

EPPAM NEWSLETTER

Istanbul Aydin University

EPPAM

Year 2, Issue 3, March 2017

FOREIGN ECONOMIC RELATIONS BOARD- DEİK ENERGY BUSINESS COUNCIL, MARCH MEETING



Foreign Economic Relations Board-DEİK Executive Board of Energy Business Council's March meeting was held on 16 March 2017.

Sub-Saharan Africa Energy Potential Report and energy agenda issues were discussed at the meeting.



Contents



| | |
|---------------------------------------|---|
| DEİK Energy Business Council | 1 |
| EPPAM at Press | 2 |
| EPPAM at Press | 2 |
| EPPAM Publication | 3 |
| <i>Op-Ed: 2040 Energy Projections</i> | 4 |

EPPAM AT PRESS

EPPAM DIRECTOR ASSIST. PROF. DR. FILİZ KATMAN

TGRT NEWS, 15:00 NEWS – 20 MARCH 2017



EPPAM AT PRESS

EPPAM DIRECTOR ASSIST. PROF. DR. FILİZ KATMAN

TGRT NEWS – 15:00 NEWS- 2 MARCH 2017



EPPAM PUBLICATION

EPPAM Director Assist. Prof. Dr. Filiz Katman gave Ekovitrin Magazine an interview about energy issues on the recent developments in the world energy market. Increasing competition between pipelines and new pipeline projects have been evaluated in relation to the recent developments in the natural gas issue. EPPAM Director Assist. Prof. Dr. Filiz KATMAN evaluated the effects of the civil war in Syria in the fifth year on the countries of the region, the changes in Iran with the removal of the embargoes and the energy politics of Turkey. Katman said that “Middle East is a region which has very important energy resources and many countries have plans on it. The Middle East became a important place after the time of division of Iraq and Arab Spring. The civil war in Syria in recent years and the increase in activities of the ISIS terrorist organization have caused the region to become an even more complex structure”. She stated that the civil war that entered the fifth year in Syria affected Turkey the most and she took attention to the fact that Russia increased its activity in the region. She described the opening of Iran to the world with the removing of the embargoes as a development that changed the agenda in the Middle East. “Everybody is looking for a way to trade with Iran. Several companies have already signed agreements with Iran. The steps taken by Turkey and the development of relations with Iran will provide significant contributions to Turkey in economic terms. Moreover, the policy of Turkey in the region is to create a basis for mutual cooperation from the conflict. It is possible with Iran” she said.



OP-ED: 2040 ENERGY PROJECTIONS

Dariq K Nour, PSIR 3rd Year Student

Energy has become an integral part of our lives in the 21st century. Give us warmth and cold and energy helps us to cook our diets. And help us to connect with our children and the garage lighting and plants entrepreneurs and inventors to build a better world. Energy help us harvest our food and supply our plants with fuel and build our cities and clean waters. And give us moving and keep us in touch with other people near and far. The twenty-first century has seen major changes already in how people use energy; for example, the advent of Internet-connected smartphones made at around 2000 only; today there are more than 2 billion of them worldwide, while this century has also witnessed tremendous developments in energy technology, including those developments that helped uncover the vast resources of oil and natural gas in North America.

In addition to the emergence of this technology is a promising news suggests that the approach of a new era of abundant energy and diversity. Today's energy can be extracted from the depths of the ocean floor and layers of shale and nuclear fission and Biofuels, wind and Sun. More importantly, the continued development of each energy source and use it to develop ways to reduce their impact on the environment. Another positive trend is the ability to find ways to use energy more efficiently, to curb growth in energy use and emissions. The world uses about 10 percent less energy per unit of economic output than it was in 2000, with half of those gains occurred since 2010.

What determines the increase of Energy use and the search of more diversified sources?

The use of energy by the people is in a tremendous increase, and the search for new sources of Energy which will satisfy this increasing need is also increasing. This lead a technological revolution in energy sector and many innovation related in finding

reliable source of energy in the coming future; for instance the invention of Shale Gas (natural gas occurring within or extracted from shale) in America and the development and progress in the horizontal drilling (process in which the well is turned horizontally at depth).

