



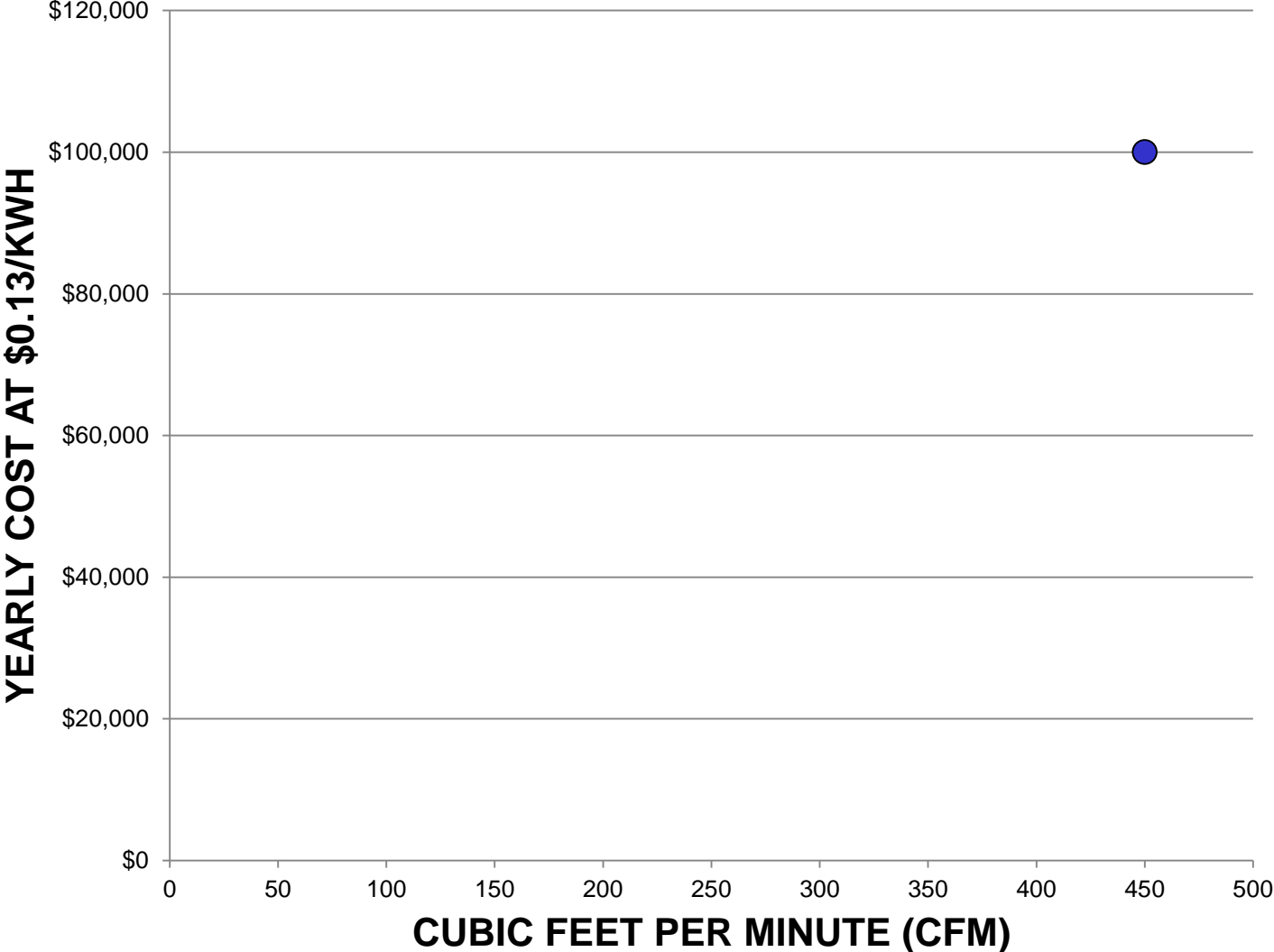
Compressed air energy savings in 4 moves

AEE NE Energy Marketplace Conference

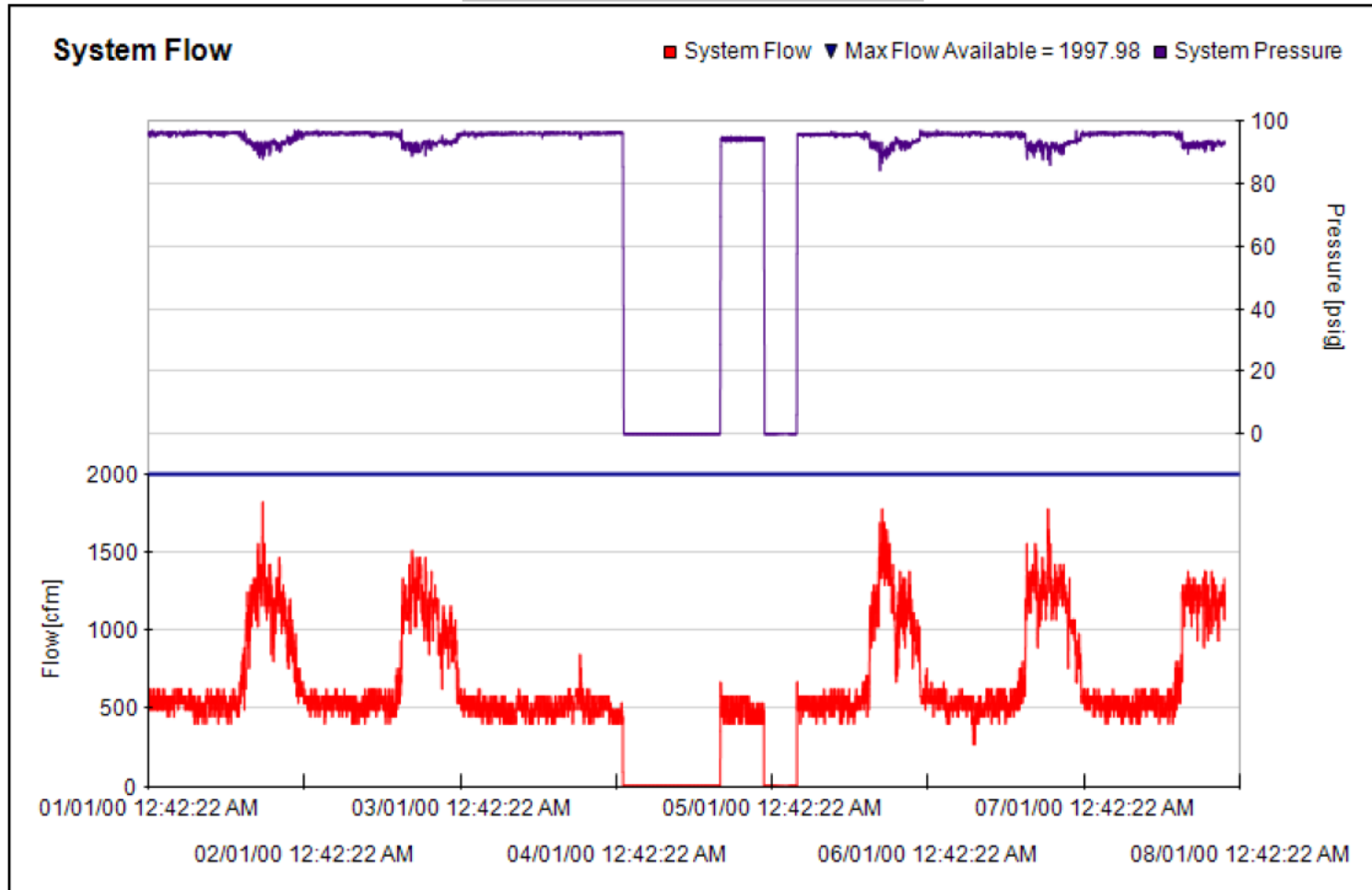
Andre L. Narbonne, PE, CEM,
DOE-Qualified AIRmaster+ Specialist



