ENERGY REVOLUTION UNDER THE BRICS NATIONS

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The BRICS countries are of critical importance to both supply and demand fundamentals of energy markets globally. Today BRICS plays a very important role in the system of international energy security. BRICS energy diversification is driven by concerns for energy security. The potential for a BRIC energy partnership is thus enormous. The development of the BRIC countries in the next coming decades will include demographic changes with a growing middle class population which will demand more energy and resources that our world has the potential to supply.

A Green Energy Revolution is the panacea to solve major social, economic and environmental effects of their growing populations. This paper is an attempt to highlight the cooperation among the BRICS Nations for the development of Energy Sector and at the same time the concerning issue of climate change etc. It further discusses about the contribution of BRICS countries in the global economy. This paper also discusses about the role of the BRICS Nations in collaboration with the International Energy Agency.

Keywords: BRICS, energy security, demand, IEA, revolution.

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1. Introduction

The rise of developing countries like the BRICS countries (Brazil, Russia, India, China and South Africa) is constantly increasing the global energy demand. The BRICS countries are of critical importance to both supply and demand fundamentals of energy markets globally.[1] Today BRICS plays a very important role in the system of international energy security. The BRICS energy diversification is driven by concerns for energy security. The economic rise of the BRICS countries is closely tied to the global politics of energy and their increased consumption of global energy.[2] The BRICS countries together contributed about 38 percent of global carbon emissions in 2014.[3] BRICS provide a perfect division of labor in the energy sector. Russia and Brazil are key exporters while China and India are the consummate consumers. Russia occupies a key position in the global energy market. It is already involved in a mutually dependent cooperative pattern with the European Union on oil and gas. In the oil sector Russia is the largest non-OPEC oil-producing and exporting country. Russia has been endeavoring to renew its own energy structure for an integrated and R&D oriented development. In the global arena the Russian oil and gas prices and trade have an increasingly important influence. With the introduction of the New Development Bank to its feather, the Bank has also started providing loans for the development of energy sector in the BRICS Nations.[4]

The acronym was originally coined in 2001 to highlight the exceptional role of important emerging economies and only included Brazil, Russia, India and China (BRIC).[5] They started to meet as a group BRICS since 2006 and it was only in 2010 that South Africa was invited to join the group, which was then referred to as BRICS. It has been one of the most significant geopolitical events at the start of the new century.[6] The main feature and at the same time the brightest opportunity for the BRICS

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1 Akbar Valizadeh, Seyyed Mohammad Houshialsadat, *Iran and the BRICS: The Energy Factor*, 4(2) Iranian Rev. of Foreign Aff. 135–164 (2013).

2 Karl M. Rich, Elana Wilson Rowe, *BRICS: The Intertwined Politics of Energy and Climate* (Norwegian Institute of International Affairs 2012), available at <http://nkibrics.ru/system/brics/docs/data/54c7/a1df/6272/6937/f924/0000/original/NUPI_Report_BRICS_energy_and_the_new_world_order.pdf?1422369247>.

3 Greenpeace BRICS Factsheets 2015, available at <http://www.greenpeace.org/international/Global/international/briefings/climate/COP21/Greenpeace_BRICS_factsheets.pdf>.

4 Lidia Kelly, *BRICS bank okay first loans, $811 million for green energy – Russian Media*, (Reuters, April 17, 2016), available at <http://in.reuters.com/article/brics-bank-loans-idINKCN0XE07S>. The New Development Bank (NDB), formed by the BRICS group of emerging nations, has approved its first loans $811 million for renewable energy projects in Brazil, China, India and South Africa.

5 Dr. Morazan Pedro, Irene Konke, Doris Knoblauch, Thobias Schafer, *The Role of BRICS in the Developing World* (Policy Department DG External Policies, European Union 2012).

6 BRICS Joint Statistical Publication: 2015; Brazil, Russia, India, China, South Africa 235 (Moscow 2015), available at <http://www.gks.ru/free_doc/doc_2015/BRICS_ENG.pdf>.

members is their diversity. Representing almost the half of the world population, the most ancient civilizations and the richest cultures, the BRICS states naturally complement and complete one another. Therefore, the most criticized aspect of this group may be the most useful one. A collective approach is vital here and BRICS has demonstrated its adherence to it so far. It is necessary to remember that there are too many promises given by various politicians, countries, international organizations of the modern world. These promises are often left without any consequences. The task of the BRICS leaders is not to forget that there should be something more than just ordinary words. The result is needed and the success of BRICS is highly dependent on whether the declarations and vows will lead to real actions.[7]

2. BRICS: a Heterogenous Club

'The uniqueness of BRICS as an international institution is that for the first time it brings together a group of nations on the parameter of 'future potential' rather than existing prosperity or shared identities. The very idea of BRICS is thus forward-looking ... Excellencies, we have an opportunity to define the future - of not just our countries but the world at large ... I take this as a great responsibility.'

