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## **Global Energy Security, International Politics and Renewable Energy Resources**

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### **ABSTRACT**

*States struggle for influence, power, and hegemony over hydrocarbon resources in different parts of the world to enhance their energy security. This creates instability and hinders progress towards peace in world politics. In this paper, international cooperation on renewable energy sources and its impact on global energy security and international politics were analyzed. To this end, international initiatives and collaborations on renewables and their impact on the share of renewables in global energy consumption were investigated. Whether or not an increase in the share of renewables can alleviate the struggle among major actors of international politics was evaluated. It was concluded that effective international cooperation can increase the share of renewables in global energy consumption faster than forecasted, lower dependence on fossil fuels and promote peace and stability in world politics. It is estimated that use of more renewables can also lower energy import bills, increase economic growth rates and international trade. This may also promote world peace by increasing complex mutual interdependence among countries.*

**Keywords:** *Renewable energy, International cooperation, Global Energy Security, International Politics*

### **INTRODUCTION**

Energy security is defined as the continuous and stable supply of energy from reliable sources, in sufficient amounts, at reasonable prices and via reliable means of transport. Even if conventional energy security definitions focus on depletion of fossil fuels, particularly oil, natural gas and coal (Nuttall and Manz, 2008), recent studies point out that a new energy security concept that incorporates the increasing role of renewable energy sources must be defined (Vivoda, 2010). It is argued that energy security has more dimensions than many policy-makers or even scholars may realize and energy security analysis must go beyond traditional themes such as security of fossil fuel supplies (Sovacool et.al., 2011).

Energy security is important for economic and national security since energy is a strategic material and an important parameter of a country's security that links national and foreign security policies (Cao and Bluth, 2013) and since it is essential for economic growth and cuts in the energy supply can seriously undermine economic development. Energy security became a more important concept especially after the 1973 oil crisis. It has become a strategic concept for international politics in the 21st century since economic factors has become as important as political and military factors for national security. The inability of

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global governance system to enhance cooperation between consumer and producer countries has also increased importance of the energy security term (Escribano and Valdes, 2017).

The economic and political aspects of energy security are so intertwined that they need perspectives that combine economics and political science as argued by Susan Strange (1988):

“What is needed is some analytical framework for relating the impact of states’ actions on the markets for various sources of energy, with the impact of these markets on the policies and actions, and indeed the economic development and national security of states.”

According to the New Policies Scenario of the International Energy Agency (IEA), global energy demand will increase one-third from 2011 to 2035. Growing energy demand and its economic and political consequences have enhanced the importance of energy supply security. The global energy security concerns have reached such levels that some called for military action and militarization of energy security as part of the North Atlantic Treaty Organization (NATO) (Sovacool, 2013). Regional and global actors on the international stage are trying to increase their influence on hydrocarbon-rich regions to enhance their energy supply security. They want to have more say in the exploitation of these resources and how these resources are transported to international markets. Energy politics has become a major force in global and domestic politics (Colgan, 2014).

In this paper, the interaction between global energy security, renewable energy and international politics will be analyzed within the context of international power struggle for the hydrocarbon energy resources and international cooperation on renewable energy sources.

## **HYDROCARBON SOURCES, GLOBAL ENERGY SECURITY AND INTERNATIONAL POLITICS**

The increasing significance of energy supply security in world politics has multiplied the geopolitical importance of countries and regions that are rich in hydrocarbon reserves such as the Caspian Basin, Middle East, the South China Sea and the Arctic Region.

As energy security and national security became interconnected; the Middle East and Eurasia, where around 70 percent of the proven oil and natural gas reserves of the world are located, became the “chessboard of the new great game”. Rivalry in these regions intensified over exploitation and transportation of these resources.

The Caspian Basin emerged as one of the most strategic regions for global energy markets in 1990s and 2000s. Global and regional actors struggled to shape this hydrocarbon-rich region in line with their interests. This struggle was called the “new great game”. The main players in this “new great game” are Turkey, Russia, Iran, China, Afghanistan and Pakistan as regional players and the US, the EU and Japan as global players.

