The impact of TTIP agreement on the European Union-United States coal trade potential

Tadeusz Olkuski[1a], Andrzej Sikora[2], Piotr Mateusz Sikora[2] and Adam Szurlej [3]

[1] *AGH University of Science and Technology; Department of Sustainable Energy Development; A. Mickiewicza Av. 30, 30-059 Krakow, Poland*

[2]*The Energy Studies Institute, Sniadeckich St. 17, 00-654 Warszawa;*

[34]*AGH University of Science and Technology, Faculty of Drilling, Oil and Gas;*

Abstract. The main aim of the paper is to assess the impact of currently negotiated TTIP agreement (Transatlantic Trade and Investment Partnership) on the use of hard coal in the EU and the US. Hard coal is the most important fuel in global electricity generation. This also applies to the United States, a leading manufacturer and exporter of this energy source. The US coal is exported to the EU market. The article presents the estimated exports of hard coal from the US to the EU. Due to the fact that price has a major impact on the size of exports, the paper presents the estimated prices, including freight costs, of power coal for the analyzed scenarios. According to one scenario, the US and European prices will be equalized (including freight costs) by 2020, while from 2025 on the comparative advantage and competitiveness of the US hard coal will decrease. Taking into account the fact that the export of coal from the United States is free from customs duties, the acceptance of TIPP should not affect the currently existing trade between the two continents and the amount of exported coal. Nevertheless, the question of hard coal economy cannot be separated from other sectors of the energy market, which can be significantly affected by the future agreement.

1 Introduction

The main aim of the *Transatlantic Trade and Investment Partnership* (TTIP) is to create a free trade area, aimed at simplifying and increasing mutual investments, the flow of goods or services. The aforementioned area would allow removing customs barriers and unfavorable regulations having a direct impact on the movement of goods. Removing or reducing customs duties could have a positive impact on the reduction of prices of goods in the United States and the European Union, at the same time forcing the improvement of quality and efficiency, while the exchange of goods and increased sales would become a driving force behind the creation of new jobs. The harmonization of existing regulations and detailed coordination would become the basis for accelerating economic growth in the European Union and the United States. (In the recent years, after the 2008–2009 financial crisis, the GDP growth rate in the US was higher compared to the EU). However, when it comes to coal, the situation is quite specific. The scale of closure in the EU coal mining industry deepens the scale of dependence on external suppliers of energy resources. Similarly as in the EU, the share of coal in electricity generation structure in the US has decreased in recent years. However, the decline in the importance of coal in the US can be explained primarily as a result of the so-called shale revolution, as opposed to the implementation of the EU energy policy objectives, that is, among others, the growing use of renewable energy sources and reducing greenhouse gas emissions [1, 2]. Poland is against further closures in the coal mining industry, since about 85% of Polish electricity is produced from both hard coal and lignite. Coal is and, according to the Energy Policy of Poland, will remain a guarantee of the energy security of Poland until 2030 or even 2050 [3 - 7]. However, the future of coal depends on the global trends in the international arena, which are currently unfavorable or this raw material.

2 The situation in the EU and the situation in the US

Analyzing the available data on hard coal and comparing the IEA baseline scenario [8] estimations of both coal imports from the European Union and exports from the United States, an interesting correlation between these scenarios can be observed (Fig. 1). The EU low-carbon energy policy and criticism of coal, both hard coal and lignite, as an energy source, will cause a gradual shift from the production of coal, not taking into account the constant demand for this raw material [9]. However, increasing prices of emission allowances should result

[a]Corresponding author, email: olkuski@agh.edu.pl

in a gradual decrease of coal imports. According to the IEA, the estimated coal exports from the US by 2020 will amount to 42 Mtoe for coking coal and 14 Mtoe for power coal. When it comes to the European market, coking coal exports will be gradually decreasing, reaching the level of 28 Mtoe in 2030 and 21 Mtoe by 2040. Meanwhile, power coal exports will increase to the level of 18 Mtoe in 2030 and 21 Mtoe by 2040. IHS [10] confirms the aforementioned assumptions in own scenario. (Fig. 2). However, when compared to the IEA estimations, IHS estimates more active EU decarbonisation policy, and therefore assumes lower amounts of the imported US coal.

