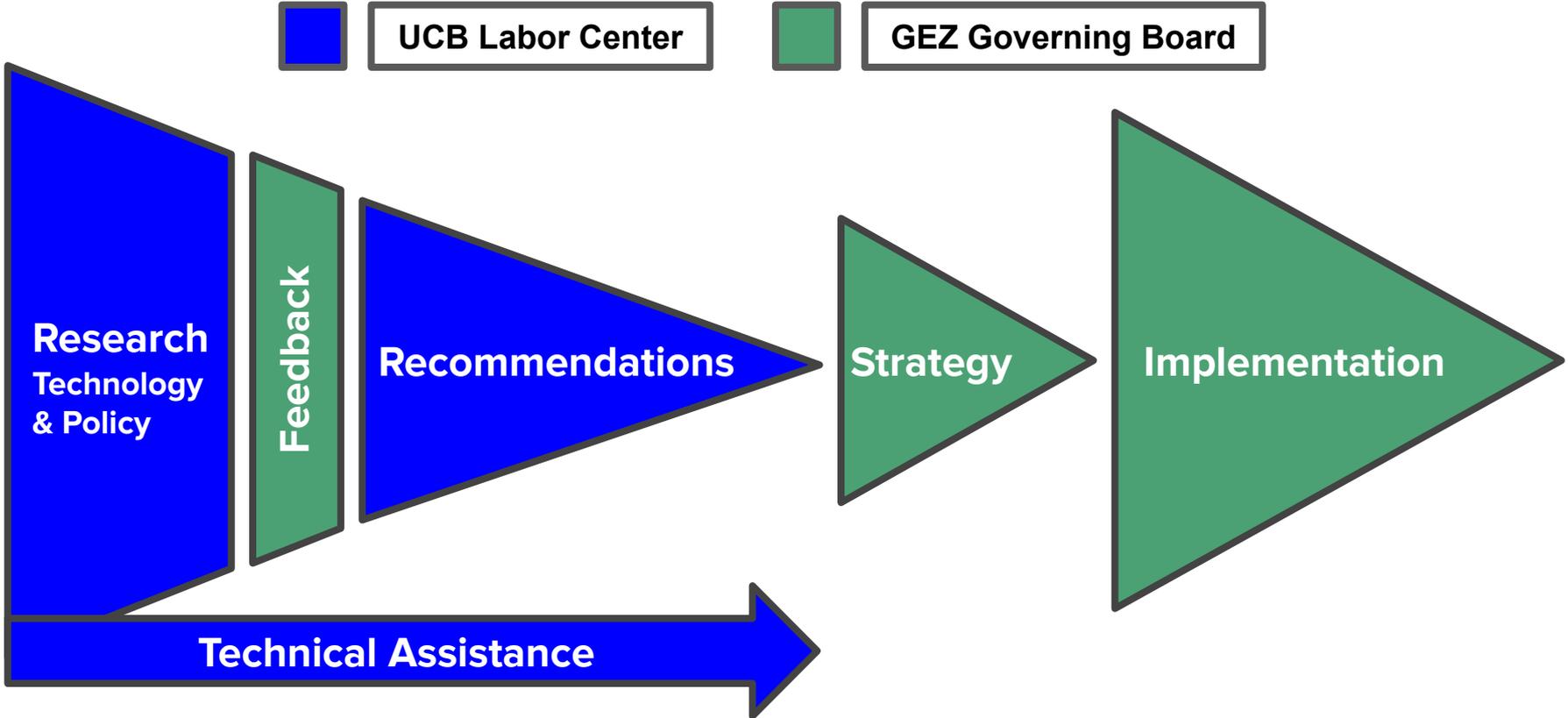


Facility, Site, and Infrastructure: Research update and policy discussions

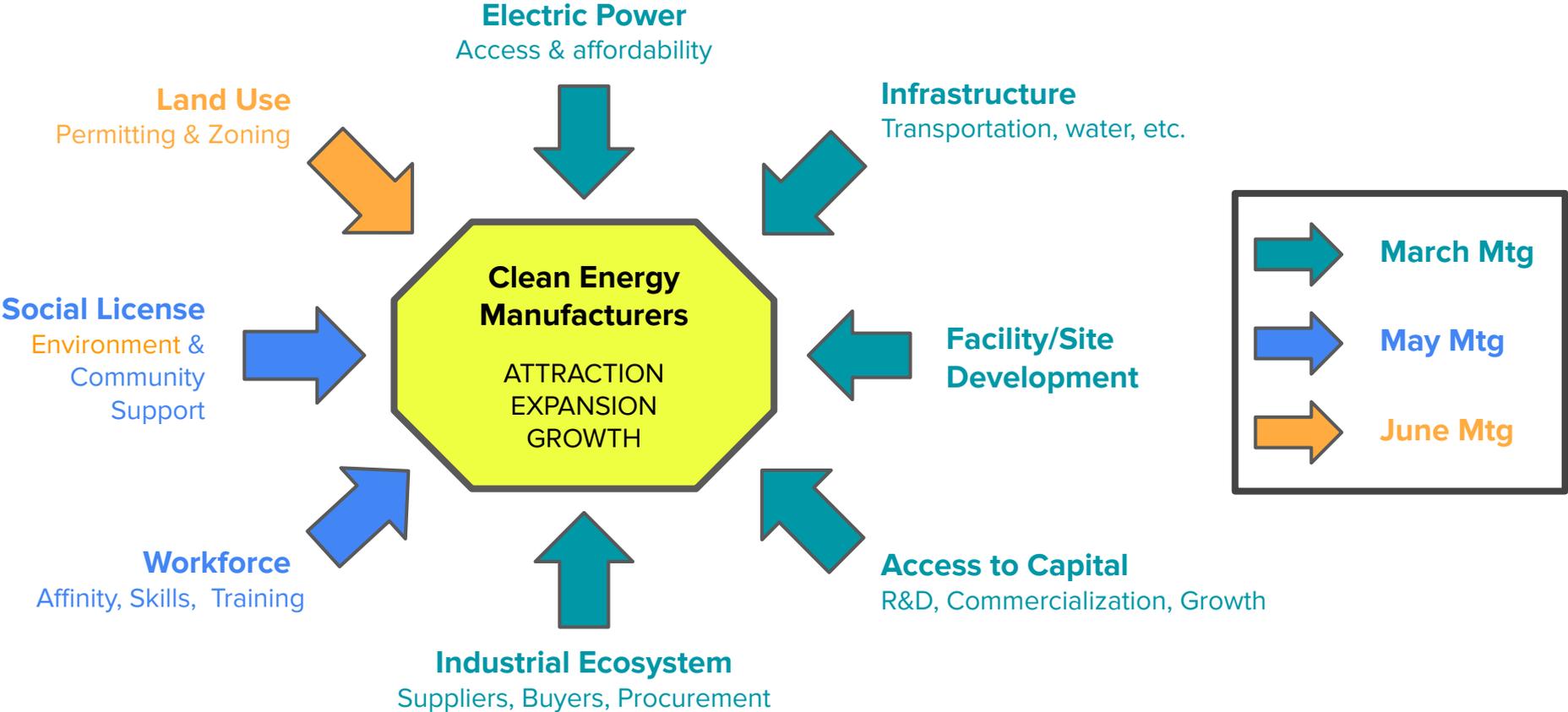
GEZ Board Meeting - 3/20/26

UC Berkeley Labor Center (UCB LC)

UCB Labor Center's role in GEZ's CEM strategy



Levers to develop clean energy manufacturing in GEZ



