and all ecosystems as well. As Renewable source, hydropower energy is promising and main source of energy for our planet and life. Water and especially surface water in watershed rivers is very important component of this energy production process. PH should be considered very important parameter in terms of water quality of surface water and all ecosystem. In north watershed usually acidity and pH need more attention for understanding ecosystem and drinking water quality. Seasonal and spatial changes are significant in terms of pH. Flow rate and its term are critic terms for acidity in watersheds. Land use and climate also effect surface water acidity and this parameter should be monitored with last methods along with short interval. When local decision makers planning the construct of hydropower plant, water quality especially pH must be considered. Needed more attention of the water acidity circumstances and and best management ways.*

**Keywords:** *Acidity, Hydropower Energy, Management, River, Watershed,*

**THE ECONOMIC DIMENSION OF ECOLOGICAL AGRICULTURE: THE  
SAMPLE OF EASTERN BLACK SEA**

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**ABSTRACT**

*Excessive use of chemicals and industrial fertilizers in agriculture has been a threat to human health; also it has given rise to decreases in product quality. In recent years, this situation is getting expansive in Turkey, in greenhouse farming as well as the overall production of fruit and vegetables. In case of such negative results brought by modern agriculture, awareness has been emerged and consequently, organizations were developed among both consumers and producers, incipiently in Western developed countries. In this respect, the production and consumption of harvests harmless to human health are preferred with the methods which do not devastate the environment.*

*Chosen for the research in this study, Eastern Black Sea region is one of the untouched areas where the industrial pollution is at minimal levels. The situation of the region's not being polluted by fertilizers and chemicals is not the result of a conscious choice. It is a general situation emerged with the framework of mountainous geographical structure, the small and fragmented agricultural lands and farmers' lack of capital. The farmers, which are to avoid cost increases or suffer from lack of capital, don't prefer modern products. In this regard, the region offers an important potential for ecological agriculture.*

*In this study, the role and the significance of ecological agriculture in Eastern Black Sea Region, is been attempted to determine in the context of its generating value added in the economy. To determine these, a survey has been performed with producers from the region and the feasibility levels of ecological agriculture were investigated.*

**Keywords:** *Ecological Agriculture, Producer Welfare, Eastern Black Sea Region*

13 November, 09:15

(Poster Session)

Registration Area

## INVESTIGATION ON THE EFFECT OF TEMPERATURE ON SYNGAS FORMATION DURING THE PYROLYSIS OF WASTE TIRE

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### ABSTRACT

*Management of waste tires creates a severe problem not only in Turkey but also in the world. New technologies and alternative energy resources have been researched due to ever-increasing need for energy and limited energy resources in the world. Tires consist of natural rubber, synthetic rubber, carbon black, steel, filling materials and chemical substances. Tires that are produced with natural and synthetic rubbers consisting of very enduring polymers having high molecular structure turn into End-of-Life Tires that cause environmental problems after they complete their useful life. Each year, approximately 1.4 billion tires are being sold around the world and almost the same amount of tires take place in End-of-Life Tires category. The calorific value of waste tires ensures the use of these wastes as an alternative energy resource. This study investigated the change in synthesis gas compounds obtained from the pyrolysis of end-of-life waste tires according to the temperature. Nitrogen having 1 L/min flow rate was used as agent in the pyrolysis process. Pyrolysis processes were conducted at 300, 500 and 700 °C temperatures. In the pyrolysis test conducted at 300 °C, it was found that the percentages of CH<sub>4</sub> and H<sub>2</sub> gases within the synthesis gas were low. It was determined that CH<sub>4</sub> and H<sub>2</sub> concentrations within synthesis gas increased by temperature as it was expected. The highest CH<sub>4</sub> and H<sub>2</sub> values were determined in the pyrolysis tests conducted at 700 °C (17% CH<sub>4</sub>, 11% H<sub>2</sub>). The highest calorific value of synthesis gas compound obtained from the tests was calculated as 1970 kcal/m<sup>3</sup> and it was found that synthesis gases obtained from waste tires could be used as an alternative energy resource.*

**Keywords:** Waste Tires, Pyrolysis, Synthesis Gas, Temperature

**SOURCES OF FUNDING IN THE FINANCIAL RESTRUCTURING OF  
COMPANIES IN THE ENERGY SECTOR**

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**Prof. Dr. Stevan TRBOJEVIĆ**

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**Prof. Dr. Ljubiša VLADUŠIĆ**

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**Ph. D. Milan RADOVIĆ**

General Manager of the Nova Banka

**ABSTRACT**

*The concept of restructuring of companies has attracted great attention of business people, researchers and the general public for more than thirty years. The emergence of the concept of restructuring associated with the mechanism of functioning of a market economy, which punishes companies that do not adapt to change and are not reconciled their relationship to the requirements of the external environment. Hence restructuring as a method and strategy for radical change in companies not considered only as a one-time occurrence or event. Modeling sources of funding in the financial restructuring of companies in the energy sector given the opportunity to achieve better effects of restructuring, through better financial performance and improve the financial situation of the company. 93.83% of companies give research Peer Group considers that inadequate funding opportunities barriers to the growth of companies in the energy sector through restructuring in the Republic of Srpska. 6.17% of companies in the energy sector to a lesser extent deemed to be inadequate funding opportunities obstacle to the growth of enterprises through restructuring, while none of the companies given research Peer group did not negatively respond to a given research question. According to the survey, 62.96% of companies in the energy sector in the Republic of Srpska, date research Peer Group believes that the important significance of internal financing for the successful restructuring of the company.*

**Keywords:** Sources of Funding for Restructuring of Energy Companies, Finance, Strategy

## **THE IDEA OF STANDARDIZATION OF FINANCIAL STATEMENTS IN ACCORDANCE WITH IFRS AND ITS PRACTICAL REALIZATION IN THE GAS SECTOR**

**Assoc. Prof. Dr. Olga OSTROVSKAYA**  
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### **ABSTRACT**

*The idea of harmonization of accounting information on a global scale, based on the standardization of the rules of financial reporting aims to ensure sustainable development through the provision of high-quality generic financial information. As a result, it will create a common information space for the purpose of making effective management decisions by interested users.*

*The crucial role, unified in the financial statements economic information plays for:*

- the macro-level management - state and interstate governance, including Turkey and Russia, a joint project of the interstate energy corridor between Turkey and Russia,*
- the meso-level management – regions governance, such as energy-significant the Balkans and the Black Sea region, and*
- the micro level management - each an independent business entity anywhere in the world.*

*In this context, understanding how the practical application of the idea of standardization of financial reporting is implemented in the modern economy is essential.*

*The article presents the results of a study of practice in the application of IFRS/IAS in 35 countries, providing more than 90% of natural gas production in the world, as is estimated by CIA, published in the «World Factbook», and the International Energy Agency (IEA). The research is defined the share of the IFRS/IAS in public economic information among significant participants in the global gas market.*

*It has been analyzed the information security of the effective management decisions, based on the financial statements submitted by industry leaders in the IFRS/IAS format, according to the criteria of comparability of data and completeness of disclosures.*

*The study enables to conclude, that the idea of standardization of financial statements under IFRS/IAS, carried out in the life of more than 50 years, in the gas industry is actually not widely spread in practice. Provision of standardized economic information for geopolitical processes in this area is not more than 30%.*

*To improve the situation in the Balkans and the Black Sea region, it is necessary to consolidate efforts of public authorities, universities, professional associations, companies to create a single information space of economically significant information.*

## ORGANIZATIONAL CRISIS MANAGEMENT: A CASE IN OIL INDUSTRY

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### ABSTRACT

*Today crises have become an important part of our lifes. A dense network of relationships with globalization, the changing meanings of the public administration, crises of the world's shrinking diversification and the frequency of occurrence of cases of crisis management has led to become important. In particular, a large segment of society that affect all or terrorism, natural disasters, large fires and accidents caused great loss of life and property and the importance of crisis management because it contains unexpected elements is increased.*

*Crisis give some different symptoms but most of time come suddenly and can be dangerous for organization and their functions. Crisis term give some clues but not imposible completely eliminate it . Most of the time crisis give symptoms but not being able to completely block stealthily symptoms. Organizational functions go out of the control. Employees can be stressful and managers can not to find right decision. That causes comes instability. In the organization to find a right decision is hard for managers. Crisis experienced in all areas and this often effected economic, psychological, political and natural disasters. Therefore, the sustainability of social life, social peace and enviroment responsible for maintaining all organizations. So organizations must prepared crisis management methods. In this study, after given the main topics of crisis management, it is explained in a case in oil industry.*

**Keywords:** Crisis, Crisis Types, Crisis Management, Oil Industry

**JEL Codes:** J24, L95, M54

**CYBER SECURITY AND CRITICAL INFRASTRUCTURES: WILL CYBER WARS  
CHANGE THE ENERGY SECURITY PERCEPTIONS AND DIPLOMACY IN THE  
BLACK SEA REGION?**

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**ABSTRACT**

*Security concept and studying area in international relations have a different importance and meaning especially in a geography which also contains Black Sea. As for 'Cyber Security' has an increasing importance for Black Sea and region security and also reveals special and different studying area in the meaning of international relations. Especially critical infrastructures' importance and those diplomatical importance in the context of international relations have accelerated the meetings and studies in Black Sea and created awareness. Cyber attacks are a deterrence mechanism of international actors in cyber security area and cyber terrorism with wars which occupy international agenda, will have a wide coverage all states' future. Consequently cyber security based approaches and studies will have an importance for the security of region. In this study this region's energy security concept will be evaluated with cyber deterrence and critical infrastructures.*

