

Planning Approaches to Advance Zero Net Energy



- *ZNE Tools for Planning & the ZNE Planning & Policy Workbook*
- *ZNE Charrette Process: San Mateo Pilot*

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ZNE Early Adopters Leadership Network

CPUC-NBI-DGS public sector
peer learning group to support :

- Local governments
- State agencies
- K-12 schools
- Higher Education
- Utilities

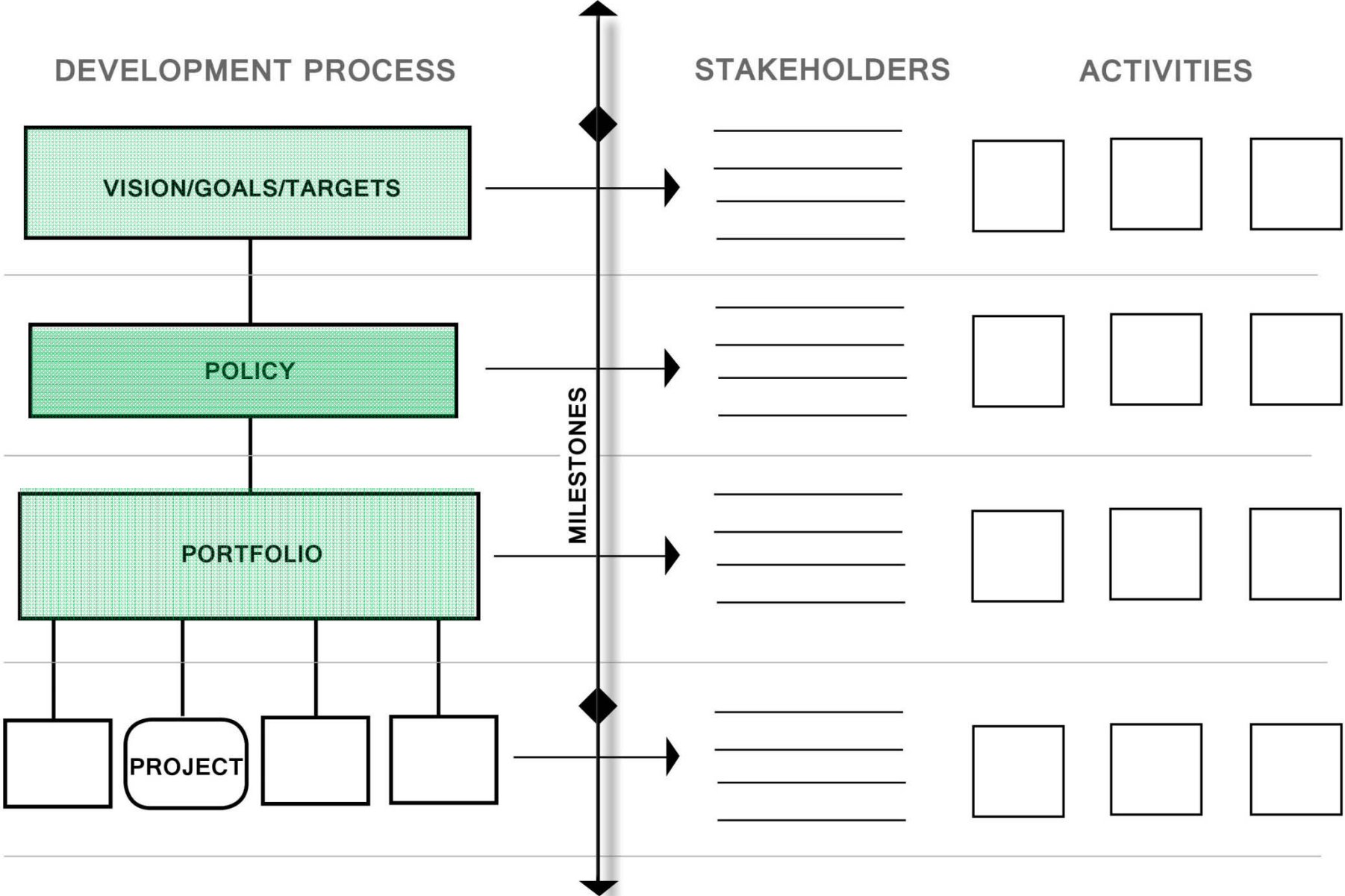


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BUILDING BLOCKS FOR ZNE PLANNING





EARLY ADOPTERS NETWORK

TOOLS & RESOURCES FOR

ZNE

PLANS



Orchestrating
RESOURCES



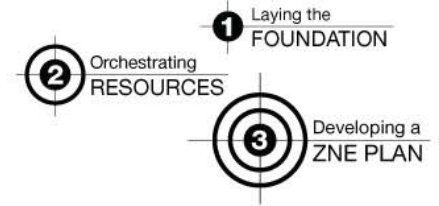
Laying the
FOUNDATION



Developing a
ZNE PLAN



ASSEMBLING THE BUILDING BLOCKS TO DEVELOP YOUR ZNE PLANS & POLICIES



BUILDING BLOCKS FOR ZNE PLANNING



ZNE Communication Toolkit

ZNE Messaging Platform—Provides strong, overarching core messages and supplemental supporting message targeting key audiences.

Intro to ZNE Presentation Template—A basic slide deck introducing the core messages and activities in California.

ZNE Companion Guide/Fact Sheets—Provides an overview of the ZNE Communications Toolkit and contains the complete set of factsheets. The following fact sheets provide broad information about ZNE and audience-specific content

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Learn more at:

www.newbuildings.org/zne-communications-toolkit or visit www.newbuildings.org/zero-energy

Planning Templates & Worksheets

STEP 1 - Laying the Foundation

- Vision & Target Setting (Worksheet 1A & Instructions)
- Backcasting to ZNE - Portfolio Scale & Building Scale (Worksheet 1B)

STEP 2 - Orchestrating Resources

- Stakeholder Communication Goals (Worksheet 2A & Sample)
- Stakeholder Mapping (Worksheets 2B)
- ZNE Communications Planning Strategies for Internal & External Stakeholders

STEP 3 - Developing your ZNE Plans

- ZNE Gap Analysis (Sample Considerations & Worksheet 3A)
- Alignment Plan for Addressing Gaps (Sample Strategies & Worksheet 3B)
- Integrating ZNE Into your Delivery Model (Sample & Worksheet 4)

Education & Training Presentations

1. **Introduction to ZNE** (Part of the ZNE Communications Toolkit)

2. **Assembling the Building Blocks to Develop your ZNE Plans & Policies**

- Vision & target Setting & Backcasting
- Developing your Communication & Outreach Plans: ZNE Toolkit, Message Platform & Stakeholder Mapping
- Gap Analysis & Alignment
- Delivery Methods



