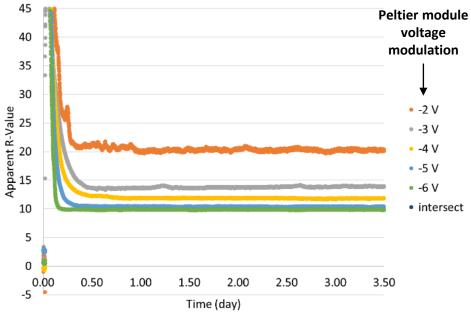
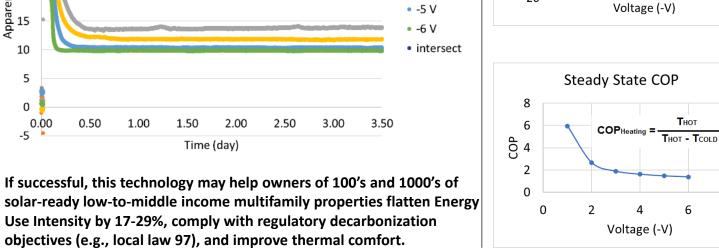


ThermoVerse, LLC is developing a minimally invasive envelope retrofit capable of large-area transactive cooling, heating, and energy storage (LATCHESTM). This technology combines Peltier cooling & heating with state-of-theart thermal energy storage (TES) and low-power sensing to create a thermal management system capable of (1) remediating known inefficiencies of buildings built before the 2009 energy codes were implemented, (2) increasing load flexibility, and (3) prolonging the time it takes buildings to go beyond acceptable thermal comfort ranges in the event of extreme climate activities (target: \pm 30F of 72 F).





30

20

0

-10

-20

R-Value 10 Steady State R-Value

3

4

5

6

8



Zone	Attic	2x4 Walls	2x6 Walls	Floors	Crawl Spaces
7 6	R 49 -R 60 R 38 -R 60	R 13 -R 15	R 19 –R 21	R 25 –R 30	
5					
3	R 30 –R 60			R- 25	R 19 –R 25
2	R 30 -R 49			R- 13	R 13 -R 19