**JEL Codes:** F51, F59,

**Keywords:** International Security, Cyber Security, Critical Infrastructures, Energy Security

## CONSIDERING ELECTRICITY AGREEMENT BETWEEN SERBIA AND KOSOVO AS A NORMALIZATION STEP BETWEEN THE COUNTRIES

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### ABSTRACT

*Despite of sharing the same political union within the former Yugoslavia, starting from early 1980's Serbia and Kosovo had become the most skirmisher actors of the federation. Very basically, during the major conflict between the sides, it can be argued that Kosovo's economic underdevelopment and nationalist stand to Serbian nationalism were the two main reasons of the interior battle. In 1991, when Yugoslavia collapsed Kosovo issue appeared as the most problematic matter of the Balkans. After NATO's military intervention in 1999, Kosovo entered to United Nations (UN) inspection and finally in 2008, as a result of intense western support, Kosovo became an independent country despite of the major Serbian threats.*

*Besides the political disagreement between the countries, energy issue also has become a decisive matter between the sides. Due to Kosovo's weak energy infrastructure and regular power cuts; energy issue has become a "political trump" for the Kosovo government. As a result of the "power games", Serb run Northern Kosovo started to raise the tension between Kosovo and Serbia many times. Finally in 2014, Kosovar and Serbian power transmission system operators reached an agreement on cooperation based on the energy law.*

*This study seeks to analyze the political and economic developments between Kosovo and Serbia based on the electricity transfer issue. Establishing relations based on economic interest might recover the political disagreements is the main argument of this study.*

**Keywords:** Serbia, Kosovo, Electricity, Economic Interest, Political Disagreement

**JEL Codes:** K42, L88, L94

## PLACE IN THE MIDDLE EAST IN THE WORLD ENERGY GEOPOLITICS

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### ABSTRACT

*With the strategic location that was found on Middle East geography of the world, history has been an important area of human life since the ancient times. This aspect has many civilizations of progress in this region. History of great importance which should have been a commercial center on the Silk Road; both religiously three monotheistic Muslims belonging to religious, Christian and Jewish holy places of this region in terms of there's also a religious being the case the central Middle East, major economic throughout history has led it to be a center in terms of political and cultural. Throughout history this aspect has been doth continue struggle for dominance in the region.*

*Middle East, has been subject to constant foreign intervention in the historical process. Process until the 19th century while there was much confusion because of religious and cultural beliefs, it becomes especially important due to the region's oil to world states; From 19th century it has become a global power margin of maneuver. After this date, the continuous intervention in the Middle East has become global powers in question. Important decisions, including the demarcation of the countries with oil in the Middle East have always been the intervention of global power. The delineation of the borders of the country is the main actor in the UK. These limits are determined in line with the interests of England.*

*The vast majority of Middle East oil is the oil companies operating on the global powers. In this sense, exploration, production and marketing stages of these companies they hold hands.*

**Keywords:** Oil, Geopolitics, global power, the Middle East, USA, Turkey

13 November, 11:00  
Hall 1

**THE RELATIONSHIP BETWEEN ENERGY CONSUMPTION AND  
UNEMPLOYMENT IN THE BLACK SEA ECONOMIC COOPERATION (BSEC)  
COUNTRIES: PANEL COINTEGRATION ANALYSES (1996-2012)**

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**ABSTRACT**

*The purpose of this study is to investigate the long-run relationship between energy consumption and unemployment in the 12 Black Sea Economic Cooperation (BSEC) Countries over the period from 1996 to 2012 by utilizing the Pedroni and Kao panel cointegration, Pedroni DOLS and FMOLS methods. The cointegration test results show that there is a cointegration relationship between energy consumption and unemployment in the long run. By using Pedroni DOLS and FMOLS methods, the coefficients of long term cointegration results of variables are investigated. According to Panel DOLS results, the elasticity coefficients of energy consumption and unemployment are %-0.62, implying that a one percent increase in energy consumption will bring about a %0.62 percent reduction in unemployment rate. According to Panel FMOLS output, the elasticity coefficients of energy consumption and unemployment are %-0.57, implying that a one percent increase in energy consumption will cause a %0.57 percent decrease in unemployment rate. It is concluded that there is a strong cointegration relationship between energy consumption and unemployment in the countries of the interest during the period under consideration.*

**Keywords:** Energy Consumption, Unemployment, Panel Data Analyses, BSEC Countries

**ARE SHOCKS TO ENERGY CONSUMPTION PER CAPITA IN TURKEY  
PERMANENT OR TEMPORARY?**

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**ABSTRACT**

*Turkey achieved an average growth rate of 5 percent during 2003-2013. In the same period, annual average growth rate was 4 percent in primary energy consumption. This indicates that energy consumption has grown along with the economy and economy has grown along with the energy consumption. According to some official foresights energy demand continues to increase in the long run.*

*Turkey's dependence on foreign energy, and accordingly the energy supply security problem, requires extremely sensitive internal and external energy policies and strategies. In this context, the energy sector is one of the most important areas in Turkey's national strategy documents. Geostrategic position of Turkey in terms of energy sources affects Turkey's energy policies and strategies. Beside foreign policy, domestic policy in the energy field has a great importance.*

*In this framework, the main purpose of the study is to analyze empirically the effects of shocks in the energy sector, which has an great importance for Turkey. In this context, the permanent or temporary effects of shocks on energy use were investigated for the 1960-2012 period. Initially, the linearity test (Harvey et. al(2008) was applied. After identifying non-linearity, the non linear unit root test (Kruse 2011) was used. According to the test results, shocks had permanent effects on the energy consumption in Turkey. The resulting findings have a great importance in terms of Turkey's energy policies. Permanent effects of shocks on the energy use indicate the importance of strategic energy policies for Turkey.*

**JEL Codes:** Q40; Q43; C22

**PUBLIC EXPENDITURE ON ENERGY AND INDIRECT PUBLIC FUNDING  
TOOLS FOR R&D IN SELECTED EUROPEAN COUNTRIES**

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**ABSTRACT**

*The aim of the paper is to investigate public expenditure on energy and indirect public funding tools for research and development (R&D) in selected European countries in the period 2000-2014. The country sample selection is limited by availability of data, but the paper is primarily focused on Black Sea and the Balkan Region. Basic source of data is Eurostat database, which is complemented by information from national statistical offices and OECD. The paper uses standard scientific methods, e.g. description, comparison, analysis, synthesis.*

*Research and development plays a key role in a creation of knowledge, products and technologies especially in an energy sector. The financial crisis has limited direct financial resources and forces governments to look for a different innovation policy with new instruments. That's why indirect support has become more important for financing and stimulating innovations in recent years. Tax incentives, applicable to different tax arrangements, including especially corporate and personal income taxes, reduce the marginal cost and stimulate innovation spending. The paper compares direct public support in energy and summarizes used indirect public funding instruments for R&D in analyzed countries.*

**Keywords:** *Public Expenditure on Energy, Research and Development, Indirect Funding, Tax Incentives.*

**JEL Codes:** *H23, O38, F64.*

13 November, 11:00  
Hall 1

**THE RELATIONSHIP BETWEEN ENERGY CONSUMPTION, ENERGY PRICE  
AND ECONOMIC GROWTH: A PANEL CASUALITY ANALYSIS FOR SELECTED  
BLACK SEA ECONOMIC COOPERATION (BSEC) ECONOMIES**

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**ABSTRACT**

*It is generally accepted that energy is an important input for economical and industrial development. However, there are still discussions about the effects of energy on certain economic indicators. In this study, the relation between energy consumption, economic growth and energy prices is analyzed by panel causality analysis for selected Black Sea Economic Cooperation Organization countries. The panel data causality test developed by Konya (2006) was used since it is good enough to account for both cross-sectional dependency and heterogeneity among the countries in the sample. Furthermore the method estimated country specific critical values using bootstrap simulation.*

**Keywords:** *Energy Consumption, Economic Growth, Panel Data*

## **TURKEY IMPORT DEMAND FROM RUSSIA: A COINTEGRATION ANALYSIS**

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### **ABSTRACT**

*The main aim of the study is to assess Turkish imports from Russia in the light of real domestic income, real exchange rate and oil price movements. The Russian Federation has been one of the countries having an important part in foreign trade of Turkey. Whereas textile products have taken the first place within the export of Turkey, petroleum gas and natural gas have taken the first place in import. In this study Turkey's import demand function is estimated by using multiple structural breaks of Maki (2012) cointegration procedure. In this context, for the 2003:Q1-2015:Q2 period, import demand function, which import is dependent variable, real income, real exchange rate and oil price are independent variables, has been composed. This function has been tested by cointegration analysis with structural breaks and coefficients for the independent variables were obtained. The results imply that the import demand function has cointegration relationships when multiple unknown numbers of breaks are allowed. In the case of the import demand function estimates of coefficients carry the expected positive sign for all variables. The results of estimations in the presence of structural breaks provide evidence of income being the determining factor in the import function of Türkiye from Russia rather than the real exchange rate, and oil price which are similar to studies which do not consider breaks.*

**Keywords:** *Import Demand, Russia, Cointegration*

**THE RELATIONSHIP BETWEEN ENERGY CONSUMPTION AND ECONOMIC  
GROWTH IN BALKAN COUNTRIES: PANEL COINTEGRATION ANALYSIS  
(1995-2012)**

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**ABSTRACT**

*The purpose of this study is to investigate the long-run relationship between energy consumption and economic growth in the 10 Balkan countries over the period from 1995 to 2012 by utilizing the Pedroni and Kao panel cointegration, Pedroni DOLS and FMOLS methods. The cointegration test results show that there is a cointegration relationship between energy consumption and economic growth in the long run. By using Pedroni DOLS and FMOLS methods the coefficients of long term cointegration results of variables are investigated. According to Panel DOLS results, the elasticity coefficients of energy consumption and economic growth are %1.26, implying that a one percent increase in energy consumption will bring about a %1.26 percent increase in economic growth rate. According to Panel FMOLS results, the elasticity coefficients of energy consumption and economic growth are %1.06, implying that a one percent increase in energy consumption will cause a %1.06 percent increase in economic growth rate. It is concluded that there is a strong cointegration relationship between energy consumption and economic growth in Balkan Countries during the period under consideration.*