Assembling the Building Blocks of your ZNE Plan

1. **Set your goals & milestones** (Worksheet)
2. **Backcast** how you will get to ZNE (Worksheet)
3. **Identify your key stakeholders and communication goals**, then map stakeholder interaction (Worksheet)
4. **Develop your Communication & Outreach Plan**, then engage stakeholders
5. **Conduct a gap analysis** & create a plan for alignment (Worksheets)
6. **Review your current/future building & retrofit plans** for ZNE opportunities and develop criteria for prioritizing

Assembling the Building Blocks of your ZNE Plan

7. Identify & conduct any **special research/studies** needed
8. **Select a pilot project**
9. **Evaluate available delivery method options** for best likely ZNE result (Worksheet)
10. **Explore alternative financing approaches** to help offset costs
11. **Create RFQ/RFP that sets clear owner requirements and targets for ZNE**
12. **Conduct an integrated design process and use proven technologies & design strategies**

Planning Approaches to Advance Zero Net Energy

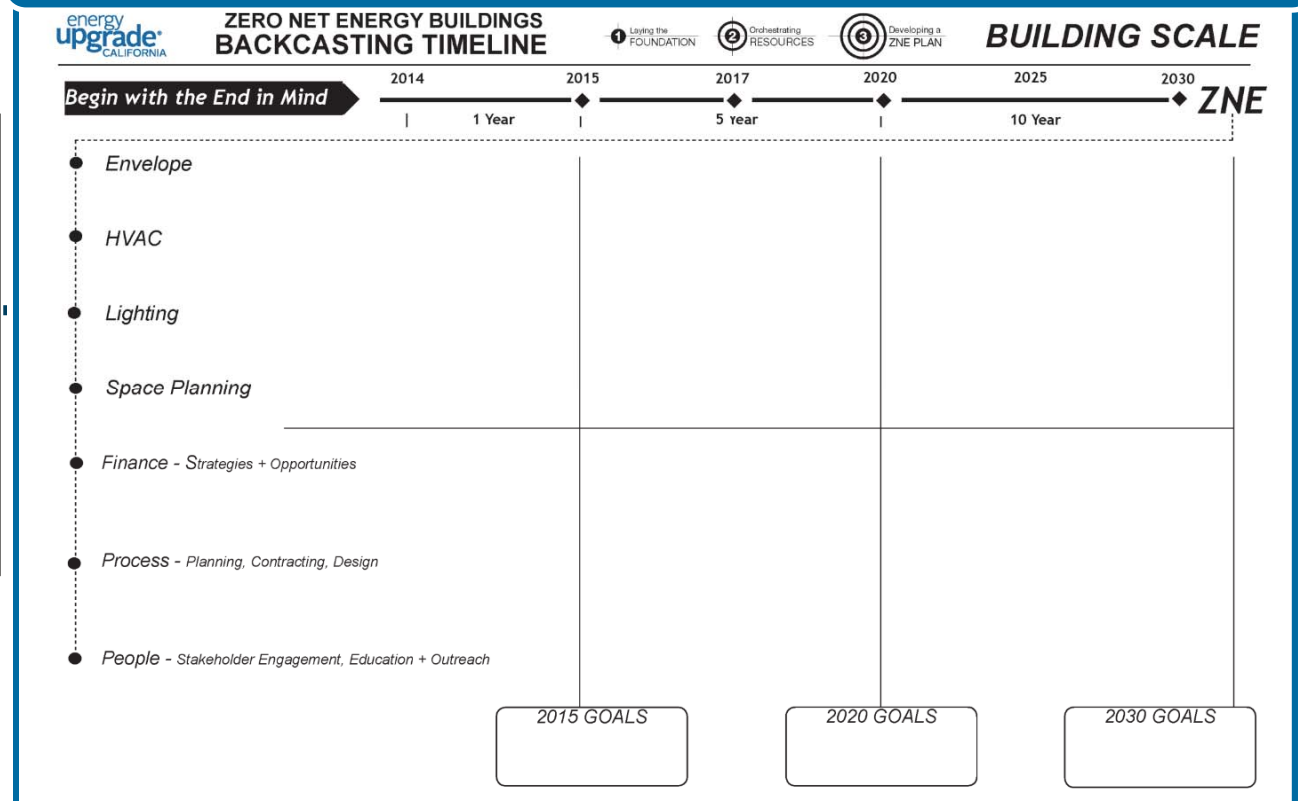
1. Set your ZNE Vision, Goals, Targets/Milestones
2. “Backcast” how you will get from 2030 to today
3. Identify your Stakeholders & Target Messages
4. Develop your ZNE Communication Plan
5. Conduct a ZNE Gap Analysis & Plan for Alignment
6. Map your Building Process to ID Barriers to ZNE
7. Tie 1-6 Together & Develop your ZNE Action Plan

1. Set your ZNE Vision, Goals, Targets/Milestones

Visioning/Planning

- Engage Stakeholders
- Backcast to ZNE
- Set ZNE goals and milestones
- Map stakeholders
- Develop Communication Plan
- Educate leadership
- Develop training & education plan for planning through -ongoing operation

2. “Backcast” from 2030 to today



3. Identify your Stakeholders & Target Messages



SCHOOLS SAMPLE - ZNE STAKEHOLDERS

Identify your project goals, audiences, stakeholders and decision makers.



Project Goals: ZNE Campus By 2025

1 yr – Engage stakeholders in learning about ZNE; 2 yr - benchmark all school buildings; 5 yr – Install dashboards for visitor and user to learn from; 10 yr – ZNE Campus

Communication Goals:

- Engage leadership to set ZNE targets
- Establish a ZNE task force to develop ZNE plans and a key education and outreach strategy
- Help internal operations and planning staff learn about opportunities for ZNE in upgrades and new buildings
- Integrate ZNE into curriculum
- Communicate key role of behavior and operations in achieving goals for ZNE

Key Communication Messages:

- Leadership opportunity
- Living learning classrooms
- Science-based curriculum for innovation and environmental sustainability
- Resources are available to help schools achieve high levels of energy efficiency

Key Audiences:

- Facilities Manager*
- Vice-Superintendent*
- School Board
- Science Teachers
- Grant Funders
- Utilities

* Key Decision Makers:

Internal Stakeholders:

- Administration
- Teachers
- Students
- PTAs

External Stakeholders:

Architecture & Design Consultants

Stakeholders Map—create your own Stakeholder Map on the following page using the illustration below as inspiration



Activities for Engagement

- Note needed activities to engage each stakeholder group - form of communication & frequency

- outreach
- education
- research
- planning



4. Develop your ZNE Communication Plan



ZNE COMMUNICATIONS & OUTREACH PLANNING INTERNAL STAKEHOLDER ENGAGEMENT



Use the following form to outline how you will engage stakeholders throughout the planning process. Identify specific Staff on the lines below.