Figure. 1. Net exports of coal from the United States vs. net imports of coal to the European Union according to the IEA baseline scenario [11]

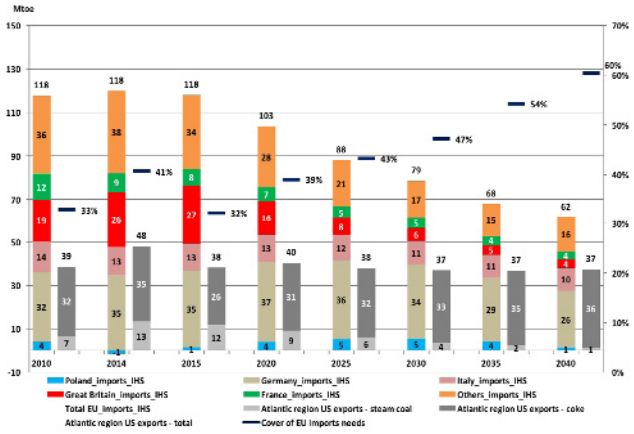

Figure. 2. Net exports of coal from the United States vs. net imports of coal to the European Union according to the estimations of the IHS energy [11]

Taking into account the current condition of the coal sector in Poland and the situation in the global coal market, a general oversupply of this raw material and, above all, incredibly low price of $50/tonne (ARA Cal-16 contract), a scenario developed by the Polish National Energy Conservation Agency (Polish: Krajowa Agencja Poszanowania Energii, KAPE) - still used as a basis for the Polish Energy Policy until 2050 - seems to be unlikely. According to KAPE, the total coal exports will amount to 8-9 Mtoe. The analysis of historical data allows to conclude that coking coal imports and exports (by Polish coking plants and coal mines, respectively) used to be at the same level (about 1.5-2.0 Mtoe). According to the abovementioned estimation, this leaves a surplus of about 6.5-7 Mtoe for power coal (Fig. 3).

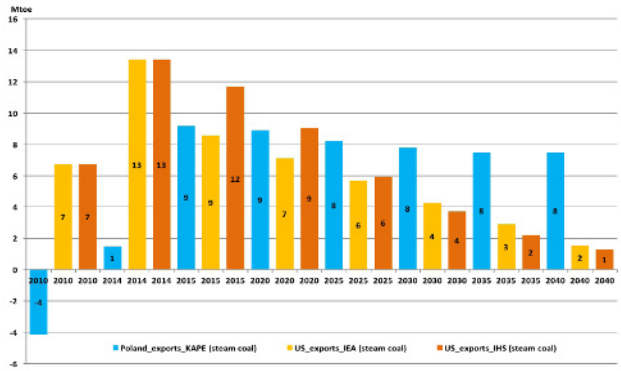

Figure 3. The estimated net exports of coal from Poland according to the Polish National Energy Conservation Agency against the estimated exports of US power coal in the Atlantic market [11]

3 Coal prices and additional costs

The most important and the most cost-effective is the Asia-Pacific coal market, more specifically India, Korea and China, currently facing economic stagnation. The North American market is characterized by a fairly large local and relatively cheap production (low price of coal) and - for some time - an oversupply. The European market is a systematically decreasing, mainly due to climate policy and the decarbonisation of the energy industry [12]. The estimated coal prices (excluding coking coal) for the different scenarios are summarized in Table 1. The IEA confirms the presented distribution of prices. It is clearly visible that the price of US coal (taking into account the freight cost) makes this raw material a very attractive product for European countries and other countries interested in importing coal from the United States (Fig. 4). Coking coal prices depend on the policies of the metallurgical companies. The decrease in the production of steel will automatically lead to lower demand for coking coal [13]. According to Goldman Sachs, coking coal prices can rise only if the market supply will decrease by 30 million tones. Power coal prices estimated by IHS Energy are different than those assumed in the IEA scenario. IHS assumes that European prices are lower while US prices higher. By 2020, the US and European prices (including freight costs) will be equalized, while from 2025 on the comparative advantage and competitiveness of the US hard coal will decrease (Fig. 5). It is worth mentioning that the KAPE estimation is comparable to the IHS scenario