**Keywords:** Energy Consumption, Economic Growth, Panel Data Analyses, Balkan Countries

**RELATIONSHIP BETWEEN CURRENT ACCOUNT DEFICIT AND OIL PRICES:  
UNDER STRUCTURAL BREAKS IN EXAMPLE OF TURKEY (1976-2014)**

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**ABSTRACT**

*This study investigates the long-run relationship between current account deficit and oil prices in Turkey over the period from 1976 to 2014 by utilizing the Zivot-Andrews Unit Root Test, Gregory-Hansen Cointegration Test, Toda-Yamamoto Causality Test methods. The tests indicate that both current account deficit and oil prices are integrated in the order of one and there is a long run relationship between the two variables. The results of Toda-Yamamoto Causality Test indicate that there is bi-directional causality between the variables.*

**Key Words:** *Current Account Deficit, Oil Prices, Zivot-Andrews Unit Root Test, Gregory-Hansen Cointegration Test, Toda-Yamamoto Causality Test.*

**JEL Classification Codes:** *E20, O13, C20, C22*

13 November, 11:00  
Hall 2

## **ENERGY PRICES IN BALKAN COUNTRIES: PANEL VAR ANALYSIS**

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### **ABSTRACT**

*This study investigates dynamic interrelationships between energy prices and macroeconomic variables which are important for energy prices for Balkan countries using data from the period 2003 to 2015. Using panel VAR method the paper estimates the impulse response function and variance decompositions between macroeconomic variables and energy prices. After fitting panel VAR model Granger causality relation is also investigated between the variables.*

## FORECASTING OF ELECTRICITY DEMAND OF BLACK SEA AND BALKANS COUNTRIES FOR 2015-2019 PERIOD

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### ABSTRACT

*Nowadays, one of the leading factors used in the evaluation of a country's economic development is energy consumption. Because of economic growth, demand for energy is also increasing. In this study, Turkey, Uzbekistan, Russia, Iran, Poland, Czech Republic, Romania and Ukraine's electricity consumption has been forecasted for five years period (2015-2019). In the study, GM(1,1) Rolling Model, which is developed in the framework of Grey System Theory, is used as mathematical model for real time forecasting.*

**Keywords:** *Energy Demand, Electricity Energy, GM(1,1) Rolling Model.*

## **TURKISH STREAM: A CONTRIBUTION TO ENERGY SECURITY IN THE BLACK SEA**

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### **ABSTRACT**

*This paper is focused on Turkish Stream with energy security perspective. It is initiated by Russia for closer relations with Turkey during sanctions on Russia by the West. Black Sea region will be approached in terms of energy relations, and energy as a matter of cooperation versus clash, as reflected in the region throughout history. In the paper, a historical perspective on the strategic value of the region and recent Ukrainian crisis is provided in order to reveal that energy is one of the key factors in the region and relations with Europe. Moreover, impact of Turkish Stream on TANAP and also Nabucco will be assessed. Discussion on alternative pipelines and criticism on Turkish Stream will be evaluated together with country perspectives. In the paper, current power struggle is also called as struggle between status quo and change regard to order in the region. Also, the role of Turkish Stream contributing to Turkey's goal of energy hub will be evaluated with regard to Russian support versus Iran's reconciliation with West.*

**Keywords:** Black Sea, Russia, Turkey, Energy, European Union, Turkish Stream, Azerbaijan, Georgia, Ukraine, TANAP.

## **NORTHWESTERN ANATOLIA COAL BASIN (TURKEY), TURKEY'S ECONOMY ACCORDING TO THE RELATIONSHIP BETWEEN CHARACTERISTICS OF COAL RESERVES**

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### **ABSTRACT**

*The Northwest Anatolian Coal Basin (Turkey) covers an area of approximately 13,500km<sup>2</sup> at the Black Sea coast. The Carboniferous period coal reserve in the 45 coal seams in the Alacaağzı, Kozlu and Karadon formations is estimated to be 1,00x10<sup>9</sup>t. Since 1941, amounts varying between 2,200x10<sup>6</sup>t and 8,545x10<sup>6</sup>t of industrial and coking coal are being mined in elevations extending from outcrops to a depth of -540m. Coal is mined by the Turkish Hardcoal Enterprise (TTK) with the underground progressive longwall method in panels at elevation intervals of 100m. So far, the TTK has dug tunnels of a total of 450km in the coal bearing strata for coal production. The Enterprise has employed a total number of surface and underground workers varying between 10,533 and 43,594 during the years 1961-2010.*

*Even though the coal production in the basin began in late 1800s, the basin has not been adequately resolved in terms of geologic and tectonic systematic. In other words, the cyclothems of coal seams have not fully revealed. Casualties and deaths occur in excavations of preparation wells and galleries in coal bearing rocks of the basin that is extremely affected by Hercynian and Alpine Orogenesis tectonics, as a result of roof collapse, and also in preparation and production of coal seams resulting from roof collapse and slump and sudden degassing. The organic and inorganic maturation of the basin is in diagenesis-ankimetamorphism zone. Maceral abundance in the coal seams is generally in vitrinite, inertinite and exinite. However, inertinite and exinite are dominant in some coal bands in which gas formation and deposition increase and also density of gas deposition increase with depth factor. These seams have a capacity of thousands of cubic meters of gas deposition. When necessary measures are not timely taken in excavation and production, work accidents leading to casualties and deaths can occur due to roof collapsing and degassing.*

*The area contains bituminous types of coal; uncoking (in the Amasra area), semi coking (in the Armutçuk region) and coking (in the Kozlu-Uzulmez-Kardon region) containing medium and high amounts of volatile substances. Of the detritus sedimentary rocks containing these types of coal, the Alacaağzı Formation is 650m thick, the Kozlu Formation 700m thick and the Karadon Formation 650m thick. Lithologically, the coal and coal bearing strata in these formations are formed by the intercalation of layers of conglomerate, sandstone, siltstone, claystone, shale, coaly shale and coal. According to the organic maturation (vitrinite reflectance %Ro=0,5-1,3) and clay mineralogy (illite crystalline degree  $h(002)/2=8,90-5,25\text{mm}$ ) values, the coal bearing strata in the field is located in the diagenetic-anchimetamorphic zone . The coal seams were formed in bands in paralic environments and cleat sets developed in two directions. The cleats were found to be full of minerals such as clay, pyrite and marcasite. The coal seams are divided into bands with layers of sandstone, siltstone, claystone, shale, and coaly shale. The coal ash in these seams ranges from 10% to 67%.*

*Northwestern Anatolia Coal Basin, 33 million tons of coal Armutçuk District, 157 million tons of coal Kozlu District, 305 million tons of coal Üzülmöz District, 412 million tons of coal Karadon District, 407 million tons of coal Amasra District has including a total of 1.3*

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billion tons of coal reserves. The coal produced is consumed by steel factories and thermoelectric power plants and for heating purposes. While the requirement for coking coal has increased, the coal production has decreased in Turkey.

For this study, channel samples have been collected from coal production long-walls and galleries in the coal seams in the region of Armutçuk and Zonguldak, in these seams, as well as petrographical analyses of lithotype, maceral and vitrinite reflection groups (reflectograms) can be found and coal characteristics are (moisture, ash, volatile matter, fixed carbon and Sulphur); The coking tests have been carried out for grayking, dilatation, free swelling index, composition balance index and strength index.

The relationship between the petrographic and coking features of the coals in the basin has been established by evaluating the data obtained. According to this result, the coals in the Armutçuk region are defined as weakly caking coals. On the other hand, the coals in the Zonguldak region indicate different features grouped as very weakly, medium, strongly and very strongly caking coals. The coals in the basin are ASTM-classified according to rank scales of 67-150, 72-146, rank classes of bituminous coal, n Bituminous coal and rank groups of mean volatile bituminous, high volatile A/B bituminous coal; are GB-NCB-classified (British) according to groups of 300-400-500-600-700, classes of 301b, 306, 401, 501, 601, 701 and 702, description of WC, MVB, PCC, MC, VSC, SC. The coal seams in the basin contain elementally 76.31%-84.51% of carbon, 4.37%-5.39% hydrogen, 0.99%-1.69% nitrogen, 2.97%-9.29% oxygen, 0.35%-1.07% total sulphur (ASTM D 5373). The seams also contain, 0.020%-0.186% of pyritic sulphur, 0.046%-0.218% sulphate, 0.102%-0.540% organic sulphur (ASTM D 2492, 5016).

The basin coal ashes are analyzed according to ASTM D 3174. The analysis results yield 36.08%-61.66% of SiO<sub>2</sub>, 19.63%-33.48% Al<sub>2</sub>O<sub>3</sub>, 3.71%-18.17% Fe<sub>2</sub>O<sub>3</sub>, 0.60%-2.71% TiO<sub>2</sub>, 1.77 %-11.95% CaO, 0.70%-3.78% MgO, 1.45%-3.80% K<sub>2</sub>O, 0.37%-0.92% Na<sub>2</sub>O, 0.8%-0.96% P<sub>2</sub>O<sub>5</sub> and 1.32%-10.70% SO<sub>3</sub>. The softening, hemispherical and fluid temperatures of the basin coal ashes are determined according to ASTM D 1857. Softening temperatures are between 1080°C and 1380°C; hemispherical temperatures are between 1125°C and 1425°C and fluid temperatures between 1215°C and 1480°C.

The samples obtained from the coal seams are prepared for ASTM D 2797; vitrinite, exinite, inertinite macerals and mineral matter are determined according to ASTM D 2796. The vitrinoid groups are defined according to ASTM 2798 by measuring vitrinite reflectances in the same samples. The resultant values of vitrinite macerals vary from 33.00% to 92.09%, exinite maceral from 0.59% to 16.40%, resinite maceral from 0.01% to 1.00%, semifusinite maceral from 0.46% to 20.91%, micrinite maceral from 0.11% to 4.26%, macrinite maceral from 0.16% to 14.00%, fusinite maceral from 0.30% to 26.35% and mineral matter from 0.46% to 48.80. The vitrinite reflectance also changed from 0.65% Ro to 1.22% Ro.