Plan for today

1

Technology Research

Facilities, Sites, and Infrastructure:
Key Takeaways and GEZ Assets

2

Policy Discussion

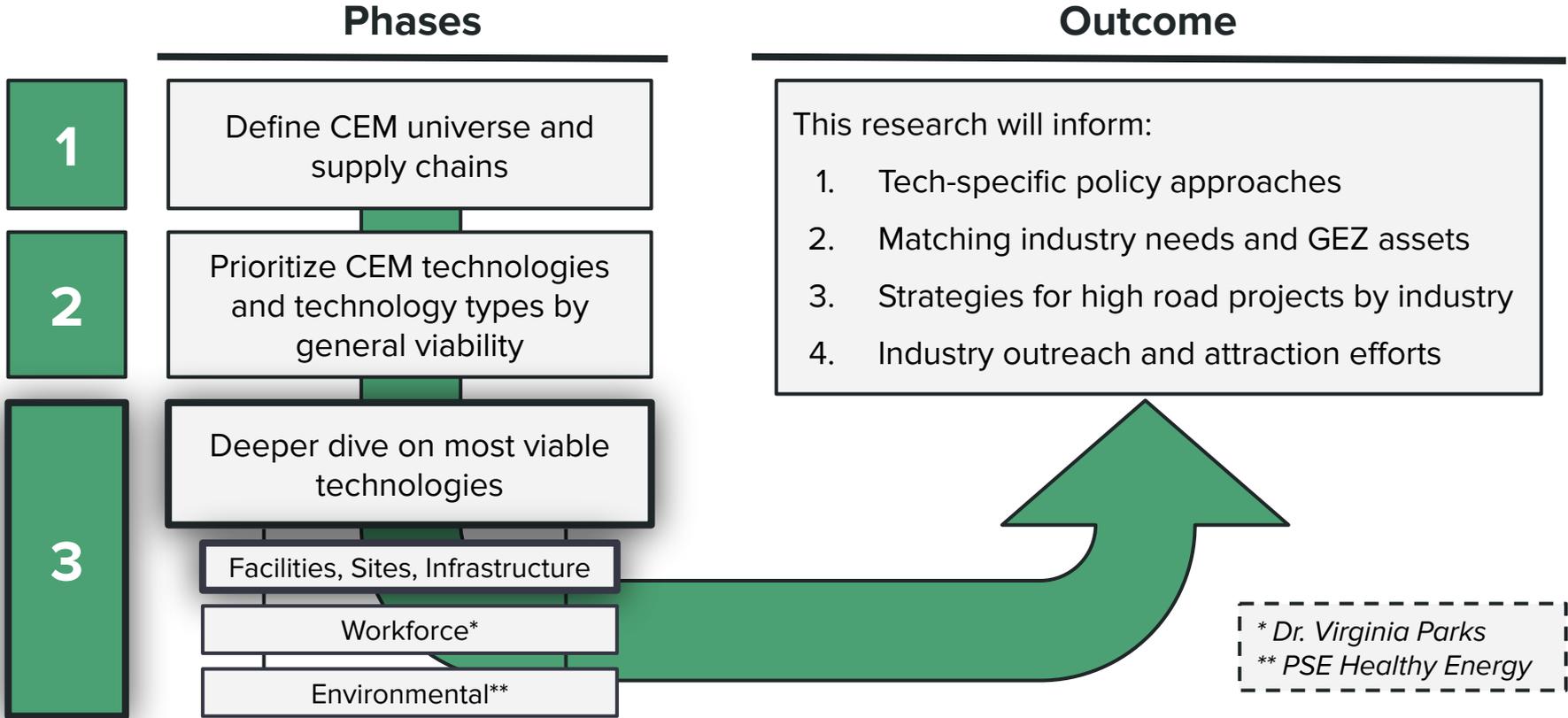
1. Financing and Capital Access
2. Manufacturing Ecosystem
3. Industrial Development
4. Electric Power
5. Ports
6. Procurement