Lochner and Bothe (2009) performed simulation of future gas supply with MAGELAN model and found that a global gas market will evolve in the coming 20 years and the Middle East and the CIS will be the most important exporters of natural gas. They also found that the United States’ and Europe’s import dependency will increase significantly and Japan’s dependency that is already at very high levels will continue to be high.

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The South China Sea has also become an area of international struggle for hydrocarbon sources. After the discovery of oil and natural gas resources, this semi-enclosed part of the western.

Pacific has transformed into an area where intense geopolitical struggle among major powers started. Some islands, which have large reserves of oil and gas in subsea areas, are claimed by surrounding countries. Existence of major powers in the area and political and military ties of some surrounding countries with global powers may turn the conflict from a regional one into a global one.

Various projects have been developed to exploit and transport hydrocarbon resources of the Caspian Region, Middle East and the South China Sea to international markets. Regional and global actors are trying to realize projects in line with their national interests. This creates clash of interest among major actors in international politics and increases possibility of international conflicts.

## **RENEWABLE ENERGY, GLOBAL ENERGY SECURITY AND INTERNATIONAL POLITICS**

Global energy security is put at risk because of the tense relationship between the international political system and the international energy system (Christoffersen, 2016). Increasing the share of renewable energy sources in global energy consumption and a global energy transformation can alleviate some of the problems created by the struggle for influence over the critical energy infrastructure and over the hydrocarbon reserves by lowering states' dependence on fossil fuels and enhancing global energy security. As in the earlier realized cultural, infrastructural, political and economic transformations, the magnitude of current struggles for global energy transformations is profound (Stirling, 2014). Nonetheless, few structural shifts have been historically rapid or socially pervasive as those now envisaged for global energy transitions (Stirling, 2014). It is argued that the transition from an energy system based on fossil stocks to one based on renewables increased societal demand for land and resulted with the global land rush (Scheidel and Sorman, 2012).

It is argued that a low-carbon transformation and long-term decarbonization have substantial energy security benefits (Jewell, Cherp and Riahi, 2014). The multilayered analysis of the energy supply process of Kiriyama and Kajikawa (2014) indicated that a diversification strategy is very important for enhancing energy security over the entire supply process. The main advantage of renewable energies for the long-term energy security is that it is based on flow rather than exhaustible stocks and diversification effect of renewables can make the energy systems less sensitive to some types of disturbances (Johansson, 2013).

Renewable energy sources' share in global energy consumption has already been increasing as they are becoming more competitive compared to other energy sources. According to estimations, renewables' share in global energy consumption will continue to increase. According to the New Policies Scenario of the IEA (International Energy Agency), share of fossil fuels in global energy demand will fall to 76% in 2035 from %82 in 2011. The share of renewables in primary energy use will rise from 13% in 2011 to 18% in 2035.

Renewable energy sources' increasing share in global energy consumption is a promising development since it lowers states' dependence on oil, natural gas and coal and contributes to

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climate protection (Hirsch, 2009). Renewables' contribution to climate protection is very important for international politics since climate change is a security problem for many states (Barnett, 2003). It is argued that renewables will also lead to greater prosperity since energy systems based on renewables will increase incomes through increasing returns (Mathews and Reinert, 2014). Countries, aware of the benefits of the renewable energy, follow different strategies and policies to promote the use of renewable energy (Toke and Lauber, 2007). It is argued that countries should use technology roadmapping as a strategic tool to integrate science and technology with business and product planning to reach their aims in the renewable energy sector (Jeffrey, Sedgwick and Robinson, 2013). One of the most industrialized countries in the world, Germany, started an ambitious long-term initiative, "Energiewende" (energy transition), to decarbonize its energy practices and portfolio by transition from fossil fuels to renewable energies (Stegen and Seel, 2013).

