

Guiding Principles: Staged Approach to Deep Reductions

- 1) Start with the *end in mind*, and examine the steps that will be on the path to that goal. Plan ahead to avoid creating barriers for future phases.
- 2) ***Make a value proposition***. Embrace non-energy impacts: in many cases, the value of non-energy impacts outweighs the energy related impact. Refer to the worksheet, Homeowner Priorities, (<http://thousandhomechallenge.com/resources>)
- 3) ***Do no harm*** – Recognizing pre-existing hazards is more critical in a staged project than an “All at Once” because hazards may not be addressed fully until a later stage. During an “All at Once” implementation, hazards can be addressed by design (eliminate atmospheric vented appliance, add mechanical ventilation, etc.). Use the worksheet, THC Health, Safety, and Durability Plan (<http://thousandhomechallenge.com/resources>)
- 4) The ***house is a system***; recognize the potential for well-intended actions to yield unanticipated side effects.
- 5) ***Consider creative approaches*** such as equipment leases for transitional equipment or components installed with a plan for future re-use.
- 6) ***Avoid suboptimal investment*** and rework. Do each step, and do it right and comprehensively the first time. The decisions made regarding a home’s structure usually last longer than mechanical systems, appliances, or renewables. Marc Rosenbaum suggests a simple maxim, “Invest as much as you can afford to reduce the load, even if it means completing a project in phases.”
- 7) Consider ***clusters of work by trade*** in order to reduce transaction costs (e.g., install wiring needed for anticipated actions so that an electrician’s services and permits are only needed once).
- 8) Make sure that the systems installed will ***work well over the range of conditions*** and loads that the home and household will see now and in the future. Two examples: 1) a ductless heat pump works more efficiently, not less efficiently, under partial load conditions, so it does not pose a penalty if the system is oversized; 2) some tankless water heaters do not operate well with less than a specific flow rate of hot water; an ultra-low flow showerhead may not result in a satisfactory shower, and thus reduce opportunities to lower water use.