Technology Research: Facilities, Sites and Infrastructure

1. Process and Terms
 2. Key takeaways
 3. GEZ Assets
 4. Viable technology analysis (appendix)
-

Tech Research: Process and Definitions

Refresh: Technology research process and outcomes



Research methodology

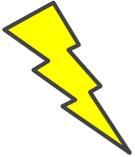
Employer Interviews

Interviews with 30 companies across all seven key technology areas and subcategories*. Supplemented with industry-wide expert interviews.

Research Sources

- “Industrial Assessments Center (IAC)”, *Department of Energy*
- “Better Plants” & “Better Buildings”, *Energy Information Administration*
- Clean Energy Manufacturing Announcement Tracking, *Argonne National Lab*
- Maps and satellite images for infrastructure and site estimates
- Academic Literature, specifically for Life Cycle Analyses
- Other relevant sources: water district reports, white papers, industry publications, government reports, public meeting records

Overview of key infrastructure types



Power and Energy: Levels of power needed (amperage and watts) as well as amount of energy usage (electric and gas).



Water: Amount and intensity of water use per unit produced. Needs for waste water and sewage treatment.



Transportation: Needs around access to transportation infrastructure (road, rail, port, air). Truck size needs (class 7, 8, etc.)



Land and Building: Dimensions of the building itself including height. Size of the overall site needed for laydown, parking, offsets, etc.

Explainer: Industrial electric power

Rates

- **Assessed differently than residential:** demand charge; based on time of day and year; rate schedule changes based on use
- **Amongst the highest of any state,** varies slightly by provider
- **Difficult to lower,** doesn't incentivize ambitious decarbonization



Electric Power Infrastructure

- **Definition:** The connection to the grid and equipment/infrastructure that allows for that connection
- **Three levels of connection** (smallest to largest): Secondary (Distribution), Primary (Distribution), and Transmission.
- **Cost:** upgrading infrastructure goes into rates paid by all users on the grid. Large load users pay for some parts of infrastructure upgrades
- **“Time to power”** = how long it takes an industrial user to connect to the grid
- **“Heavy Power Sites”** = Industrial sites who already have connections to significant power

Tech Research: Key Conclusion

Most viable technologies can be manufactured in a high-powered box

Power: Main switchgear of 480V/4000A.
“High powered” = >4000A

Water: Sufficient potable water

Transportation: Parking for class 8 tractor trailers at the minimum. Some will need space for oversized trucks/loads. Appropriate shipping bays for trucks.

Land and building: >50k sq ft, including manufacturing floor space, office space, and warehousing space. >30 ft clear height and enough land for parking and shipping



Some manufacturing processes will require facility/ site/infrastructure beyond a typical box



High Voltage Transformer Manufacturing: >60 ft clear heights, oversized trucks or rail needed, >8 MW power