There are two main reason which together which other factors are responsible the increase of the energy:

1- Population growth

The world population is increasing at an astonishing rate where two children are born somewhere the world every second this makes a 7200 children per hour and 172,800 per day and if you're a little further math this make a total of 62 and quarter million children a year. This huge increase in population needs more food, water, shelter, more transportation and all this needs energy to work and get enough so this also increases the energy needed to satisfy this needs. Experts are predicting that if the population growth goes the same trend, in 2050 we will

need 50% increase in energy to meet this needs.

2- Standard of living (GDP)

Since the industrial revolution, the consumption of energy has increased with the increase of the standard of living. It is not coincidence that USA with a population of about 300m which forms 5% of total population uses roughly about 20-25% of the world energy consumption while china with a population of 1.3b which made 18% of total world population uses about 20% of world's energy, this indicates that economic growth with the GDP/CAPITA of countries greatly influences the consumption of energy in the world.

The increase of the number of the population of the world and the increase of the standard of livings made inevitable for the energy sector policy makers to find a new sources of energy to meet and satisfy this increase in demand. The type of the energy sources that are used in is determined by:

- ⊙ Cost of the economy.
- ⊙ CO2 emissions
- ⊙ Availability of the energy.

So by taking this three factors into consideration we will try to look the Energy projection in 2040 using petroleum and liquefied fuels, natural gas, coal, biofuels and renewable energy.

Petroleum and liquefied fuels:

According the International Energy Outlook 2016 (IEO2016) Reference case, projected that the consumption of petroleum and other liquefied fuels will increase from 90 million barrels per day (b/d) in 2012 to 100 million b/d in 2020 and 121 million b/d in 2040, an 1.9% increase of natural gas will make it still one of the dominant source of energy in 2040s. Most of these increase in consumption is expected to come from non- organization for economic cooperation and development (non- OECD) in Asia specially China and India, Middle East and Africa where the strong economic growth is expected to happen rather than OECD members

mostly in Europe and America where economy is expected to increase also but in a steady way and in a lesser gear than the non- OECD countries. To satisfy this need the IEO 2016 projected liquids production increases by 31 million b/d over the 2012–40 period. Crude oil and lease condensate, and other liquid fuels (Natural gas and biofuel) will be the source of this energy demand. In addition to that the production of commercial amount of Shale Gas by USA, Canada, Argentina, china will inject a more Natural gas in the market which will increase the availability of them at the same time it will decrease the price of natural gas.

Natural Gas:

Natural gas which consisting largely of methane and other hydrocarbons, lies underground is one of the most used from of energy specially in the industrial sector. The consumption of the natural gas is projected to increase from 120 trillion cubic feet (Tcf) in 2012 to 203 Tcf in 2040 in the International Energy Outlook 2016 (IEO2016) Reference case. The

plenty of gas resource with the strong production contributed competition of natural gas among the other resource. Beside it is efficiency, natural gas also emits less CO₂ compared to coal and petroleum and this acts as leverage and may encourage the increase of the usage of the natural gas in the forthcoming future. Similar as the petroleum, the demand of the natural gas will mostly come from non OECD countries especially in Asia twice as much as the OECD members by an average of 2.1% per year compared to 1.1% per year for the OECD countries due to the continuity of the economic growth and the expansion of the production industries. To meet this increasing demand the IEO2016 Reference case, projected that the production of the natural gas will increase by 69% by 2040 with a prediction of this increase non-OECD Asia (18.7 Tcf), the Middle East (16.6 Tcf), and the OECD Americas (15.5 Tcf).

Coal:

In the International Energy Outlook 2016 (IEO2016) Reference case, coal will still remain the second-biggest

energy source of the world behind petroleum and other liquids until 2030. From 2030 to 2040 it will turn to the third largest source of energy after both petroleum and natural gas. Until then the consumption of coal will increase in 0.6% per year of about from 153 quadrillion Btu in 2012 to 169 quadrillion Btu in 2020 and to 180 quadrillion Btu in 2040. The does not include the recent finalized Clean Power Plan (CPP) which would reduce world coal consumption to 165 quadrillion Btu in 2020 and to 176 quadrillion Btu in 2040. By this increase, coal is the least growing energy of about 0.6% per year compared to other forms of energy. China is the world's first coal consumer by about 50% of the total consumption of the world along with USA and India. The recent anti-climate change activities and the efforts made by the policy makers to reduce the amount of CO₂ caused the reduction of the usage of the coal for at least in the coming future.