Internal Stakeholders	Strategies for Engagement	Actions, Timing
<p>Leadership. Decision makers, those who can provide input on priorities, timelines, goals, financing, etc.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Work with leadership to secure commitment to ZNE goals and identify opportunities where they can provide ongoing support <input type="checkbox"/> Identify opportunities and challenges that need to be addressed in organizational/ governmental planning <input type="checkbox"/> Plan for opportunities to put leadership representatives before other stakeholders <input type="checkbox"/> Regularly communicate to keep the issue top of mind; provide feedback/updates from facilities group 	<ul style="list-style-type: none"> <input type="checkbox"/> Conduct an introductory workshop with leaders that will introduce ZNE concepts; share proposed goals and targets from backcasting exercise, engage discussion of short term priorities and long-term vision; share gap analysis and recommendations for alignment <input type="checkbox"/> Report out on the workshop with shared vision and commitments <input type="checkbox"/> Conduct annual meetings to verify progress <input type="checkbox"/> Create a calendar with priorities for leadership input <input type="checkbox"/> Provide quarterly progress updates and at key milestones
<p>Facilities & Operations Staff. Leader for planning, develops project timelines, RFPs for special studies/other needed consultant's work plans</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Create a cadre of advocates who understand the ZNE goals and concepts and can share with others <input type="checkbox"/> Provide resources that advocates can tap into to advance ZNE projects and goals (RFP guidelines, messaging, etc.) <input type="checkbox"/> Facilitate communications that keep advocates up up-to-date on progress; share and learn from each other 	<ul style="list-style-type: none"> <input type="checkbox"/> Identify critical staff and bring them together for initial meeting that reports on outcomes of leadership workshop <input type="checkbox"/> Identify initial inventory of resources; ask for gaps and prioritize <input type="checkbox"/> Hold monthly/bi-monthly internal operations planning meetings with one of these each quarter including occupant champions <input type="checkbox"/> Provide quarterly updates to leadership on advocate activities/progress
<p>Occupants/users. Provides feedback on schedules, comfort, aesthetics, acoustics, usability, needed education</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Educate occupants so they can understand ZNE goals and better support implementation <input type="checkbox"/> Create champions within staff to act as a point of contact for occupants and work with operations to provide resources and carry feedback <input type="checkbox"/> Facilitate communications that keep champions up up-to-date on progress; share and learn from each other 	<ul style="list-style-type: none"> <input type="checkbox"/> Identify and tap possible champions to be point of contact for staff <input type="checkbox"/> Create an introductory package of information about behavior impacts on ZNE building performance and share in a staff event (perhaps over two events) <input type="checkbox"/> Survey users regarding needs, comfort levels, priorities <input type="checkbox"/> Provide monthly communications with champions on resources, performance metrics (are we on target?) and key milestones that they can share <input type="checkbox"/> Hold quarterly meeting with champions and facilities advocates

4. Develop your ZNE Communication Plan



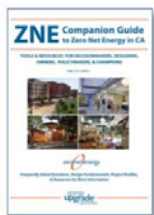
ZNE COMMUNICATIONS & OUTREACH PLANNING EXTERNAL STAKEHOLDER ENGAGEMENT



Use the following form to outline how you will engage stakeholders throughout the planning process. Identify specific Staff on the lines below.

External Stakeholders	Strategies for Engagement	Actions, Timing
<p>A&E Consultants. Support for planning and design recommendations, special studies, etc.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Tap A&E consultants as a resource and as possible educators for facilities and staff <input type="checkbox"/> Create mechanisms that ensure the design teams vision is manifested in the building operations (i.e., assumptions match reality or are appropriately adjusted) <input type="checkbox"/> Create engagement opportunities between key parties throughout the design, construction and commissioning process 	<ul style="list-style-type: none"> <input type="checkbox"/> Conduct a ZNE design charrette for projects that includes leadership, facilities and occupant representatives <input type="checkbox"/> Allow A&E consultant to attend staff event to answer questions and report on charrette outcomes <input type="checkbox"/> Publish monthly communication between project manager/A&E consultants and facilities/occupant contacts on progress of design, construction and commissioning <input type="checkbox"/> Create opportunities for champions/advocates to provide feedback
<p>External Partners/Audiences. Entities that can help support and broaden knowledge and understanding of ZNE goals</p> <ul style="list-style-type: none"> • Utilities • Other Agencies • Nonprofits • Medias • General Public 	<ul style="list-style-type: none"> <input type="checkbox"/> Ensure that targeted external partners are aware of the project and ZNE goals <input type="checkbox"/> Connect with local utility to gain access to technical support and incentives as well as possible opportunities to help communicate the project more broadly <input type="checkbox"/> Prepare a messaging platform of key ZNE messages specific to your audiences (use ZNE toolkit resources) and distribute to all champions/advocates who can speak about the entities ZNE plans and goals 	<ul style="list-style-type: none"> <input type="checkbox"/> Identify key external audiences and categorize as partners or general stakeholders <input type="checkbox"/> Reach out to partners who can further support communications efforts (utilities, nonprofits, etc.) <input type="checkbox"/> Identify and integrate information about the ZNE efforts into regular communications to stakeholders and general public; this could be direct, through agencies or via media outlets

Key Communication Tools



ZNE Communications Tools & Resources – www.newbuildings.org/zero-energy

- ZNE Action Bulletin**- News, case studies, policy, research, events and trainings
- Message Platform** - Key target audience messages
- Intro to ZNE Presentation** - ZNE what, why & how
- Case Studies** - California project examples, including design strategies, planning, cost, and lessons learned
- ZNE Companion Guide/Fact Sheets** - General info, key audiences messages



5. Conduct a ZNE Gap Analysis & Plan for Alignment



ZNE Gap Analysis - Considerations



Evaluate the following with ZNE in mind. Where are the interventions or assessment needs? Where are there missing pieces? Are special studies needed? Are any in progress?

New construction plans: *[Review of capital projects planned for any possible ZNE or ultra-low energy opportunities]*

- Do you have any new building construction plans?
- Have you established energy performance goals/targets yet?

Renovation Plans:

- Do a design review of any plans for possible compatibility with ZNE (controls, systems, envelope)
- Can you leverage other natural cycles of improvements at the same time as a renovation/upgrade?

Building upgrade plans: *[Review of existing buildings and any planned or needed upgrades]*

- Do you have any major system upgrades anticipated? Have you benchmarked your buildings/portfolio yet?
- Which buildings are chronic under-performers, either in energy use or comfort? Which buildings might be a priority for energy upgrades?

Monitoring data:

- Do you have a way to compare energy performance of your buildings? Is it presented in a way that is understandable to a non-technical audience? Is the feedback loop to the users complete (i.e. dashboards, data method/presentation is actionable)?

Policy: *[Review of policies that support/hinder ability to implement solar or other renewables]*

- Do you have a green building policy?
- Have you set 2030 goals? Do you have a climate or carbon policy?
- Do you have a data collection and benchmarking policy?
- Do you have a policy for actively managing building energy?

