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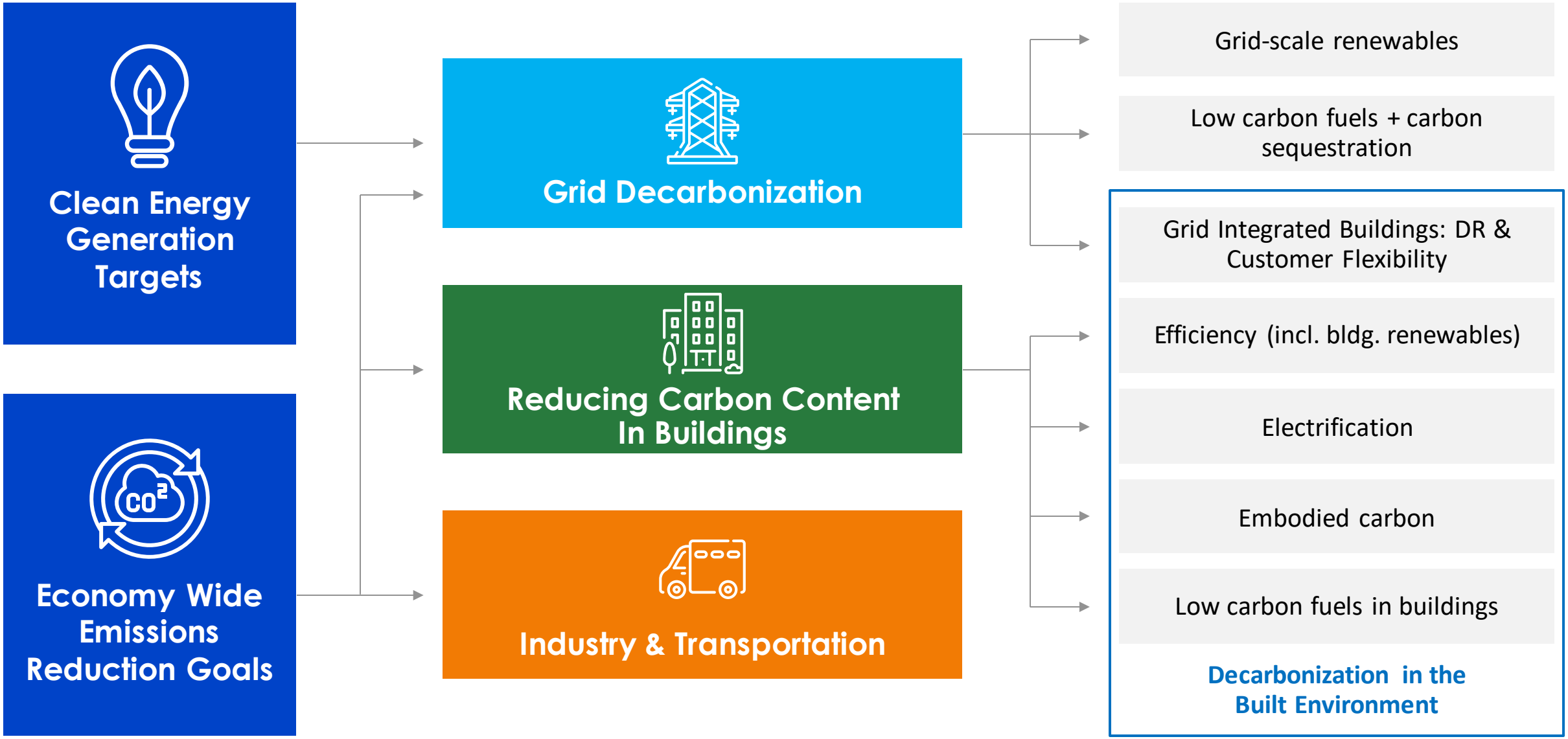
Scaling Decarbonization

