

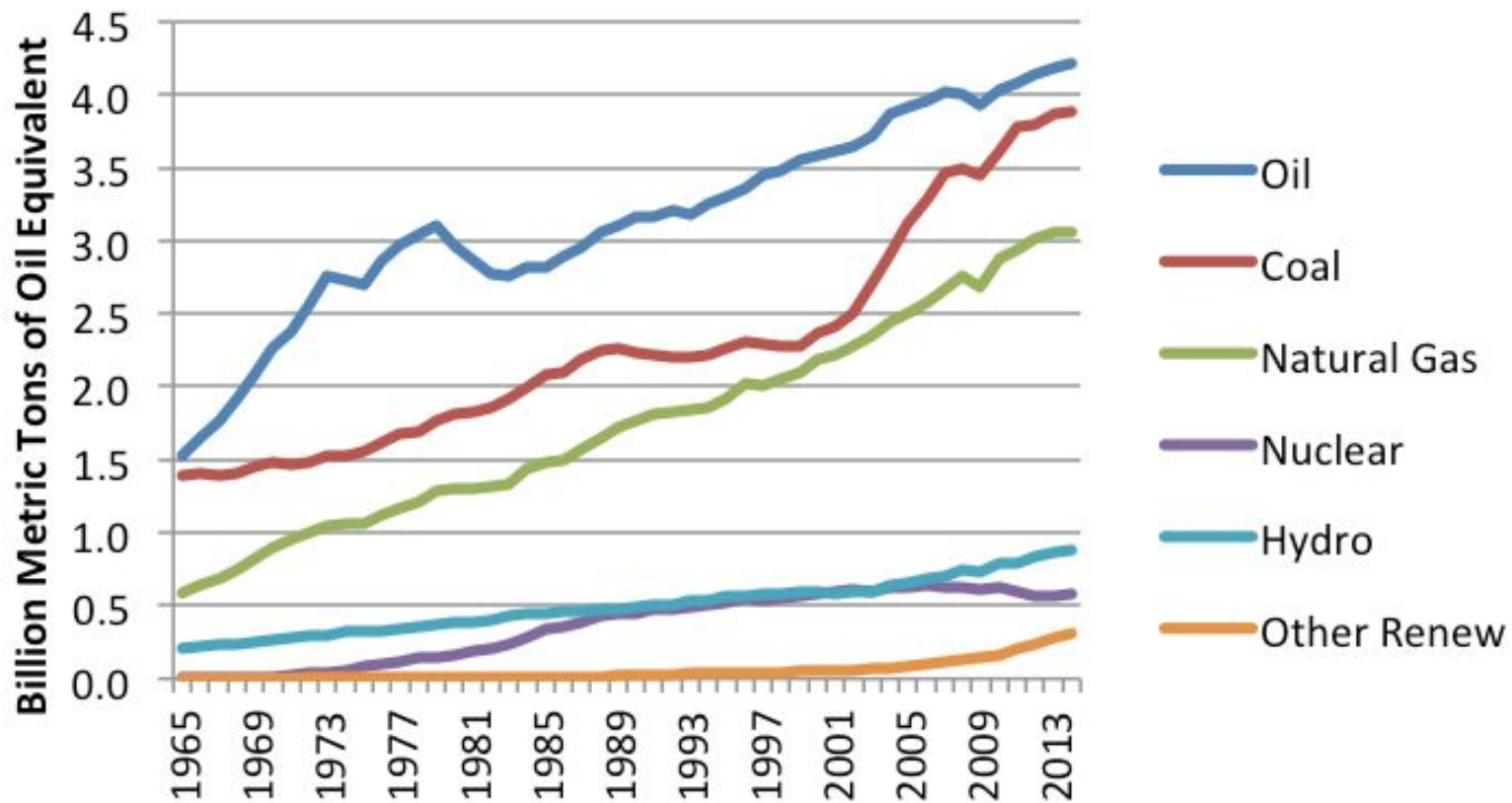
# Energy efficiency of mining industry

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# Energy efficiency of mining industry