Financing:

- Does your building valuation reflect the impact of energy performance (\$ savings, comfort, productivity, reflection of organization mission).
- Tie performance to which buildings to buy or lease.
- If you are paying to certify your building are you prioritizing energy performance?

Operations:

- Have your buildings been commissioned?
- Facilities, building managers training
- Do you have a mechanism to identify operational issues
- Do you have a technology or policy that allows you to monitor

Occupant Training & Education:

- Do the occupants have the opportunity for actionable feedback?
- Do you have a training program for building operations both for facilities staff and users?

Staffing:

- Have you evaluated or done a schedule/system integration study? I.e. reviewed employee schedules for impacts on energy performance? Do you have the funding or person-power to manage an energy reduction program

5. Conduct a ZNE Gap Analysis & Plan for Alignment



PLAN TO ADDRESS IDENTIFIED GAPS

Consider strategies to align goals and plans to overcome any gaps identified.

GAP	ALIGNMENT STRATEGY
Policy	<ul style="list-style-type: none"> Assess gaps and create a summary to brief leadership Identify any champions and leads Set up task force to evaluate internal/external building policy barriers and strategies.
Design	<ul style="list-style-type: none"> Work with capital projects staff to pursue/require and integrated design process (IDP) on any new high performance building projects
Financing	<ul style="list-style-type: none"> Explore creative financing strategies: <ul style="list-style-type: none"> Utility incentives Upgradeable design - renewables added in annual phases Prototypical building types that allow for inexpensive replication Technology innovation pilots or demonstration funding
Building Plans	<ul style="list-style-type: none"> Work with capital project staff to prioritize projects Meet with operations staff to review building/campus/portfolio energy performance Identify new construction/renovation projects might support ZNE Evaluate which system upgrades will have the biggest value (cost, efficiency, innovation/demonstration) Identify special studies needed. Determine if these can be done in-house or requires external consultant support. If external support is needed, develop a scope of work and RFP.
Data Monitoring	<ul style="list-style-type: none"> Benchmark all building energy use Establish a standardized metric for energy performance (e.g. zEPI)
Operations Training & Education	<ul style="list-style-type: none"> Ensure building delivery includes a full set of plans and quick start guide Review and establish meaningful and actionable feedback loops
Staffing & Training	<ul style="list-style-type: none"> Develop user training for both new and current staff, as well as ongoing training and education

6. Map your Building Process to ID Barriers to ZNE



Integrating ZNE into your Delivery Method



Visioning/Planning

- Engage Stakeholders
- Backcast to ZNE
- Set ZNE goals and milestones
- Map stakeholders
- Develop Communication Plan
- Educate leadership
- Develop training & education plan for planning through -ongoing operation

RFP

- Write contractor requirements and design specs for ZNE
- Consider how integrated design process (IDP) is part of a design firm's regular practice as a proposal evaluation criteria

Design

- Model building performance
- Conduct integrated design process (IDP)
- Set owners project requirements
- Establish basis of design
- Include design requirements to maximizing building performance before integration of

Bid

- Write contractor and construction specifications
- Select contract method – design-bid-build, CMGC, design-build, guaranteed max. price.
- Consider various contract delivery methods will support or hinder an integrated design process – a

Operate

- Establish actionable feedback loop
- Commissioning/Re-commissioning plan
- Ensure proper handoff of the building includes providing operators and occupants with resources and documentation to operate building including: copy of CD's to building
- Written description of systems and

Build

- Establish quality control mechanism related to energy system calibration, commissioning, and proper installation.

Finance

- Choose a lender that values energy performance
- Clearly make valuation argument including benefits of long-terms savings, energy independence, leadership, carbon/climate impacts, marketing, etc.

Educate/Train

- Develop user manual for operators and occupants
- Conduct trainings for operators and users
- Establish training process for new occupants and regular maintenance

Measure/Monitor

- Establish data collection protocols
- Share your data with others
- Provide visible dashboards

Certify/Market/Promote

- Verify/certify performance
- Share your data with others
- Tell your story, case studies, news media, websites



SAN MATEO COUNTY ZNE PLAN

ZNE Planning Pilot, Charrette & Planning Process

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DEVELOPING YOUR ZNE PLAN



San Mateo ZNE Charrette

Workshop Goals

1. Create consensus around ZNE goals and priorities
2. Develop a Draft ZNE Plan
3. Discuss policy and implementation gaps and opportunities
4. Identify stakeholders, any groups needing special engagement, and priorities for a draft communication plan
5. Develop a plan for alignment of policy and process gaps
6. Discuss role of Codes & Standards – tie in with Energy Watch goals

Outcomes:

- Support NBI ZNE planning pilot process: Test workbook use and value and get feedback for refinement;
- Create a sample ZNE Plan with SMC as model

DEVELOPING YOUR ZNE PLAN

PROCESS:

Interviews with:

- **Building Department**
- **Planning Department**
- **Public works,**
- **Office of Sustainability**
- **Office of Budget & Finance**

Pre-Charrette ZNE Meetings with Stakeholders

Agenda & Discussion Questions

1. Introductions
2. Background on Current ZNE State Goals, Emerging Policies & Codes
 1. ZNE as building code 2020/2030
3. What is ZNE & Why is it important
4. Collecting information for Developing Our ZNE Plan
5. Questions:
 1. What do you think about ZNE?
 1. Barriers? Expectations?
 2. Our capacity is to support county planning and building in the transition to ZNE- what could you use from us?
 3. At what point in the process do you think ZNE requirements for a new construction project would work best? Ex. Capital project checklist
 1. What about for major renovation projects?
 4. What is your role throughout the process of a new construction project?
 5. Who would you say are the top stakeholders on a new construction project?
 6. Are there any barriers you think might inhibit this plan?

ZNE Workshop: Team Building

- Establishes ZNE goals
- Identifies **strategies**
- Develops an **action plan**



ZNE Workshop: Outcomes

- Vested stakeholders
- Consensus
- Guiding Principles
- An action plan
- A report for reference



San Mateo County Energy Watch ZNE Framework

Energy
Watch



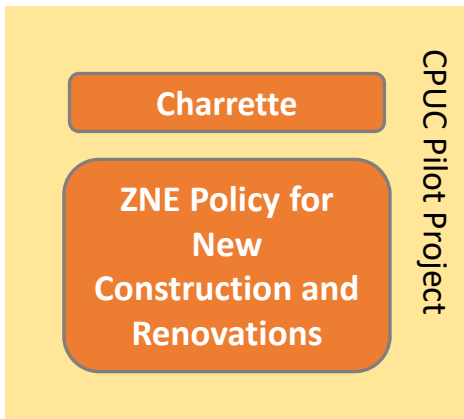
1. Support municipalities to develop ZE action plans and policy templates