The composition balance index (CBI) for the coals in Zonguldak basin investigated in this study varies from 0.14 to 5.71. Furthermore the strength index (SI) for these coals has the values changing from 0.58 to 4.90. The stability factor (SF) obtained by CBI and SI is varied generally from 12 to 63 while in some of the coal seams it has a value of below zero (see The coals whose stability factor is 58 and over are preferred in carbonization for metallurgical purposes. in Zonguldak basin the seams that comply with above are Unudulmuş (SF=58), Kurul (59), Hacımemiş (59), Özkan (58), Nasıfoğlu (58), 1. Nolu damar (58), Çay (63), Çay taban (63), Akalın (61) and Gökcan (59). The other seams in the basin can also be utilized for optimum coal blends in metallurgical carbonization.

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*As a result; in Northwestern Anatolia Coal Basin, planned and produced according to the demands of metallurgical, industry and thermal power plants will be sold all of the original coal extracted from underground. Thus, the Authority will obtain more income. It also reduced the amount of production waste pollution will be prevented. The total coal production in the basin, according to this cost will be more revenue with less cost.*

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Hall 1

## **EVALUATION OF THE RENEWABLE ENERGY RESOURCES IN TURKISH TOURISM INDUSTRY AND A COMPARISON BETWEEN TURKEY AND BALKAN COUNTRIES**

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### **ABSTRACT**

*The basic human needs for survival, including air, water, and energy are limited on Earth. The use of these natural resources uncontrollably causes a decrease of these resources. Therefore, there is a need for alternative renewable resources that do not harm the environment. Some industries which have a strong relationship with nature, prefers renewable energy resources, so it makes them sustainable while they are also reducing their costs in long term. As the environment is extremely important for the tourism industry, we can say that tourism can only exist in good environment conditions. While tourism industry grows rapidly , also the investments for renewable energy significantly increases in this sector. The need of renewable energy resources have being increased in Turkey as a developing country, parallel with rapid population growth and industrialization. Therefore the opportunities are determined first for the renewable energy resources and then government gives encouragements to widespread their usage. So the tourism enterprises are getting advantages with the encouragements while they are producing their own energies and keeping being in harmony with the environment.*

*In this study, we will evaluate the practices of renewable energy resources in the tourism sector in Turkey considered with the context of energy policy while comparing them with practices in The Balkans.*

**Keywords:** *The Renewable Energy Resources, International, Tourism, Turkey*

**THE IMPACT OF TURKISH RENEWABLE ENERGY RESOURCES ON  
SUSTAINABLE THERMAL TOURISM DEVELOPMENT**

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**ABSTRACT**

*Energy is one of the most important issues in the world. With the increase of population and the development of industry, the need for energy is increasing. In the last decades the huge consumption of energy caused the environmental pollution by fossil fuels like petrol, coal and nuclear energy which has forced people to use renewable energy sources. Searches for renewable energy sources are increasing with the consumption of energy resources. There are large usage areas of renewable energy sources. Renewable energy sources, which naturally exist, mean the sustainability of energy supply. Many types of renewable energy resources are constantly replenished such as sunlight, wind, rain, tides, waves and geothermal heat. Turkey with its potential of renewable energy resources is willing to create sustainable energy policies to support its economy with its own energy resources. At this point geothermal resources are important for both the tourism industry and other industries of Turkey. The distribution of the geothermal areas is important for the economic activities, especially for the tourism industry that needs to balance the economic welfare all over the country by creating new jobs and generating economic activities. Recently, geothermal fields that help to establish thermal tourism in the region have an important role in attracting tourists to some destinations in Turkey. Thermal tourism is also an important tourism type because of its socio-economic impacts on tourism. For that reason this study aims to reveal the geothermal potential of the Turkish tourism industry.*

**Keywords:** *Renewable Energy; Thermal Tourism; Geothermal Energy.*

## **THE IMPLEMENTATION OF TURKISH ENVIRONMENTAL LAW FOR SUBMARINE CABLES AND PIPELINES IN THE TURKISH EXCLUSIVE ECONOMIC ZONE IN THE BLACK SEA**

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### **ABSTRACT**

*The Black Sea has a global interest because of its geographical position and environmental problems. The Black Sea Region is one of the most important strategic east-west corridors between Asia and Europe (that connects Europe, Russia, Central Asia, and the Middle East), It has often been at the heart of political tension, economic interest and military desires. The Black Sea is an insulated sea that is almost fully isolated from the world ocean and is bordered by land around nearly all of its sides. Its only connection to other water bodies is through Bosphorus Strait, 35 km long narrow natural canal that separates the Black Sea from the Sea of Marmara that binds the Black Sea with Mediterranean Sea through the Dardanelles. Thus, the Black Sea has limited permute with other seas.*

*Additionally the Black Sea is one of the most contaminated seas in the world and it is polluted by the six coastal states (Russian Federation, Ukraine, Romania, Bulgaria, Georgia, and Turkey). Moreover the ten riparian nations of major European rivers flow into the Black Sea. The Black Sea basin is home to some 160 million people which bring forth approximately half of Europe's population. The Danube River, main source of pollution for the Black Sea, empties domestic and industrial wastes into the Black Sea waters.*

*On the other hand the Black Sea is important for the energy sector. This region has become one of the most important crossroads through which both Russia and the European Union are trying to compress energy sector control, particularly in the area of natural gas. So natural gas pipeline investments hold key for natural protection.*

*In tis context, the exclusive economic zone is important for natural gas pipeline investments. Thus the exclusive economic zone and its legal status should be clarified. An Exclusive Economic Zone (EEZ) is a concept admitted at the Third United Nations Conference on the Law of the Sea. According to the Convention coastal state assumes jurisdiction over the exploration and exploitation of marine resources in its adjacent section of the continental shelf taken to be a band extending 200 miles from the shore. According to the doctrine, exclusive economic zone does not form part of the territorial sea nor of the high seas; on the contrary, it is a sui generis maritime jurisdiction. The rights and jurisdiction of coastal state in the exclusive economic zone are specified in article 56 of the Convention on the Law of the Sea (UNCLOS). According to this article, coastal states have sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds and jurisdiction with regard to the establishment and use of artificial islands, installations and structures; marine scientific research; the protection and preservation of the marine environment. Additionally, coastal states have rights to protect marine environment against pollution and to determine and plan the valid catch of the living resources within the framework of the conservation and utilization of the living resources.*

*The other main matters are the rights and jurisdiction of other states in the exclusive economic zone. The Convention has the primary provision that governs the rights and jurisdiction of other states over the exclusive economic zone. All states, whether coastal or not, subject to the UNCLOS within the exclusive economic zone. According to the Convention, all states have the freedoms of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms.*

*Turkey is not among the signatories of the UNCLOS. However, key elements of the treaty have been adopted by Turkey and transposed in decrees regarding the Black Sea. Several international restriction agreements following UNCLOS have been signed between Turkey, its neighbours and other countries bordering the Black Sea. Turkey has a Council of Ministers Decision on “Turkish Exclusive Economic Zone”. According to this Decision: “In the Turkish exclusive economic zone in the Black Sea vessels of other States shall enjoy the freedom of navigation and the aircraft of other States shall enjoy the freedom of overflight. Likewise, other states shall enjoy the freedom of the laying of submarine cables and pipelines in this zone. However, in the exercise of these freedoms the legislation of Turkey and general practice shall be complied with.”*

*According to this article Turkish Environment Legislation should apply for pipelines in the Turkish Exclusive Economic Zone. The most significant legal arrangement is the Environmental Impact Assessment Regulation. Of course the other environmental requirements also should apply for the investments. For example; Environment Law, Regulation on Control of Pollution by Dangerous Substances in Water and its Environment, Regulation on Control of Hazardous Waste etc. Add to this the “Convention on the Protection of the Black Sea Against Pollution” is important arrangement. It was signed in Bucharest in April 1992, and ratified by all six legislative assemblies of the Black Sea countries in 1994 (including Turkey). Although Turkey has adopted key elements from the Convention in various laws and it has committed itself to the prevention of pollution at the Black Sea by harmful substances. The other international arrangement is “Energy Charter Treaty”. The Energy Charter Treaty and the Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects were signed in December 1994 and entered into legal force in April 1998. Turkey is a signatory of the Treaty and the Protocol. The fundamental aim of the Energy Charter Treaty is to strengthen the rule of law on energy issues, by creating a level playing field of (economic and financial) rules to be observed by all participating governments, thereby mitigating risks associated with energy-related investment and trade.*

**Keywords:** *Turkish Environment Legislation, Exclusive Economic Zone, Natural Pipeline Investment.*

**JEL Codes:** *K32, K33, O13*

## **PUBLIC ATTITUDE TO NUCLEAR POWER IN TURKEY**

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### **ABSTRACT**

*Anti-nuclear debate in most of the energy-environmental nexus studies bases arguably on premises that nuclear energy includes high installation cost and a number of risk factors such as radiation and health diseases, power plant accidents, waste, nuclear weapon proliferation and terrorism. The size and severity of the nuclear energy discussion varies according to the countries' economic and social development level. Due to increasing global environmental concerns as climate change and recent problems experienced in terms of energy security, in particular for developing countries such as Turkey, the governments have taken nuclear energy into account in their energy mix and take it back on energy policy agenda. In this regard, the main purpose of this study is to demonstrate Turkey's public opinion and attitude on nuclear energy in terms of climate change and energy security perspective, and to examine reconciliation of environmental values, climate change and energy security on nuclear power in same quantitative study. In the literature, the survey conducted concerning environmental values, energy security, and attitudes towards nuclear energy was analyzed for industrial countries such as USA, England and Japan, neglected developing countries in which high energy demand, technical and financial difficulties of renewable energy diffusion will place in the future.*