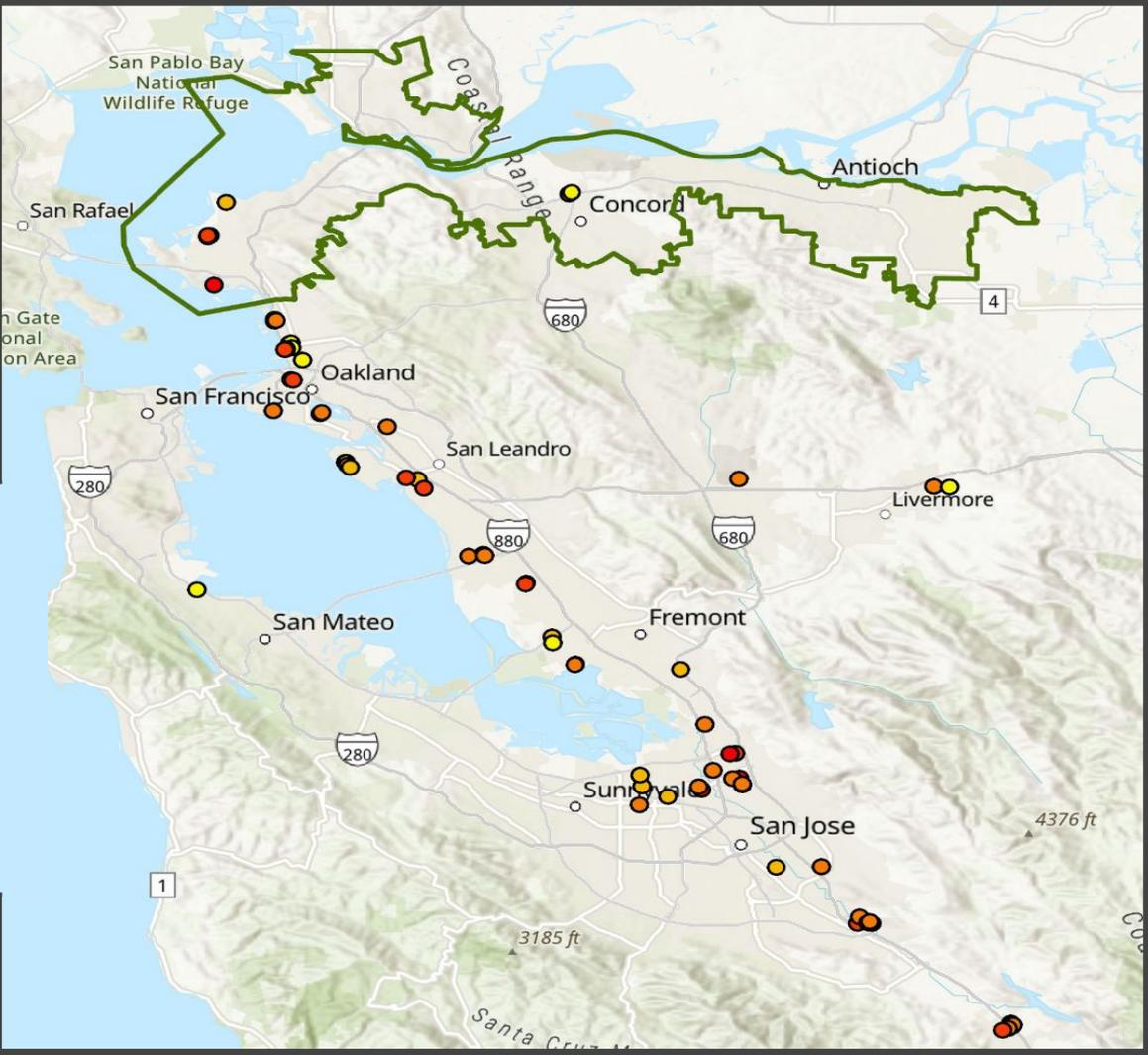
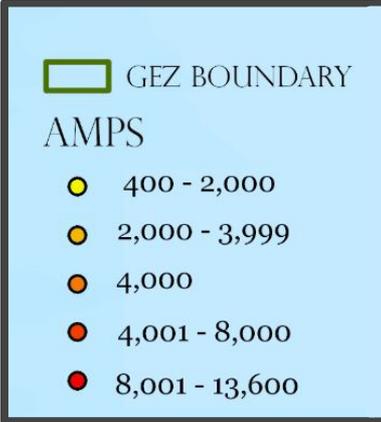


OSW Floating Platform Manufacturing: Located on port and resembles a shipyard, needs high weight bearing capacity, has high wastewater production.

Tech Research:

Industry Needs and GEZ Assets

Relative lack of high powered sites currently available in the GEZ



Source: JLL commercial real estate, March 2026

Heavy power sites with significant redevelopment needs

Local Examples

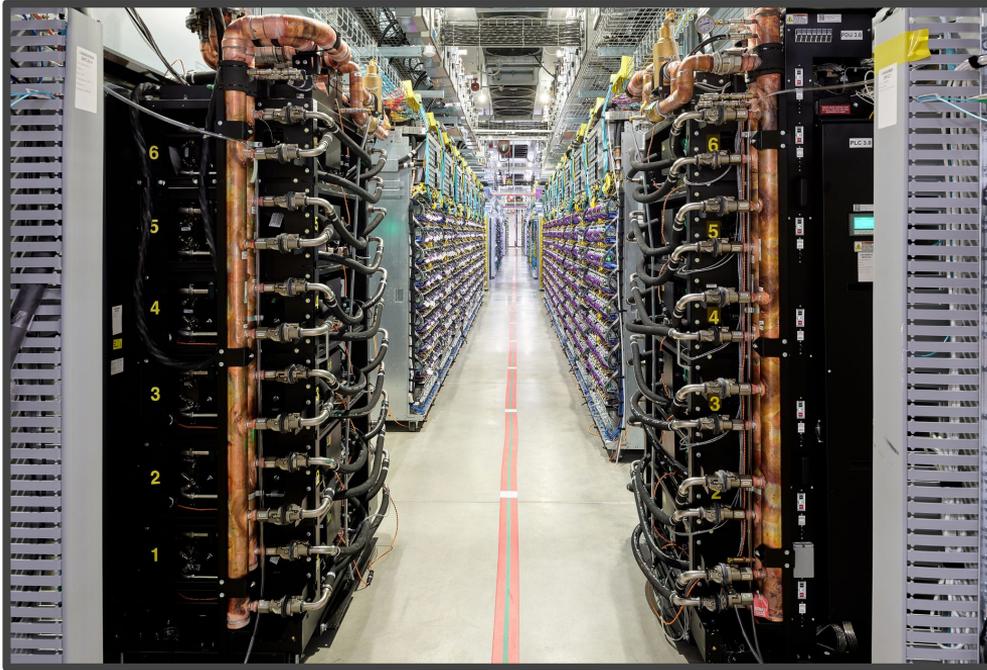


USS - Posco Steel Plant, Pittsburg



Valero Refinery, Benicia

Data centers are a huge force in the industrial market



- Data centers are bringing unprecedented demand and capital for heavy power sites.
- “Opportunity cost” includes other potential industrial uses for heavy power (like manufacturing).
- New types of deals and policy approaches to data centers are surfacing rapidly.