Table 1. The estimated coal prices for the different scenarios with the projected freight costs from the United States to Europe [11]

in USD (2014) per GJ (NCV)	2010	2013	2014	2015	2020	2025	2030	2035	2040
IHS USA spot price	3.32	2.84	2.58	2.84	3.43	3.41	3.43	3.38	3.21
IHS Europe (ARA) spot price	3.92	3.30	3.00	3.28	3.91	3.98	4.06	4.07	3.94
IHS SE Asia spot price	4.17	3.38	2.79	3.34	4.00	3.93	3.92	3.83	3.58
IHS Freight cost East Coast USA - ARA (Western Europe)	0.59	0.48	0.46	0.47	0.52	0.61	0.68	0.74	0.78
The IEA USA base price (spot)		2.47			2.89	2.98	3.10	3.19	3.32
The IEA Europe base price (spot)		3.66			4.25	4.46	4.59	4.68	4.76
The IEA Asia (China) base price (spot)		4.46			4.68	4.76	4.89	5.02	5.10
The IEA OECD average (import price) baseline scenario		3.66			4.59		4.76		4.55
The IEA OECD average (import price)_ current policy scenario		3.66			4.55		4.97		5.27
The IEA OECD average (import price)_ ecological scenario		3.66			3.74		3.32		3.27
KAPE spot price Poland	4.05			3.67	3.94		3.94		3.94
The estimated average variable cash cost of the exported coal according to the IEA * (FOB)_baseline scenario		2.79			3.18				3.98

* The estimated variable cash cost of the exported coal includes mining costs, coal processing costs, cost of land transport to the port, port fees (storage, loading, etc.) and taxes (royalties, etc.). Combined with freight costs (transport, insurance, etc.) they make up the final price in the target market - the spot price or import price.

4 The scenario without changes resulting from TTIP

The above analysis of the situation of the coal sector and the estimated coal prices show a possible potential for export of US raw materials to the European Union. According to the latest data from May 2015 [10], the production of coal in the Appalachian coal basin and the Illinois basin amounts to 187 Mtoe per year and should decrease to 70 Mtoe by 2040. The presented IEA and IHS data, as well as the results of own studies, allow to conclude that coal exports to the EU can amount to up to

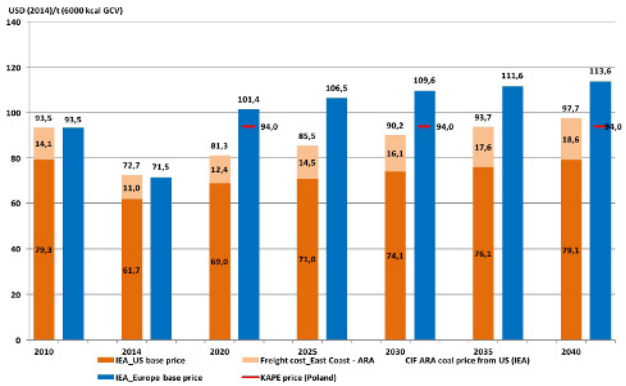

Figure. 4. The prices of power coal imported from the United States compared to baseline prices for the European market according to the estimations of the International Energy Agency [11]

7.1-9.1 Mtoe (11.9-15.1 million tonnes of raw material with an average calorific value of 6.000 kcal / kg) in 2020, while around 1.3-1.5 Mtoe (2.2-2.6 million tonnes) by 2040 (Fig. 6).

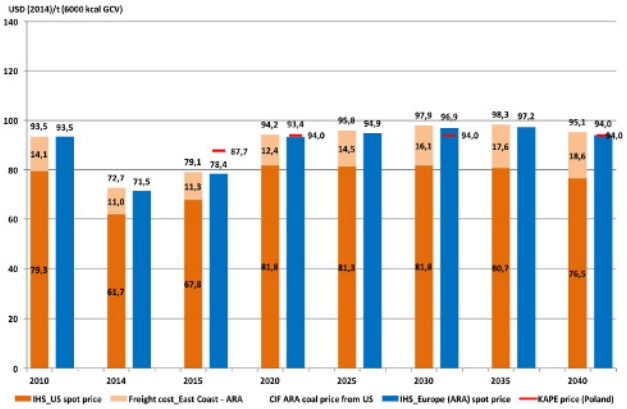

Figure. 5. The prices of power coal imported from the United States compared to spot prices for the European market according to IHS Energy [11]

According to IHS estimates, the production of coking coal in Northern and Central Appalachians is expected to continue at the level of 55-56 Mtoe. As a result, it can be assumed that this raw material will dominate exports from the US to the EU. Taking into account the estimates of the Energy Studies Institute in Warsaw (Polish: Instytut Studiów Energetycznych , ISE) , the maximum potential volume of exports can reach:

- 31-39 Mtoe (46.6 – 58.9 million tonnes of raw material with an average calorific value of 6710 kcal/kg) w 2020,
- 26-33 Mtoe (39.1-49.7 million tonnes) by 2030,
- 20-36 Mtoe (29.3-53.6 million tonnes) by 2040.