100 HP COMPRESSOR COST

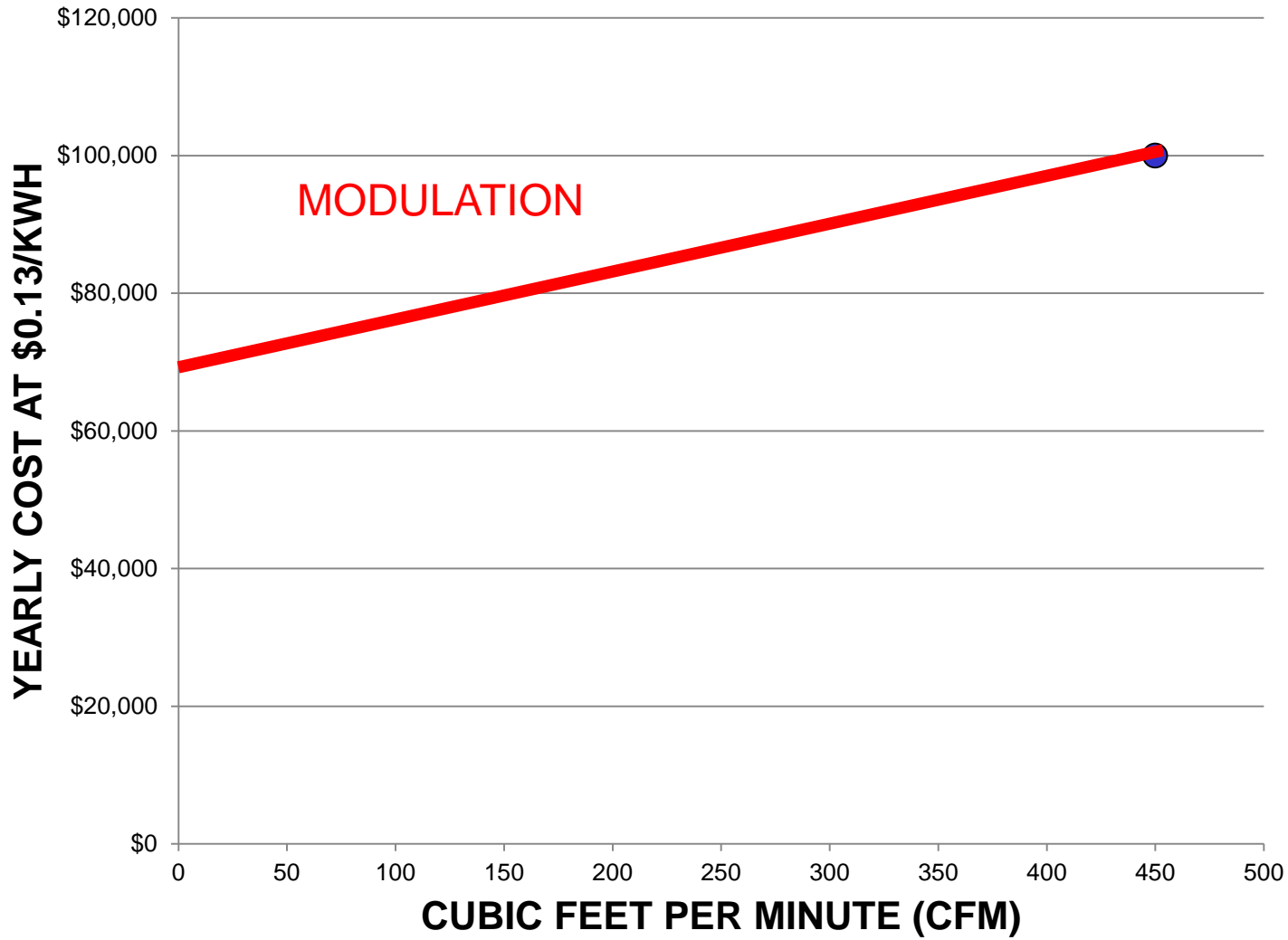


Typical air flow; Plastics plant

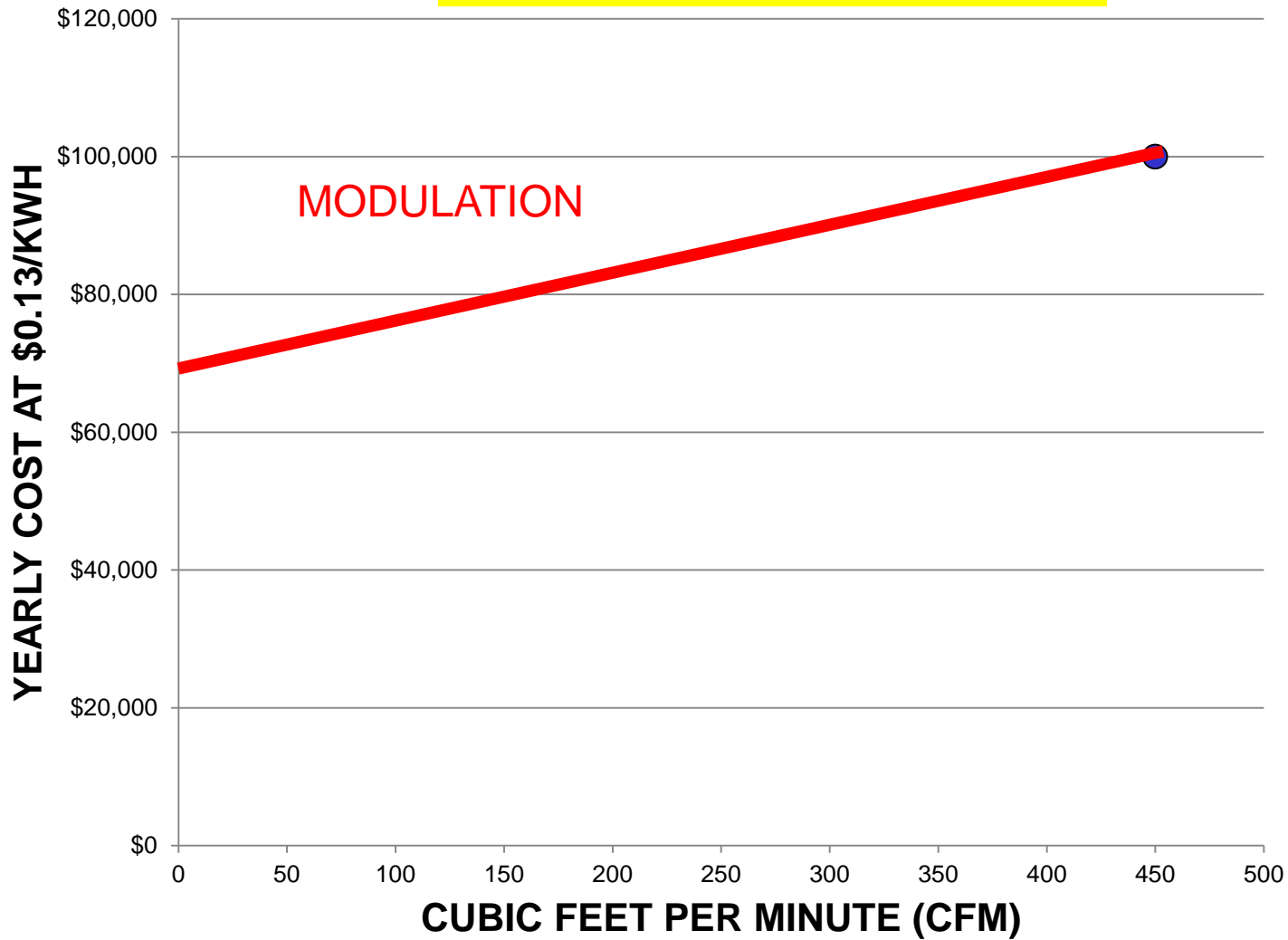


Capacity Control for rotary screw compressors

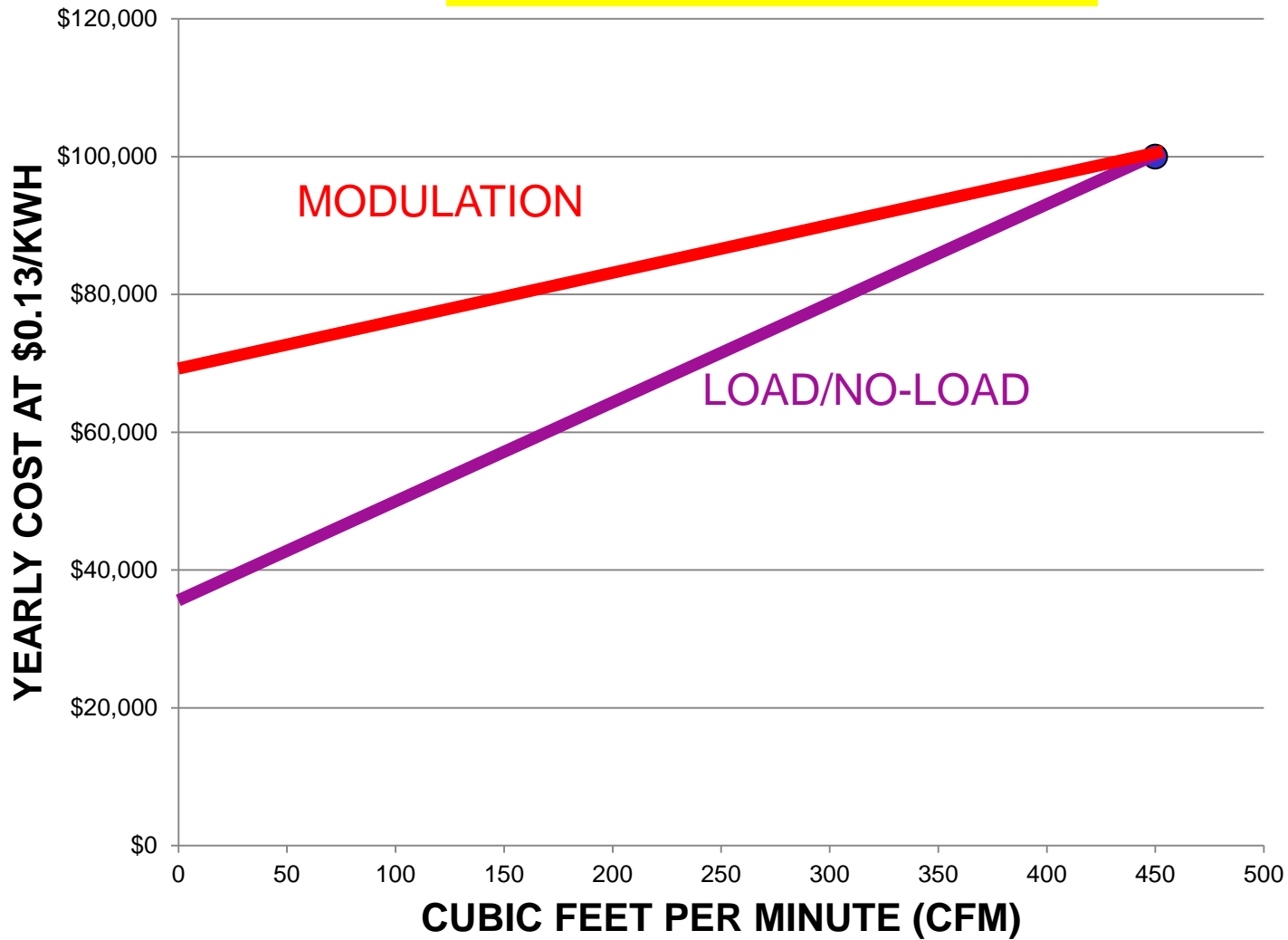
- > **Modulation** (Inlet valve restriction)
