

**DECARBONIZE EXISTING BUILDINGS ALLIANCE**  
**AUGUST 2, 2023 ROUNDTABLE**

**Planning Your Pathway to Net-Zero Emissions**  
**Questions & Answers**

At the August 2 DEBA Roundtable, participants broke into small groups to share ideas and lessons learned around planning a pathway to net zero emissions. There were interesting and wide-ranging responses thinking about how to start, some from a portfolio perspective and some from a building level perspective.

What follows is a high-level synthesis of portfolio and building level organizational strategies followed by Miro Board responses to questions posed.

**ORGANIZATIONAL SYNTHESSES**

**Portfolio Level Organization and Planning**

1. Build a team (who?)
  - a. Owner commitment level
  - b. Participant engagement levels
  - c. Decision making responsibility
2. Think through resources
  - a. Financial
  - b. Level of expertise - internal and external
  - c. Prioritization
  - d. Timing of cash flows
3. Set scope
  - a. Operational, embodied carbon, recycling, life-cycle
  - b. New and/or existing construction
  - c. Resilience
  - d. Community engagement
4. Consider high-level goals and outcomes
  - a. Energy, carbon and water
  - b. Other
  - c. M&V

**Building Level Organization and Planning**

1. Build the team
  - a. Acquire needed expertise
2. Benchmark current energy use and carbon emissions
3. Set up on-going monitoring and reporting processes
4. Develop measurable targets and goals
5. Develop plan and timeline for phased improvements
  - a. Efficiency

- i. Material standards/basis of design incl. embodied carbon
    - ii. Operational
    - iii. HVAC improvements
      - 1. Energy recovery
      - 2. Full and partial electrification
    - iv. Building envelope
  - b. Renewables
  - c. Need for offsets
  - d. Waste management, if applicable
  - e. Additional investigation needed
    - i. Preliminary diagnostics
    - ii. Modeling
6. Funding

### DISCUSSION COMMENTS

**1. What's the first thing that comes to mind or the first thing you do to kick off the process of developing a decarbonization plan?**

- a. The first task should probably be to put together a task force to develop the decarbonization plan.
- b. Existing or new construction?
- c. What is the decarbonization goal? Operational carbon, embodied carbon?
- d. What scale should each be regulated at? Can regulate building operation emissions and projects can choose low embodied carbon materials
- e. What is the tenant's role and what is the impact on tenants?
- f. What is the client's commitment, what do they know?
- g. Money, consultant team, energy assessments - who is knowledgeable?
- h. What's the energy use, what existing capital planning exists?
- i. Building to building basis, put together baseline for carbon levels, start to look at opportunities for future projects
- j. Benchmark step, spend time on goal setting (measurable, ways to measure success),
- k. Existing carbon levels, categorize materials, sort in terms of high to low carbon emissions, potential for recycling materials
- l. Determine building use and goal, evaluate what your budget is, hire an energy/sustainability consultant; improvement in mechanical systems, adjust building envelope, identify fossil fuel sources in building, establish make/buy (potential for carbon offsets)
- m. Start with benchmarking
- n. Drive down loads => improve system efficiency => electrify heating
- o. How can we incorporate heat recovery before looking at active heating?
- p. Where do the most emissions come from? (Not all operational)
- q. So many things that need to fall into place.

**2. What skills and people are important to consider when planning for decarbonization?**

DEBA participant responses pointed to a wide range of required people and skills; and how that varies based on where you are in the project's life cycle.

- a. For an existing building, that group would probably have to include the building owner, the CFO, facilities personnel, and outside consultants across the building spectrum (architect, MEP, structural, etc). Even better would be to hire a consultant specializing in decarbonization roadmaps that can provide much of that expertise under one roof.
  - b. Depends on stage of planning - later on will need a cost estimator, a builder, architect/PM role, client, facility manager.
  - c. Building energy modeling, systems Engineers, knowledge of software tools such as Tally, Cove.Tool.
  - d. Resiliency needed in passion and approach/mindset,
  - e. SE 2050 addressing structural interventions re. carbon reduction
  - f. Flexibility, goal alignment, project managers (those in charge of timeline and budget), sensitive and understand what is necessary for the project, client may not understand the purpose, ability to educate, think over long term, effective planners, doing decarbonization (taking systematic approach would be helpful), technical people helpful as well, finance department- covering costs over long term, understand overlap between their work and other pieces, opportunities to improve envelope to implement electricity.
  - g. Skills: flexibility/adaptability, review as-builts, project value for your budget, phasing plans vs. whole building retrofit (managing existing tenants/relocation)
  - h. People: building owners, stakeholders, consultants (environmental, MEP, civil, etc.), architects, engineers, tenants
  - i. Building science to reduce loads
  - j. Understand the ROI / how BERDO impacts it
  - k. Not just design team, must include consultants and construction team
  - l. Construction/GC will have ability to estimate cost, identify problematic methodologies
  - m. Understanding operations from the facility team and ownership (what are the setpoints?)
- 3. Using the skills and people you've listed above, prioritize and arrange them on this timeline (Add timeline to Miro board). Are there associated activities that need to be done prior to the work?**
- a. 1. Decarbonization consultant 2. Architect 3. MEP engineer 4. CFO / budget specialist 5. Facilities personnel 6. Owner.
  - b. Existing conditions assessment, budget analysis, grants research and scheduling are some of the tasks that need to be done before diving into the actual decarbonization work.
  - c. 1. determine what the goal is (e.g., BERDO 2.0 compliance) 2. assembling the right team 3. capital needs assessment (architect, engineer) 4. building science/energy firms review CNA and plan single scope of work for DER or over-time plan 5. decide on approach 6. fund and finance 7. build, commission 8. review performance
  - d. Finance/Owner (strategic thinking) ; Operators/End users (scope of project) ; Consultants/Technical Experts (look for opportunities) ; Contractors

- e. Owner = Budget + Goal,  
Energy Consultant = Hire Consultant + Baseline Assessment / Benchmarking + Develop/Review Plan,  
Architects & Engineers = Economic Analysis/Feasibility Study of plan, Implement plan
- f. Benchmarking, Site Audit, Buy In

**4. What are three challenges you anticipate with these categories or with decarbonization in general?**

- a. Tight budgets
- b. Timing of decarbonization measures to meet decarbonization timelines e.g., BERDO
- c. Determining best technologies, which are likely to change over time
- d. Inflexibility of certain team members- whether it be with timelines, budgets, or site plans. Can be a difficult barrier to decarbonization efforts
- e. Budget; source of funding (public vs. private)
- f. Existing Buildings conditions, working with what is installed
- g. Adapting to new regulations/ climate change legislation
- h. Hesitation of new technologies/fear of early adoption
- i. Facilities learning gap
- j. Lack of buy in

**5. What solutions can you imagine to overcome these challenges?**

- a. Generous federal, state and local subsidies, tax incentives etc.
- b. Sharing success stories- we're all in this together
- c. All hands on deck approach
- d. Engage with local utility early (Mass Save, Mass CEC Revive)
- e. Join peer groups (BE+)

**6. What questions are we missing?**

- a. Need to Dial in on all levels, taxonomy of Language at scalar approaches, re. CARBON