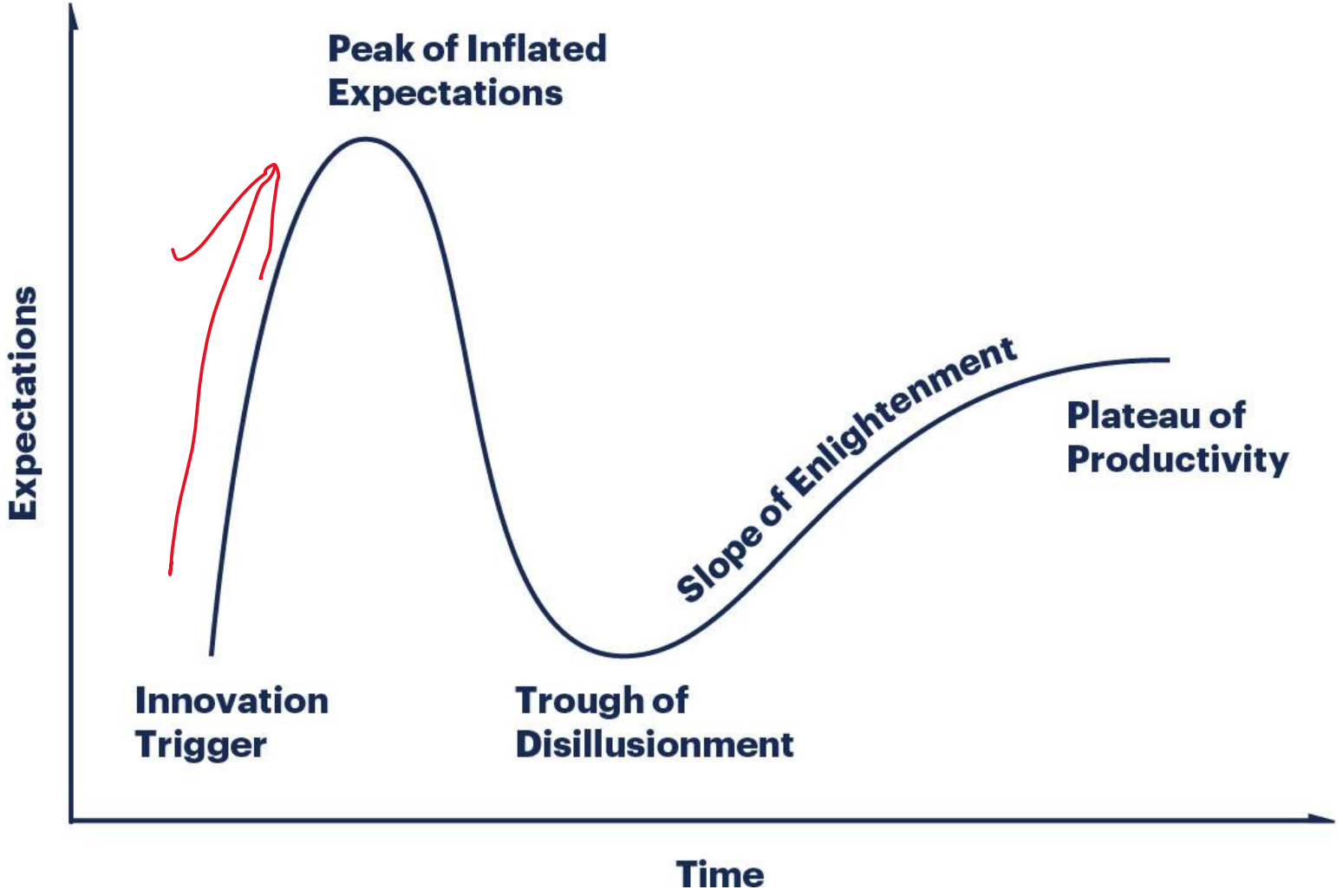
Emerging Technologies on the path to building decarbonization

June 22, 2021

Decarbonization Goals Drive Actions



Where are we with electrification?