2. Nurture early adopters and influence projects

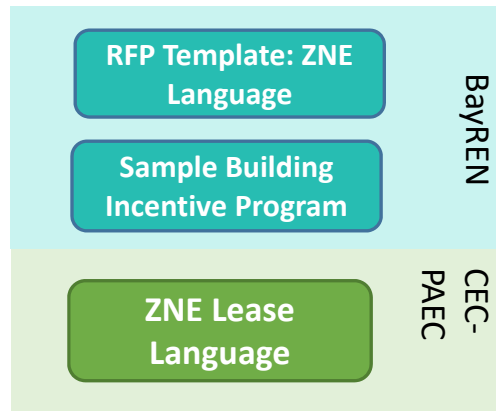
3. Train professionals about Zero Energy Buildings

4. Provide training and information materials

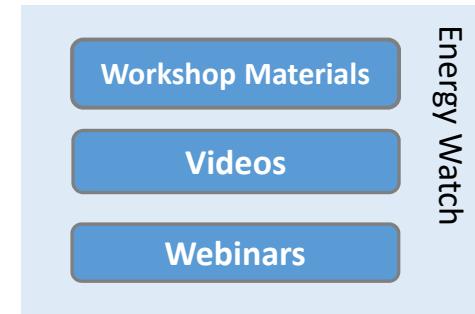
County Facility ZNE Strategic Plan



Templates



Educational Materials



ZNE Resource Toolkit

A PROCESS FOR ZNE PLANNING

1. Set your ZNE Vision, Goals, Targets/Milestones
2. “Backcast” from 2030 to today
3. Identify your Stakeholders & Target Messages
4. Develop your ZNE Communication Plan
5. Conduct a ZNE Gap Analysis & Plan for Alignment
6. Diagram your Building Process & Integrate ZNE
7. Tie 1-6 Together & Develop your ZNE Action Plan

DEVELOPING YOUR ZNE PLAN



Engaging Stakeholders:

ZNE Planning Charrette Process

Who might be involved? Energy managers, facility managers, planning & building staff, capital projects staff, sustainability, department heads and decisionmakers, local government commission, consultants, human resources

1. Set your ZNE Vision, Goals, Targets/Milestones

San Mateo County

1. Draft ZNE Vision for Municipal Facilities:

Our vision is to establish a County facilities policy that requires ZNE and Lifetime costs to be incorporated in RFPs for all new construction projects by 2018.

Ideally, we'd like our capital projects team to utilize a checklist to make sure all necessary attributes of the project are addressed- with ZNE being one of those attributes. ZNE should be included in both an early conceptual checklist as well as a second checklist addressed with the designer down the line. We hope that ZNE designs are specifically favored by the finance department as these designs address lifetime costs and operations rather than only upfront costs.

In order to achieve these goals we would

1. Create 1-2 checklists for Capital Project Project Managers to refer to for each project that includes ZNE requirements and
2. Include ZNE language in any RFPs so all proposals received with address ZNE.



1. Set your ZNE Vision, Goals, Targets/Milestones

San Mateo County Draft ZNE Vision

2. Community Scale ZNE Facilitation:

Our vision for the community is to have the San Mateo County Office of Sustainability (OOS) to act as a facilitator in the community in the effort towards ZNE market transformation. Ideally the OOS will have a strong presence with the building community, building departments and city staff as a ZNE leader.

The OOS would also provide resources and assistance to multiple building sectors and enable early adopters to switch to ZNE building processes before Title 24 code requires it. In order to accomplish this we would:

1. Create a toolkit of resource for others to use
2. Facilitate workshops and workgroups for the building community and
3. Facilitate appropriate trainings for building departments.



2. Backcast from 2030 to today

Goals & Milestones	2017	2020	2025
Policy	<ul style="list-style-type: none"> - Lease language - Owners Project Requirements (OPR) w/ ZNE language - ZNE RFP/RFQ language - New Construction policy for ZNE - Checklist for ZNE Evaluations 		-ZNE Reach Code for Unincorp. Commercial
People	<ul style="list-style-type: none"> - Engage Leadership - Engage other departments, HR? - Form a ZNE Task Force? 		
Education & Outreach	<ul style="list-style-type: none"> - Develop Reach Code Templates for Cities 		
Development Process	<ul style="list-style-type: none"> - ZNE Feasibility study for Exist. Buildings 	* 1 New ZNE by 2020	*1 Retrofit by 2023
Finance	<ul style="list-style-type: none"> - 5 Year Plan 		

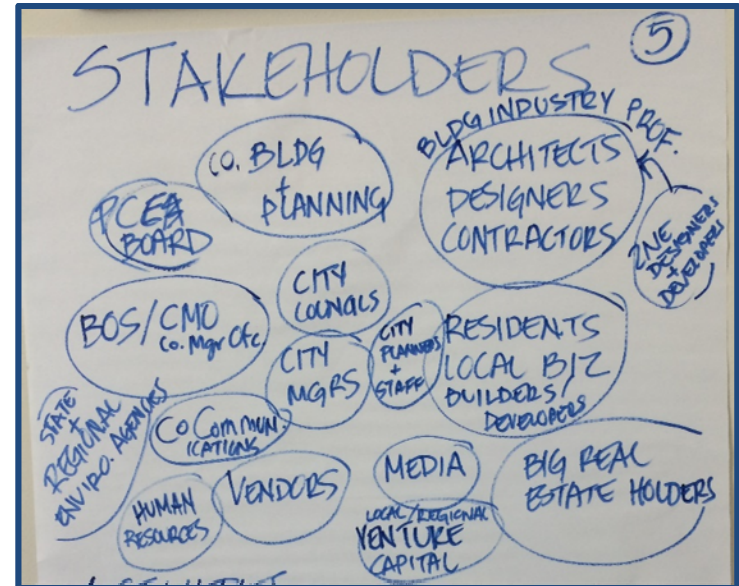
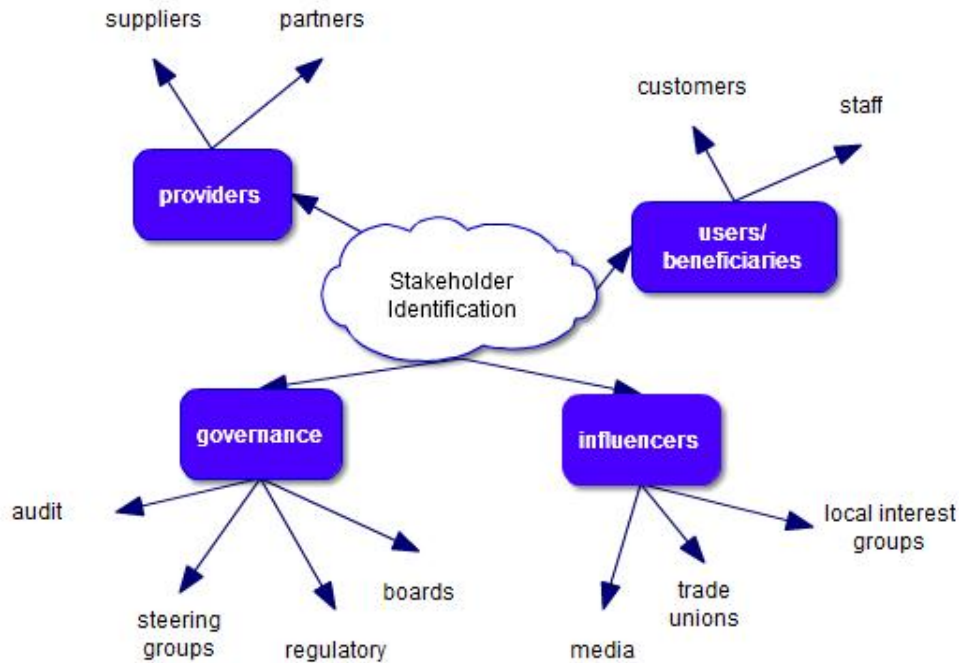
3. Identify your Stakeholders & Target Messages



