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Staying Ahead of Challenges in Wind Turbine Blades Transportation



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Manufacturers of wind turbines and their components are challenged to work out with customised transportation solutions to transport the gigantic Multi-Megawatt Turbine structures efficiently and continually, across India.

Transportation of less than 40 meter length of blade is becoming the thing of past in India and currently transportation of blade length between 50 meter and 60 meter are on hot and in future onshore turbine blade length may reach up to 90 meter, translating into large, heavy and expensive super cargo loads. These super loads transportation must be done by using combination of Telescopic Trailer with Rotor Blade Adapter.

Beginning of 2000 when Sub 1 MW wind turbine installations took deep root in India, the wind turbine components transportation in India was not that much challenged as in the present days. Then the blades were mounted on 70 feet flat bed mechanical trailer coupled with Tata or Ashok Leyland less powered prime mover to transport these blades across India. These rigid axles mechanical trailers were more than sufficient to cart blades even to up hills like Tirupati to install wind turbines. Over the last two decades period, the individual blade size and length has been increased phenomenally from 15 meters to 60 meters. Similarly, the mechanical flat bed trailer loading platform length has also increased to enable the transportation of lengthier blade in India. In year 2002 beginning, 70 feet

flatbed mechanical trailers were used to transport sub 30 Meter blades, by the time, year 2014 came, the flat bed mechanical trailers length has been extended to 115 feet to meet the requirements of transportation of 40 meter plus blades and these mechanical trailers served all these years well in India are fast approaching to the period of phasing out from the regular usage due to the limitations of these mechanical trailers utility.

Indian market is always been highly price sensitive market for any products. All along with the help of local mechanical trailers manufacturer's support, rotor blades been transported across India using locally made rigid axles trailers with least freight cost. Now, world over, every wind turbine manufacturers are using Telescopic Trailers in transporting the higher length of blades. In India, the Telescopic Trailers usage has been started few years back. Initially, the Telescopic Trailers required were imported from Goldhofer, Cometto, Nicolas etc. The costs of imported Telescopic Trailers are quite prohibitive in Indian standards and pushed the trailer hiring charges upward. Hence, these types of Telescopic Trailers were used by few and for selective lengthier blades transportation in India.

Currently, Indian wind turbine market is moving on higher megawatt turbines and this industry is operating on completely outsourced logistics. The outsourced logistics service providers are sensing the shift of Telescopic Trailers requirements

for transportation of lengthier blades and have started to importing Telescopic Trailers from cheaper destinations like China and locally designed and manufactured under "Make in India" program. The locally manufactured Telescopic Trailers are matching their counterparts in Europe in offering quality Telescopic Trailers and in fact capable of carrying two lengthier blades on one Telescopic Trailer. The locally made Telescopic Trailers at present juncture are capable of carrying two sub 52 meter rotor blades on one Telescopic Trailer, across India.



The benefit Wind Turbine Industry is getting by transporting two rotor blades on one Telescopic Trailer is enormous. The cost of hiring articulated telescopic trailer is less per blade transportation, the requirements of skilled manpower consist of Drivers Crew is modest, the consumption of environment polluting diesel is going to be reduced drastically, the turning radius required at wind farm sites are minimal, the transit days required to deliver the blades are less when compared to Mechanical Trailers. Overall, the Telescopic Trailer has many advanced and latest features with steering axles.

Globally, Rotor Blade Adapter has been in use to transport blade vertically for short hauling near wind farm sites, where horizontal hurdles are more. The usage of Rotor Blade Adapter is so far not taking root in India.

Last few decades in India, the infrastructure developments are happening in rapid pace, this development leads to requirements of heavy and oversized equipment transportation across India. The local players like Tata, Ashok Leyland etc. are totally preoccupied in supplying General Cargo carrying vehicles missed an opportunity to provide Indian truck market higher powered prime movers or pullers. This vacuum were filled by foreign players like Scania, Volvo, Benz, Man, AMW etc. by setting up manufacturing units in India and offered Indian market world class prime movers to transport lengthier Wind Turbine Blades. Now, even, local players like Tata, Ashok Leyland, Eicher and Mahindra are also offering high powered prime movers suiting to Indian Truck Market.

Wind Turbine Components transportation is a specialised field, wherein across India very limited numbers of transporters are involved and they have been upgrading their trailers and prime movers, based on the natural forces of demand and supply.

Indian Government is setting up an ambitious Wind Turbine installations targets and IWTMA predicts 3.5 GW capacity additions for FY 2015-16. Estimated transportation of 5000 plus lengthier blade in a year requires minimum of 300 specialised Telescopic Trailers and an investment of Rs.400 Crores for blades transportation alone.

The Wind Energy Developers, Turbine and Components manufacturers and other stakeholders are recognising the herculean task of transporting oversized and lengthier rotor blades across India in all seasons throughout the year is encouraging the transport service providers to use best in class transportation equipment to transport blades across India to achieve Indian Government vision of having 60 GW wind energy operational on March 2022.

The present Indian Government is placing enormous thrust on producing everything in India through "Make in India" program and has shown enormous care on environmental issues and setting an ambitious target for renewable energy capacity addition on year on year and supporting the progress through the Ministry of New and Renewable Energy (MNRE).

Transporters are on their part offering latest trailer tractors coupled with Articulate Steerable Axles Telescopic Trailers to transport lengthier blades. Unfortunately, transporters are facing plenty of delay and costs increase at every RTOs, as these latest Extendable Telescopic Trailers, though mandatory due to nature of cargo, but the present Indian Motor Vehicles Acts are yet to be amended to permit these special vehicles to ply on Indian roads, officially.

To transport a rotor blade from Bangalore in Karnataka to Indore in Madhya Pradesh, a distance of 1400 KM has to pass through 21 RTOs (Nelamangala, Tumkur, Sira, Hiriya, Chitradurga, Davangere, Hospet, Koppal, Bagalkot, Bijapur, Zalki, Solapur (Maharashtra entry), Solapur Town, Tembhurni, Ahmed Nagar, Sirampur, Yeola, Malegaon, Dhule, Maharashtra outer border, Madhya Pradesh in border) before reaching the destination.

Hence, there is a need that all the stakeholders should join hands and present to Ministry of Road Transport and Highways the need for recognising this special transportation and amend the Motor Vehicles Acts accordingly to permit these telescopic trailers to ply on Indian roads legally, carrying rotor blades, so as to enable the Wind Industry to expedite the addition of Wind Energy Installations as targeted year on year.