 - > Least Efficient
- > **Online/Offline** (Full capacity/zero)
 - > Better..but still consumes 25-35% power at zero flow
- > **Variable volume** (pretty good 50-100%)
- > **Variable speed drive:** (Load matching)
 - > Most Efficient, close to linear performance



MOVE ONE: CHANGE the curve



Move ONE: CHANGE the curve



Load/No-Load curve for OIL-injected compressors (Courtesy CAC sourcebook)

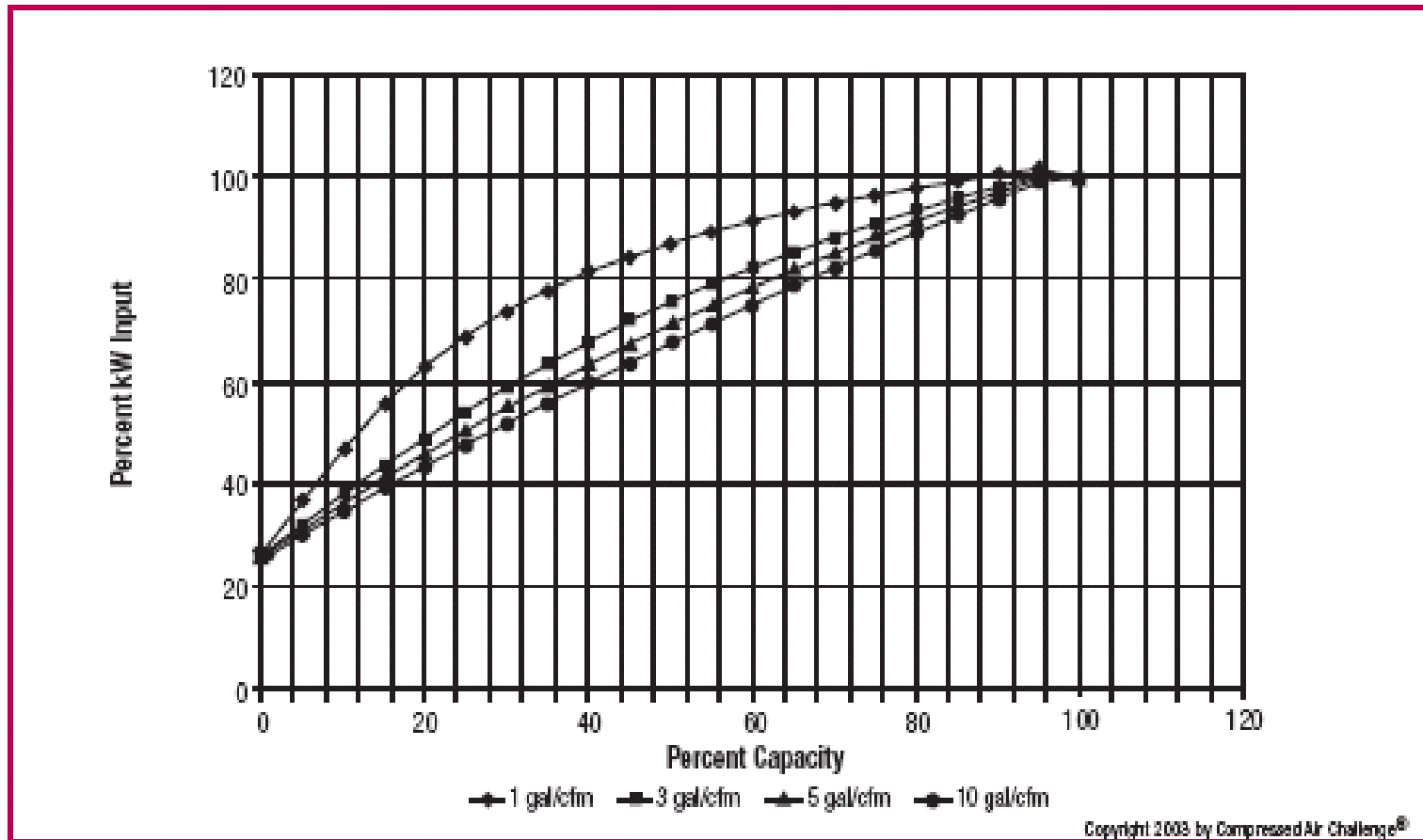
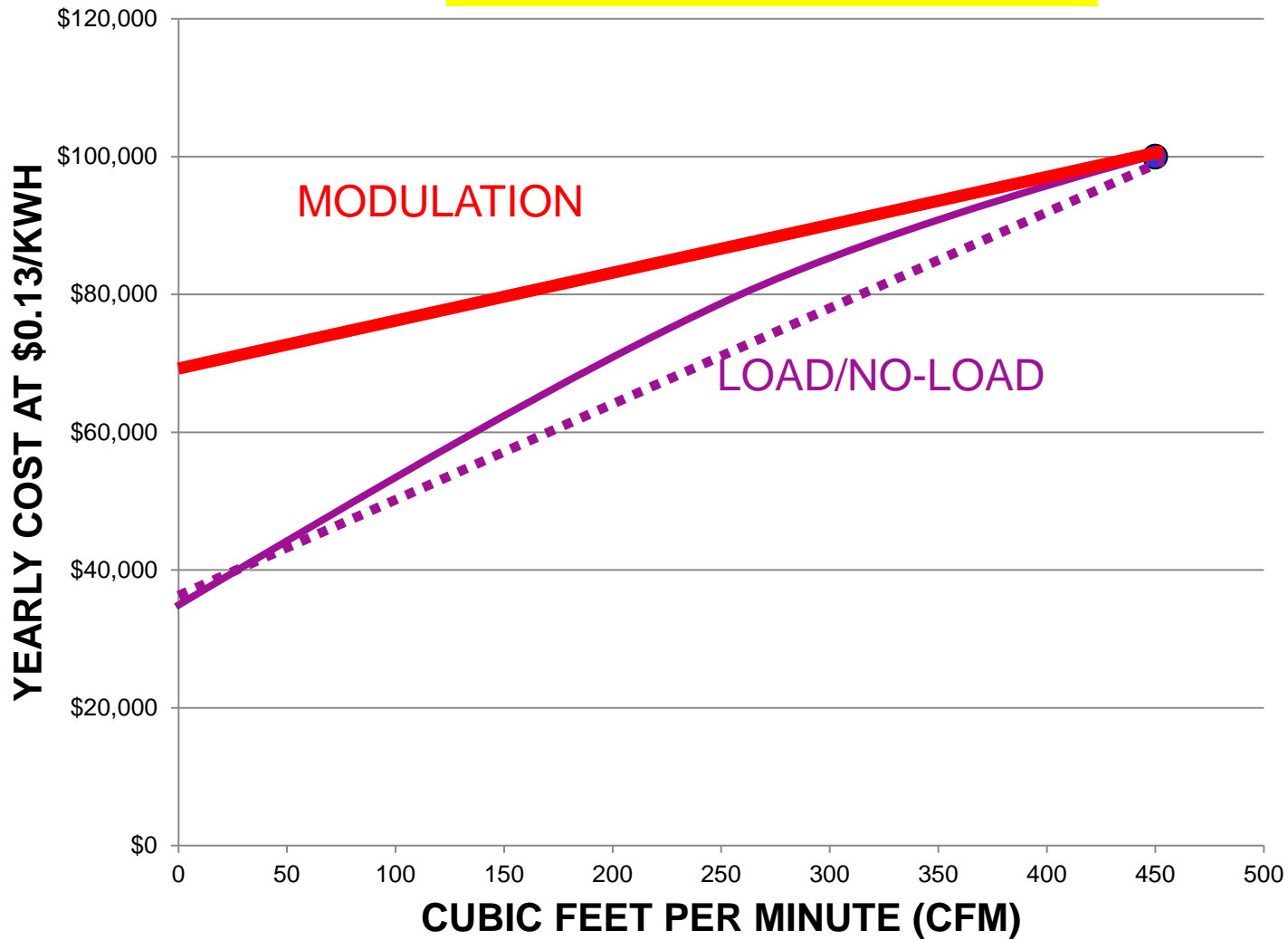
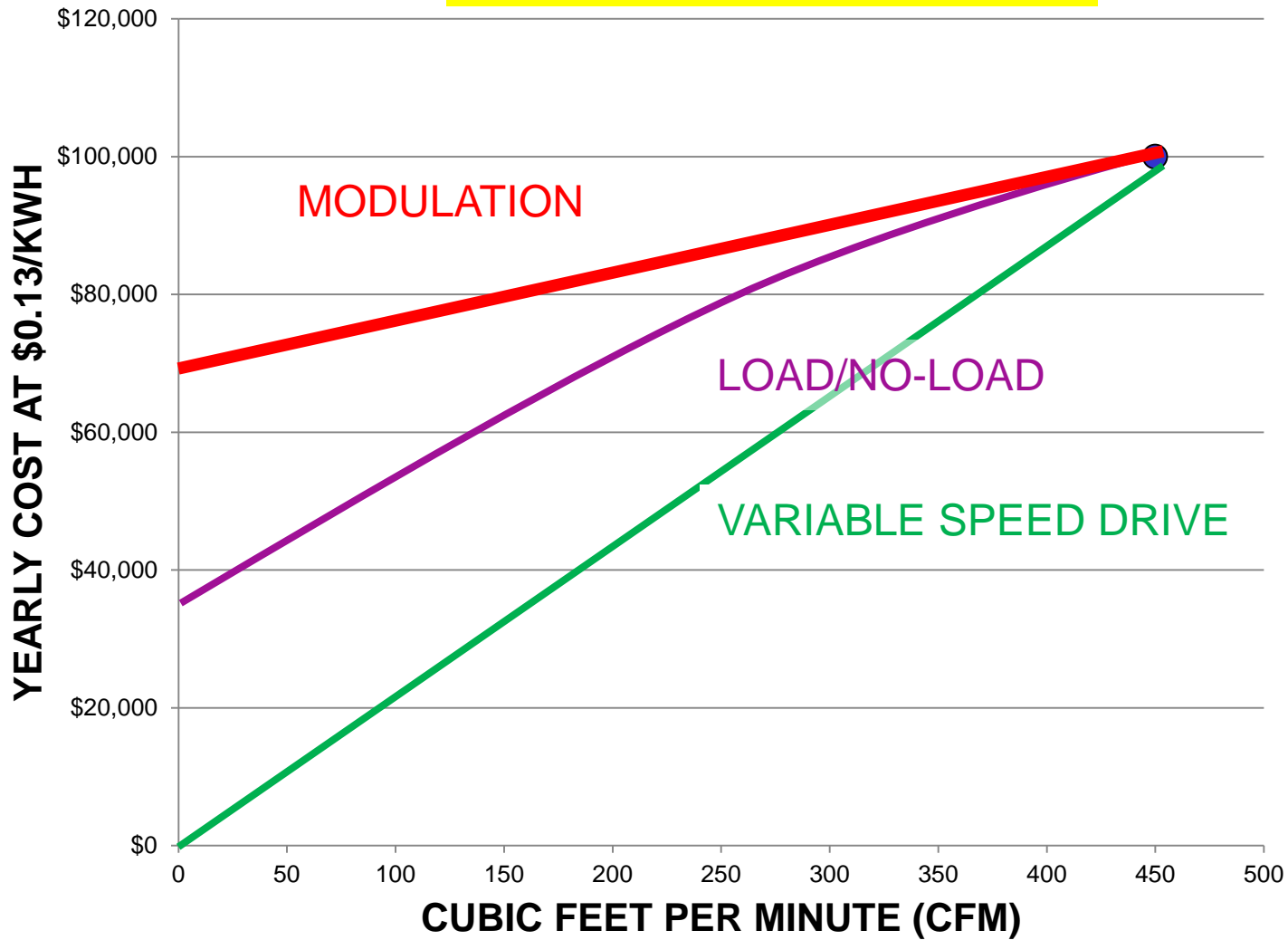


