

wide range DC to 13.8V DC converter

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Hi,

I am trying to figure out how I can make a regulator for a small wind turbine. The output is to charge 12V lead acid batteries.

The turbine outputs from 0–110V – (usually around 20–30V). The normal approach is to regulate to 13.8V, and dump the excess voltage through a shunt resistor. However this seems very wasteful, and I was wondering if there is a way of converting the excess voltage to current?

A long winded way would be to convert the input to a simple square wave, and pass it through one of set of transformers, which is automatically selected based on the input voltage. So T1 could deal with voltages 20–30V, T2 30–50V, T3 50–80V... Then rectify and regulate the output to 13.8V. As I say, long winded! And there has to be a better way!

Ideas?

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