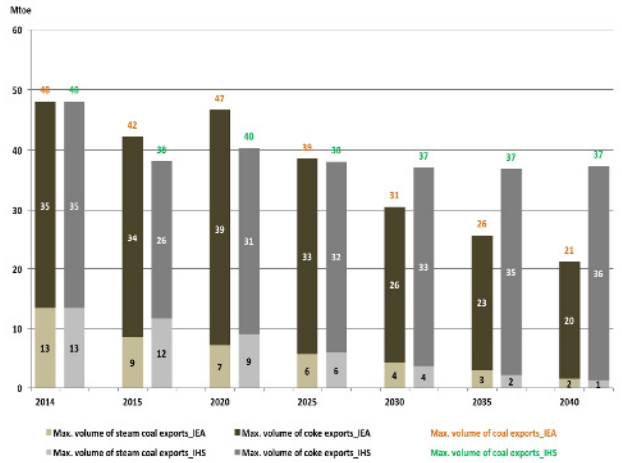

Figure. 6. The maximum potential volume of coal exports from the US to the EU

The ranges are relatively broad because they are directly linked to the rate of depletion of European deposits of coking coal. According to IHS scenario, the EU imports will be significantly increasing in direct proportion to the depletion of coal reserves.

5 Conclusions

The European Union has a long tradition of importing coal. Around ten years ago, Poland - a long-time exporter of this raw material - has become a net importer of coal. Such a situation will take place over the next years, while further intensification of imports can be expected. When analyzing the import of coal from the US to Poland, it should be noted that the coal will be imported through the ports of Gdansk and Świnoujscie, from where the raw material must be transported to the end user. This will cause additional costs, which can make the import of coal uncompetitive when compared to the domestic coal. Transport costs have a significant impact on the final price of coal [14]. Overall, prices in the domestic market depend on the volume of imports, while the lack of legal and logistical barriers facilitates this practice [15, 16].

To sum up, coal trade between the United States and the European Union has been taking place for a long time. The export of coal from the United States is not limited by non-tariff barriers to trade and special restrictions imposed by US law. What is more, the coal imported into the European Union is free from customs duties. Therefore, acceptance or rejection of the TIPP should not affect the currently existing trade between the two continents and the amount of exported coal.

Acknowledgements

The paper is an effect of the statutory project no. 11.11.210.217.

References

1. P. Janusz, M. Kaliski, A. Szurlej. Min. Res. Manag. **31**(3),. 5–24 (2015) (in Polish)
2. J. Paska, T. Surma. Energy Policy Journal, **16(**4), (2013) (in Polish)
3. L. Gawlik, (ed.), *Coal for the Polish energy sector in the perspective of 2,050 years - scenario analyzes*. p. 299 (2013) (in Polish)
4. *The Energy Policy of Poland until 2030*. Ministry of Economy (2009)
5. R. Szczerbowski. En. Pol. J. 16(4), 35-47 (2013) (in Polish)
6. M. Kaliski, A. Szurlej, L. Gawlik, *Perspectives of hard coal sector development in Poland until 2050.* [In:] Współczesne oblicza i dylematy restrukturyzacji. Oprac. i red. nauk. A. Jaki, M. Kowalik, p. 355-365 (2015) (in Polish)
7. *The Energy Policy of Poland until 2050 – Project*. Ministry of Economy (2015) (in Polish)
8. International Energy Agency, *World Energy Outlook 2014* (2015)
9. U. Lorenz. En. Pol. J. **18**(4), 5-18 (2015) (in Polish)
10. IHS Energy "*US supply and demand balance sheet – Monthly*", May 2015
11. The report from the studies conducted in July and August 2015 by the The Energy Studies Institute (Polish: Instytut Studiów Energetycznych, ISE) (previously unpublished) (in Polish)
12. T. Olkuski. En. Pol. J. **18**(3), 87-98, (2015) (in Polish)
13. U. Ozga-Blaschke. Przeg. Górn. **5**, 26-31 (2014) (in Polish)
14. K. Stala-Szlugaj. En. Pol. J. **17**(4), 65-76 (2014) (in Polish)
15. Z. Grudziński. Przeg. Górn. **5**, 9–16 (2014) (in Polish)
16. Z. Grudziński. En. Pol. J. **17**(4), 37-50 (2014) (in Polish)