

Framing: Sustainable Affordable Housing and Construction Generally

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Situation Appraisal & Problem Statement

- A2 lacks housing. Demand have far outstripped supply because of the growth of U-M, tech spin-off and the city's attractiveness as a place to live and not enough new housing has been built in the city. As a result, housing costs have increase at roughly double the rate of the CPI and earnings increases.
- The A2ZERO CN Plan makes clear that all new buildings in A2 should be all-electric, energy efficient and eventually powered by RE. This is backed up by science that says we need to cut GHG emissions 65% by 2030 and eliminate emissions by 2040 to have a 66% chance of holding global warming to $\leq 1.5^{\circ}\text{C}$.
- Building costs have risen substantially (+ 25-30%) since before the pandemic.
- There is a widely held paradigm in SE Michigan that sustainable housing – not only affordable but also market rate – can't be developed profitably.
- Based on total systems thinking, housing costs are the sum of:
 - Mortgage / rent payments;
 - Utility costs;
 - Transportation – commuting and other daily transit – costs; and
 - The opportunity cost of time-in-transit (a valuable resource, especially for many low-income people)
- All-electric buildings substantially increase utility costs for heating, hot water heating and cooking compared to building utilizing natural gas as the energy source because of NG's low prices over the last decade.

Solution Set Posit and Benefits

- Energy efficient (EE) buildings, for example those built to Passive House (PH) standards with high-performance envelopes and balanced ventilation, cut energy use by ~ 75% thereby offsetting the all-electric utility cost premium vs. NG as proven by thousands of projects in the U.S. and worldwide.
- Best design and construction practices, such as efficient MEP design / layouts and offsite, modular (factory) construction, offset EE / PH cost premiums as proven by hundreds of projects, primarily in the northeastern U.S.
- ***As a result, EE / PH, all-electric, net-zero ready buildings can be both constructed and operated at costs comparable to traditional code-compliant buildings.***
- ***Moreover, such EE / PH all-electric buildings provide significant other advantages beyond energy / GHG benefits, including:***
 - ***High Resiliency to extreme weather, power outages and utility cost uncertainty; and***
 - ***Increased occupant health & comfort through the elimination of drafts, radiant heat losses and gains and exposure to combustion gases (EPA Criteria Pollutants) and the reduced risk of mold, bacteria, dust, pests and cardiovascular stress.***

Objectives for Planning and OSI and the Planning and Energy Commissions

- Present the documented benefits of all-electric, EE / PH construction
 - Union Flats President and CEO Tim McDonald has offered to make this case in the September 13th Energy Commission Meeting, hopefully one that Planning Commissioners are encouraged to also attend / watch.
- Devise and implement strategies that either require or 'incentify' the construction of such buildings in A2
 - The Planning Department, Planning Commission, OSI and the Attorneys' Office should present options available to A2 (at the appropriate time) for discussion and decision-making.