



POLES BASED ON MULTIFACETED BENT RACKS (MBR)



EUROFORVARD

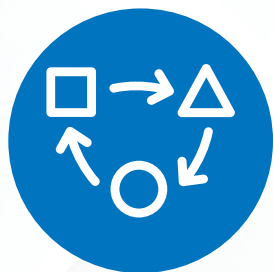
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In modern construction, poles based on multifaceted bent racks (MBR) made of steel profiles are becoming more and more widely used.

This is due to a number of advantages of such poles over traditional lattice and reinforced concrete poles.

The main advantages of poles based on MBR:

ADAPTABILITY



The adaptability of poles based on MBR is due to their design and technology of production. Since the mass use of standard projects is becoming a thing of the past for reasons of economic feasibility, operational requirements, as well as the need to take into account all features of the relief, geology, wind and ice loads, then such a property as adaptability is an important advantage of the MBR poles.



DURABILITY

The service life of galvanized poles based on MBR is at least 50 years.

RELIABILITY

Reliability is a complex feature and depending on the purpose of the object and the conditions for its use may include reliability, durability, maintainability and storability. The reliability of a power transmission line is characterized by the whole complex of these indicators. This is primarily due to the structural features of the poles themselves MBR - the presence of stiffeners, resistance to twisting (compared to lattice poles), there is no "domino effect", which is typical for power lines on reinforced concrete racks and has catastrophic consequences.

Having constructive elasticity (work as telescopic rods), the poles are much more resistant to wind loads, and, given that there are ice deposits on the smooth galvanized surfaces of the MBR poles are practically not formed, then, in combination with structural elasticity, this increases the reliability of power transmission lines on MBR poles by several times compared to traditional.

It is also necessary to point out the vandal resistance of the MBR poles (due to the lack of easily accessible structural elements that could be dismantled or damaged).





REPAIRABILITY

The MBR poles practically do not need to be repaired, but if such the need arises, the repair is carried out as soon as possible.



TRANSPORTABILITY

According to the convenience and cost of transportation of the MBR poles, it is significantly win over concrete and lattice poles.

Transportation of concrete poles requires specialized and expensive transport. At the same time, the loading rates are very low.



INSTALLATION SPEED

According to this indicator, the MBR poles are significantly superior to all types of poles. Comparing to the option of reinforced concrete poles – in 2.3 times, comparing to the option of lattice poles – in 3.7 times. Thus, according to one of the main factors - the speed of construction - multifaceted poles have an advantage of 2-4 times.

COST OF CONSTRUCTION

At present, the value of capital costs for the construction of power transmission lines is the main criterion for choosing a construction option. The main factor providing the advantage of multifaceted poles is an increase in span distances by 1.5-2 times. It is also necessary to take into account the deferred costs for the disposal of concrete poles after the end of their service life. At the same time, during the construction of power lines on reinforced concrete poles the cost of construction and installation work is higher by 40-70%, the cost of transport - 2.5-3 times.



