



# Target's CO<sub>2</sub> Experience

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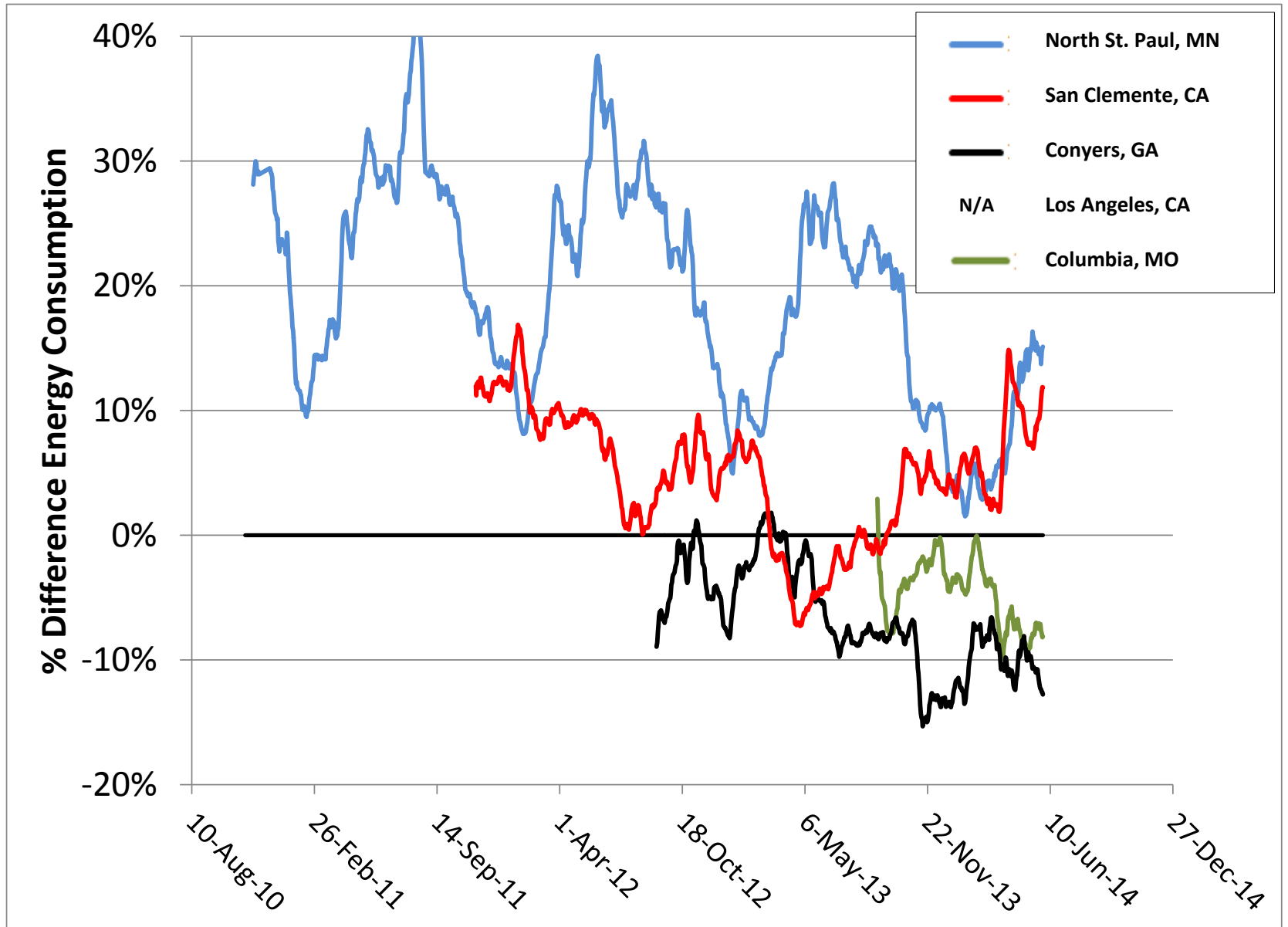
	Store Open	Low Temperature	Medium Temperature	High Side Refrigerant
St. Paul, MN	July 2010	CO2 Secondary	Glycol	R-404A
San Clemente, CA	Oct 2011	CO2 DX	Glycol	R-134a
Conyers, GA	June 2012	CO2 DX	R-134a DX	R-134a
Los Angeles, CA	Oct 2012	CO2 DX	Glycol	Water Cooled R-134a
Columbia, MO	March 2013	CO2 DX	R-134a DX	R-134a

