



# Pay for Performance - NC Technical Tip

## Modeling Energy Penalties and Components Not Meeting Minimum Performance Standard

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**Energy Penalties:** Building components are considered to be an *energy penalty* when the proposed component does not result in energy cost savings compared to the baseline model. Proposed systems that are Energy Penalties must be included in the proposed model *as designed*, using separate parametric run(s)/alternative(s) and modeled last following all other proposed energy conservation measures (ECMs). They must also be included in the ERP Tables, organized in the order modeled (e.g. last), but does not need to include incremental costs.

**Components Not Meeting Minimum Performance Standard:** If a system performs better than the baseline system, but does not meet the Minimum Performance Standards (*Program Guidelines v3.2, Appendix B*, where applicable), then the baseline and proposed system shall be modeled identically using Appendix G baseline systems. These energy neutral systems do not need to be explicitly listed in the ERP Tables, but should be acknowledged in the appropriate ERP section for ease of review.

### EXAMPLE:

Proposed design includes the following systems:

- 1) (215) 9.4 MBH packaged terminal heat pumps (PTHP), 2,020 MBH total, *12 EER each*
- 2) (25) 10.8 MBH packaged terminal heat pumps, 270 MBH total, *10.8 EER each*
- 3) Electric heaters for stairwells

Per the Minimum Performance Standards (MPS), packaged terminal systems between 9,000 and 12,000 Btu/h must have an efficiency of 11.0 EER or greater. The 10.8 EER PTHPs are better than the baseline component, but do not meet MPS. Therefore, these systems must be modeled identically (energy neutral) in the baseline and proposed model using the Appendix G baseline. No distinct measure should be listed in the ERP for these systems. Electric heaters for stairwells would be modeled as a penalty following all other eligible ECMs. They would be included in the ERP Tables, but would not have an incremental cost. In this example, proposed mechanical systems would be modeled as shown below:

- 1) *ECM #1:* (215) 9.4 MBH packaged terminal heat pumps, 2,020 MBH total, *12 EER each*
- 2) *ECM #2 - #N:* All other eligible ECMs (e.g. Lighting, envelope, DHW)
- 3) *Penalty #1:* Electric heaters for stairwells (no incremental costs should be reported)