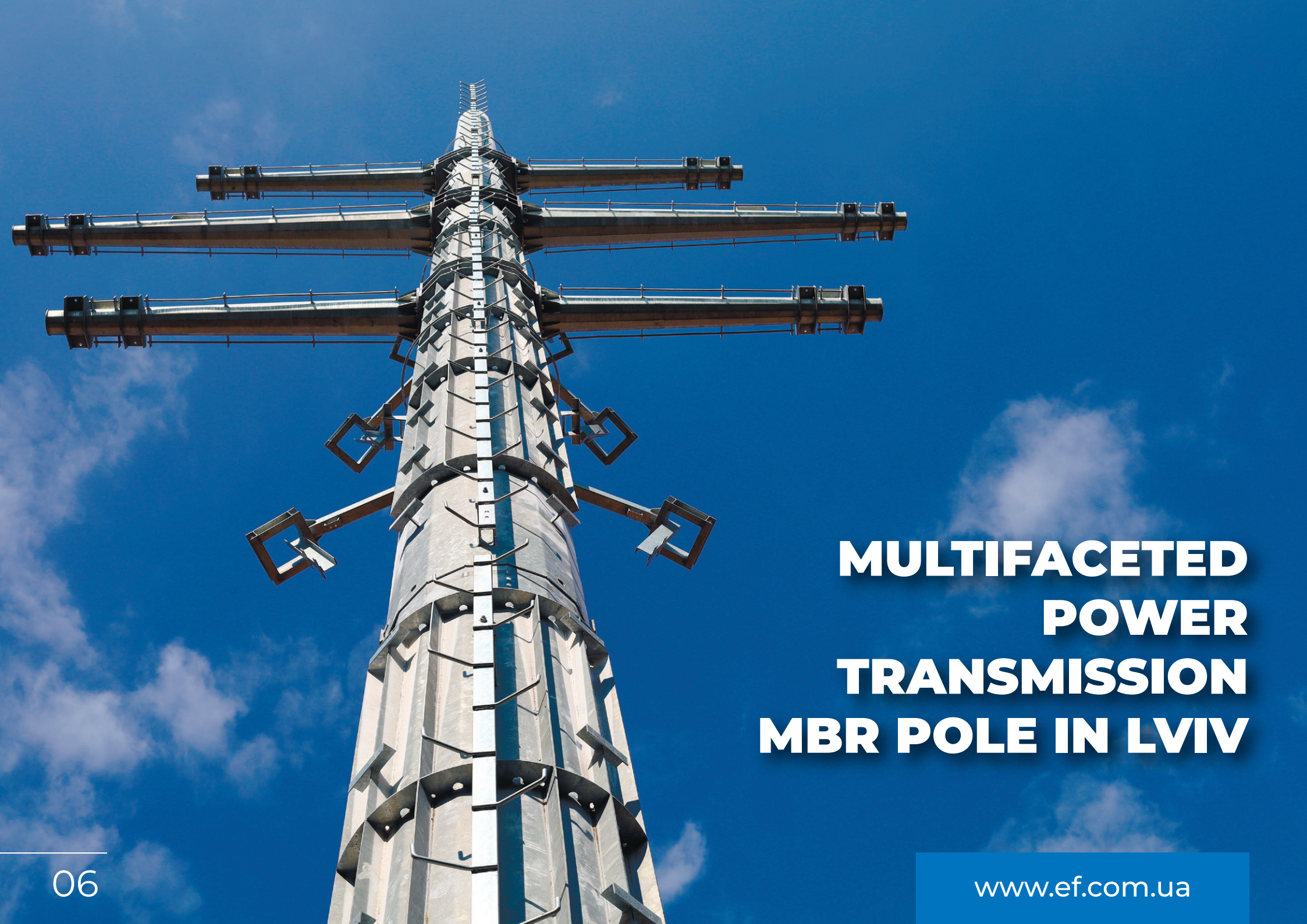
Comparison of the cost of construction of power transmission lines on MBR and lattice poles showed that for almost all components of the costs, the MBR is much more profitable. The cost of 1 km of lines of these voltage classes on lattice poles is 35-40% higher than on the MBR. It should be especially noted that when using poles on the MBR, the time of construction decreases significantly.

According to the practice of working with customers in Ukraine, it is worth noting a significant sluggishness and slowness in accepting everything new. This applies to both the new design and new means of protection (anti-corrosion, firefighting).

In the past few years, thanks to funding from local budgets, as part of the work of the decentralization program, the promotion of the MBR was mainly in lighting poles. The use of MGB in the energy sector has not received such a success in Ukraine, with the exception of territories where space really does not allow other options, for example, dense buildings.

Considering all the previously listed advantages, we consider it is necessary to be noted that MBR has a significant potential for consumption growth in coming years.

Examples of our implemented projects of electricity transmission lines and substation towers portals based on the MBR are presented below.



**MULTIFACETED
POWER
TRANSMISSION
MBR POLE IN LVIV**

MULTIFACETED POWER TRANSMISSION MBR POLE IN DNIPRO



SUBSTATION 330-110-35 kV "CHERNIVETSKA"



SUBSTATION 330 kV "ZHOVTNEVA" IN KYIV



The use of multifaceted poles and portals is the best solution in the implementation of the program for the modernization of networks and substations in the energy system of Ukraine.