**Keywords:** Nuclear Energy, Climate Change, Energy Security

## **TOURISM AWARENESS AND ENVIRONMENTAL AWARENESS AS A MECHANISM TO ACHIEVE ENVIRONMENTAL TOURISM DEVELOPMENT**

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### **ABSTRACT**

*The tourism characterizes as a sustainable industry productive and efficient with a significant positive impact on all aspects of the national economy, in addition to being an essential and important tool for achieving the goals of the comprehensive and sustainable development, so as to promote economic growth, diversification of the national economy and increasing the income level, and achieving balanced regional development, stimulating private sector investment in infrastructure and tourism facilities.*

*However, despite these advantages, only the tourist as current scale and likely future growth have serious implications for local and global environments. In 2004 there were 760 million international tourists. Forecasts by the United Nations World Tourism Organization (UNWTO) point to a doubling of this figure by 2020 . Although this may bring opportunities for economic development and poverty alleviation, it will also introduce the environmental impacts of tourism to areas which may hitherto have been unaffected by tourism development.*

*In addition to the growth of tourism, a further reason to pay particular attention to tourism within the context of environmental policy is the special two-way relationship between the tourism industry and the environment. Unlike most other economic activities, the well-being of the tourism industry is itself very dependent on the quality of the environment. Tourists are increasingly looking for attractive, unpolluted places to visit, and involvement with tourism can also make local people more aware of the need to conserve the environment. As a high quality environment is a key part of the tourist product, tourism can be an ally, and a supportive economic and political force, for conservation.*

*In this way the environment are considered as a necessity for a wise and sustainable development that enable countries, especially developing ones, to face competition in the international tourism market hence the environmental awareness and tourism awareness are considered as integral part of development tourism planning should be obliged in all government and non-government programs of action when implementing tourism development policy.*

*Depending on the above mentioned points this paper has studied the following issues that serve the goals of the subject :*

- The relationship between tourism and environment.*
- Tourism and economic development.*
- The importance of environment and tourism awareness in tourism development.*

**Keywords :** *The Tourism, Sustainable Development, Environment and Tourism Awareness*

## COAL AND DEVELOPMENT INTERRELATION IN THE WORLD AND TURKEY IN TERMS OF NATURAL RESOURCES ECONOMY

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### ABSTRACT

*In Turkey where the rate of dependency of meeting the energy demand through import is growing, by giving priority to necessary activities for the security of energy supply, the issues of alternatives in energy principle, evaluation and consumption of primary energy resources, and showing effort considering the environmental effects by means of giving priority to activities required for the safety of energy supply is of high priority. The aim here is to use the limited resources of energy rationally minimizing its negative impact on the environment and human health, introducing the energy resources into service in the most beneficial way by providing the supply of cleaner, safer, more productive, more accessible and sustainable energy economically and commercially that will enhance the well-being and growth of the country.*

*Rate of production meeting expenditure of the primary energy resources in emergent Turkey, is considerably low and the particular rate is diminishing rapidly. As the ever-increasing energy demand accelerated extremely in recent years, which cannot be met by inefficient energy production of local energy resources, energy importation rapidly increased.*

*This study comprises the worldwide exposure and interpretation of indications concerning coal in 2000s up to now. In this context while the indicators are explained, for the sake of comparison and contrast, petroleum and natural gas products from other energy resources are also mentioned. Due to the necessity of limitation of the context we are unable to put issues such as coal prices, commerce and productivity into evaluation.*

*For many years owing to its environmental impacts coal is inquired and neglected; however by putting new technologies into use it allows the opportunity to utilize more prolific, cleaner and more economic ways during research, production and consumption stages, which shows that coal is an important native resource which will be exploited for energy consumption for a good while more.*

*In the planning part of the study first the economic importance of coal as an energy resource in terms of production and consumption is clarified. Later the data related to coal reserves and consumption and distribution according to regions and countries is analysed.*

*While examining this distribution alternative energy resources are also regarded so as to attempt to clarify an overall appearance of the world energy circumstances. As a developing country, in Turkey, referring to the overall place and importance of coal mines worldwide that have foremost strategic importance with regard to overcome the energy gap, the study is brought to a conclusion by proposals towards the development of coal mining.*

*After the new discoveries set into use in industry intensively following the Industrial Revolution, demand for energy showed a rapid increase global-wise. The uneven distribution of energy sources and diminishing reservations due to increasing demand, on the other hand, drive countries on a set off different quest. In our time, energy factor is considered among the*

*most basic input in production process for the implementation of economic and social development. Despite this in literature there is no consensus about a justifiable direction between economic growth and energy consumption. Besides empirical evidences that give outcomes that energy consumption supports economic growth, evidences that economic growth influenced energy consumption is also encountered. When judged within the scope of economic policies the conclusion drawn make a lot of sense in terms of countries.*

*As petroleum and natural gas is accumulated at certain geographical regions and their life span diminished in considerable amount, and nuclear energy for its affinity to war industry, decreased in great ratios; as petroleum and natural gas is considered strategic resources by the countries that are asserted to have authority in the management of the world and justify them as defense or foreign policy aspect, as a result clearly brings the outcome of occupying the agenda more than the other resources. Accordingly, so called resources, provided that they maintain their particular qualifications will naturally take their essential status among the important issues of the agenda.*

*Nevertheless, both the primary energy consumptions and their share in production of electricity when examined, it is clearly seen that the weight of the resources within the total energy composition is not directly proportionate to their weight in the agenda. Actually, today, coal is the most important component of global energy consumption. Although the rate of coal supply within the global primary energy supply is low, it shows permanent increase.*

*Statistical data related to the subject of the issue can be obtained from many institutions such as World Energy Council and Energy Information Administration. In this study 2013 statistics (Statistical Review of World Energy June 2013) of the British Petroleum Company (BP) is extensively used as statistical measurement units aimed at various energy sources is collectively given in terms of "million ton of petroleum".*

**JEL Codes:** F63, F10

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Hall 2

## **SOME EVALUATIONS OF GOVERNMENT ROLE ON ENERGY POLICY**

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### **ABSTRACT**

*Government interference on the energy systems that has an important role in the formation and reformation of it. With public policies, opportunities and obstacles may occur in sustainable energy systems. Government interference which appears as a result of formation of public policies aims at overcoming failures of private markets, if any, by regulating energy markets.*

*Particularly, energy markets are markets need to be regulated because of their high cost. Also, Energy markets are regulated in order to settle current and future energy requirements. Actors and agents of being energy policies are public (government) sector, private sector, third parties (NGO's), universities and global actors.*

*Energy policy for government includes firstly energy development, energy production, energy distribution and energy consumption. Secondly, it involves legislation, international treaties, incentives to investment, guidelines for energy conservation, taxation and other public policy techniques.*

*This study will be tried to evaluate government role on energy policies. As pointed out above some determinants of government interference and regulate on the energy systems and policies will explanate and discuse which kind of roles are better for influence of energy policies.*

## **INCENTIVES SYSTEM FOR ELECTRICITY PRODUCTION FROM WIND ENERGY: TURKEY AND SELECTED COUNTRY EXPERIENCES**

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### **ABSTRACT**

*Nowadays, the need for energy has been increasing with the rapidly increasing population and industrialization. Besides, energy is a strategic source for both countries and firms. To improve the competitiveness of countries and raise the standard of living, countries need to sufficient, permanent and clean energy. This case is to obtain adequate quality, affordable and clean energy sources and it reveals to supply necessity energy sources. Therefore, in recent years use of renewable energy (RE) sources has rapidly increased.*

*Wind is a clean source of energy in the energetic, faster realization of power plant installations, and the use of external dependence reduction has increased rapidly in recent years and has made various incentive methods and legislation to promote the use of wind energy in many countries.*

*Promotion of renewable energy sources in EU member states is carried out with 5 main applications. These are: support research, fixed pricing practices, fixed premium application, increasing the price and certification practices. With these incentives, an industrial strategy based on incentives and renewable energy as well as widespread applicability.*

*Turkey is a rich country in diversity and potential of renewable energy sources. Wind energy potential is estimated at about 160 TWh. According to Turkey Wind Energy Association (TÜREB) 2015 "Turkey Wind Energy Statistics Report, according to the wind power plants in Turkey installation (Annual Installatons for Wind Power Plants in Turkey (MW) was 430.7% in 2015, while 30.9% in 2006.*

*In recent years, Turkey has begun to encourage renewable energy; in this context, project developers in the framework of feed-in tariffs amenities are provided. Turkey has issued its first special law on renewable energy in May 2005 (Law No. 5346). This law guaranteed tariff rate of EUR 225 per megawatt-hour for 10 years for electricity produced from renewable energy sources (FIT) provided. A change in the law made in 2010; tariffs were changed according to the type of technology and payment of premiums to be paid to projects using local technology in the first 5 years of operations. WWF is stated in the 2014 report that, in 2030, it may be possible Turkey supply almost 50% of electricity demand from renewable sources, namely solar, wind, and water.*

*For those reasons the first point of this article is the concept of renewable energy system other main point is experiences of some countries of the world in the wind energy with the government experiences. And the last point of the study has adopted the descriptive analysis method to diagnose wind energy via government incentives in Turkey. The articles also answer: How to support the success of this type of incentives in the elected countries especially in Turkey. The result show that regulations in Turkey last years with respect to the mobility of wind energy government.*

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**Keywords:** *Energy, Incentives, Renewable Energy Sources*

**IN THE CONTEXT OF ENERGY RELATIONS AND POLICIES TURKEY AND  
RUSSIA RELATIONS IN THE 21st CENTURY**

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**ABSTRACT**

*Energy, an indispensable need of human life, is also one of the fundamental components of sustainable development. In international relations, throughout the history from the fact that many issues may play a role in the political and economic relations of states, energy has additionally been used as a tool of diplomacy for economic development. It is accepted that the agenda of the energy factor between relations of Russia and Turkey came out first with the Natural Gas Agreement signed in 1984 between Turkey and SSRR. Addition, both concepts of globalization and of bipolar world put forward after Cold War and likewise situations have evaluated and made stronger the energy relations between Turkey and Russia. Energy cooperation between Turkey and Russia were strengthened with Blue Stream Pipeline Agreement signed in 1997. The last 20 years of the two countries considered as the years reflecting the basic advantages and disadvantages of cooperation and competition. Western countries are market of Russia for exporting energy; however, Russia to achieve its strategic goals considers Turkey is an important country and a base to deliver the energy to the market due to its geopolitical position as a transit country. On the other hand; close relationship developed by Turkey with former Caucasus and Central Asia Soviet States after collapse of SSRR has seriously limited strategic objectives of Russia for Caspian energy resources. That situation has been perceived as the occurrence of a new cold war between Turkey and Russia.*

