Regional indicators of power efficiency

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In article indicators power efficiency are considered. Some indicators of Transbaikalian krai are considered.[1]

Index Terms **- power savings, power, energy, efficiency.**

For a potential estimation power savings, its influences on macroeconomic indicators the most exact is its account in a total regional product (TRP) which is a generalizing indicator of economic activities of the region, characterizing process of manufacture of the goods and services.

The big role in formation TRP is played by power, and itself both an industrial production kind, and influence of efficiency of its work in the form of tariffs for other manufacturers of the goods and services.

To estimate efficiency of use of thermal energy it is necessary to consider all complex a source, thermal networks, the consumer, both in aggregate, and separately. Each object of the given complex has the potential power savings, and efficiency of its work influences and other components of a complex.

For calculation TRP it is necessary to reveal elements which efficiency of use of thermal energy influences directly and indirectly. After that to define values TRP at standard and actual values of efficiency of use of thermal energy, and also after reduction of actual values to the standard. And thus to make estimation of cost of actions for reduction to standard value.

Finally by working out of adequate model of influence of a complex the source-network-consumer both as a whole, and separately on macroeconomic indicators will allow to choose the optimal scenario of introduction power savings actions in region.

The analysis of macroeconomic indicators in Transbaikalian krai has shown decrease in power consumption TRP on 42 % with 2005 for 2008 that looks малоправдоподобным, considering a situation with advancement of actions on power savings. Growth of consumption of fuel for this period has made 13 %, and growth ВРП on 95 %. Estimating elements which have brought the greatest contribution to increase TRP it is visible, that sharp growth of "trade" and «transport and communication», being small power consumption leads to decrease in power consumption of region that specifies in inadequacy of this standard indicator.

For an exact estimation power efficiency of regional economy conditional division of economy into industrial and non-productive sectors is necessary. Sections TRP which carry out development of the final goods (production) in region territory should be carried to industrial sector, and to non-productive services and sale of the brought in goods.

Growth TRP of industrial sector has made 69,2 % with 2005 for 2008, non-productive 105,5 %, consumption of power resources of 13 %. Thus the share of non-productive sector exceeds industrial, having steady dynamics of growth with 2005 for 2008, she has grown about 2,3 times to 2,8 times. It speaks about weakness of economy of Zabaikalian edge, weak development of internal manufacture, about of grants. Thus every year a situation all worsens, the region population, having sufficient purchasing capacity, gets basically brought in production since except agricultural production and the small list of the industrial goods of anything the competitive in our region it is not made.

The given division allows to carry out more precisely calculation power efficiency of regional economy since growth of a turn of

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non-productive sector having low power consumption of power resources for 4 years in comparison with the industrial sector gives error about decrease in power consumption of region TRP, besides, that in region were not carried out practically any scale power savings projects.

The estimation of power consumption of industrial sector TRP allows to consider introduction and use of measures on power savings is more exact, since the given sector is more power-intensive and efficiency of consumption of fuel resources is indicative in its cost price of production.

Power consumption of industrial sector TRP, kg u.t./rbl.:

$$ВРП^{Э}_{пр} = \frac{В_{ПР}}{ВРП_{ПР}}, \qquad (1)$$

where $ВРП_{пр}$ – manufacture TRP by industrial sector, million rbl., $В_{пр}$ - fuel consumption in kg u.t. the same elements of industrial sector.

Besides it is necessary to enter following indicators of an estimation power efficiency economy of regional economy:

- The specific expense of fuel on the released electric power, kg.u.t/kVtch

$$b^{ВРП}_{э} = \frac{В_{Э}}{Э_{ВРП}}, \qquad (2)$$

where $Э_{ВРП}$ - the electric power which has been released by power stations, working on kotelno-oven fuel, thousand in kw ч; $В_{э}$ - it is used fuel, t .u.t.;
- The specific expense of fuel on released thermal power stations, kg.u.t/Gkal:

$$b^{ВРП}_{тэ} = \frac{В_{ТЭ}}{Q^{ТЭ}_{ВРП}}, \qquad (3)$$

where $Q^{ТЭ}_{ВРП}$ - thermal power, released by power stations, Gkal; $В_{ТЭ}$ - it is used fuel, t .u.t.
- The specific expense of fuel on released thermal power boiler-houses, kg.u.t/Gkal:

$$b^{ВРП}_{тк} = \frac{В_{ТК}}{Q^{ТК}_{ВРП}}, \qquad (4)$$

where $Q^{ТК}_{ВРП}$ - thermal power, released to boiler-houses, Gkal; $В_{ТК}$ - it is used fuel, t .u.t.

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