Our Big Challenge

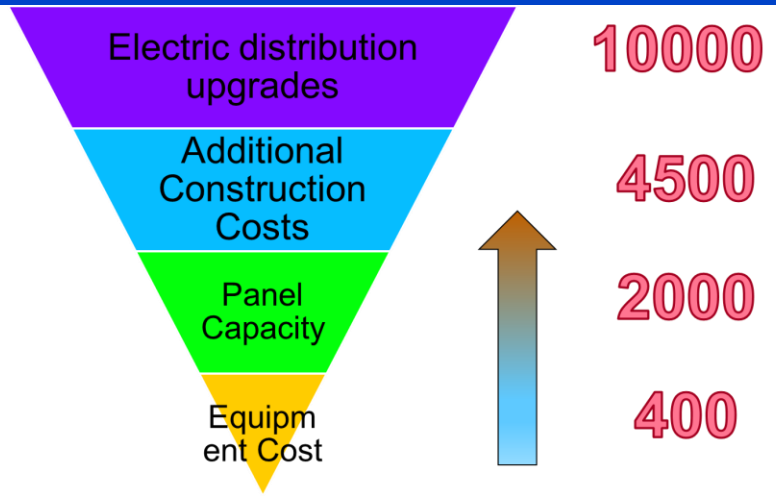
Decarb at $1/sq.ft.