*When it comes to the 2000s, the Russian Federation and Turkey have taken steps to strengthen their relationships by the effect both conjecture world faced after September 11 and to be able to provide the necessary strategic effectiveness and competitiveness of energy sector in Central Asia and Caucasus. This situation continues also today. The main objective of this study is to reveal the political and energy relations between Turkey and Russia from past to present and also its development by straining it with economic, political and historical facts.*

**JEL Codes:** B15, B25, P16

**Key Words:** *Energy, Energy relations of Turkey and Russia, Globalization, Cold War*

## ENERGY POLICY IN TURKEY'S DEVELOPMENT PLANS

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### ABSTRACT

*The five-year development plans which are prepared by Ministry of Development, State Planning Organization formerly, are the basic policy documents revealing the growth that Turkey will realize in economic, social and cultural fields in the long term. Ten development plans, have been prepared since 1963 including the one up to and covering 2018. The main objective of all development plans is to make Turkish people happy and prosperous. Energy is an integral part that is inseparable from main entries of economic development, industrialization and social welfare. A country's energy policy is primarily identified in development plans. The elements such as the availability of energy sources, sustainability of resources, methods of production, distribution and consumption efficiency are should be noted. The objectives of this study can be described as revealing the preparations for development plans to be prepared for future periods specifically ones in area of energy policy. Attention to existing and potential problems and making recommendations for the sector by offering solutions to the problems identified. It is not a prophecy to say that one of the biggest problems that Turkey will face with in the future is energy deficit.*

**Keywords:** Development plans, energy policy, energy sources, energy production, energy consumption

**JEL codes:** Q40, Q41, Q48

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## **THE RELATIONSHIP AMONG NATURAL GAS PRICES AND ECONOMIC GROWTH FOR RUSSIA:TAR MODEL**

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### **ABSTRACT**

*Economic growth and energy prices relationship has been extensively examined via linear techniques in the energy economics literature. But only a very few studies have considered that the relationship might be nonlinear.*

*Therefore this study makes a contribution to existing literature by applying the TAR models to investigate the nonlinear linkage between economic growth and natural gas prices for Russia. Analyses have been conducted for the period 1996:Q1-2015:Q2. At the first stage, according to the results of nonlinearity test procedure, threshold value has been detected for the natural gas prices and economic growth- natural gas prices relation has been examined using a two-regime TAR model.*

## **ENERGY CONSUMPTION, INCOME, FOREIGN DIRECT INVESTMENT, AND CO2 EMISSIONS IN TURKEY: COINTEGRATION AND CAUSALITY ANALYSIS**

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### **ABSTRACT**

*The aim of this study is to explore the relationship between the energy consumption, income, foreign direct investment inflows, and CO2 emission in Turkey, for the period of 1975-2011. For this purpose, the Johansen cointegration and Granger causality method have been used. The cointegration method results indicate that there is a long run equilibrium relationship among the variables. In the long run, Environmental Kuznets Curve (EKC) hypothesis is supported in Turkey. Also, the pollution haven hypothesis, meaning that FDI has negative effects on environment, is valid for Turkey in the long run since CO2 is the Granger reason of foreign direct investment. According to Granger causality test, the conservation hypothesis is valid which means there is a unilateral causality relation from economic growth to energy consumption.*

**Keywords:** *Energy Consumption, Economic Growth, Foreign Direct Investment, Carbon Emissions.*

**JEL Codes:** *Q43, O13, N70.*

## **R&D INDIRECT SUPPORT IN ENERGY AND THE B-INDEX MODEL APPLICATION FOR BALKAN COUNTRIES**

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### **ABSTRACT**

*The aim of this paper is to evaluate the rate of return on investment research and development in energy using the B-index model in the Balkan countries such as Albania, Bosnia and Herzegovina, Bulgaria, Macedonia, Montenegro, Greece, Serbia, Croatia, Slovenia, Romania and Turkey from 1990 to 2014. The aim of this paper is to evaluate the generosity of the tax incentives in energy in the Balkan countries. This paper consists of 5 chapters. In the first chapter I would like to point out how science is important in our everyday lives and how important it is for the economics, energy industry and the economic growth but also I would like to show the differences in financing R&D indirect support in energy. The second chapter includes all the aspects of R&D indirect support in energy, the advantages and disadvantages of the different types of support in energy. The third chapter is devoted to the methodology of the B-index model. The B-index model measures the relative attractiveness of R&D tax treatment in energy in the country or region. The model represents a before tax rate of return on one euro of R&D investment to the energy. The following chapter is devoted to application of the B-index model to the Balkan countries such as Albania, Bosnia and Herzegovina, Bulgaria, Macedonia, Montenegro, Greece, Serbia, Croatia, Slovenia, Romania and Turkey. The fifth chapter includes a general summary and the results of the B-index model. The results show that the lower the index the greater is the incentive for a firm to invest in energy and in a given intangible. Values of B-index  $< 1$  indicate that the government subsidises the investment under consideration.*

**WATER BALANCE AND MANAGEMENT OF SAKARYA PROVINCE -TURKEY  
IN THE BASIS OF ENERGY AND CLIMATE CHANGE**

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**ABSTRACT**

*Meteorological deviations have been caused by global warming. Water scarcity and/or short-term heavy rainfall has become common. Irrigation risk and floods occurring in urban and rural areas often. Increasing water demand for industrial facilities and drinking water management, their risks have been become great importance and needed more understand. The effects of large-scale global warming in some regions and countries are being evaluated, projections at the local level has not been enough yet. Global warming will continue and is expected to continue to increase in the future. It caused by the changes of precipitation. Local basis, or knowledge of the possible effects of climate change and changes in the hydrological cycle management strategy are very important in many way. This could be taken local water security and water as an energy source is also need great importance. Turkey and Sakarya Province, as provincial base especially precipitation and temperature projections is very important for sustainable water management. The study assessed the latest situation in Sakarya-Turkey in terms of climate changes and water management. Especially water and energy balance are discussed. As result, Sakarya Province is being indirectly affected from water scarcity and water shortages due to future climate. Industrial, agricultural and drinking water challenges of water management and its potential of energy efficiency will be affected negative. Monitoring and model studies must improve with best management ways and need used to the administrative base for sustainability*

**Keywords;** *Climate Change, Sustainable Management, Water Balance, Risk*

**BOX TYPE SOLAR COOKERS TESTING IN TURKEY'S CLIMATIC  
CONDITIONS**

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**ABSTRACT**

*Fuelwood scarcity is a growing problem over the World. Solar cookers are the only eco-friendly and free- fuelwood solutions especially for cooking or pasteurizing water and when used in the right place and the right way, we can provide a positive contribution to our environment and our budget. But its acceptance has been limited due to cultural barriers and a lack of information about these cookers. The objective of this study is to promote the use of solar cookers. Work is planned to be used of solar ovens to cook different types of foods more widely and consciously. For this purpose, in this study, it was tried to test which foods are good to cook in solar box cookers and to outline the implications from the results of this study for future solar cooker projects.*

*In this study, two box-type solar cookers were tested. In 2013 elliptical cylinder and cylinder box type solar cookers were designed and constructed using the same materials and tested for their performance investigation. Several outdoor experiments were performed on two solar cookers in order to decide which one is better. Maximum absorber plate temperature of elliptical cylinder box type solar cooker 174.50 C and cylinder box type solar cooker 160,550 C on 5th July 2013.*

**Keywords:** Renewable Energy, Solar Energy, Solar Cookers

**JEL Codes:** Q2, Q42, Q55

**RENEWABLE ENERGY CONSUMPTION AND ECONOMIC GROWTH  
RELATIONSHIP IN BLACK SEA AND BALKAN COUNTRIES: EVIDENCE FROM  
PANEL CAUSALITY ANALYSIS**

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**ABSTRACT**

*Undoubtedly, one of the most important production factors is energy. Sustainable growth and realization of welfare coming from growth significantly depend on the energy consumption. The existence and direction of observed causality relationship between energy consumption and growth discussed in many studies; nevertheless, a clear idea was not achieved. Also, handling the energy consumption in sub-components (Coal, petroleum, electricity, nuclear, renewable etc.) may lead to the emergence of different results. The number of studies in the literature with sub-components of the total energy consumption is very few.*

*In the literature, there are four different hypotheses to explain the causal relationship between energy consumption and growth: i) there is not a causal relationship between them (Neutrality Hypothesis), ii) there is a one-way causal relationship from growth to energy consumption (Conservation Hypothesis), iii) there is a one-way causal relationship from energy consumption to growth (Growth Hypothesis), and iv) there is a two-way causal relationship between energy consumption and growth (Feedback Hypothesis). In this study, all four hypotheses were tested in terms of relationship between renewable energy consumption and economic growth by the panel Granger causality tests that based on error correction model with the panel data set of 9 Black Sea and Balkan countries for the period of 1990-2012.*

*According to the findings of the study, it is seen that there is a one-way causal relationship from renewable energy to growth and it has been concluded to support the growth hypothesis. Several policy recommendations in terms of the growth hypothesis are presented in the results section. The results obtained could shed light on the determination of national energy policy.*