PM of India Mr. Narendra Modi on BRICS Summit

BRICS is a heterogeneous club considering that Russia and Brazil are energy exporters while the remaining three have a greater focus on demand and energy security for their continued development. Despite the lack of commonality, BRICS seem set to be the major energy players due to their size and growth.[8]

China is a big producer and consumer of energy resources and outstripped the United States in 2010 in terms of consumption. Without a sustainable China, there can be no sustainable world.[9] China and Russia agreed to start building the west route of the China-Russia natural gas pipeline which will provide 30 billion cubic meters of natural gas a year to China. Additionally, China National Petroleum Corp purchased a 10 percent share of Vankorneft, the upstream subsidiary of Russian oil giant Rosneft and operator of the lucrative Vankor oilfield.[10] China's natural gas supply and demand prospects is a major change of Eurasia and the world gas trade patterns and geopolitical factors. India is the fourth largest energy consumer after China, the US and Russia with an even greater dependence on external oil than China. On the demand side, China and India would clearly benefit from a cohesive Asian voice. The potential for a BRIC energy partnership is thus enormous. Russia and Brazil

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7 Maria Slonskaya, *The Role of BRICS in Global Security*, MGIMO-University (2015), available at <http://mgimo.ru/upload/2015/10/The_Role_of_BRICS_in_Global_Security.pdf>.

8 Karl M. Rich, Elana Wilson Rowe, *Id.*

9 Statement made by Bjorn Stigson President of World Business Council.

10 Bessie Weisman, *World Energy Headlines,* Global Energy Aff. 38 (Dec. 2014).

pump it up, India and China provide the receipts. The competition and cooperation between China and India in global energy arena are significant factors for global energy market today. Brazil has been conducting a large number of exploration and development in order to bridge its gaps in the energy sector, which has led to sizable discoveries in its offshore and deep water subsalts in particular. It is the second largest producer of ethanol in the world. Brazil has set an excellent example for developing countries by developing its bio-fuel technology and utilization. South Africa, as the biggest energy user in Africa, is relatively advanced in terms of new energy development. It also takes a leading role in the development of clean coal technology. The five countries demonstrate strong complementarities and strong potential for deeper cooperation.

3. BRICS Nation and International Energy Agency[11]

Brazil: Brazil's energy policy choices and achievements measure up well against some of the world's most urgent energy challenges.[12] A concerted policy effort has implied that access to electricity is now almost universal across the nation. Almost 45% of primary energy demand is met by renewable energy, making Brazil's energy sector one of the least carbon-intensive in the world. Total primary energy demand has doubled in Brazil since 1990, led by strong growth in electricity consumption and in demand for transport fuels on the back of robust economic growth and a burgeoning middle class. Large offshore oil and gas discoveries have confirmed Brazil's status as one of the world's foremost oil and gas provinces. The 'pre-salt' discoveries also prompted a change in upstream regulation by granting the Petrobras national oil company a strengthened role in areas deemed strategic. Production from the deepwater pre-salt fields in the Santos basin has started but not yet gained sufficient momentum to offset declining output from mature fields elsewhere. Brazil's oil output has leveled out at just above 2 mb/d since 2010 and pre-salt growth will be essential to re-attain the objective of net self-sufficiency in oil and to pave the way for Brazil to become a major oil exporter.[13]

Russia: Cooperation between the International Energy Agency (*hereinafter referred as* IEA) and the Russian Federation dates back to 1994 and has addressed the shared objectives of improving global energy security. The long-standing cooperation covers a large range of areas, such as energy security, energy efficiency, energy statistics, energy policy reviews and energy technologies. Relations involve

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[11] IEA was founded in 1974 to help countries coordinate a collective response to major disruptions in the supply of oil. It is made up of 29 member countries. It has four main areas of focus: energy security, economic development, environmental awareness and engagement worldwide.