## World Energy Consumption for Each Fuel



# Outline

- General concepts about the mining industry
- forms of energy production on the mountain
- Ways to reduce energy costs for mining industry

Mining company - a industrial enterprise, which is being developed mineral deposits.



bucket-wheel excavator



conveyors



dumpers



loaders

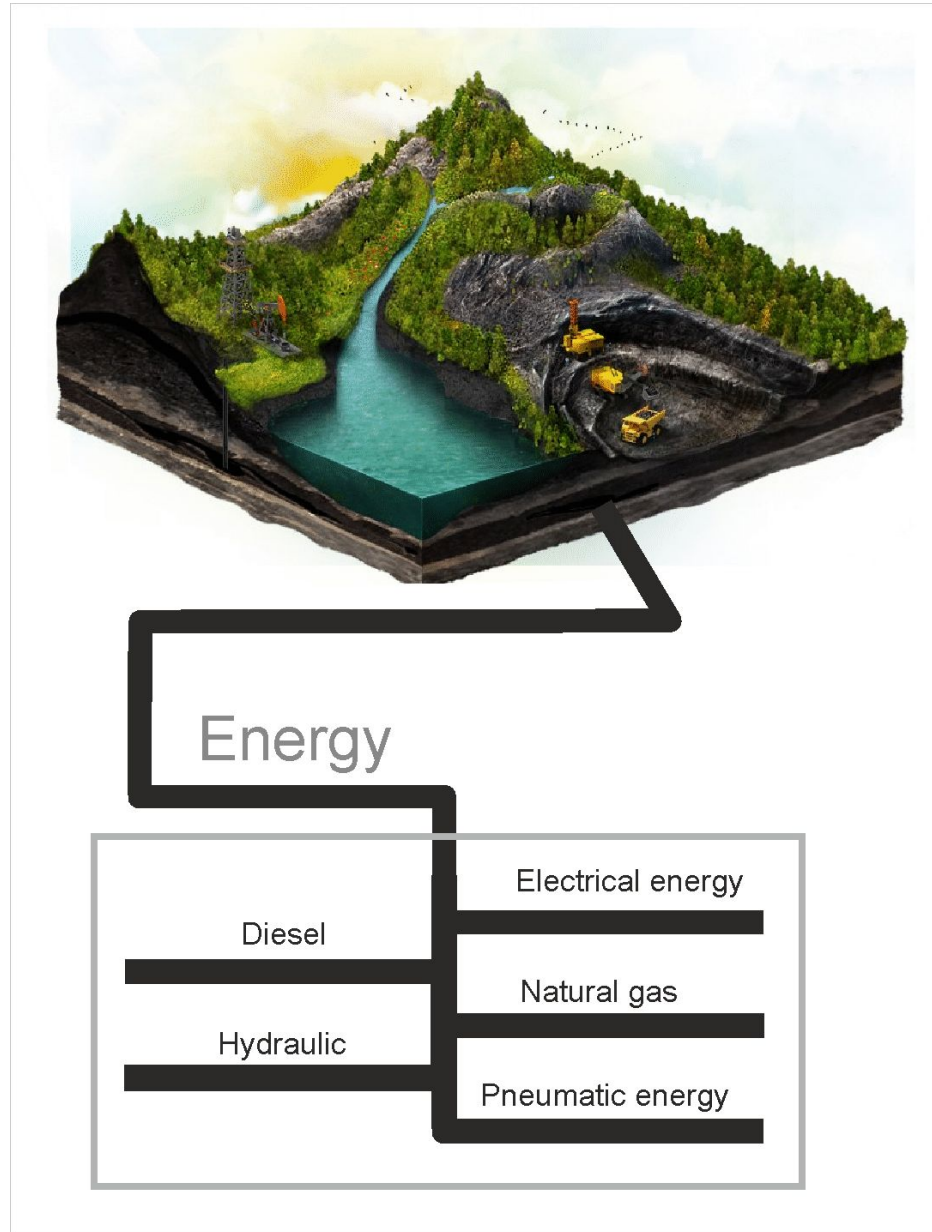


bucket-wheel excavator



processing plants

The mining industry is used:



# Ways to reduce energy costs for mining industry

- The introduction of energy management in the enterprise.
- Installation of modern energy accounting system in all areas of consumption.
- The use of reactive power compensation.
- The use of alternative energy sources (if possible)
- Setting motors and transformers with higher efficiency.