**Keywords:** Renewable Energy, Economic Growth, Panel Causality

**Jel Codes:** Q43, O13, C12.

**ENERGY SECURITY IN A MORE INSECURE BALKANS: BOSNIA-HERZEGOVINA AMIDST NEW CRISES IN AND AROUND EUROPE**

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**ABSTRACT**

*If stagnation has been the word for describing progress in many sectors including the energy sector in the context of state formation in Bosnia-Herzegovina since 1995, it has been even more so since the ongoing crises in the Europe's vicinity; i. e. Ukraine and Middle East. As a resource-dependent country with no energy legislation, Bosnia-Herzegovina is likely to remain a bottleneck locus given the fact that unlike most other Balkan states, it has not been able to reap benefits from its membership in the Energy Community --aimed at progress in energy sector governance-- due mostly to malfunctioning internal decision-making structures. The lack of a thorough legislation on energy and independent expert analyses, the existing poor communication between state and entity levels, the lack of clear ownership of energy projects, and the treatment of energy development policies at the entity level have led to failure in transposing the notorious Third Package, not to mention the unrectified breaches confirmed by the Ministerial Council. Worse, the increasing energy demand of the country has coincided not only a period of energy transfer interruptions related with the crisis in Ukraine but also with the destabilizing end-results of Arab Spring which absorbs the attention of the EU. In such a context, this paper shall seek to examine the prospects as to how Bosnia-Herzegovina can fit into challenging energy politics/security in Europe. Currently, possibilities for a dim prospect loom large, given the state-of-affairs.*

**JEL Codes:** F5, F50, F52

**Keywords:** Energy security, Bosnia-Herzegovina, Balkans, Europe.

## **AN EMERGING CONTRIBUTOR TO THE EUROPEAN SECURITY OF ENERGY SUPPLY: ROMANIA**

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### **ABSTRACT**

*The Black Sea currently lies above significant energy lines. One of the main energy transit routes from Caspian Sea to Europe passes through this area. It becomes obvious that, the Black Sea will also host new valuable projects regarding European energy security, and Romania – as both a member of the European Union and Europe's largest Black Sea littoral state - eagerly taking active roles in those projects. In order to diminish its energy dependency to the Russian Federation especially after the Ukrainian Crisis, Europe hastened its search for alternative supplies and rediscovered Romania both as a transit state and reliable energy supplier. It is estimated that, Romania would address European energy needs not only with its unexploited natural gas reserves but also with its miscellaneous energy resources. Strikingly, Romania started to be introduced as the European Union's emerging energy center.*

*According to the data of 2014, the third lowest energy dependency rate among the EU member states was recorded for Romania, following Denmark and Estonia. Romania produces much of the gas it consumes, and imports only % 20 of its total natural gas consumption from the Russian Federation. Historically, Romania was also the first in the industrial use of natural gas in Europe. Since 2012, it has become a strategic gas supplier thanks to its recently discovered gas reserves. Likewise, Romania is one of the high-ranking European countries in the oil production. Romania has also a historical significance regarding the oil sector. Being the first country in Europe to have discovered its crude oil reserves, the world's first oil refinery was also opened in Romania. It should be noted that, newly discovered oil fields in Romania should become a factor in enhancing Romanian rank in the world oil statistics.*

*Renewable energy sources, especially the wind power, contributed to the rising importance of Romania for supply of energy in Europe. Romania exploits its geographic advantage in regards to wind power and hosts European largest onshore wind farm with a record capacity of 600 megawatts. Recently, many foreign enterprises made large-scale investments in wind power projects. It is estimated that electric needs of not only millions of Romanian households, but also energy importing countries will be met in the near future.*

*Shale gas, as a noteworthy alternative to conventional natural gas, has increasingly come to the fore in recent years. Romania owns rich shale gas deposits and its shale gas potential should be regarded as another contribution to European energy security. American energy company Chevron's exploratory drilling in Pungesti, a village in Romania's east – demonstrated the potential of 51 trillion cubic feet of shale gas. It is estimated that Romania's shale gas potential would cover domestic demand and other European states' demands for a long time.*

*In addition to Romania's possession of different energy sources, its determination in implementing energy efficiency programs strengthen Romanian government's potential for rising energy power of Europe. Building systems based on renewable/green energy sources and strictly implemented building insulation programs will bring significant savings in natural gas consumption. When the newly discovered reserves are also taken into*

*consideration; it should be argued that Romania is going to expand the supply of natural gas to European countries. In this context, depicting Romania as a rising energy supplier in terms of European security of energy supply is not an unrealistic suggestion.*

*Moreover, Romania will be able to take an active role in European future energy policy formulations not only as a supplier, but also as an energy transit state. Especially the AGRI (The Azerbaijan-Georgia-Romania Interconnector) Project, which was established with a joint declaration of Azerbaijan, Georgia and Romania in 2010 and gained momentum in 2015, reveals Romania's strategic position in European gas calculations. The AGRI Project was introduced by Azerbaijan in a response to Turkish-Armenian Rapprochement process of 2009. The Project was designed to form a direct link between Europe and the natural gas deposits of Caspian Basin. The basic goal of the project was to edge out Turkey and Russia as transit actors in East-West gas trade. AGRI is expected to transport liquefied Azeri gas from Georgian Kulevi seaport area, across the Black Sea with oil tankers, to a Liquefied Natural Gas (LNG) terminal on the Romanian Black Sea port of Constanta. In Constanta terminal, liquefied gas will move to the vaporization unit and the gas will be pumped through Romanian natural gas transmission system to Central European countries. In sum, AGRI Project transmits Azeri gas to Romania through Georgia and Black Sea, and pumps the natural gas into Romania's pipeline system for transit and ultimately to Central European countries. After the Ukrainian Crisis, AGRI Project has gained much currency because of its capacity in breaking the European Union's natural gas dependency to the Russian Federation. It should also be noted that, Hungary's inclusion to the project in 2011 and Bulgaria's positive signals raised project's success possibility.*

*To sum up, the transit country role of Romania has enhanced with the inauguration of AGRI Project. However, Romania has to make very considerable progress in order to render its power active. The first steps that Romania has to take are enhancing new pipeline projects to neighboring countries such as Bulgaria, Hungary and Moldova, and renewing existing pipeline networks. Furthermore, as it is known, Azeri gas is not an adequate alternative to the Russian gas in European market for energy supplies. Because of that, any serious contribution to the European energy security of the AGRI Project requires a noticeable increase in the number of supplier countries. Turkmenistan comes to the fore at this point. In this context, the functioning of the AGRI Project depends on the construction and/or alteration of pipelines to the European Union centers and the incorporation of new supplier countries to the project.*

**Keywords:** Romania, AGRI Project, Europe, Energy Security.

**JEL Codes:** F50, L95

**THE CONTRIBUTION OF PIPELINES ON THE ESTABLISHMENT OF  
REGIONAL COOPERATION AND PEACE: RUSSIA-TRANS-KOREA PIPELINE**

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**ABSTRACT**

*Although the war between North and South Korea ended in 1953 de facto, it lasts as no peace settlement has been reached. Despite the fact that two countries from time to time come to the threshold of war, for some issues they may take the opportunity to collaborate in some respects. One of these issues is the pipeline project providing natural gas from Russian Federation to South Korea through North Korea. In the project that has been initiated in the 1990s, some concrete progress has been achieved from the 2000s on. Besides the economic returns of being involved in the project for South Korea that is foreign-dependant in terms of energy and North Korea that takes food aid from the United Nations, it is discussed that the project would serve to the security and stability in the Peninsula.*

*In the study, whether constructing pipelines between countries having problems would contribute to the cooperation and to the solution of problems between the countries or not is examined in the context of projects fulfilled. Thereafter, the Russia-Trans-Korea pipeline would be analysed.*

**JEL Codes:** F590, F510

**Keywords:** Pipeline, Peace, Stability, Russian Federation, Korean Peninsula, Russia-Trans-Korea Pipeline

## RUSSIAN ENERGY SECTOR WITHIN GLOBAL CAPITALISM

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### ABSTRACT

*“Competitors... it is abroad. Here, there are no competitors; we are all partners.”*

*Igor Sechin, president of Rosneft*

*(E. Shadrina, "Russia's State Capitalism and Energy Geopolitics of Northeast Asia," 2013, p. 14, <http://www.utu.fi/pei>)*

*The new era of capitalism, in which capital can flux easily through boundaries of countries more and more every day for the sake of capitalist system worldwide, has been starting to determine the conditions of both political and economic positions of not only states but also multinational/transnational corporations. By the virtue of the solid ground supplied by neoliberal politics applied throughout the world, global capitalism necessitates some major sectors that obtain some certain significant mechanisms for its process works properly. Accordingly, the foremost sector among the others is the energy sector, which is so important for the global capitalist system due to not only its surviving but also its progressing and improving despite of pushing the limits of scarce resources in the world. Nearly for last fifty years, possessing or controlling huge amount of oil and/or gas reserves for both states and transnational corporations means possessing or controlling more power politically and economically further all around the world. Furthermore, when it comes to global energy sector, one of the chief countries is Russia and of course state-owned Russian energy corporations Gazprom and Rosneft.*

*Russian Federation is an unique country in the world that has the biggest territory, which comprises rich underground and aboveground natural resources. Since the Soviet times, mining and energy sectors have so important roles for the Russian economy; not only for domestic utilization but also for exporting to the world or aiding allied countries. In addition to these, influential energy sector -especially with such strong national/state-owned corporations Gazprom and Rosneft- makes Russia more powerful, more effective, more impressive to have a say in order to designate the global politics and economics. In this regard, by this work, I will try to investigate the place of Russian energy sector along with state-owned big energy corporations within the global capitalist system concerning the interrelationships with developed countries and transnational corporations, which are the major actors of global capitalism. First, it needs to begin with dealing the dynamics of global capitalism and the influence of the energy sector in terms of global capitalism. After that, I will proceed to examine the Russian energy sector since the last times of the Soviet Union after the global oil crises in 1973 and 1979. Finally, it will be tried to analyze aspects and impacts of the Russian energy sector together with the state-owned corporations Gazprom and Rosneft within the global capitalist system. Therefore, when it comes to the energy sector, it necessitates to mention about Russian energy sector and its big national energy corporations for understanding their location and position in the global capitalism with respect to its future.*

**Keywords:** Russia, Energy, Gas, Oil, Gazprom, Rosneft, State-owned Companies (SOCs), Vladimir Putin, Oligarchs, Global Capitalism, Globalization, Transnationalism.