WORKSHEET 2B - ZNE Stakeholder Mapping

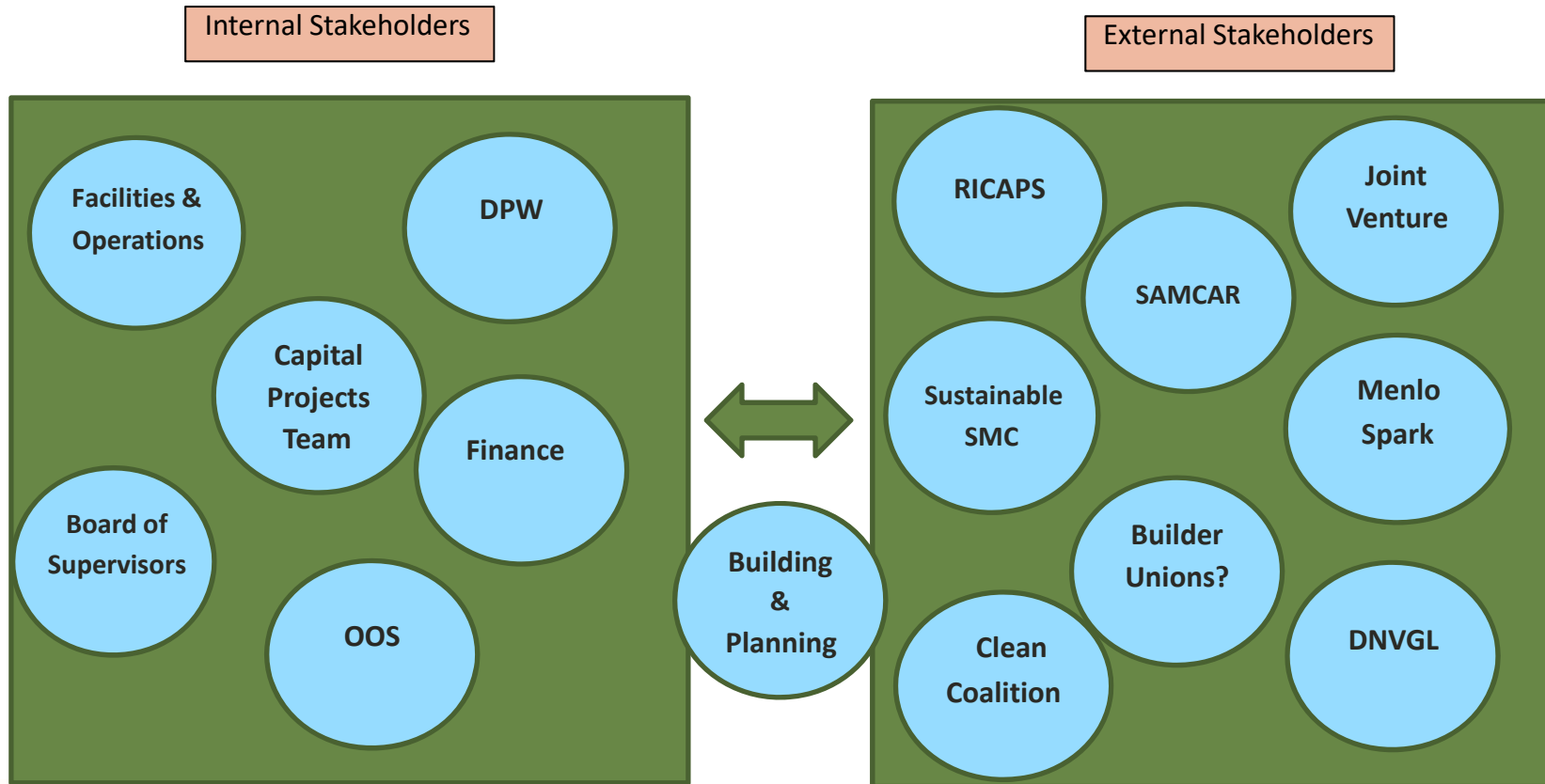


Map your internal and external stakeholders – use a * or other marker to denote which are the key decisionmakers and influencers.



3. Identify your Stakeholders & Target Messages

Map your internal and external stakeholders – use a * or other marker to denote which are the key decisionmakers and influencers.



Worksheet 2A – ZNE Stakeholder Goals

Identify your project goals, audiences, stakeholders and decision

Project Goals: ZNE Building, Portfolio, or Policy? Timeframe: 2030 Goals?

1 Year Engage departments and adopt municipal policy 2 Year Become a resource in the community on ZNE

TARGETS: 1 New ZNE BLDG by 2020; 1 Retrofit by 2023.

Communication Goals:

- Department Heads: Educate & engage as champions
- Facilities & Operations: Involve in the design process for ZNE
- Board of Supervisors: Educate & engage as advocates + champions of projects.
- Venders: Engage as advocates.
- Real estate holders + managers: Engage around financial benefits of ZNE
- Businesses: Explore corporate sponsorship of projects.
- Cities in Co.: Leverage General Pan updates to encourage ZNE

Key Communication

Messages:

- Walk the talk, demonstrate leadership.
- ZNE is part of comprehensive green/sustainable approach.
- The County is creating better buildings
- Wise use of resources to have assessment + cost analysis of long term energy + operations of municipal buildings.

