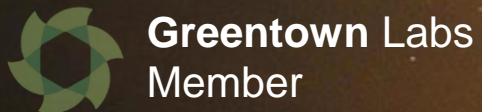




BEACON CLIMATE INNOVATIONS



Challenges to Developing Clean, Local, Equitable, Accessible & Resilient (CLEAR) Energy Solutions

“Today’s energy challenges require local solutions” – *Lorenzo Kristof*

But the challenges to developing local energy solutions are numerous ..

- Siloed governance/operations
- Risk adverse mindsets
- Byzantine bureaucracy and procurement practices.
- Lack of community-wide awareness.
- Incumbent resistance
- Insufficient bandwidth to address climate threats or accommodate energy opportunities.
- Vast gaps of useful information and analytics
- Labyrinth of state, federal, non-profit programs
- Hornets nest of technologies/providers/service
- Un-aligned prioritization from one community to the next

**IT COMES DOWN TO
TRUST & RESOURCES**

Our Approach to These Challenges...

- Meeting the communities where they are
- Community engagement
- Community awareness
- Community agency
- Community opportunity
- Incremental steps attuned to community needs
- Partnerships
- Identify a starting project that serves to coalesce entities, build trust and create a viable gateway to broader DER deployment

Some Definition of Terms

- Distributed Energy Resource (DER)
- Energysshed
- Clean Energy Community Resilience Hub (CCRH)
- Energy Village – eVillage
- Community Based Organization - CBO

