

PRIMARY ENERGY IMPACT ON THE ENVIRONMENT

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***Abstract**In this paper we analyzed the environmental impact of primary energy at local and global primary energy identity. The most sensitive receptors dust pollution are human habitats and work areas. Identifies measures to minimize dust emissions at source, for the most common activities that generate such pollution; they must be well known and analyzed in terms of economic and social, must be weighed against the costs of long term and short term benefits.*

Keywords: dust emissions, pollution, quarrying, energy, coal, primary energy

1. INTRODUCTION

Global primary energy consumption increased by just 1.0% in 2015, similar to the below-average growth recorded in 2014 (+1.1%) and well below its 10-year average of 1.9%.

Other than the recession of 2009, this represented the lowest global growth since 1998.

Consumption growth was below the 10-year average for all regions except Europe & Eurasia; emerging economies accounted for 97% of the increase in global consumption. OECD consumption experienced a small increase, with growth in Europe offsetting declines in the US and Japan.

Chinese consumption slowed further, but still recorded the world's largest increment in primary energy consumption for the fifteenth consecutive year.

Russia recorded the largest volumetric decline in primary energy consumption.

By fuel, only oil and nuclear power grew at above-average rates, with oil gaining global market share for the first time since 1999.

Renewables in power generation continued to grow robustly, to nearly 3% of global primary energy consumption, while coal consumption recorded the largest percentage decline on record. Global CO₂ emissions from energy are estimated to have been essentially flat.

Prices for all fossil fuels fell in 2015 for all regions.

Crude oil prices recorded the largest decline on record in dollar terms, and the largest percentage decline since 1986.

The annual average price for Brent, the international crude oil benchmark, declined by 47%, reflecting a growing imbalance between global production and consumption.

The differential between Brent and the US benchmark West Texas Intermediate (WTI) narrowed to its smallest level since 2010.

Natural gas prices fell in all regions, with the largest percentage declines in North America; the US benchmark Henry Hub fell to its lowest level since 1999.

Coal prices around the world fell for the fourth consecutive year[3].

2. COAL MARKET

Evolution dependence on imported energy source to cover domestic consumption in 2008-2013 is shown in Figure 1.

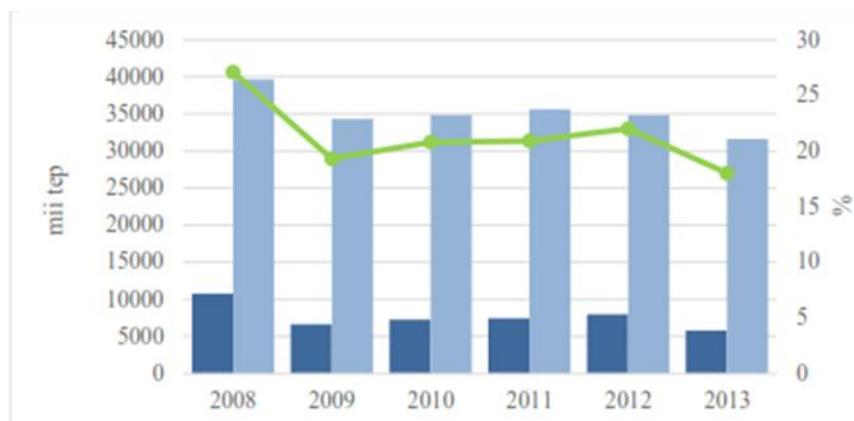


Fig. 1: Evolution dependence on imported primary energy [%] 2008-2013

In 2013, Romania's dependence on primary energy imports to cover domestic consumption decreased compared to 2012, to 18.3%.

In the period 2008-2013, dependence on imports of Romania was reduced by 33.6%.

Given the characteristics of the coal extracted in Romania (coal calorific energy of 3650 kcal / kg calorific lignite between 1650-1950 kcal / kg) its use in power plants can only be equipped for this fuel and located as close suppliers and 12 thermoelectric power plants for lignite and two for coal.

For these reasons both hard coal and lignite as primary energy carriers Romania are captive and can not be a market for coal in the true sense of the word.

