

Sustainable Buildings WG Recommendations for Environmental Investment Plan

1. Transition Austin Community to Clean Renewable Energy - community wide programs
 - a. Expand energy efficiency programs
 - i. Details: Building Envelope, Air Sealing, heating and cooling, LED lighting, Hot Water, Appliances
 - ii. Benefits: Improved health and safety of buildings and their occupants, Increased building life, Measure building performance, Create an order high need properties, reduced bills
 - iii. Cost: AE budget is \$13.6 million/year for existing programs. Goal should be to double this dollar amount to \$27.2 million/year. These costs will be offset by reduced AE energy purchases, ancillary services purchases, and transmission costs.
 - b. Expand demand response programs
 - i. Details: Expand price-based demand response programs. Define 'demand response ready'. Sectors impacts: Buildings, Industry, Transport. Electric hot water tank programs, thermostats, home energy managements systems, commercial and residential battery storage, electric vehicle smart chargers, smart meters
 - ii. Benefits: Automate demand response, improve grid resiliency, reduce peak demand costs, Essential to NetZero goals, leverage current energy crisis
 - iii. Cost: AE budget is \$3.6 million/year for existing programs. AE budget should quadruple to \$14.4 million/year. These costs will be offset by reduced AE energy purchases when ERCOT prices are high.
 - c. Invest in utility scale battery energy storage
 - i. Details: Battery storage is an important part of a decarbonized grid. Decentralized batteries on resilience hub buildings, school and supportive housing can be used as a virtual power plant (VPP) to help with load shifting during normal use and provide critical resiliency backup energy during outage events. Longer term heat batteries can decarbonize industrial facilities throughout Austin by soaking up excess solar and wind during curtailment and putting energy into those industrial uses, which allows much higher penetration of renewables. Antora, another heat battery system can re-export electricity through its TPV tech.
 - ii. Benefits: Faster grid decarbonization through demand curve flattening and responding to electricity pricing; greater resiliency; cheaper, cleaner energy.
 - iii. Cost: Using the average cost of 4-hr duration batteries provided by AE (\$1,168/kW), 200 MW would cost \$233.7 million. Using the average cost of 8-hr duration batteries provided by AE (\$1,992/kW), 400 MW would cost \$797 million. Using the average cost of 100-hr duration batteries provided by AE (\$2,150/kW), 100 MW would cost \$215 million. The combined 700 MW battery investment would cost \$1,245.7 million. These

costs would be recovered by earnings in the ERCOT energy and ancillary services markets. Heat battery pilots could be funded as public/private partnership with local industrial facilities and piggyback on federal funding currently flowing to these companies.

- d. Utility-owned or contracted rooftop solar
 - i. Details: Austin Energy would pay for installation of residential rooftop solar. The utility would own the installations for the first 15 years (est.) and the customer would pay a tariff that is less than the Value of Solar credits they earn on their bill. After 15 years, ownership would flip to the customer.
 - ii. Benefits: GHG reduction, air pollution reduction (and health benefits), more affordable bills (for program participants and non-participants), more equitable access to solar, reduced land use for energy production
 - iii. Cost: Assuming \$3/watt and recovering cost over 15 years via tariff, \$58 million could establish a revolving fund that could support 5 MW installation per year. \$171 million could establish a revolving fund that could support 15 MW installation per year. These costs will be offset by reduced AE energy purchases, ancillary services purchases, and transmission costs.
- e. Create air sealing task force and training program
 - i. Details: Publish air sealing results of all new buildings and retrofits. Host trainings for trades on how to execute tight building envelopes. Research grants and federal funds for trainings and air sealing knowledge and skills
 - ii. Benefits: air sealing reduces energy costs while increasing resilience and indoor air quality. According to RMI and DOE air sealing is the lowest cost and embodied carbon path to lowering operational carbon. Air sealing is a sequencing and trade knowledge problem, not a technical or product problem, so training up our trade base is the best way to ensure higher quality, more air sealed buildings.
By publishing the final air sealing results of all buildings, GCs will want to save face and will start paying closer attention to these measures. This was a very successful strategy in Seattle recently.
 - iii. Cost: \$2 Million - plus there is a lot of IRA and BIL money for this kind of training
- f. Passive House Incentive Program
 - i. Create a program that offers cash incentives to affordable housing projects in Austin that certify as passive house buildings. The Massachusetts Passive House Challenge Program is a model program we can look to.
 - ii. Benefits: This funding helps reduce energy use costs for affordable housing providers while also creating a market shift - each project completed is a design and construction team in Austin that knows how to build much more energy efficient buildings. As these projects are completed the added cost comes down through a learning curve that has

been seen in other markets using this strategy, eventually allowing for broader incentives and code mandates of more efficient buildings. Passive House buildings can play a critical role in the energy transition as well due to their low load and ability to load shift to help with peak demand curve reduction and resilience.

- iii. Cost - \$8 Million would fund 2,000 units of housing at a \$4,000/unit level. This also piggybacks on IRA funding as any project doing this would also be eligible for \$5k/unit of 45L tax credits.
- g. Shut down/retire AE's portion of Fayette coal plant
 - i. Details: Austin Energy and LCRA co-own two coal-burning units at Fayette. LCRA has demanded payment from Austin Energy for changing their contract so AE can fully own one unit and be able to shut it down. We don't know the exact amount, but it was rumored to be in the 100's of millions.
 - ii. Benefits: GHG reduction, air pollution reduction (and health benefits), water pollution reduction (and health benefits and liability), long-term affordability improvement
 - iii. Cost: \$100-300 million
- 2. Decarbonizing municipal buildings
 - a. Details: 100% electric buildings for all uses (only backup power systems could be excluded); meet suggested 2030 EUI reduction; investigate whether on-site renewable is possible for the building and propose a plan to integrate 35 MW of solar and 34 MWh battery storage (for 10 buildings); request energy model and life cycle assessment to all retrofits and new construction.
 - b. Benefits: GHG reduction and possible elimination of scope 1 emissions if done right, more resilient buildings, meeting Climate Action goals for decarbonization, serving as a reference for the commercial sector, laying the ground to replicate high-performance, low embodied carbon, all-electric buildings in the commercial sector.
 - c. Cost: For 10 buildings: \$25M to convert off gas, \$20M to add solar
- 3. Water conservation
 - a. Gray Water Reuse/Purple Pipe Expansion
 - b. Landscaping rebates
- 4. Workforce training (need to merge with overall recommendation on ACC)
 - a. Add clean energy track to Austin Civilian Conservation Corp to train Austinites in solar, battery, energy efficiency, demand response trades.
 - b. Benefits: Local workforce can enable cheaper and faster transition to clean energy; training programs can improve equity in accessing and excelling at clean energy jobs; supporting local businesses by training workforce can increase local economic benefits, including job creation and sales tax revenue
 - c. Cost: \$1 million/year?