Key Audiences:

- Facilities and Operations
- Capital Project Managers
- Department of Public Works
- Board of Supervisors
- Building and Planning Depart.
- Community Groups- MenloSpark, RICAPS, SAMCAR

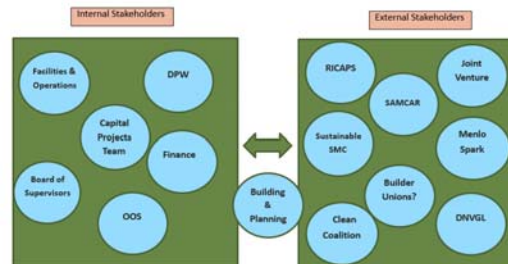
Internal Stakeholders:

- Facilities and Operations
- Capital Project Managers
- Department of Public Works
- Board of Supervisors
- Building and Planning Departments

External Stakeholders:

MenloSpark, RICAPS, SAMCAR, Sustainable SMC, Joint Venture

Stakeholders Map—create your own Stakeholder Map on the following page

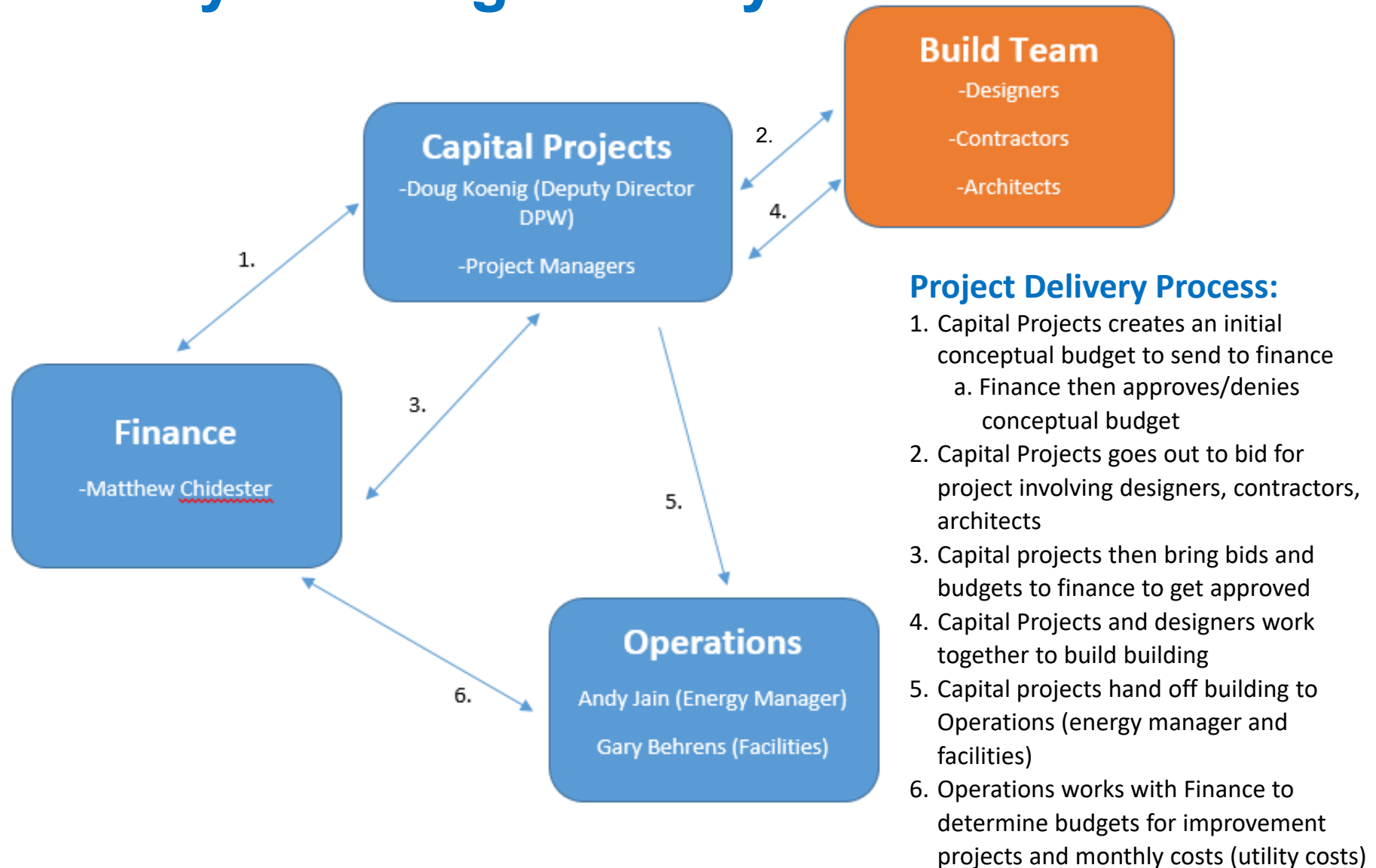


Activities for Engagement

- Educate building industry & clients
- Workshop with Board of Supervisors
- Challenge to the design community
- Analysis of cost to support communications

6. Diagram your Building Process & Integrate ZNE

County Building Delivery Process



5. Conduct a ZNE Gap Analysis & Plan for Alignment

WORKSHEET 3 | ZNE Gap Analysis

DIRECTIONS: Consider the following categories below with ZNE in mind. Answer Yes/No and then make notes regarding any ZNE progress already being made or challenges you anticipate facing. As you identify next steps, think about any immediate action items.

Key Messages for Consideration: where are the interventions or assessment needs? Where/what are the missing pieces? Are special studies needed? Are any in progress?

Policy <i>Review of policies that support/hinder ability to implement solar or other renewables</i>	Yes	No	Next Steps/Possible Actions <i>If yes, describe; if no, note any issues or challenges why not, and next actions (e.g. special study, policy review, task force)</i>	Lead(s) <i>Who will lead project and who needs to be engaged?</i>
Do you have a green building policy that addresses energy?	<input type="checkbox"/>	<input type="checkbox"/>		
Have you set 2030 goals for buildings?	<input type="checkbox"/>	<input type="checkbox"/>		
Do you have a climate or carbon policy?	<input type="checkbox"/>	<input type="checkbox"/>		
Do you have a data collection and benchmarking policy?	<input type="checkbox"/>	<input type="checkbox"/>		
Do you have a policy for actively managing building energy?	<input type="checkbox"/>	<input type="checkbox"/>		
Contracting	Yes	No	Next Steps/Possible Actions	Lead(s)
In your RFP's and RFQ's for construction projects do you have a provision for ZNE?	<input type="checkbox"/>	<input type="checkbox"/>		
Do RFP's & RFQ's include extended commissioning and designer involvement to ensure ZNE performance?	<input type="checkbox"/>	<input type="checkbox"/>		

CHARRETTE OUTCOMES

ZNE Goals & Targets from the San Mateo County ZNE Planning Charette

- 1) Assess Portfolio of Existing Buildings
- 2) Consider Possible ZNE Pilots: 1 New ZNE BLDG by 2020;
1 ZNE Retrofit by 2023
- 3) Integrate ZNE into RFPs & RFQs
- 4) Develop ZNE Owners Project Requirements (OPR's)
- 5) Establish a ZNE Policy for Specific Building Types
- 6) Update County Facility Design Standards
- 7) Explore Finance Options

CHARRETTE OUTCOMES

- Draft ZNE Plan (in progress)
- Sustainability Plan that integrates ZNE
- ZNE Buildings Policy Actions
- ZNE Co. Pilot Project Goals for new and existing buildings
- Energy Watch Program Refinement
- Refinements to the ZNE Planning & Policy Workbook

DRAFT San Mateo County ZNE Plan

November 2016

Background:

State:

In 2008 the CPUC adopted California's first Long Term Energy Efficiency Strategic Plan, presenting a single roadmap to achieve maximum energy savings across all major sectors in California. This plan, along with the 2007 Integrated Energy Policy Report, adopted zero net energy goals for new construction in California. These goals are as follows:

- All new residential construction will be ZNE in 2020
- All new commercial construction will be ZNE in 2030
- 50% of existing commercial construction will be ZNE in 2030

The CPUC supported these goals with ZE Action plans in 2010 and 2015, and their work was supplemented by the CEC's 2013 Integrated Energy Policy Report which helped define ZE buildings, identify the necessary steps to achieve 2020/2030 goals, and address options for renewables essential to achieving the ZE 2020/2030 goals.