Figure 2.5 Effect of Receiver Capacity on Lubricant-Injected, Rotary Compressor with Load/Unload Capacity Control.

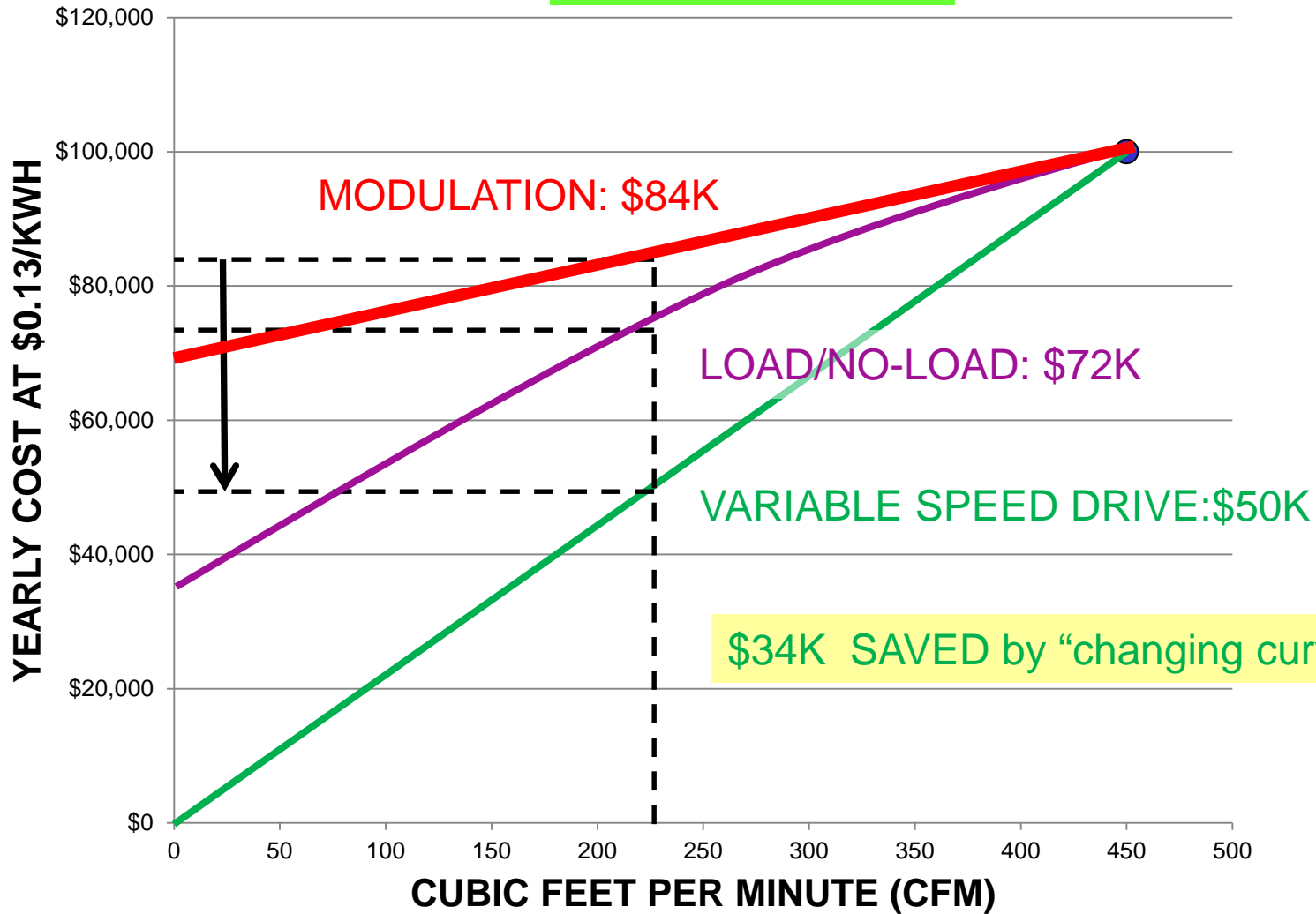
Move ONE: CHANGE the curve



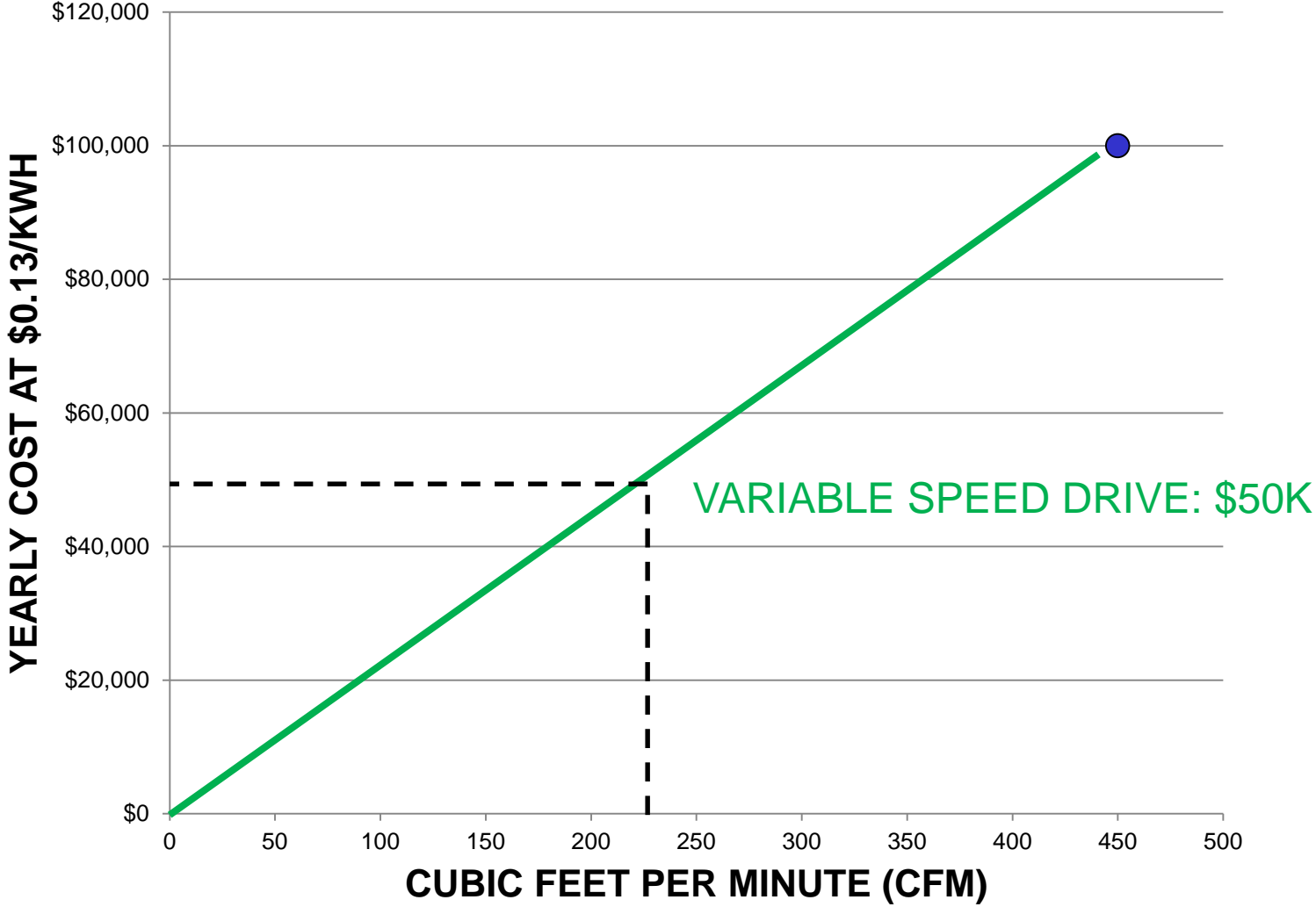
Move ONE: CHANGE the curve



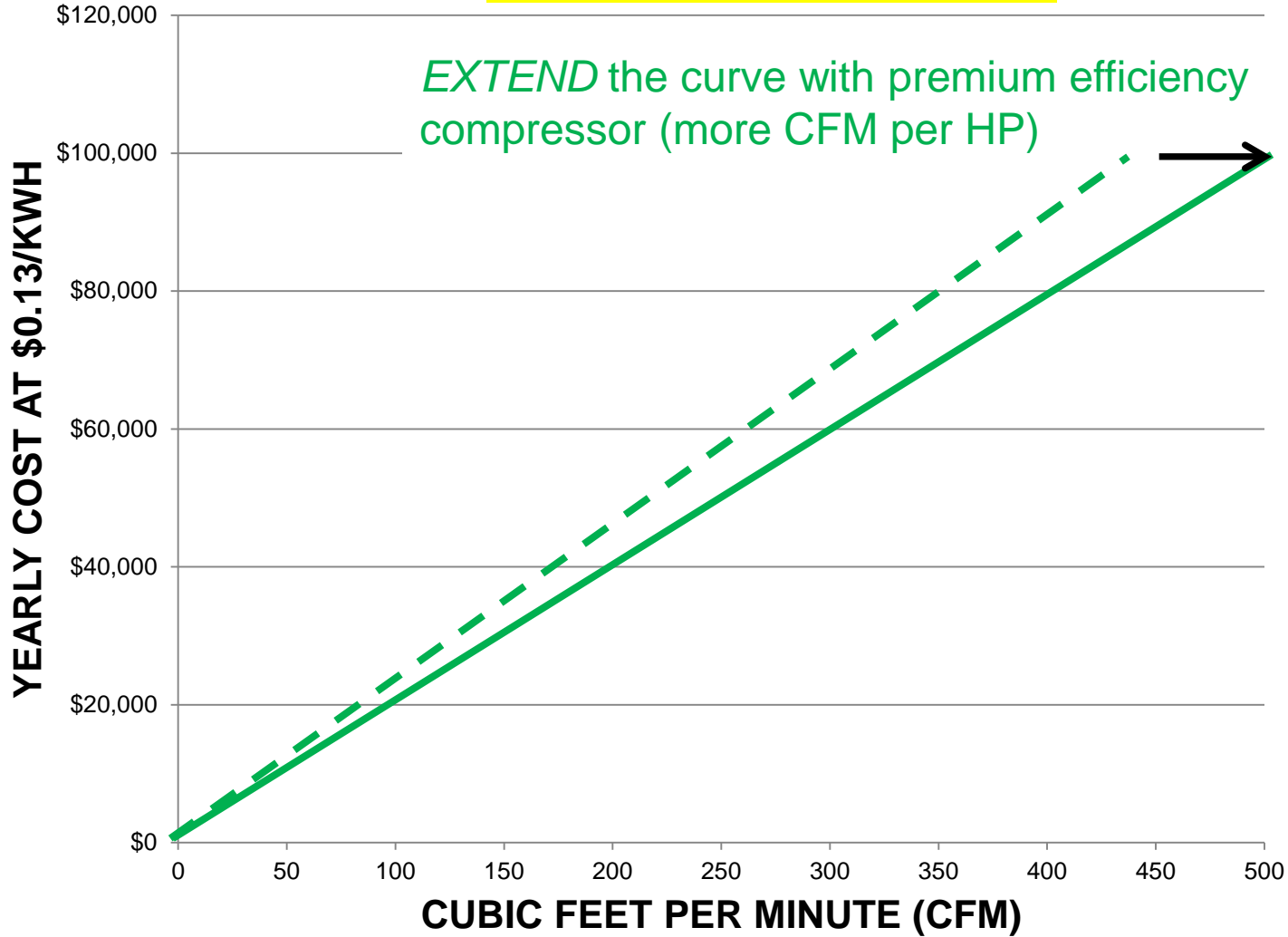
Move ONE: Results