Policy Research Discussion

1. Review Strategy
and Plan for Today
 2. Presentation by
issue area
 3. Discussion
-

Audiences/implementers for policy recommendations

State/ Regional

- Implementers could be CA legislature, CA agencies, or regional governments
- GEZ board could vote to endorse and then advocate for implementation

Local Municipalities

- Best practices/models for municipalities to pursue
- Diversity of GEZ municipalities requires unique design and implementation
- Leadership of Governing Board members will be critical
- Consistency across cities can enhance overall impact

GEZ

- Recommendations on what the role and powers of the GEZ or a similar governance entity should be to help achieve the goals of the GEZ
- Achieving those recommendations would likely require advocacy for additional resources and authority.

*****Recommendations may be policy/regulatory changes or programmatic approaches*****

Overview of today's policy research presentation

During today's discussion, we will...

- Describe policy areas
- Explain relevance to GEZ
- Dive deeper on the most viable types of policy approaches
- Provide case studies or specifics

... for these Policy Areas

1. Financing & Capital Access
2. Manufacturing ecosystem
3. Industrial Development
4. Electric Power
5. Other Infrastructure: Ports
6. Procurement

Given time constraints, we'll hold questions and discussion to the end of the policy research presentation

Policy Research:

Financing and Capital Access

Financing and Capital Access

Description

Financing can come in a range of grants, loans, tax credits, etc.

Capital access refers to a company's ability to access private (and public) financing needed to grow.

Relevance

- Incentivize companies to locate in GEZ.
- Fund necessary infrastructure and site development work.
- Provide access to capital for companies in critical growth stages.

Types of Approaches

1. **Funding to incentivize locating in the GEZ:** Changes or enhancements to current funding programs could benefit GEZ.
2. **Financial Hub/Entity/Intermediary:** Build financial intermediary or network to distribute, leverage and attract funds to advance strategies unique to the GEZ/clean energy manufacturing strategy.

Funding strategies to incentivize locating in the GEZ

Relevant
Strategy

2

Leverage local advantages of ... access to capital to ... attract new projects.

Potential Approaches

Local

GEZ Loan Guarantee Program: Locally sourced fund (~\$2 to \$3m) to provide loan guarantee to stack on top of state provided loan guarantee for projects in the GEZ.

- Companies primarily use for high cost equipment and other capital purchases
- I Bank and BAAQMD currently doing administration of this program

State

“Energy Opportunity” Communities: Define areas that are experiencing or at risk of experiencing impacts from energy transitions and could succeed in clean energy. Use that definition for set asides or prioritization of current state funding programs (e.g. - CAETFAs).

Financial Hub, Intermediary, or Entity

Relevant Strategies

2

Leverage local... capital... to attract

3

Prepare and develop sites

4

Build pathway and ecosystem for clean energy manufacturing companies.

Concept

GEZ

Financial Hub, Intermediary, or Entity: There is an opportunity and lack of a locally focused institution to attract, leverage, and distribute both public and private funding for industrial development, site prep, and financial support.

Potential Models: Steel Valley Authority - Appalachian Sustainable Finance Hub; Economic Development Corporations (EDCs); Philadelphia Authority for Industrial Development; Etc.

Potential Financial Mechanisms/Strategies: Pre-Development Fund, Brownfield Redevelopment, Revolving Loan Fund, Financing Districts, Opportunity Zone Funds, Network with clean energy financing intermediaries, etc.

Potential Fund Sources: Public grants/loans (state, federal), Bonds, institutional investors (banks, pension, CRA Funds), impact and philanthropic capital (patient, first loss, recoverable grants), local revenue sources, etc.

Case Studies: Regional financing entities supporting site redevelopment for industrial use



Central hub that connects local leaders, industry, labor, and investors to facilitate project planning and funding.



Public agency that purchased and leases a former steel mill site to Form Energy in exchange for job creation.



Nonprofit EDC that uses a revolving loan fund to help develop brownfield sites into industrial properties (e.g. Mill 19).



Nonprofit EDC that uses municipal sales tax revenue to purchase sites and support industrial development.

Policy Research: Manufacturing Ecosystem

Developing a manufacturing ecosystem

Description

Programs and policies to support clusters of firms in similar industries that can share resources, talent, and infrastructure. This includes firms that supply products and services to manufacturers.

Relevance

- Attract companies and help them grow manufacturing capacity
- Build clusters that help companies to be productive/competitive

Types of Approaches

1. **Consider and include supplier firms in GEZ strategies:** Rather than a specific policy, this should be considered across approaches.
2. **Incubators, innovation campuses, etc.:** Sector-specific programs and sites can be key anchor institutions for clustered economies.

Firms that supply products and services to are critical to include in the GEZ strategy

Benefits of Robust Local Supply Chains

1. Increase employment opportunities and economic activity
2. Attracts manufacturers to the GEZ
3. Boosts manufacturer productivity
4. Creates a workforce base that multiple firms can draw from

Supply Chains of Local Industries



Case Studies: Incubators and Innovation Campuses

Relevant
Strategies

4

Build pathway and ecosystem for CEM companies.

Local



Los Angeles Cleantech Incubator

- Nonprofit established by the City of LA to support clean technology innovation and scaling through funding, technical assistance, and partnership development.
- Housed at the LaKretz Innovation Campus, which provides physical space for collaboration and shared equipment for advanced prototyping.

Neighborhood 91

- Advanced manufacturing hub that condenses and connects all components of the additive manufacturing and 3-D printing supply chain into one campus.
- Co-location and shared resources and equipment create operational efficiencies and facilitate collaboration.