# Energy management



**Energy  
Management**

# Accounting system



Flowmeter (water)



Flowmeter (gas)

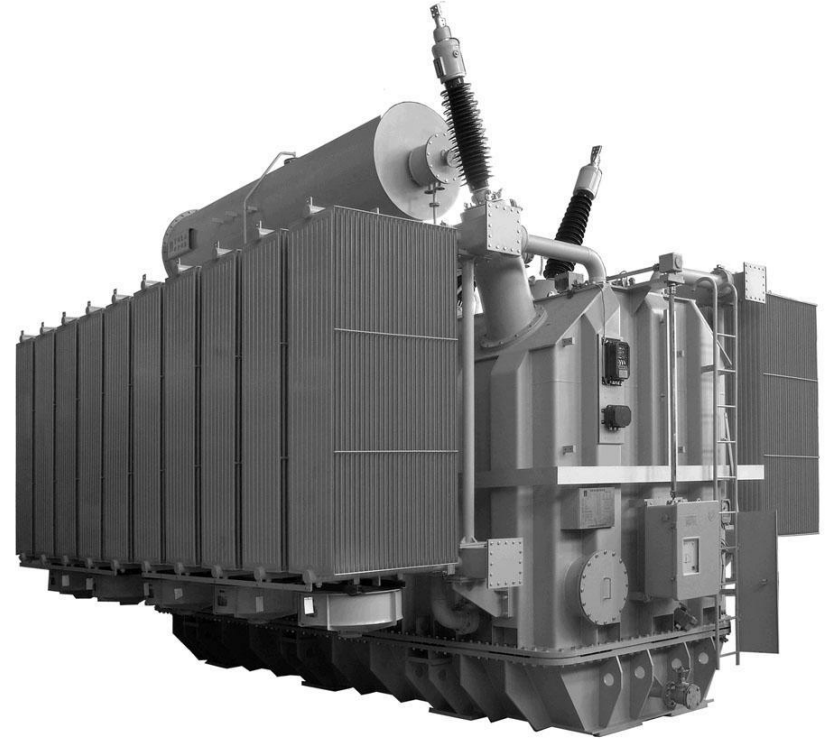


Electric meter

# Motors and transformers with higher efficiency.



Motors AC



transformer

## Approximate Average Motor Efficiency

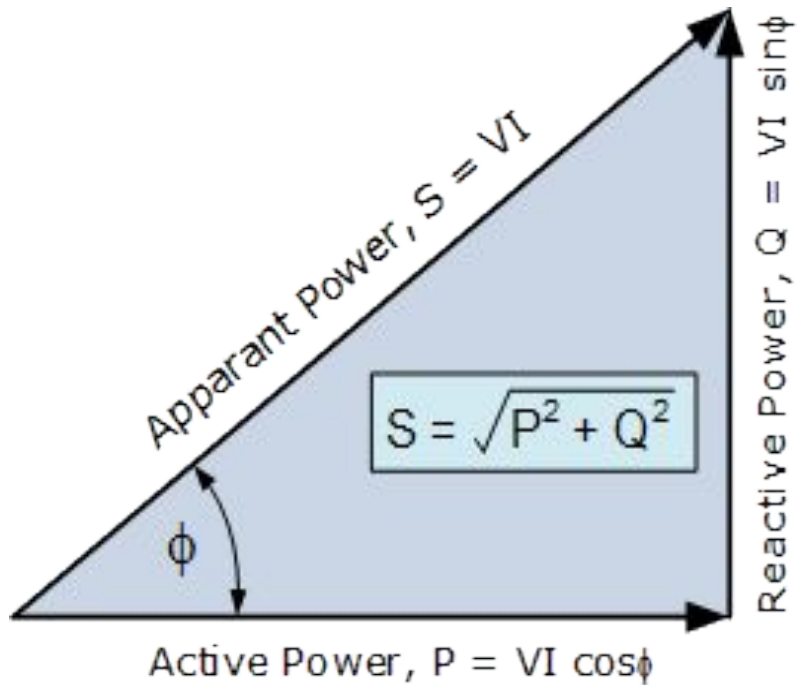
H.P.	1/2 Load	Full Load
1/2	60%	69%
1	75%	76%
5	80%	82%
15	84%	88%
100	89%	91%
250	91%	93%