Heightened expectations are starting to hit reality

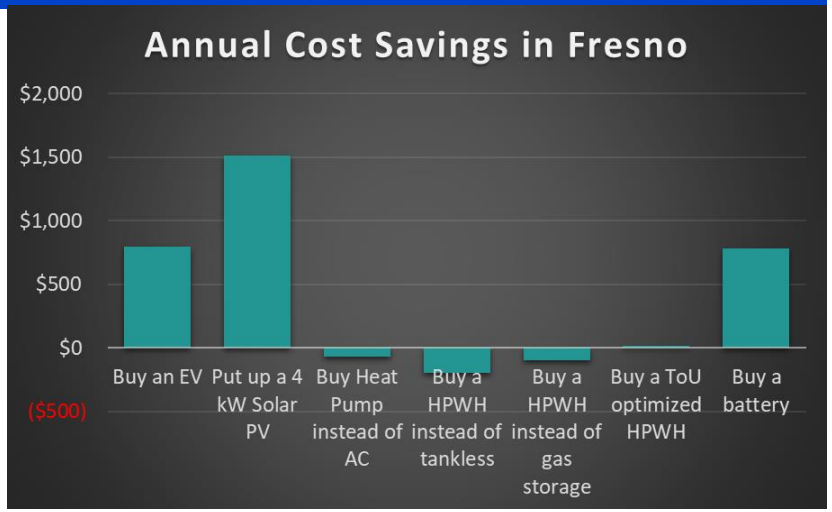
Key electrification challenges

Need for innovative Heat Pump Solutions

Emerging Technologies to address distribution system costs

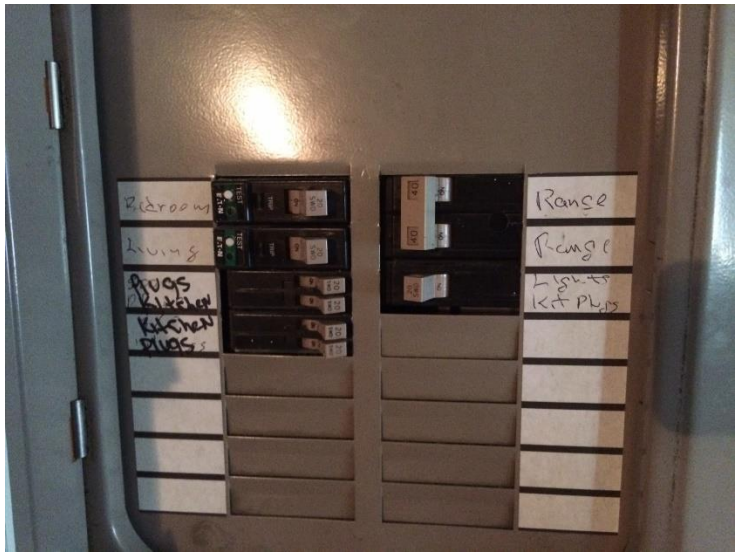


Enabling customer economics



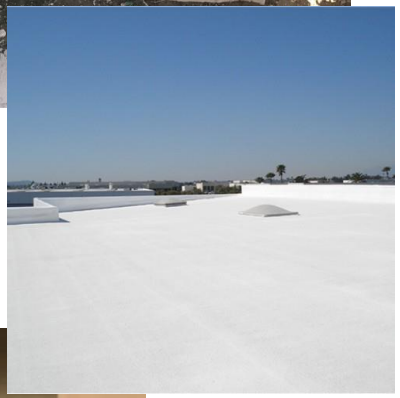
Invest in distribution systems to reduce barriers to electrification
Reduce distribution system impacts with efficiency to reduce customer cost of electrification

Example: Existing affordable housing



Heating (Electrification + Efficiency)

Water Heating (Efficiency + future LCF)



Emerging technologies to overcome cost barriers

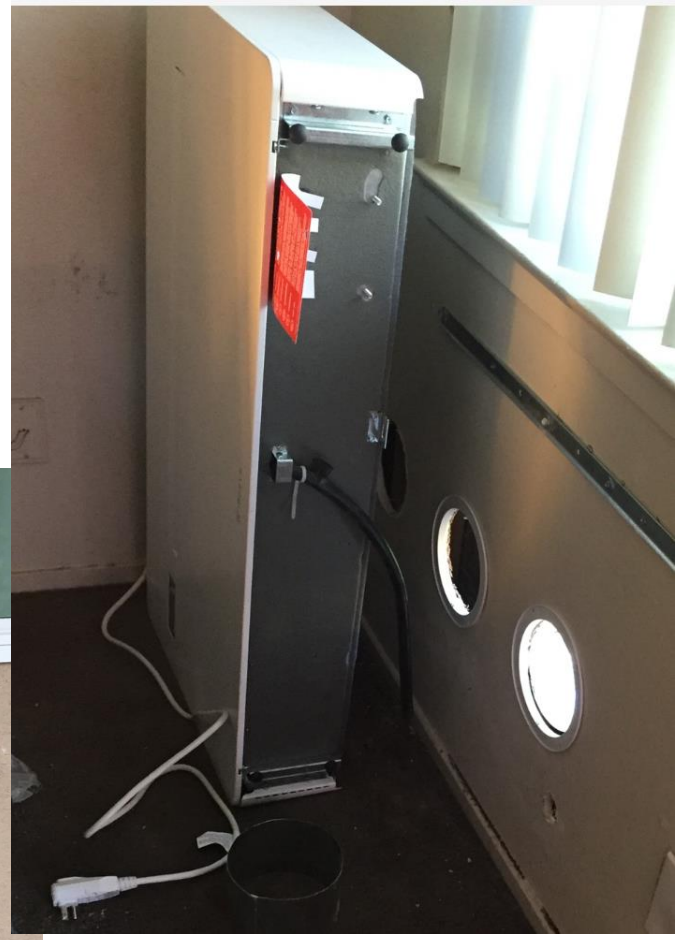
High Efficiency 120V heat pumps (140 units deployed)

Smart panels for demand control

Low power HPWH (120V potential) with storage

Example technologies within a portfolio to help in reducing the demand for electric infrastructure upgrades

120V Heat Pumps



First US installation of 120V HPs – avoids panel upgrades and asbestos mitigation costs

Water Heating Electrification

Reduce peak load and overcome panel capacity and size issues with centralizing HPWH

Smart EMS to enable electrification

- The research question: Can we find “energy management” technology solutions to reduce upgrade costs in electrifying existing buildings and for new communities while increasing demand flexibility?

Koben Genius

Atom Power

Lumin

Neocharge

Leviton Panels

Span