Policy Research: Electric Power

Electric Power Rates and Infrastructure

Description

This policy area focuses on the availability (infrastructure) and cost of electric power (rates) - a key input to advanced manufacturing processes.

Relevance

- Lengthy “time to power” has been cited as the biggest barrier to increasing manufacturing in CA. *(Will be the focus of our policy discussion).*
- High rates limit the type of manufacturing processes willing to be in the GEZ.

Types of Approaches

1. **Ensure local level policies do not slow down power infrastructure build outs:** Local level regulations on power infrastructure can increase “time to power”.
2. **Power Focused Industrial Development:** Partnerships between power providers, economic development entities, and developers can lower “time to power” by focusing resources to sites on the grid that are best fit for large loads.

Local regulations that can delay infrastructure buildout

PG&E alerted us to two types of problematic regulations in particular



Restrictions against pad mounted transformers or requirements to underground transformers.



Excessive requirements when upgrading, placing, or replacing poles.

Power-focused industrial development

Goal: Bring new heavy power sites to the GEZ

GEZ

CONCEPT

The GEZ and/or another economic development entity should partner with power providers and the real estate development community to identify places on the grid best suited for heavy power sites.

New large loads on the grid can help bring down rates

Requires a unique level of insight into distribution grids and utility planning

Strategy to focus pre-development and site prep resources

Policy Research: Ports

Other Infrastructure: Ports

Description

High quality infrastructure is key to economic development especially for industrial users. In this area, we looked at policy-related infrastructure outside of electric power.

Relevance

- The infrastructure of the GEZ is well suited to support the majority of the most viable manufacturing processes.
- Ports are a critical asset for industrial activity that many regions don't have.

Types of Approaches

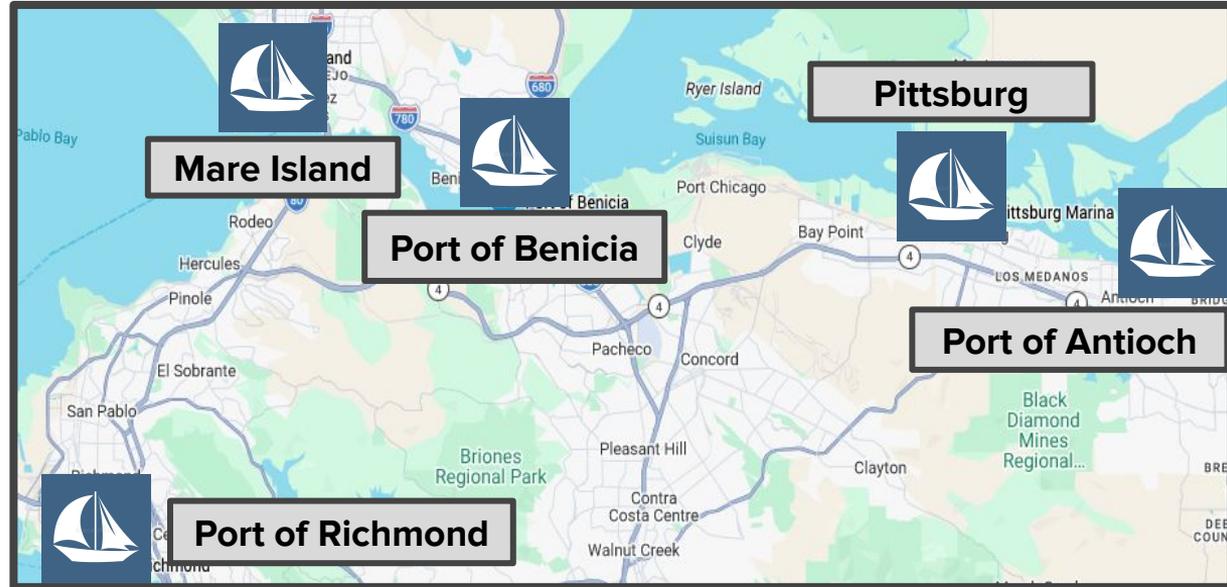
Investing in and leveraging ports as an asset unique to the GEZ: How can new investments in ports be an important component of industrial development efforts in the region? The GEZ should engage in ongoing, region-wide efforts around shipbuilding and offshore wind.

GEZ ports could host multiple viable technology areas

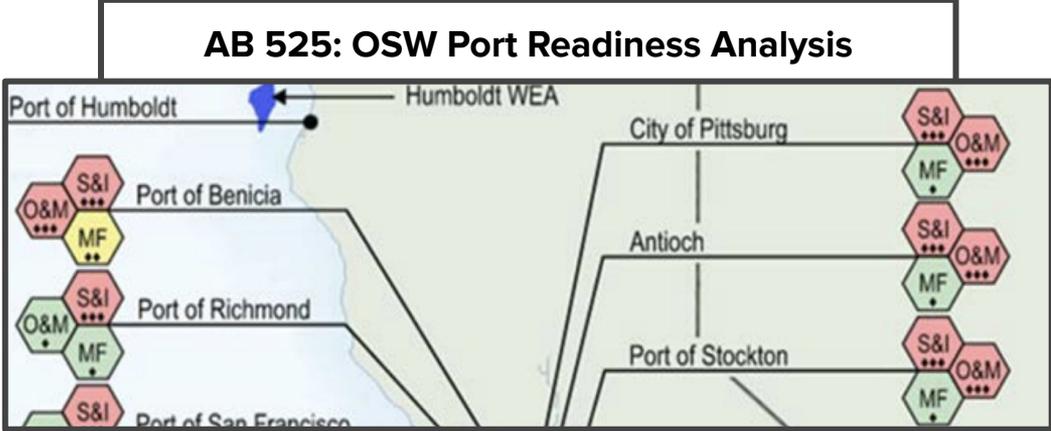
Electric Ferries

OSW Platforms

HVDC Cables



Port-related initiatives: a rising tide lifts all boats?