# Reactive power compensation

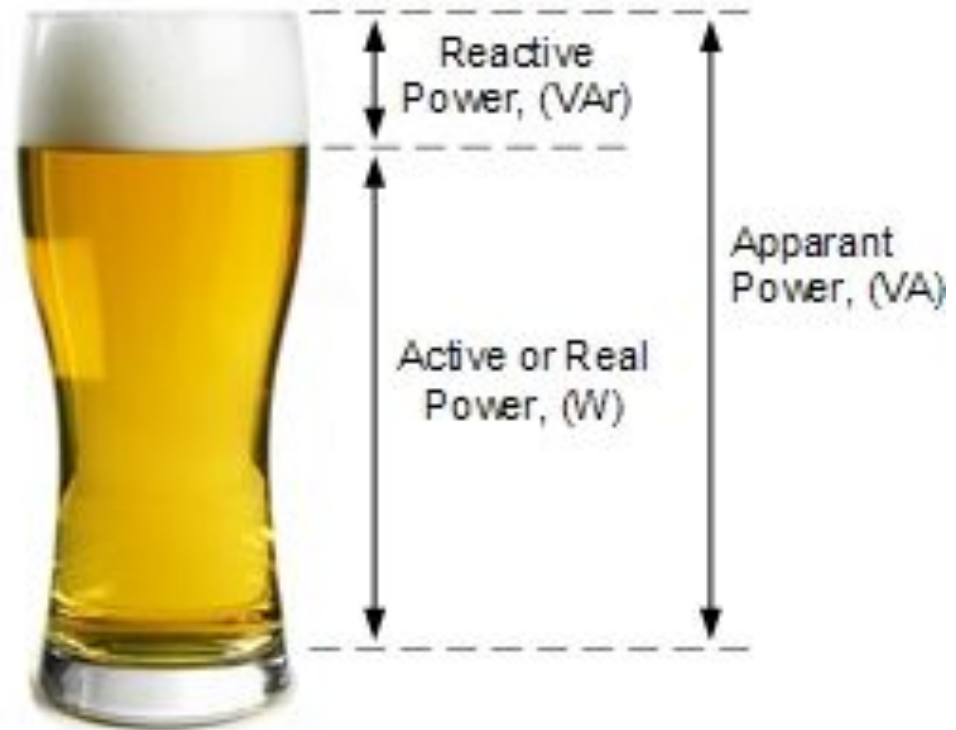
Reactive Power can best be described as the quantity of “unused” power that is developed by reactive components, such as inductors or capacitors in an AC circuit or system. In a DC circuit, the product of “volts x amps” gives the power consumed in watts by the circuit.

In mining enterprises use a large number of installations generating reactive power in the network