FACING CLIMATE CHANGE - INTRODUCING CLEAN ENERGY - CREATING JOBS

CLEAN ENERGY COMMUNITY RESILIENCE HUBS

1: CLEAN ENERGY RESILIENCE HUB - COMMUNITY CENTER

2: EV CHARGERS / V2G CHARGERS

3: GEOTHERMAL ENERGY WELL

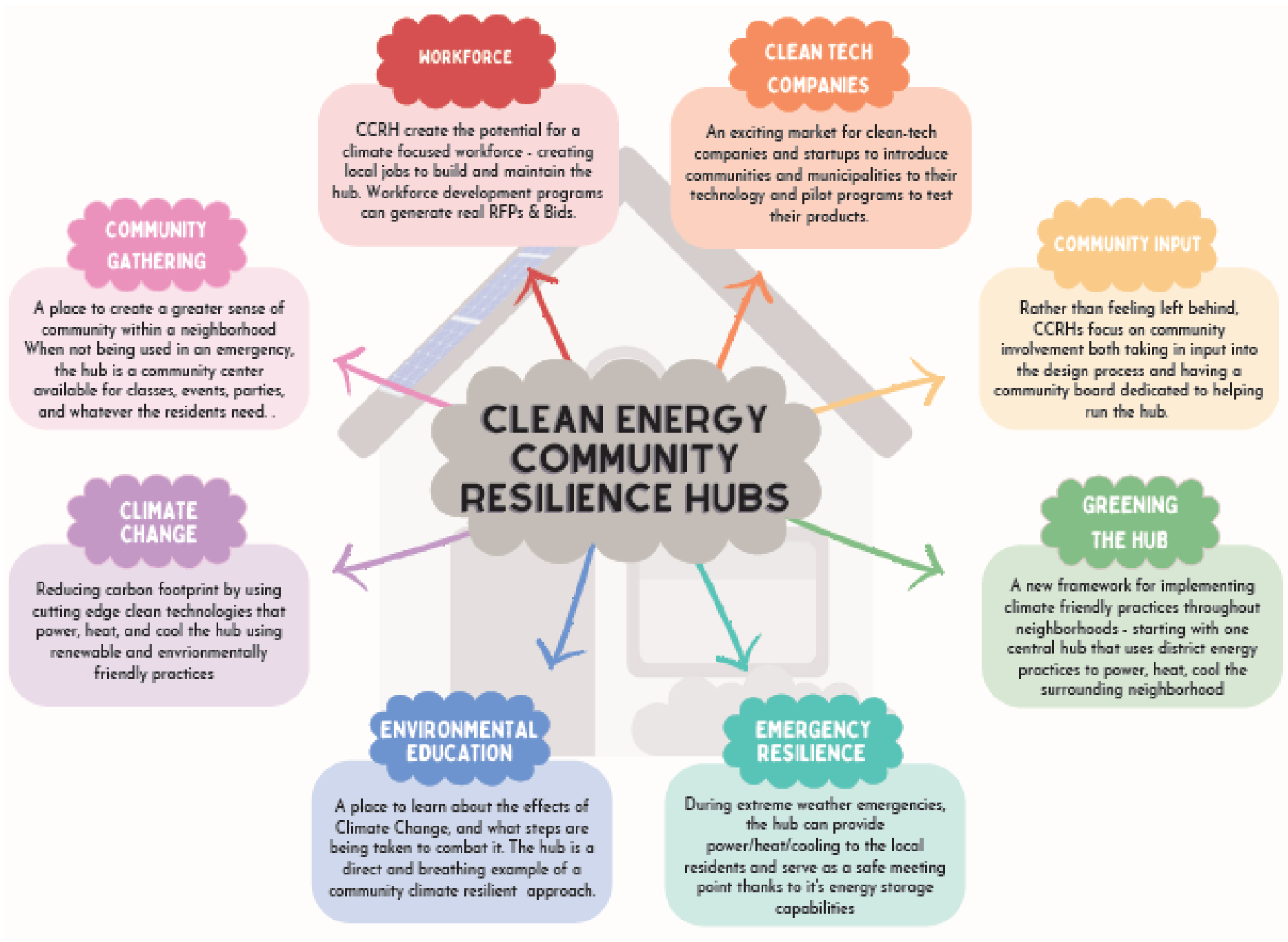
4 & 5: HEAT PUMP SYSTEM

6: SMART METER FOR VIRTUAL POWER PLANT

7: ENERGY STORAGE

8: SOLAR PANELS





CCRH – Technologies – Thomas Grant



Primary Objectives

- Exploring Resiliency & Opportunities for CCRH
- Create Framework for Categorizing & Research Clean-Technologies as they relate to Resilience Hubs
- Developing a list of climate-tech companies that could provide useful products for partnerships in CCHRs
- Outreach to targeted climate-tech companies to explore:
 - Relationships
 - Opportunities & Barriers for them to enter Municipal Market with CCRH Model
 - (In Conjunction w/ Kyle) Workforce opportunities for tech-company with a trade workforce pipeline anchored by the CCRH

Findings to date

- Greening the Hub as a Market Strategy
- Create – Contain – Connect
- Framework for identifying relevance of tech company based on criteria (Proximity, Commercialization, Community Focus, Applicability...)
- Started Outreach & Communication with tech-companies

Greentown	Mass Area	Commercializer	Mission Connector	CCRH Focus	Applicability	Ranking
0	1	3	2	1	3	10
1	1	3	2	0	3	10
1	1	3	1	0	3	9
1	1	3	1	0	3	9
1	1	2	2	0	3	9
1	1	1	3	0	2	8
0	1	3	1	0	3	8
1	1	3	1	0	2	8
1	1	3	1	0	2	8

CCRH – Workforce – Kyle Hammond

Primary Research

- What current opportunities (in MA) exist for individuals to be trained in the necessary trades for CCRHs?
- Barriers for MWBE's
- What is the solution? - ALIGN

Findings to Date

- [Schools & Trades DTBSE](#)
- Unobtainable bids and RFPS
- Disorganization

Prospective Partners – Tech, CBO's, Startups, Nonprofits, Greentown

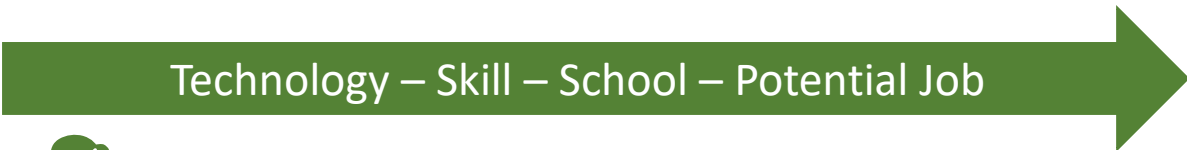
CCRH --> Workforce – Technology Database

Community Center and Clean Energy Community Resilience Hub Work Breakdown Structure

Facility	Category3	400	Systems	Category4	500	Infrastructure	Category5
Carpentry	Trade	401	HVAC	Trade	501	Electrical	Trade
Fine Carpentry	Trade	402	PV Installer	Trade	502	Gas	Trade
Plumbing	Trade	403			503	Water	Trade
Roofer	Trade	404			504	Sewer	Trade
		405			505	Broadband	Trade
		406			506		
		407			507		