Renewable energy sources' share is rising steadily. Nonetheless, it must be accelerated to have a significant impact on international politics. At this point, international cooperation is essential to develop renewable technologies faster and to design renewable support schemes that are effective and cost-efficient. Global environmental governance, which is defined as "the diverse and complex institutional arrangements that have been created at the global level in order to steer human societies in the direction of greater environmental sustainability", has to become more effective (Falkner, 2014). Because of several challenges such as the complexity and transboundary nature of environmental problems, democratic global environmental governance needs new ways of organizing policymaking (Berg and Lidkog, 2018).

Sovacool (2013) argues that "if the twentieth century was about energy, then the twenty-first century could very well be about energy governance and climate change." Reducing energy-based emissions of greenhouse gases is acknowledged as a priority of global environmental governance in the 21st century. The 'trilemma' of the global energy agenda is expressed by researchers as "how to meet the three demands of securing energy supply, protecting the global climate and reducing energy poverty." (Falkner, 2014) Providing reliable access to clean and affordable energy is seen essential to increase economic development and to provide health care, educational and other social services (Allison, 2015).

At this point, studies of International Relations (IR) sub-discipline of the Global Environmental Politics (GEP), which studies systematic evaluations of how international society deals with global environmental issues, gained importance. Interdisciplinary studies and interaction and links between the GEP and the International Relations sub-discipline of International Political Economy have to be expanded and intensified since "the linkages between environmental and economic cooperation need to be strengthened in order to tackle complex global problems, such as climate change and biodiversity." (Falkner, 2014)

## **RENEWABLE ENERGY AND INTERNATIONAL COOPERATION**

According to Renewable Energy Roadmap 2030 (REmap 2030) of International Renewable Energy Agency (IRENA), share of renewables can be advanced to as much as 36% as of 2030. Nonetheless, international cooperation, particularly on research and development activities, is vital to reach these targets. Number of international projects on renewable



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energy technologies must be multiplied, transfer of renewable energy technologies should be encouraged and international standards should be adopted. States should be encouraged to determine long-term renewable energy deployment policies. It is argued that countries should work together so that renewable electricity and biomass commodities are increasingly traded and policy initiatives are coordinated at the international level. International cooperation is essential to disseminate the experience of the countries that are advanced in renewable energy technologies.

There are numerous international institutions, NGOs, and transnational organizations that participate in global energy governance in one way or another including the International Energy Agency (IEA), the Intergovernmental Panel on Climate Change (IPCC), the United Nations Environment Programme (UNEP), the United Nations Framework Convention on Climate Change (UNFCCC), the World Bank, the European Renewable Energy Council (EREC), the OPEC, and the Asian Development Bank. There are also a growing number of international collaborative initiatives including the International Renewable Energy Agency (IRENA), the Renewable Energy and Energy Efficiency Partnership (REEEP) and the Sustainable Energy for All (SE4ALL).

International cooperation and collaboration opportunities provided by these organizations take different forms. International organizations such as the World Bank and regional development banks have been increasing their role in global energy governance by determining targets for their lending activities to developing countries in investment projects related with energy and supporting them with their climate-related upgrades of energy systems (Falkner, 2014). Climate Investments Funds (CIFs), Clean Technology Fund and the Strategic Climate Fund of the World Bank are among these lending and investment facilities to support climate protection, low carbon technologies and scaling-up of renewable energy (Falkner, 2014) The International Energy Agency (IEA) and the OECD promote switching to alternative energy sources including renewables by encouraging reducing fossil fuel subsidies that would not only lead to reduction of carbon emissions but also by serving energy security interests. IRENA is seen as an institution that uses an innovative approach to promote renewable energy by concentrating on a narrowly defined set of goals with regards to the deployment of renewables and by being an important provider of epistemic services to the least developed countries (Urpelainen and Graaf, 2015).

International initiatives and organizations make valuable contributions to advance the share of renewable energy sources in global energy consumption. Nonetheless; legitimacy, efficiency and effectiveness of these organizations and initiatives should be enhanced. They should be able to function as a truly universal area where different players can meet and enhance cooperation (Müller, 2017).