Governor Brown also passed an Executive Order for State buildings and ZNE: Executive Order B-18-12-State Buildings starting construction after 2020 shall be ZNE and 50% of state buildings space renovated to ZNE after 2025 External County Policies & Practices.

Local:

In response to these mandates, the San Mateo County Energy Watch Program, along with sponsors, hosted a ZNE Workshop in May 2015 with 2 full day sessions for local governments and community members. Based on the interest of attendees and the desire to align our program with state goals, the SMCEW developed a Zero Energy Strategic Plan to assist residents and working professionals realize a thriving ZE community in our county. A link to the plan is available on the SMC Energy Watch website.

In 2016, building upon these earlier efforts, the SMCEW encouraged the County to collaborate with New Buildings Institute and the California Public Utilities Commission to pilot a set of ZNE Planning and Policy tools and templates to create this draft ZNE Plan for the County to assist in the development of their Sustainable Building Policy.

This effort included piloting the "Tools & Resources for Developing ZNE Plans and Policies Workbook" (ZNE Workbook). This ZNE Planning and Policy Workbook was developed based on trainings held by NBI on behalf of the CPUC to support ZNE early adopters. A planning charrette, interviews with staff from multiple departments, and completed workbook templates were used upon to create the following draft as a template for others and to support further ZNE County Strategic ZNE planning, policy and building targets.

Vision, Goals and Milestones:

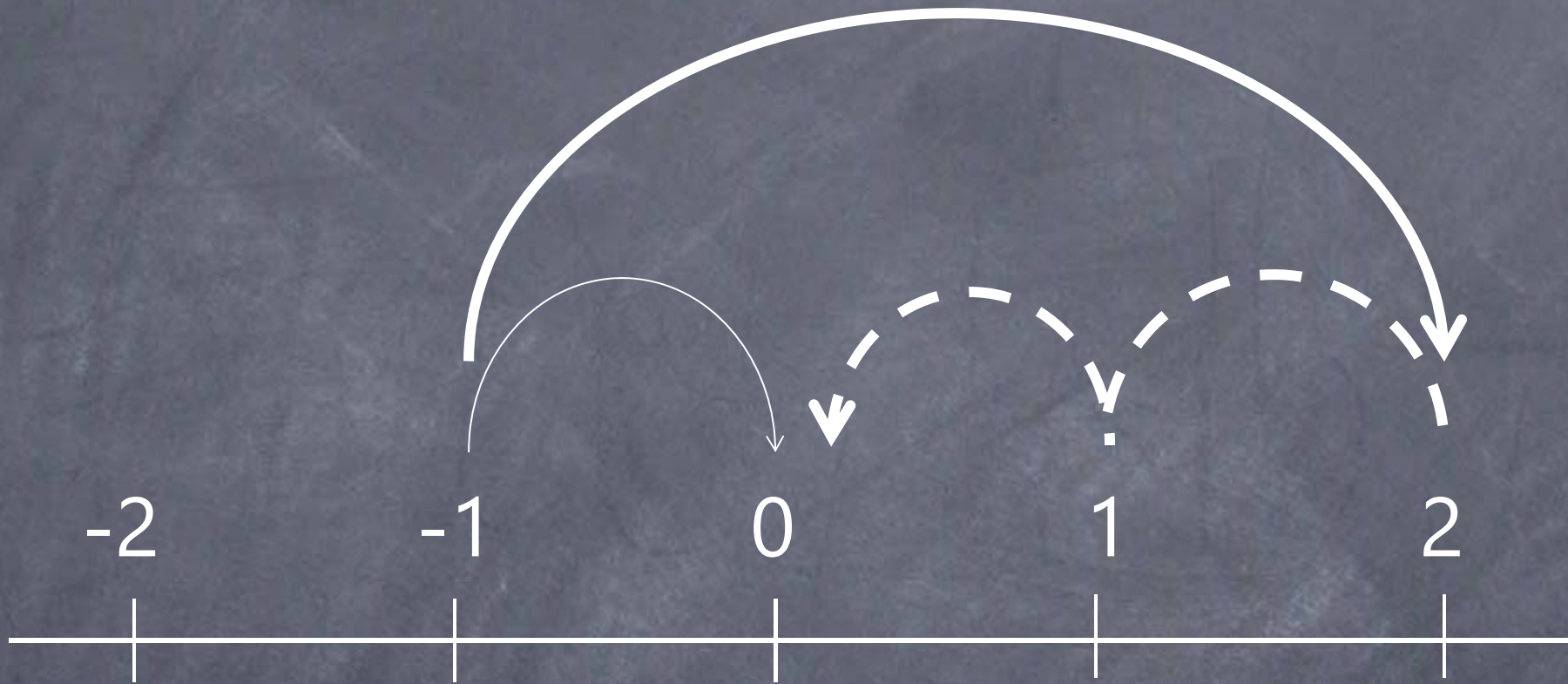
Internal County Policies & Practices

Vision for Municipal Facilities: Our vision is to establish a county facilities policy that requires ZNE and lifecycle costs to be incorporated in RFPs for all new construction projects by 2018. Ideally, we'd like our capital projects team to utilize a checklist to make sure all necessary sustainability attributes of a project are addressed, with ZNE being a major component. ZNE should be included in early conceptual discussions and as the project moves into the design and/or construction phase, with some "vehicle", such as a checklist, to ensure ZNE elements are

BACKCASTING GROUP EXERCISE

For your organization / project:

1. Begin with the end in mind: Set your vision & goals
2. Choose your own adventure: building or portfolio or broader community strategy
3. Backcast to today
4. Plan each component for your building/portfolio
5. Define your targets and milestones
6. Determine measures of success



ZERO NET ENERGY BUILDINGS BACKCASTING TIMELINE

1 Laying the
FOUNDATION

2 Orchestrating
RESOURCES

3 Developing a
ZNE PLAN

BUILDING SCALE

Begin with the End in Mind



- Envelope
- HVAC
- Lighting
- Space Planning
- Finance - Strategies + Opportunities
- PROCESS - Planning, Contracting, Design
- People - Stakeholder Engagement, Education + Outreach

2015 GOALS

2020 GOALS

2030 GOALS