Renewable energy:

Renewable energy include solar, wind, biomass etc are

the fastest growing energy resources of the projected period, an increase of about 2.9% per year is predicted by the IEO (2016) during the projected period. Non hydro power renewables are the fastest growing in this new era of the renewables from 5% of the total world consumption to in 2012 to 14% share in 2040 with most of the growth coming from the wind. This is not included the recent CCP regulation in the USA which would have a reduction of about of 21 percent (about 4 quadrillion Btu) in U.S. coal consumption in 2020 and 24 percent (almost 5 quadrillion Btu) in 2040. By the implementation of the CCP protocol the consumption of coal is projected to reduce about 165 quadrillion Btu in 2020 and to 176 quadrillion Btu in 2040, as projected by the IEO (2016) outlook. The future use of renewables are the main source of energy is still far from the reality due to several reasons.

Technology: Lack of technology that can work effective as the current non-renewable technology and by that only a small amount of

renewable energy can be produced.

Economy: Aside from the expensive technology that renewable energy needs, also the price of the renewable energy is still far more expensive than that of the non-renewables.

Availability: Renewable energy availability is also another barrier to the improvement in this sector because not always the wind is blowing and the sun is shining.

To sum-up; the consumption of energy both non-renewable and renewable will continue to rise in the future in line up with increase of the population growth and the increase of the standard of

livings of the world with a projected increase of the middleclass from 2 billion to 7 billion by 2030. Most of this increase in demand will be expected to occur in non-OECD members particularly China and India which are the first and the second largest population in the world respectively. On the other way the use of renewable energy will increase due to the recent protocols signed by the industrialized countries which controls the amount of CO₂ emissions a step forward to halt the climate change in the future.

Bibliography:

<http://www.iea.org/newsroom/news/2016/november/world-energy-outlook-2016.html>

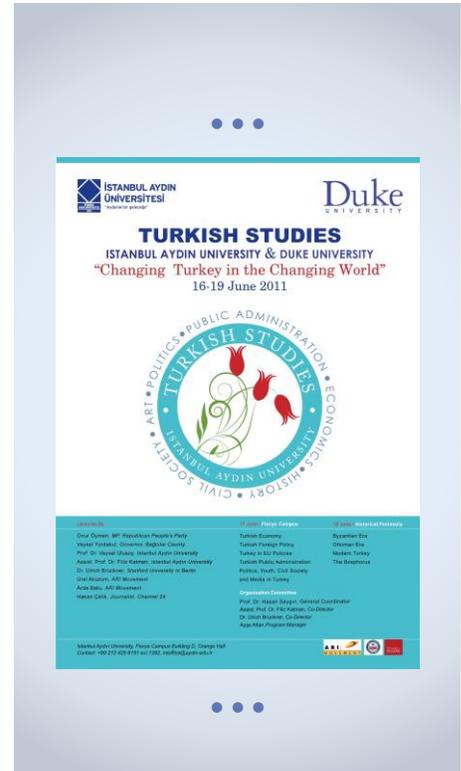
<http://science.howstuffworks.com/environmental/energy/population-growth-affect-energy1.htm>

<https://www.eia.gov/forecasts/ieo/world.cfm>

<http://osqar.suncor.com/2010/12/is-there-a-link-between-energy-use-and-standard-of-living.html>

<http://biomassmagazine.com/articles/13249/eia-releases-2016-international-energy-outlook>

DOE/EIA-0484(2016) I May 2016



ISTANBUL AYDIN UNIVERSITY
EPPAM
 ENERGY POLITICS AND MARKETS
 APPLIED RESEARCH CENTER

Istanbul Aydin University Energy Politics and Markets Research Center

Istanbul Aydin University

Inonu Caddesi, No: 38

34295 Sefakoy-Kucukcekmece, Istanbul, TURKEY

Office: A1302

Tel: +90 444 1 428 (24504)

Direct Tel: +90 212 411 61 70

Web: <http://www.aydin.edu.tr/tr-tr/arastirma/arastirmamerkezleri/eppam/Pages/default.aspx>

<http://www.aydin.edu.tr/en-us/arastirma/arastirmamerkezleri/eppam/Pages/default.aspx>

www.eppamtr.weebly.com / www.eppam.weebly.com

"Save Energy for Tomorrow, NOW!"