Countries should provide more financial support and participate more actively in these organizations. They must determine priorities in a coordinated manner so that maximum benefits can be taken from international collaboration. International initiatives and organizations must facilitate international cooperation that would lower the cost of renewable technologies and stimulate private investment. Funding of renewable energy projects is one of critical dimensions that these international organizations must focus on. Funding of national projects by regional or national banks is seen beneficial at a limited extent. International projects must be funded sufficiently to advance the adaption and use of renewable energy sources.

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Florini and Sovacool (2009) do not expect that any overarching inter-governmental organization and regime will lead major energy players to harmonize their energy policies to the benefit of all. They argue that there will probably not be a single World Energy Organization with comprehensive membership able to determine global energy policy. They expect an “an array of different types of actors, with widely ranging claims to legitimate authority, attempting to set rules on different parts of the energy mosaic, often in conflicting and contradictory ways.” (Florini and Sovacool, 2009)

The emergence of developing countries such as China and their efforts to be more effective in global energy governance has made global energy governance even more fragmented and multilayered that could intensify decentralizing trends (Gao, 2017). According to global governance scholars, the international energy architecture has not kept pace with the emergence of BRIC countries that are at the centre of the swift transformation of global energy markets since none of the BRIC countries are members of the most influential international energy institution, the IEA (Downie, 2015). There is a consensus on the existence of global energy governance gap (Downie, 2015).

The institutional fragmentation of international organizations and multilateral institutions dealing with climate change, energy technologies and renewable energy resources is evident and probability of a comprehensive, universal and legally binding international agreements are low (Coninck and Backstrand, 2011). Craik (2011) offers bundled transgovernmentalism, which has the advantage of coordinating the implementation of national policies across borders without a need to balance decentralization and oversight, as a middle ground between unachievable supranational institutions and inadequate ad hoc cooperation for climate governance.

The urgent need for more effective global policy coordination and global environmental governance has already been pointed out by GEP scholars. They argue that international collaboration is needed to coordinate the use of scarce resources for investments in green energy technologies and low-carbon energy transition, to facilitate the transfer of green energy technologies from developed countries to developing countries, to support particularly the developing countries with financial aid to invest in green energy technologies to succeed in the global low-carbon energy transition (Falkner, 2014). It is also argued that the links between global energy and climate governance should be strengthened. Florini and Dubash (2011) argue that “a ‘comprehensive global climate agreement organized around explicit national carbon caps would be transformative and become a de facto global energy governance regime.”

International political economy scholars can contribute to more effective global energy and environmental governance by increasing their research on energy issues as only 19.6 percent of the articles from 1999 to 2013 in major journals such as Energy Policy, the Energy Journal and Electricity were written by authors in the social sciences and only 1.9 percent by political scientists (Sovacool, 2014). Hancock and Vivoda (2014) argue that “International Political Economy scholars can explore further the role of international organizations as they relate to energy.” International political economy scholars can analyze the interaction of states, international organizations and transnational actors to constitute new global energy, economy and environmental governance structures.

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## CONCLUSION

The share of renewable energy in global energy consumption can be increased faster than estimated by enhancing international cooperation. International cooperation can be enhanced by constructing more effective and legitimate global energy, climate, political and economic governance systems, which should all be interconnected parts of an effective global governance system.

If the share of renewable energy can be decreased faster than estimated, dependence on hydrocarbon reserves can decrease faster than estimated. It is not realistic to expect that all geopolitical and geo economical struggles over hydrocarbon resources will end as a result of increasing share of renewable energy sources in global energy consumption. Nonetheless, the struggle between major actors in international politics stemming from efforts to control critical energy infrastructure in regions such as the Caspian Region, Middle East and the South China Sea can ease at some extent.

Use of renewable energies can also lower energy import bills. In this way, economic growth rates and international trade can increase. International trade can contribute to international peace by increasing complex mutual interdependence among countries.

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