# Reactive power compensation



power triangle



Reactive Power Analogy with Beer

# Reactive power compensation



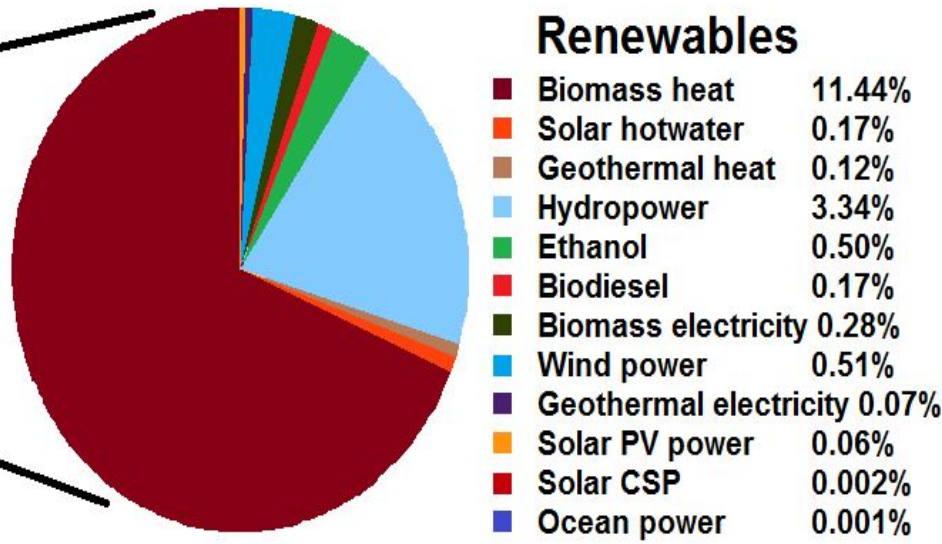
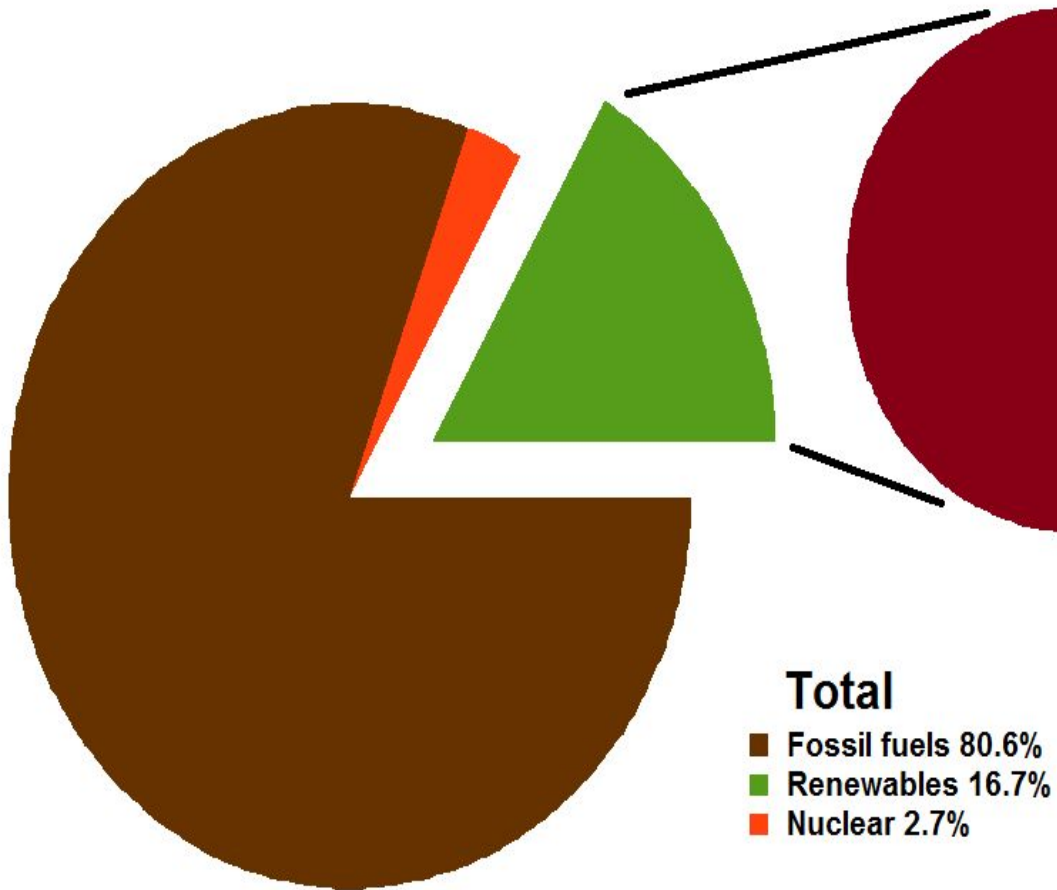
Reactive power compensation

# Alternative energy sources

## Environmental renewable energy on earth







**Total World Energy Consumption by Source (2010)**

# References

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Thank you for your attention