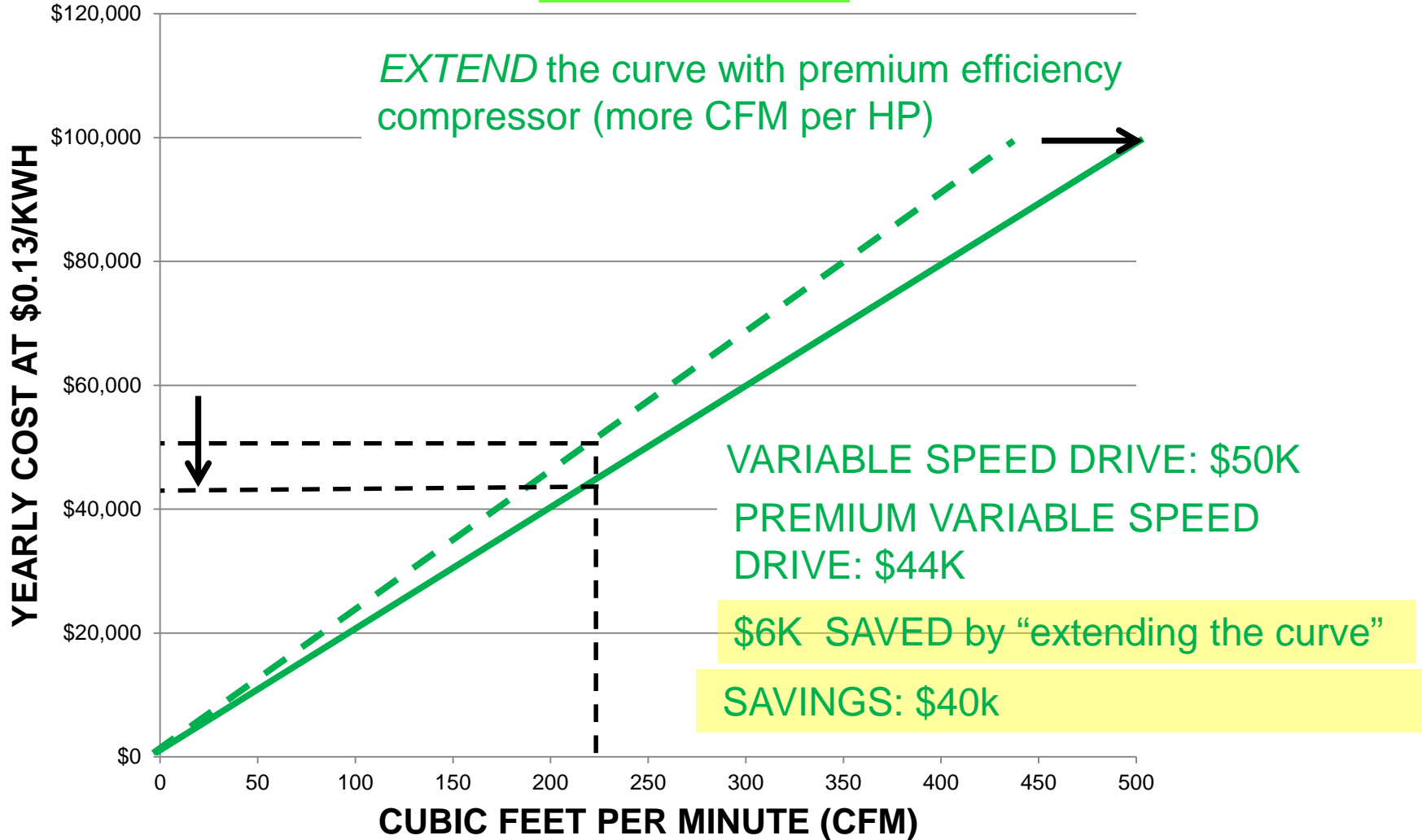
Move 2: EXTEND the curve



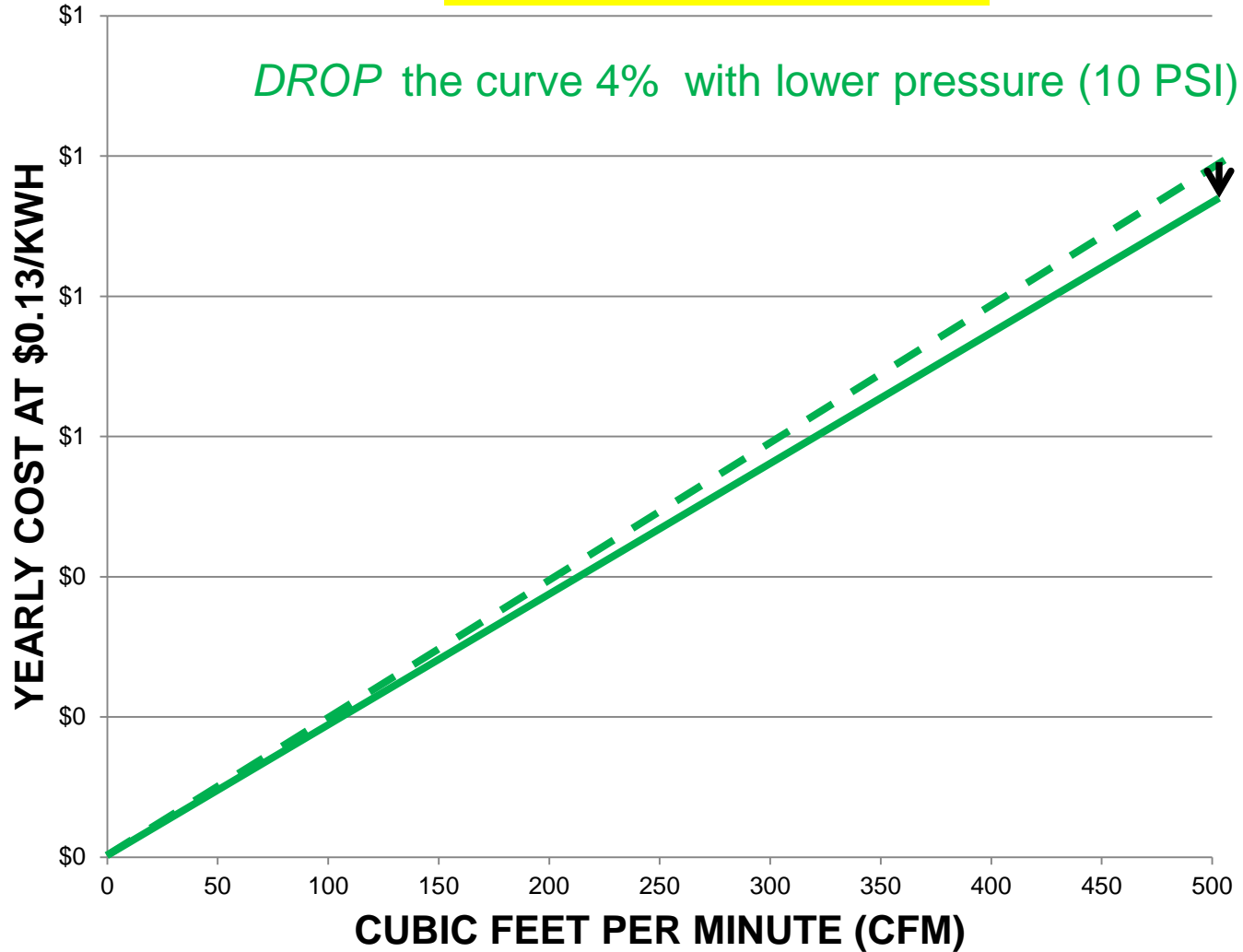
Move 2: EXTEND the curve



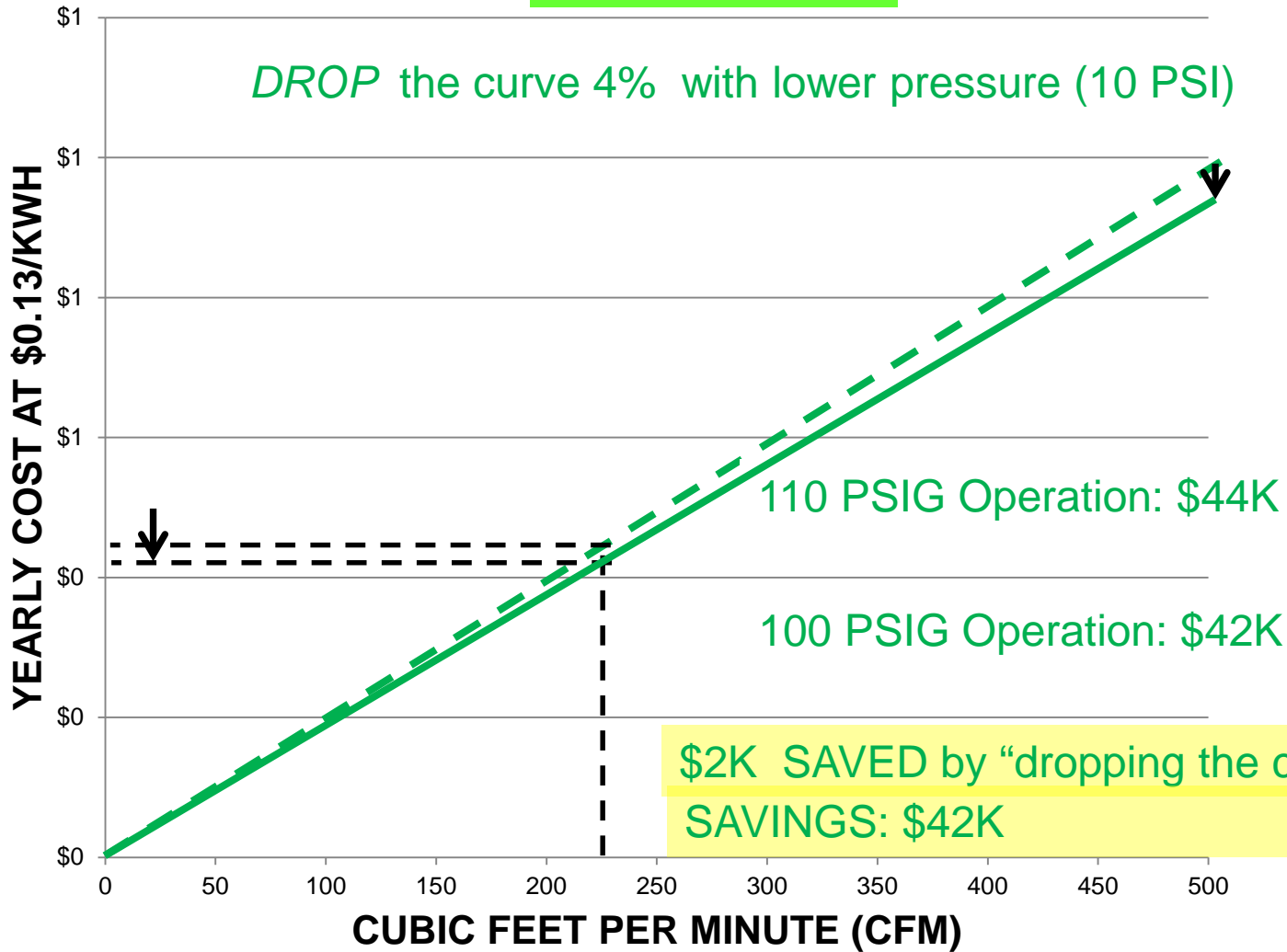
Move 2: Results



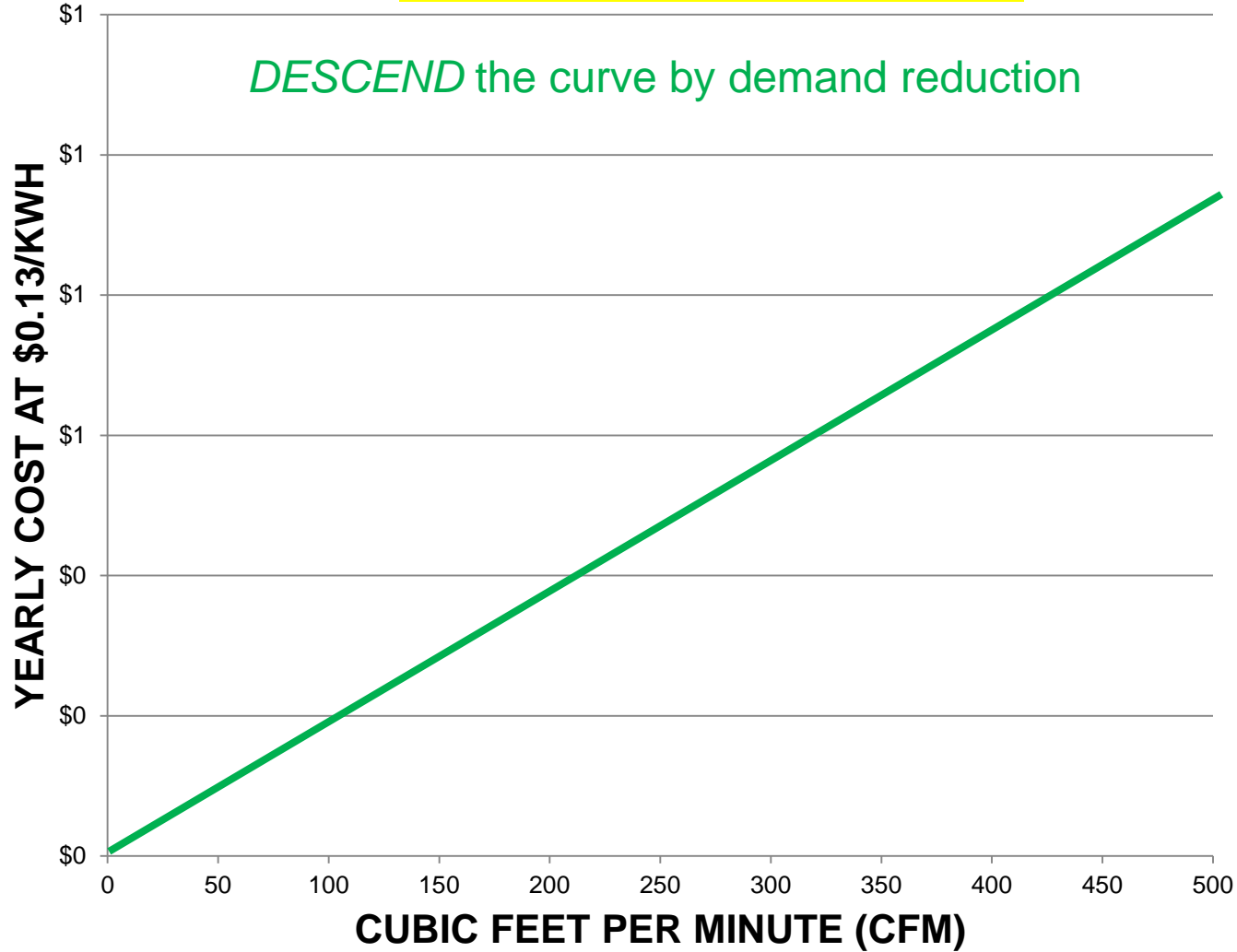
MOVE 3: DROP the curve



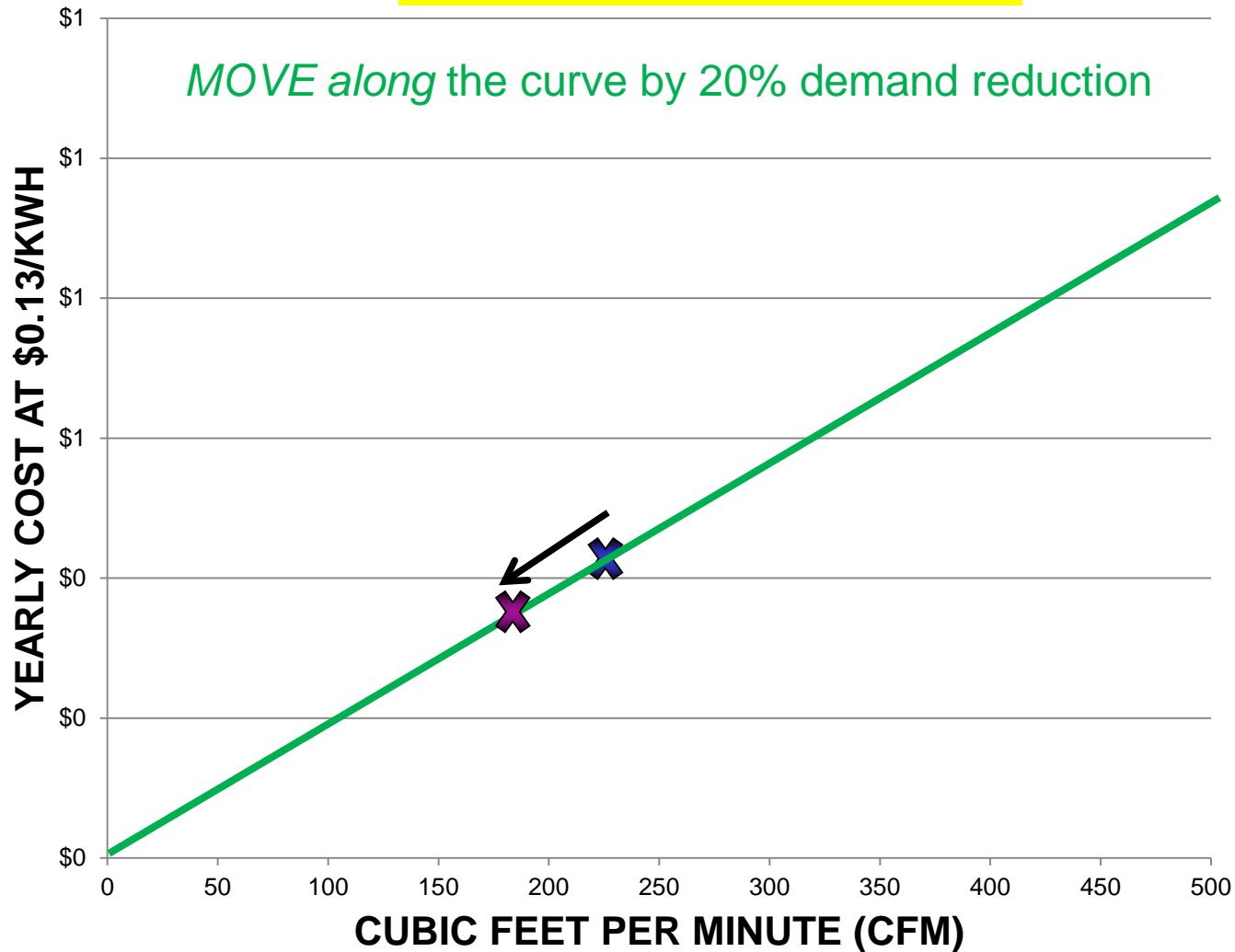