**JEL Codes:** E02, F02, F14, F23, F42, H11, L78, N74, P16, Q43.

## **GEORGIA'S ROLE IN THE TRANSPORTATION OF ENERGY RESOURCES OF THE CASPIAN SEA**

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### **ABSTRACT**

*After the collapse of the Soviet Union, the Caucasus and the Caspian region to establish a special situation. The battle for the development and transportation of Caspian oil. On the agenda was the question of resolving the legal status of the Caspian Sea. The decision of the legal status of the Caspian Sea is of great importance in order to select a route for the transportation of energy resources. To date, there is no single approach to the definition of the legal status of the Caspian, as it is distributed between the 5-D states, however, use of resources is carried out on the shelf of the Sea border. The pipelines laid on the territory of Georgia are proof of recognition of Georgia's geopolitical location, which in addition to economic and fiscal values, and have a political meaning. Today, through the territory of Georgia laid the Baku-Tbilisi-Ceyhan and Baku - Supsa oil pipeline and South Caucasus gas pipeline, which run parallel to the Baku-Tbilisi-Ceyhan pipeline. The Baku-Tbilisi-Dzheyhan-first direct route for transporting oil between the Caspian and Mediterranean seas, the total construction cost of which amounted to 4 billion. US dollars. This route is economical and allows for safe transport of oil over long distances. In addition, the existing oil reduces oil transportation in large numbers across the Bosphorus.*

## **SAMTSKHE-JAVAKHETI REGION: A NEGLECTED KEYPOINT FOR EUROPEAN SECURITY OF ENERGY SUPPLY?**

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### **ABSTRACT**

*Despite recent drops in European energy consumption related to the ongoing economic troubles in the eurozone, Europe remains heavily dependent on fuel imports. Because of that, the energy security issue - which has gained prominence in European economic and political agenda since the early 2000s - is not losing its importance.*

*Traditionally speaking, volatile prices and disruptions to supply were assigned as two basic indicators of security of energy supply. In order to contend with those risks, energy-dependent states need alternative energy sources, diversification of their routes, and instrumental mechanisms to avoid political and economic instabilities regarding their suppliers and transit countries.*

*Since the collapse of the Soviet Union, the Caspian Sea region has gradually increased its importance both as a source of and transit route for hydrocarbons. The unproven, but possible or probable oil/gas reserve statistics show that, the Caspian Sea region would constitute nearly 17 % of the world oil reserves and 12 % of the world gas reserves. Taking into consideration the importance of Caspian's potential reserves, the rise of new energy actors in this energy-abundant region such as Azerbaijan, Kazakhstan, and Turkmenistan was welcomed in the Western power centers. Those emerging actors were assessed as partners in bypassing Russian energy dominance. However, Russian energy dominance in East-West Energy Corridor has not expired yet thanks to Russia's large reserves and Soviet legacy pipeline infrastructure.*

*The main Western initiative to challenge Russian energy dominance regarding the Caspian Basin was the Baku-Tbilisi-Ceyhan (BTC) oil pipeline. Through the pipeline, Caspian oil has been transported from Azerbaijan via Georgia to Turkish port of Ceyhan in Mediterranean. The 1768 km pipeline, as the greatest private construction project in the world, was formally opened in July 2006. Likewise, a parallel gas pipeline - the 691 km South Caucasus Pipeline (SCP) - was opened in the same year. This parallel gas pipeline exports Shah Deniz gas from Azerbaijan to Georgia and Turkey.*

*The two strategic pipelines pass through the territories of Samsthe-Javakheti region of Georgia - a tiny administrative unit adjacent to the Turkish city of Ardahan and Armenian city of Gyumri. Because of that, any political turmoil in that strategic region should easily turn into a factor endangering both already unsatisfactory regional stability and European energy security.*

*It should also be noted that, Samsthe-Javakheti region has interesting economic and demographic characteristics that make it unique and prone to instability. On the one hand, Samsthe-Javakheti has always been Georgia's one of the poorest and unintegrated regions. Its underdeveloped infrastructure places it at a disadvantage compared to other regions of Georgia. Samsthe-Javakheti's unemployment rates have been very high especially since the closure of the Russian base (62<sup>nd</sup> Divisional Russian Base) at Akhalkalaki in 2007. On the other hand, a minority group – Armenians - constitutes a demographic dominance in the*

*region. According to the 2002 Census, a total of 210.000 people live in the region, out of which 54.5 % are Armenians. Armenians reach % 94.3 % in Akhalkalaki and 95.8 % in Ninotsminda provinces of Samsthe-Javakheti. Due to the ethnic dominance of Armenians in the region, even the tenuous demands of Javakheti Armenians for autonomy or cultural rights eradicate Georgian fears of secession.*

*The Russian Federation should also be considered as an influential factor in the possible turmoil scenarios regarding Samsthe-Javakheti. In this context, Russia's decision to stop the flow of energy to Ukraine in 2006 and 2009 winters, the Russo-Georgian war of 2008 and contiguous annexation of Crimea by the Russian Federation triggered European perception of insecurity in terms of energy.*

*In this paper, it is argued that, as answer to its fears of insecurity in terms of energy, the European Union has continuously implemented a unidimensional and futile Georgian policy since the official inauguration of the BTC pipeline. The cornerstone of European Union's South Caucasus policy has always been the discourse of maintaining Georgia's territorial integrity. It is without question that the policy of defending Georgian territorial integrity is mandatory to establish regional stability in the East-West Energy Corridor. However, in some instances Tbilisi-centered policy of the European Union resulted in a disguised support for exclusionist nationalist policies of Georgian state authorities. Correspondingly, increasing number of Javakheti Armenians started to reimagine the Russian Federation as a "safe harbor". This means, the European Union's initiatives to maintain its energy security ironically turned into new factors in endangering its energy security.*

*In sum, the European Union, in one way or another, managed to get alternative energy sources and successfully accomplished the diversification of its routes in the South Caucasus. However, it failed to establish influential cooperation mechanisms to avoid political and economic instabilities in South Caucasus's strategically important transit region: Samsthe-Javakheti. The European Union simply lacks a comprehensive regional plan compatible with the sociological and economic realities of that region.*

**Keywords:** Samtskhe-Javakheti, Energy Security, Baku-Tbilisi-Ceyhan, South-Caucasus Pipeline, Armenians.

**JEL Codes:** F50, F51, L95

## **TURKEY - RUSSIA STRATEGIC RELATIONS: NEW DIMENSIONS ON ENERGY TIES**

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### **ABSTRACT**

*This article focuses on the strategic relations between Turkey and Russia. After the end of Soviet Union, reorganized the state system of Russian Federation and his renew international sphere with rest of the world states. The main subject is Energy and Energy supplies of RF are mainly important sources for Russian state budget. And of course, the energy needs of the country is high; and it's increasing day by day, and it is of vital importance for all states. These countries are not new energy profit partners. From the transformation period of Russia, between 1991-1999 years as an the B.Yeltsin's presidential time, we can see 'New Russia' as a powerful repatriation to Russia as the world politics. After this time, there have been rapid improvements in the economical-diplomatic relations between Russia and Turkey. In recent years, Turkey-Russia relations have been gradually transforming thanks to the corporational approaches. For many years both sides have expressed their desire for bilateral relations are remain merely economical and national interest in their regions. The general structure of Turkish-Russian relations are strategical; and on this mean is more profitable, more economical and using this advantages it stay more 'powerful'. The first direct gas pipeline between Russia and Turkey was Blue Stream, which was inaugurated in 2005 . Since then Turkey has relied increasingly on Gazprom-oriented energy. If in the 2009 Russian-Ukrainian gas crisis, the EU diversified and became more carbon efficient; and at that period Turkey has signed a series of agreements that have only increased its energy dependence on Russia. Today, the energy thirsty emerging economy, which imports 98% of its gas buys some 60% from Russian monopoly-actor . The new deal between Russia and Turkey also will increase volume across the existing Blue Stream route. There is an accurate projection of Turkish role as a key geopolitical actor for the energy security of Near East and Europe, with well-targeted recommendations for the proper use of the geographical advantages on energy by the Turkish diplomacy.*

*And Turkey has not power for changing this tight-combined agreements and relations on energy. Russia is Turkey's largest natural gas supplier, with Ankara buying 28-30 billion cubic meters (bcm) of its 50 bcm of natural gas needs annually from Russia. Other major suppliers are also in the same region as Iran and Azerbaijan, with a small amount planned from Turkmenistan. Turkey commissioned Russia's state-owned Rosatom in 2013 to build four 1,200-megawatt reactors in a project worth \$20 billion, although a start date for what will be Turkey's first nuclear power plant has not yet been set. End of 2014 and the political tension which arouse aftermath of the Syrian conflict. That's why, Russia did not hesitate to use air forces on Syrian conflict. Angered by air strikes, Turkey's political faces warns Russia on energy ties. Russian aircraft twice entered Turkish air space on the first weekend of October, 2015 as Moscow carried out air strikes in Syria Turkish F-16 jets have also been harassed by Syrian-based missile systems and unidentified planes since then. But, Russia was no reactions and comments and attend to using his determinative power on Syrian conflict. We are in 2015 the relations between Turkey - Russia has entered upon a new phase and the reflections of the 2014 Syrian conflict on the space has attracted the field of international relations. It is for that reason, through analyzing the increasing role of energy supply and energy security in the field of international relations; this article concentrates on bilateral relations to Russia and Turkey, beginning from end of the 'Tandem' ; it means last Presidential time to V.Putin and to present. Consisting of three main parts : Russian Energy Market, Energy Supplies and its political tools,*

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*Energy Diplomacy and International Economical Relations. The article also deals with issues such as 'strategic ties' and its construction. The Evolution of Turkey-Russia Relations, effect of the Syrian conflict on these relations . In this field that are using neo-realist approaches, for analysing the geopolitics of energy; are capturing the real dimension of the Russian and Turkish Energy Policy.*

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