California
FOREVER

Policy Research: Procurement

Procurement

Description

Purchasing of goods and services by public entities using public funds.

Relevance

Procurement can drive the behaviors and outputs of private firms. The purchasing power of GEZ entities (including the State of CA) can and has been used to drive production and adoption of clean energy technologies

Types of Approaches

- 1. Align procurement to incentivize production of key products:** This could either mean prioritizing procurement of products already being produced in the GEZ or provide a market signal for new production.
- 2. Embed standards to incentivize quality employment in the GEZ:** Procurement rules can be written such that firms are incentivized to create jobs in the GEZ meeting specific quality standards.

Case Studies and Examples: Procurement approaches

The larger the purchasing power of the entity, the more impactful the procurement approach.

Nat'l

EU Industrial Accelerator Act - If passed, this legislation would incorporate a low-carbon and “Made in EU” preference into public procurement across EU governments.

State

AB 2516 (2026) - The California Grid Manufacturing Initiative, proposed by Asm. Petrie Norris, would advance in-state production of electric grid components.

Region/Local

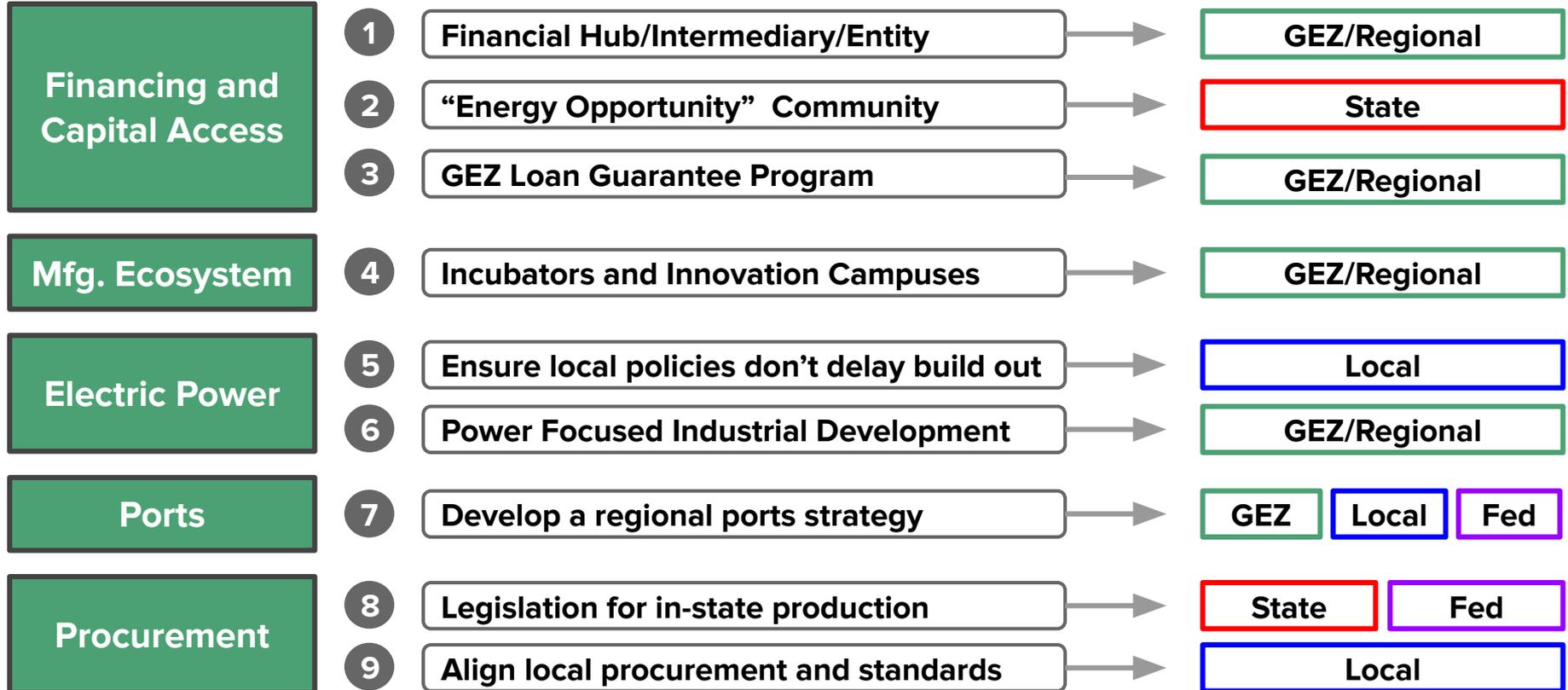
LA Metro Procurement Standards for EV Bus Manufacturing: Local hire requirements incentivized manufacturers to establish production in the region.

