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**Subject:** Reduction in condenser temperature.

We have 200 TR **TRANE screw chiller** for HVAC. We are using 325 TR cooling tower for that i.e. condenser water circulation pump of 200 M<sup>3</sup> / hr & Fan of 7.5 kW. Chilled water circulation pump is of 135 M<sup>3</sup>/hr.

Present in winter season operating conditions are following;

- 1] Chilled water active set point is kept 5.7 °C
- 2] Chiller is running average 60 - 70 % RLA (145 – 175 amps.)
- 3] Condenser water temperature we are getting around 20 °C at night hours (Keeping Cooling tower fan ON) & 26-28 °C during day hours (keeping CT fan ON)
- 4] Evaporator pressure is maintaining around 350 – 450 Kpag average. & condenser pressure is maintaining around 600 – 700 Kpag average.
- 5] Evaporator inlet and outlet temperature difference is below 3. That means Delta T is below 3

We have installed auto ON / OFF control switch to cooling tower fans and wishing to set the temperature 29 & 32, which means CT fan will stop at

29 °C cooling water temperature and restart at 32 °C to save power.

But I read in some books as well as taking reference of BEE ( Bureau of Energy efficiency) booklets, it states that Reducing condensing temperature by 5.5 °C, results in a 20 - 25% decrease in compressor power consumption. Is it true? If yes then what will be energy efficient for us? Keeping condenser temperature at lower side to save compressor power OR keeping CT fan OFF of 7.5 kW. Which option will save more power?

Can you brief what happens to chiller unit when we reduce the condenser water temperature so that power gets saved?

Is there any disadvantage / harmful to chiller unit by keeping condenser water temperature at lower side?

Please guide us. Your guidance is most valuable for us. Can you suggest some other tips for Energy saving?

**Thanks & Regards,**  
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