[12] Adriana E. Abdenur, Conrad Kassier, *Nuclear Energy and the BRICS*, Georgetown J. of Int'l Aff. 55–66 (2014).

[13] *Brazil (Partner Country)*, available at <https://www.iea.org/countries/non-membercountries/brazil/>.

a broad range of public and private stakeholders in Russia. Russia maintains its position as one of the world's most important energy players continuing its essential role in global energy supply and holding among the world's largest resources of gas, oil and coal. The IEA and Russia see further cooperation perspectives notably in the fields of energy efficiency and clean coal technologies and welcome opportunities for a dialogue on energy market developments.[14]

India: The IEA and India benefit from a long, ongoing bilateral relationship built on cooperation in a broad range of areas including energy security, statistics, efficiency, market analysis, implementation agreements and technology. The cooperation was first formalised as early as 1998 with the signing of the Declaration of Cooperation covering important issues related to energy security and statistics. Since then the relationship has developed further through the endorsement of three Joint Statements, the last one in 2013. The IEA and India also have a long-standing collaboration in energy efficiency and have organized several joint workshops. In 2015, the IEA together with the Indian Petroleum Conservation Research Association (PCRA) helped to bring in an international expertise to support the development of regulations for Vehicles. The IEA and India also collaborate in renewable energy.[15]

China: TIEA has established an in-depth bilateral cooperation with China in a wide range of topics including energy security, energy statistics, energy markets (coal, oil, gas, renewables, and energy efficiency), the IEA Technology Collaboration Programs, energy technology in cleaner coal and CCS, industry, buildings and transportation.[16] China became one of the first countries to activate Association status[17] with the Agency a development that builds on relations that date back to a Memorandum of Policy Understanding in the Field of Energy in 1996. The IEA has since worked with China to assist the country in its transition to a more sustainable energy economy and to provide a greater understanding of China's energy system.

South Africa: The Republic of South Africa is a key Partner country of the IEA and a candidate for Association. The IEA and the Department of Energy (DoE) of South Africa have been building upon a long relationship of close collaboration based on common concerns such as ensuring a secure energy supply, building a cleaner energy mix and improving energy data-sharing. The IEA is also strengthening its regional engagement, given the growing regional energy interdependencies, and has been involving several countries of Southern Africa in energy training and capacity

[14] Russian Federation, available at <https://www.iea.org/countries/non-membercountries/russian-federation/>.

[15] India (Key Partner Country), available at <https://www.iea.org/countries/non-membercountries/india/>.

[16] China (Association Country), available at <https://www.iea.org/countries/non-membercountries/chinapeoplesrepublicof/>.

[17] Joint Ministerial Declaration on the occasion of the 2015 IEA Ministerial meeting expressing the Activation of Association, Paris, France (Nov.18, 2015), available at <http://www.iea.org/media/news/2015/press/IEA_ Association.pdf>.

building activities as well as in data sharing.[18] It has also signed an intergovernmental nuclear energy cooperation agreement with France, as part of its long-term plan to secure a sustainable energy mix.[19]

4. Cooperation among BRICS in the Development of Energy Sector

Beijing will have to give India more room to sign concessions (and even joint ventures) to defuse tensions in the Indian Ocean. Both countries would have to develop a broader (and more realistic) understanding of maritime security. On the supply side, the continued investment in Brazilian blocs from China would help to keep Brasil in the BRIC game. China has already sunk $10 billion into Petrobas. But the real supply side clincher would be swap agreements between China and Russia resolving the current pricing dispute.[20]

From a BRIC perspective, status quo politics and security should be the overriding Sino-Soviet interest at present not fighting each other for a strategic control over natural resources. Recently in the 1st and 2nd BRICS Industrial Expert Council,[21] The Heads of Industrial Authorities expressed their commitment to promoting the development of comprehensive industrial ties as well as to enhance the volume of mutual supplies of modern equipment and new technologies in areas such as mining, mechanical manufacturing, pharmaceuticals, metallurgy, aircraft construction, the automobile industry, railway equipment, energy-efficient technologies, low-carbon industries, oil and gas equipment, shipbuilding, information technology, chemical engineering and capital goods.[22] Recently, The Union Cabinet of India chaired by Prime Minister Narendra Modi has given its ex-post facto approval to an MoU signed between India and its BRICS (Brazil, Russia, India, China and South Africa) counterparts for strengthening and further developing of energy saving and energy efficiency cooperation based on the principles of equality and mutual benefit.[23] It is desirous to promote BRICS energy by establishing cooperation mechanisms among themselves and spearheading such cooperation at a global level, the BRICS countries would be

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18 South Africa (Partner Country), available at <https://www.iea.org/countries/non-membercountries/southafrica/>.

