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* 1. In this topology is named as 12-pulse rectifier. There is a delta transformer in the source side. However, in the load side, there are wye and delta transformer.

6 pulse come from delta transformer in load side lie full bridge, controlled rectifier.

Other 6 pulse come from y transformer. However, these pulses do not overlap the other 6 pulse because there is 30-degree phase shift in wye-delta transformers. That is, line to neutral voltages of the wye transformer lag behind the line to neutral voltage of the delta transformer, as known. Therefore, total 12 pulse at the load.

There is another version of the 12-pulse rectifier. In this case, there is wye transformer instead of delta transformer. Voltage of the load is same however line to neutral voltage of the delta transformer has 30-degree phase shift, lead behind the source voltage instead of lag.

There is also 18-pulse, 24-pulse and 36-pulse version of this topology. Difference is that phase shifting transformer must be used. Increasing pulse decreases the ripple voltage. This means that output like DC more

Filtering capacitor value of the load side increases when output voltage increases as known therefore in HVDC and UHVDC using capacitor becomes more expensive. Some case, this are not applicable. Therefore, this topology is used for HVDC and UHVDC because output has less ripple than full-wave rectifier.

* 1. As mentioned before, for decreasing ripple, capacitors are used. However, for high voltage, big capacitors are needed. Although, transformers are expensive, in high voltage case, 12 pulse (or 24 pulse etc.) converters are used because capacitor cost is higher than cost of the transformer. Moreover, as mentioned before, in some cases, there is no possible capacitor to decreasing ripple. For this case, 12 pulse (or 24 pulse etc.) converters must be used.

For low voltage case, because the cost of the capacitor is smaller than transformers’, 12 pulse (or 24 pulse etc.) converters are not preferred.

For same average output voltage, increasing the pulse number decreases the source voltage. However, increases the average current and current is closer to DC