MOVE 3: Results



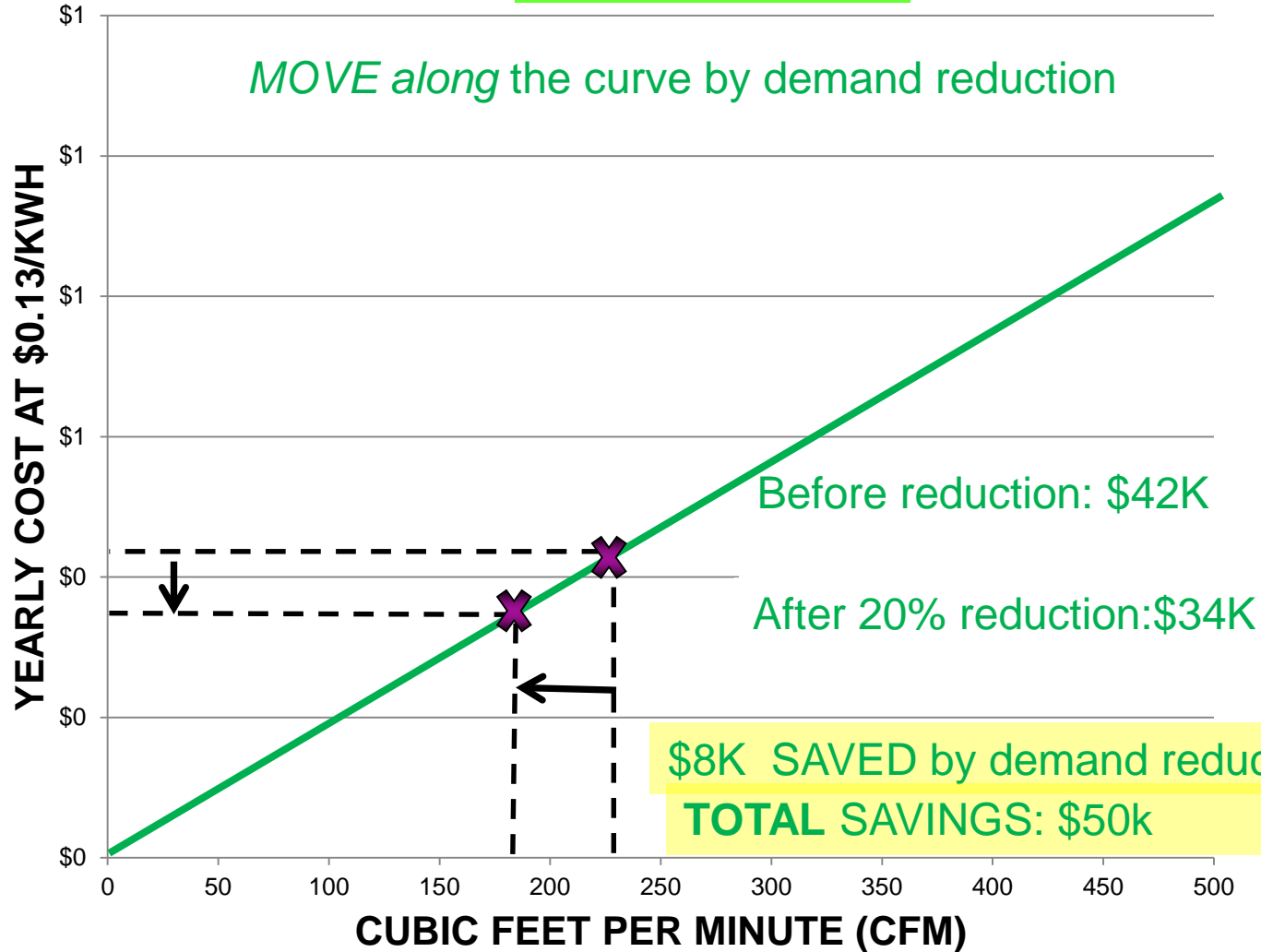
Move 4: DESCEND the Curve



Move 4: DESCEND the Curve



Move 4: RESULTS



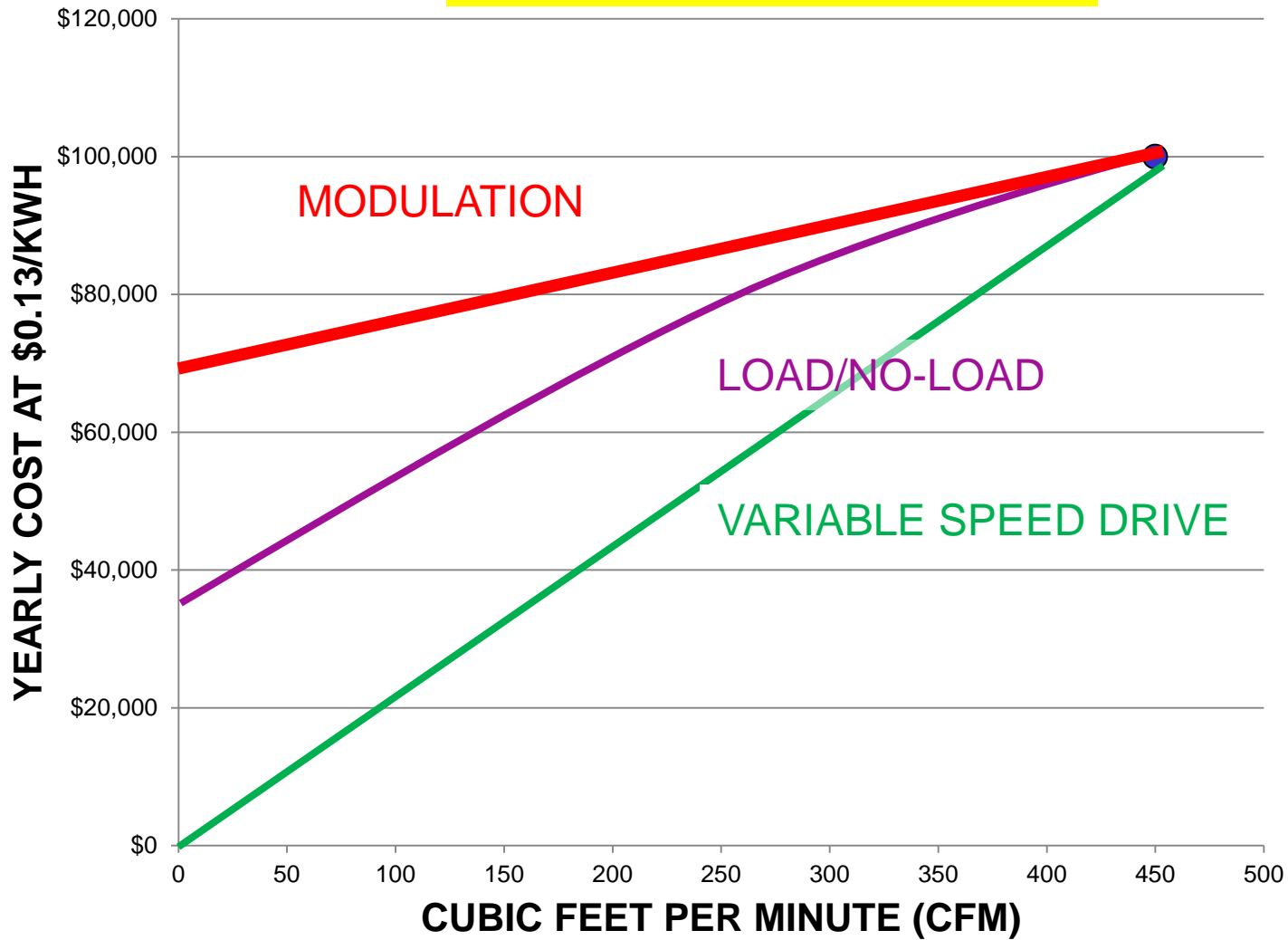
NOTE

- > This example closely followed the complete implementations of a 150 HP machine in Worcester county

Putting it in practice

- > My compressor make 6 CFM/KW,
so each CFM =0.16 KW
- > CORRECT?

Move ONE: CHANGE the curve



Four Moves

- > CHANGE the curve: improve part load e
- > EXTEND the curve: select premium e
- > DROP the curve: lower pressure
- > DESCEND the curve: reduce demand

Thank you for attending!

Open for questions/clarifications