19 Bessie Weisman, *Id.*

20 Mathew Hulbert, Its Energy that will make or break the BRICS, Eur. Energy Rev. (Dec. 15, 2011), available at <http://europeanenergyreview.com/site/pagina.php?id=3421>.

21 The First BRICS Industrial Expert Council (26–27 August 2015), and the Second BRICS Industrial Expert Council (19 October 2015) were held in Moscow.

22 The BRICS Handover Report: 2015–2016, available at <www.en.brics2015.ru/load/885248>.

23 Memorandum of Understanding in energy saving and energy efficiency among BRICS countries, Press Information Bureau, Government of India, cabinet (Dec. 16, 2015) available at <http://pib.nic.in/newsite/PrintRelease.aspx?relid=133403>.

at the forefront of multilateral innovation and institution building in a critical area of global governance, strengthening the demand for energy management and energy technology development and application. China and India should take the lead role to strengthen the energy demand management of the initiative.[24] Energy prices, climate framework and unconventional have been identified as the energy issues that have the greatest impact and most uncertainty for South Africa.

China/India, Energy efficiency and Energy poverty are the issues that need an action. In this regard, South Africa's membership of the BRICS Nations leads to a greater comparison with the performance of these partners. In particular, China and India are potential developing country role models. Energy leaders continue to believe that the energy efficiency represents a high impact and low uncertainty opportunity, although a delivery to date has been disappointing. On energy poverty, the issue has moved to a more prominent position, more closely aligned with the rest of Africa and reflects the increasing concern around service delivery in South Africa

An energy price was already an issue in 2014. During the last year the competitiveness of industry prices has become a more relevant topic. Firstly, because there was increasing pressure to allocate the steeply rising bills for climate action more upon the industry. Secondly, because the non-competitiveness of energy prices mostly driven by taxes and levies became evident in comparison with other regions.

From the cooperation angle point of view, the BRIC countries are an important strength of the emerging economies in the G20. The cooperation of the BRIC countries is bound to challenge the Western-led system of global governance inevitably formed to build a new global energy system.

Conclusion

For energy, the BRICS will play a major role as consumers or producers although perhaps most likely as single countries rather than a bloc. The BRIC countries have the ability to greatly augment their production of unconventional fuel sources: pre salt oil, shale gas, shale oil and biofuels, each to a varying degree depending on their resources, their regional market and their preferences. Russia, China and India share a commonality which is their key location cutting north to south through the Asian continent. In contrast, Brazil is on its own in the Western Hemisphere and its energy market has been strongly influenced by events in the Americas.[25] The development of the BRIC countries in the next coming decades will include demographic changes

[24] 2015 World Energy Issues Monitor, World Energy Council Conseil Mondial De L'energie (2015), available at <https://www.worldenergy.org/wp-content/uploads/2015/01/2015-World-Energy-Issues-Monitor.pdf>.

[25] BRIC Energy Market: Part 2, Energy Global Oilfield Technology, available at <http://www.energyglobal.com/upstream/exploration/01042014/BRIC_energy_Part_2/>.

with a growing middle class population who will demand more energy and resources that our world has the potential to supply. A Green Energy Revolution is the panacea to solve major social, economic, and environmental effects of their growing populations. Shifting to the alternative forms of energy will create a more unified global economy in a world that is cleaner and more energy efficient.[26] The BRICS countries because of their mounting power, unprecedented economic growth, and great potential to serve as a role model for green development for less developed countries have the potential to surmount all the other organizations. They have the opportunity to partake in the commencement of the greatest green movement in history. The proposal for the establishment of *BRICS Energy Association* is also another step towards the Green Energy revolution.[27] Saving the Earth, sustaining the global population, and ensuring the future livelihood of humankind are the principal goals of a Green Energy Revolution.

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[26] Desiree Hubby, *Rebuilding the World with Green BRICS* (Dentan, Texas), available at < http://digital.library.unt.edu/ark:/67531/metadc94271/>.

[27] BRICS Energy Association to formed in 2016 (Nov. 20, 2015), available at <http://tass.ru/en/economy/837998>.