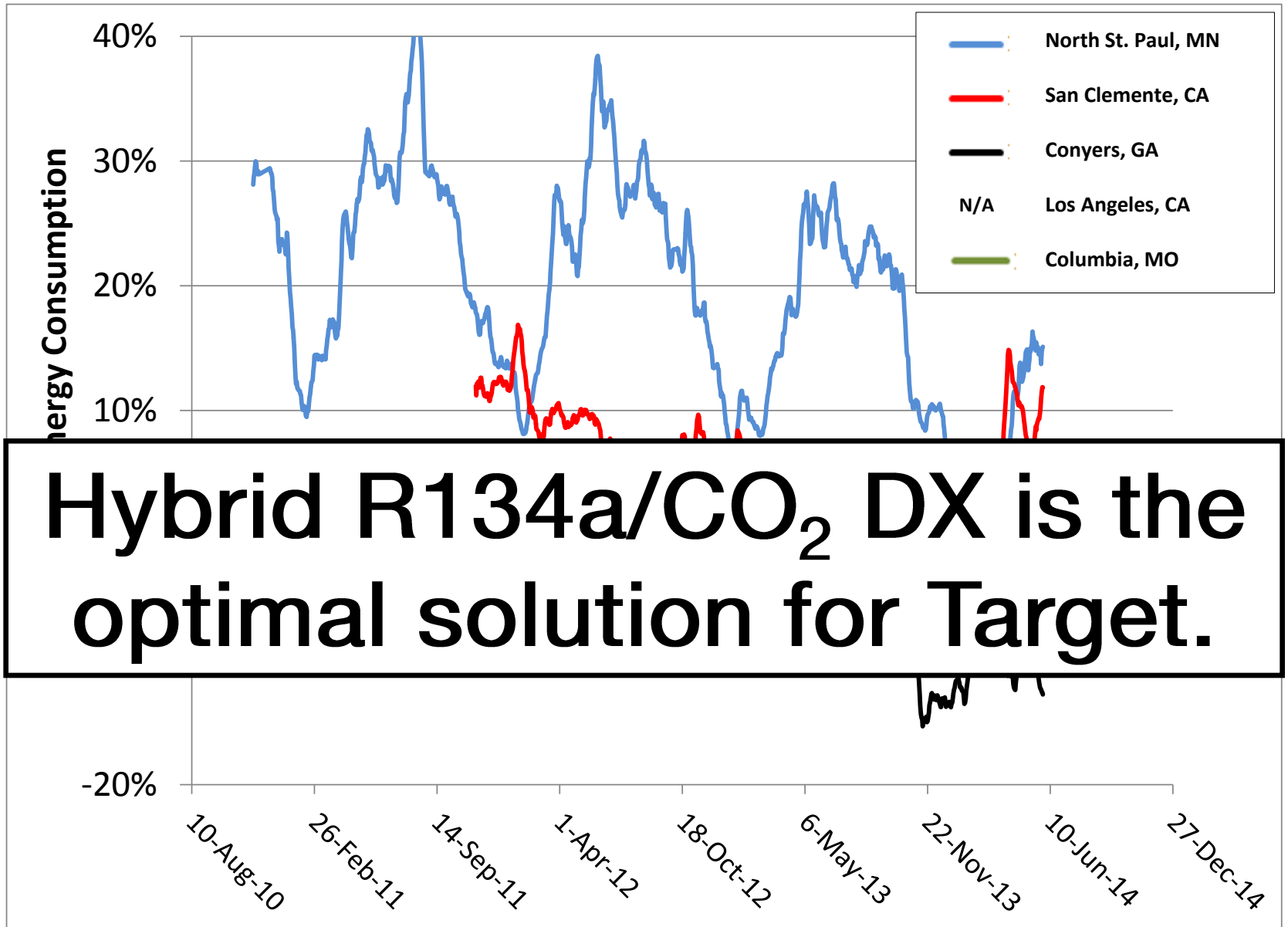


## From September 2012 FMI Presentation






	Energy
	Capital Investment
	- Equipment
	- Installation
-	Uptime (Guest Impact)
	Maintenance and Repair
	Sustainability (Carbon Impact)