Government Code 4217: State legislation created a program in which local governments can bypass certain procurement rules, including in the purchase of clean energy technologies, in order to implement energy efficiency projects. (e.g. - County of Sonoma project in 2025)

Discussion and Next Steps

1. Review Policy Concepts
 2. Discussion
 3. Next Steps
-

Summary of policy approaches discussed



Policy research discussion



- 1. Which of the policy approaches are of most interest?**
- 2. What are the ideas that you feel like you could act on? What would you need to be able to act on them?**
- 3. What obstacles do you foresee?**
- 4. What additional information would you like?**

Work plan and schedule of meetings in '26

Technology

Policy

3/20

Facility, Site and Infrastructure Needs of Manufacturers

Electric Power

Infrastructure

Procurement

Facility Development

Financing

Other Tech

5/15

Workforce Analysis

Workforce Development

Job Quality Standards

Community Benefits and Negotiated Agreements

7/17

Environmental Risk and Strategies Assessment

Permitting & Zoning

Environmental Standards

9/18

Interim Report and Recommendations

Appendix

Infrastructure needs by technology

In the following slides, we assess the types of facility, site and infrastructure needs for the clean energy manufacturing technologies our research has focused on.

For each technology and subcategory, we display their infrastructure needs using the following icons:



Will fit in a “box” as described in Takeaway #2 (Slide 8)



Will fit in a “box” with added feature (i.e. - more power)



Needs a specialty feature not present in “boxes”

Infrastructure Needs - Batteries

Subcategory	Power Needs	Land and Building	Water	Transportation
Solid State Battery				
Thermal Battery				
Flow Battery				
Module Assembly				
Cathode Active Materials				

Infrastructure Needs - Electric Grid Components

Subcategory	Power Needs	Land and Building	Water	Transportation
Electronics Manufacturing Services (EMS)				
Power Module Assembly				
Medium Voltage Switchgear				
High Voltage Switchgear				
High Voltage Dist. Transformer				
High Voltage Trans. Transformer				

Infrastructure Needs - Zero Emission Vehicles (EVs)

Subcategory	Power Needs	Land and Building	Water	Transportation
Light & Medium Duty Vehicles (small scale)				
Light & Medium Duty Vehicles (large scale)				
Electric Ferries				
Drones				
Electric Vertical Take Off and Landing (eVTOL)				

Infrastructure Needs - EV Chargers & Heat Pumps

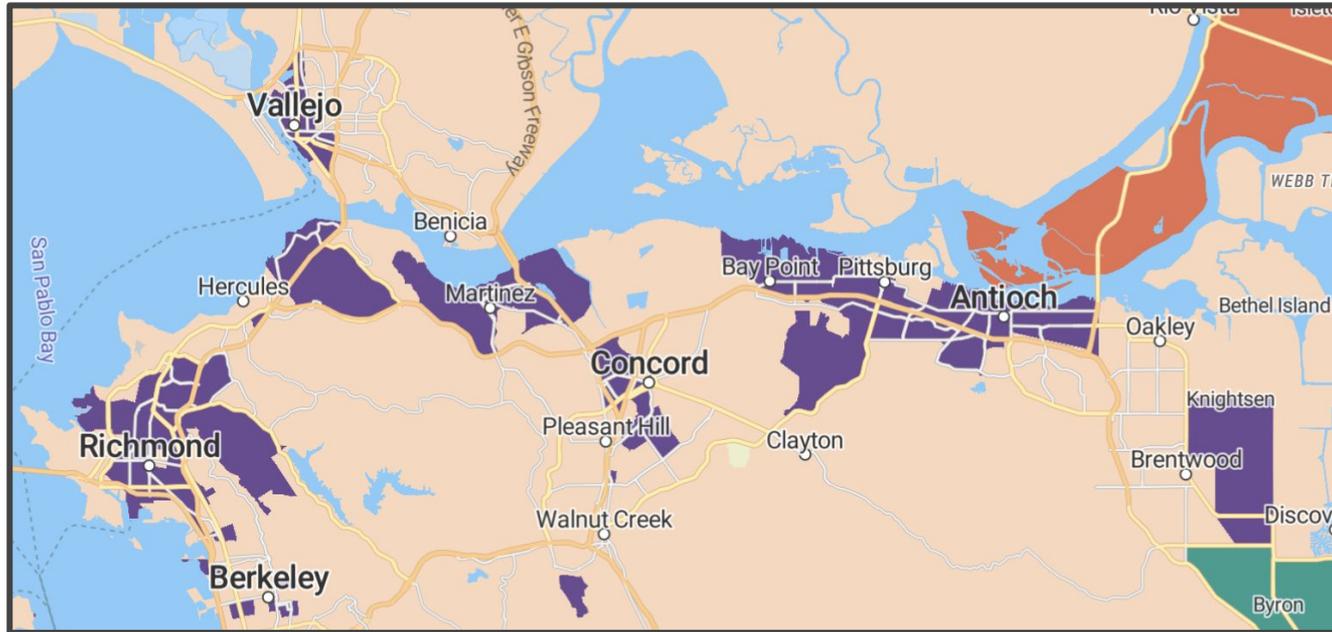
Subcategory	Power Needs	Land and Building	Water	Transportation
Electric Vehicle DC Fast Chargers				
Heat Pump Water Heaters				

Infrastructure Needs - Offshore Wind and Electrolyzers

Subcategory	Power Needs	Land and Building	Water	Transportation
Platform construction				
Offshore cable				
Electrolyzer for Green Hydrogen				

Flag on Opportunity Zones

Map of Eligible Opportunity Zone Areas in the GEZ



The State of CA will be releasing more information on the process for being selected as an Opportunity Zone region in the coming weeks/months.

Brian Coleman from GO-Biz offered to present to the GEZ board if interested.