Supply of coal at current producers in Romania is about 33-34 million tonnes. 5 million tons less than demand. In nine years 2010-2020 and the degree of assurance at this level of production is 14 years and 32 years for lignite coal.

Ensure demand for lignite in the years 2013-2020 and after is conditional policy Agency for Mineral Resources for the enhancement of existing perimeters and research highlighting and capitalizing on new perimeters.

Coal price is fixed now open through direct negotiations between producer and customer. For coal price is lower than the production cost, the difference being covered by state aid under EC Directive 1402/2002.

For the development of coal production in the current conditions it is necessary to promote long-term contracts between suppliers and power plants based on formulas pricing based on stock prices of other carriers similar primary energy to substantiate the results of studies feasibility (plans business) on a real basis.

According to studies forecasting developed world (CME) 2030, all world markets estimated a slightly upward trend in the price of coal to substantial increases in other energy resources (oil and gas). Forecasts confirm that this energy resource, in addition to the long

duration of insurance, a guarantee of support in the future energy needs at competitive prices with the price of other resources of primary energy carrier.

The result of these studies is shown in the graph in Figure 2.

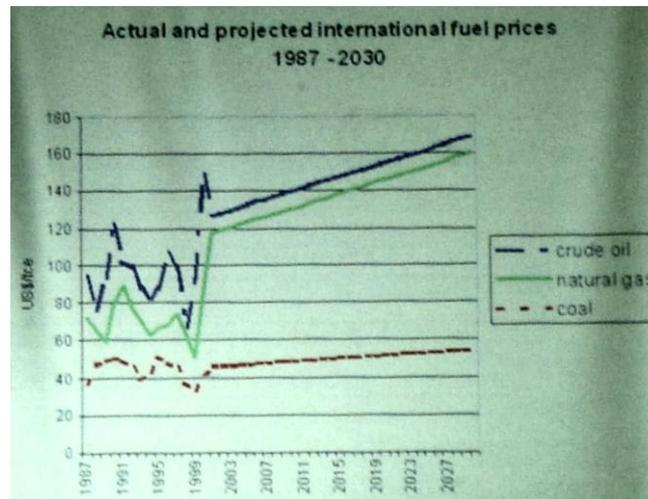


Fig. 2. The section of the current material (Raport CME 2005)

In terms of the emission of particulate sediment and particulate matter pollution sources are diffuse and careers are:

- Transportation of coal by conveyor (linear source);
- Loading trains and vehicles with coal (surface source);
- (Stack) coal deposit (surface source).

The main source of pollution and suspended sediment particles are coal deposits.

Sources clearance dust generated by the storage of coal are located in: items related bands discharge circuit equipment, spill points on the circuit coal crusher coal before crushing, the area around the wheel with buckets of KSS's the operation of excavation, the final crusher coal, motor vehicles in storage, self charging operation of coal.

3. CONCLUSIONS

To combat the coal dust they use wet, dry and combination.

Wet method (the easiest method) applies pressure water spray or water and compressed air.

Dry method using separators:

- Gravitational (settling chamber);
- Centrifugal (cyclone, battery smallcyclones);
- With filter media (bag filters etc.);
- Electrical (electrostatic).

Combined approach using both methods, eliminating the drawbacks of each.

To prevent pollution of residential areas must be fought dust formed even at source.

Fighting dust sources existing equipment training area coal deposits is accomplished in several ways: by spraying pressurized water and spray enclosures and enclosures and dusting.

To combat dust formed during the operation of loading, unloading and storage of lignite are needed following techniques:

- Reduction of pollutants at source (at training);
- Loading and unloading equipment such low heights of fall of coal in storage, to reduce fugitive dust emissions into the air;
- Implementation of a water sprinkler systems to store, fog curtain plants arranged around the warehouse, the operating heads and return the deposit bands;
Covering deposits with water evaporation retardant substances;
- Protection against dust emissions released from storage, wind products;
- Direct transport of coal, with bands or means of transport or preparations, mining units from storage;

Particulate pollution occurs in the power intensity of the bands and their discharge, and along the conveyor following the movement during transport of the deposit deposited on the tape.

Amounts of dust released into the work area is directly proportional to the height of fall of powdery material - the supply and discharge, as well as the speed and width of the conveyor belt.

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