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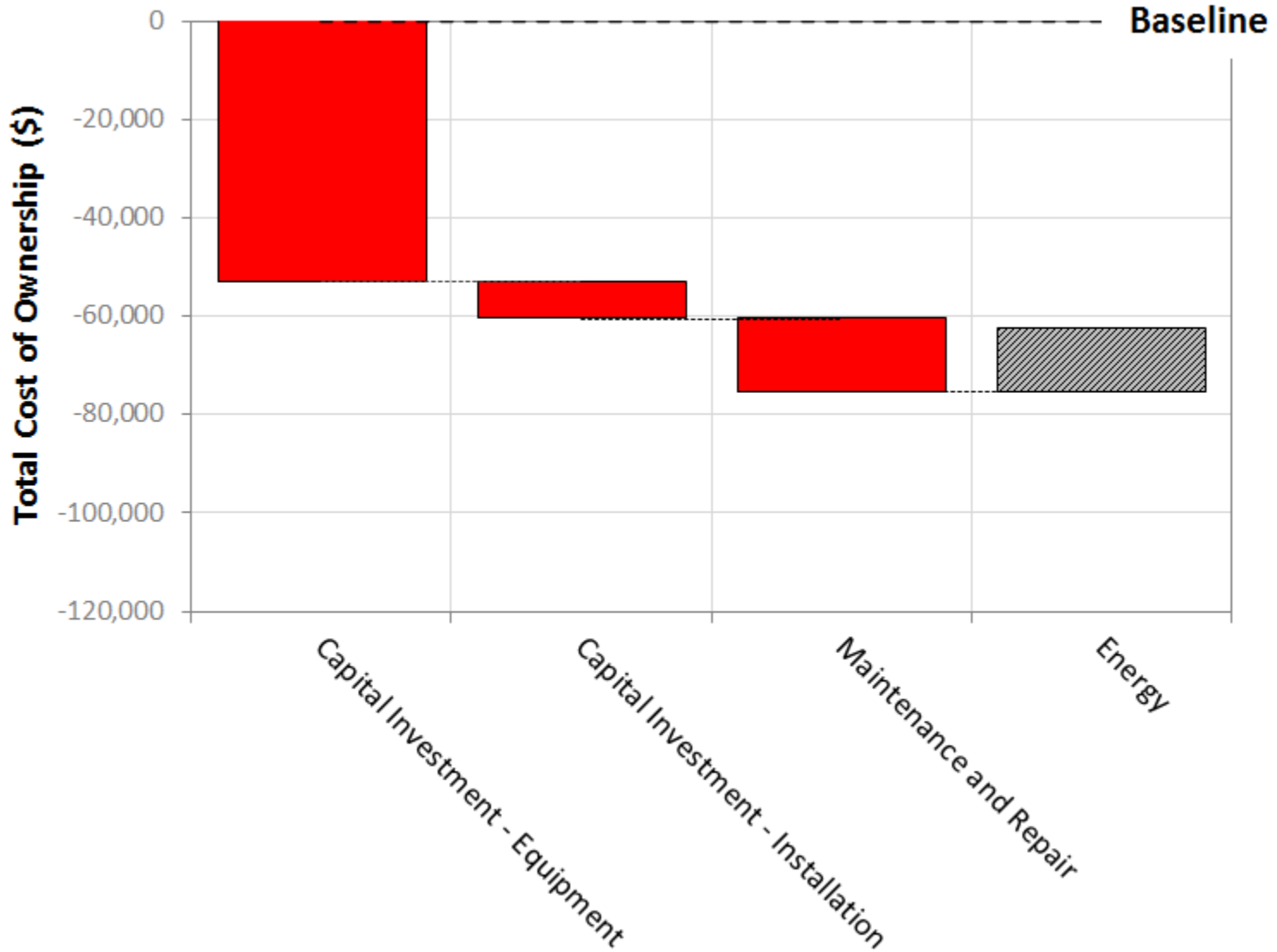




**Hybrid R134a/CO<sub>2</sub> DX is the optimal solution for Target.**

	Energy	\$2,000/year
	Capital Investment	
	- Equipment	+25% - 30%
	- Installation	+5%
-	Uptime (Guest Impact)	No Impact
	M&R	\$2,300/year
	Sustainability (Carbon Impact)	-65%

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## Conclusion

- Improvement with each system
  - Understand your business drivers when investing in CO<sub>2</sub> systems
    - Recognized improvements in energy
- Stay vigilant as an industry
  - More complex systems require higher complexity in:
    - Design
    - Manufacture
    - Operation







**ATMO**  
**sphere**

business case

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**natural refrigerants**

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June 18-19, 2014 - San Francisco

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Thank you very much!