Ex. Breakdown of diverse job creation from resilience hubs

System & Tech		Trade	Profession	Greater Lawrence Technical School	Essex North Shore Technical College	Madison Park Vocational Technical High School	Greater Lowell Regional Vocational Technical	Blue Hills Regional Technical School
Systems	Technologies		Job					
Electrical	PV		Roof installation	Y	Y		Y	Y
Electrical			Sizing/Design	Y	Y		Y	Y
Electrical			Electrician	Y	Y		Y	Y
Electrical			Financing/Paperwork	Y	Y		Y	Y
Electrical			Permitting	Y	Y		Y	Y
Electrical				Site Assessment				
	solar & Virtual Power Plants							
Electrical			Installers	Y	Y			Y
Electrical			Infrastructure Designers	Y	Y			Y
Electrical			Safety and Compliance	Y	Y			Y
Electrical			Electrical Engineer	Y	Y		Y	Y
Electrical			Renewable Energy Specialists	Y	Y		Y	
Electrical			Energy Storage Technicians	Y	Y		Y	
Electrical			Electricians	Y	Y		Y	



Individual Worker



Tech Company



CCRH – Communities – Claire Ferris

Primary Objectives

- Create framework for identifying municipalities most in need of resilience hubs
- Create scalable, replicable resilience database for MA, NC to inform framework/BCI expansion strategy
 - Manual data scraping, template of database, report
- Support Taunton resilience hub project: community engagement, building relationships with CBOs
- Outreach to 5+ potential future sites (municipalities in MA) for resilience hubs
 - Initial conversations on community, climate resilience

Findings to date

- Post-conversation with Holyoke: framework is accurate/reliable
- Sustainability "person" as starting contact --> local CBOs
- Finding balance between BCI's resilience hub model and locally tailored community solutions

FRAMEWORK

Tier 1:

DAC tier 2 or 3, MBE > 10%, WBE > 15%, EJ population > 45%

Tier 2:

DAC tier 1, representative town meeting

Tier 3:

Rural tier 1 or 2, MBE S, WBE S, EJ population > 30%

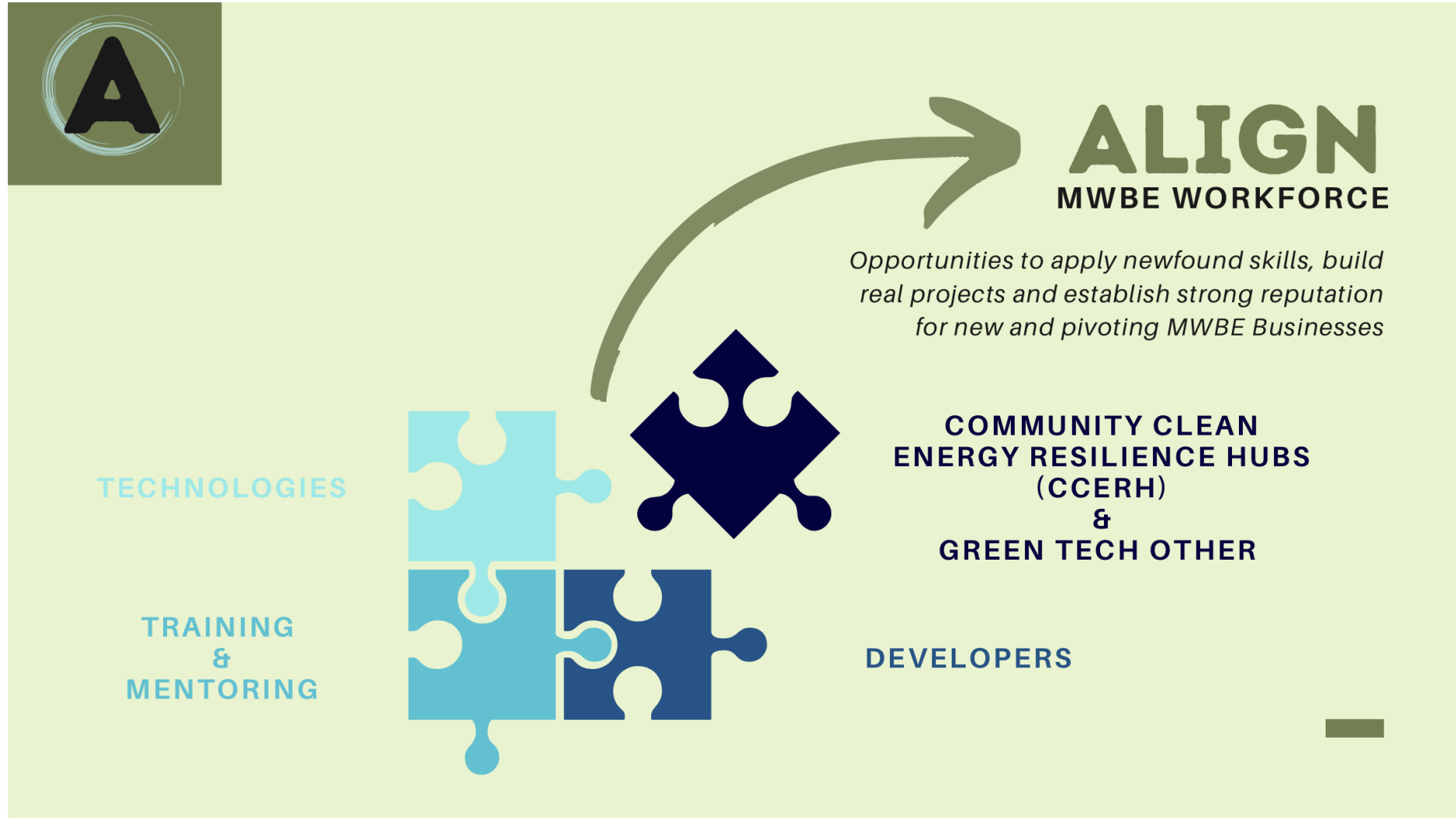
Tier 4:

Local CDBG/budget > 7%, state CDBG/budget > 1.25%, city governance

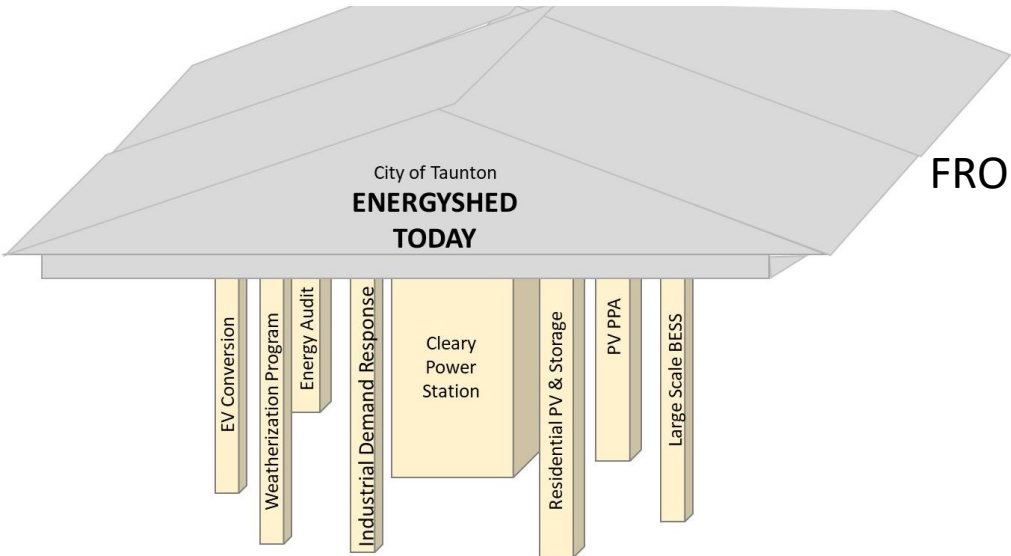
Tier 5:
(baseline)

EJ community status (Y), population > 5000, poverty > 7.5%, per capita income < \$45,000

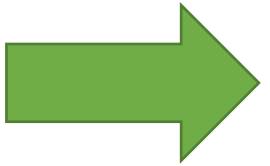




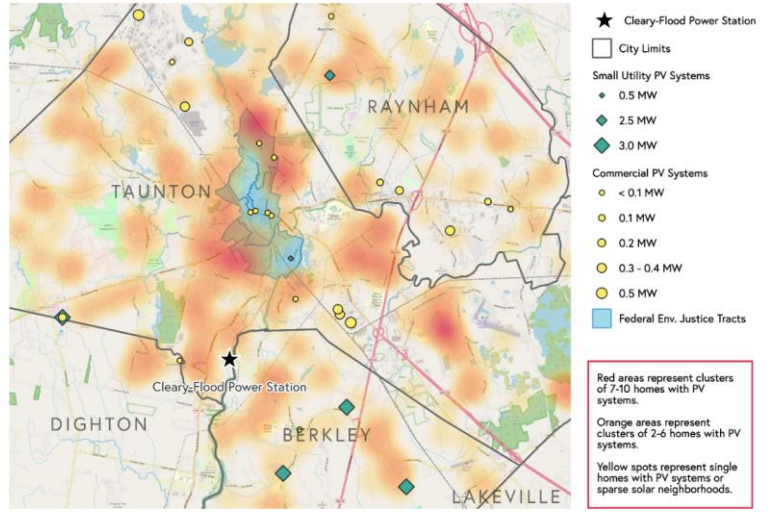
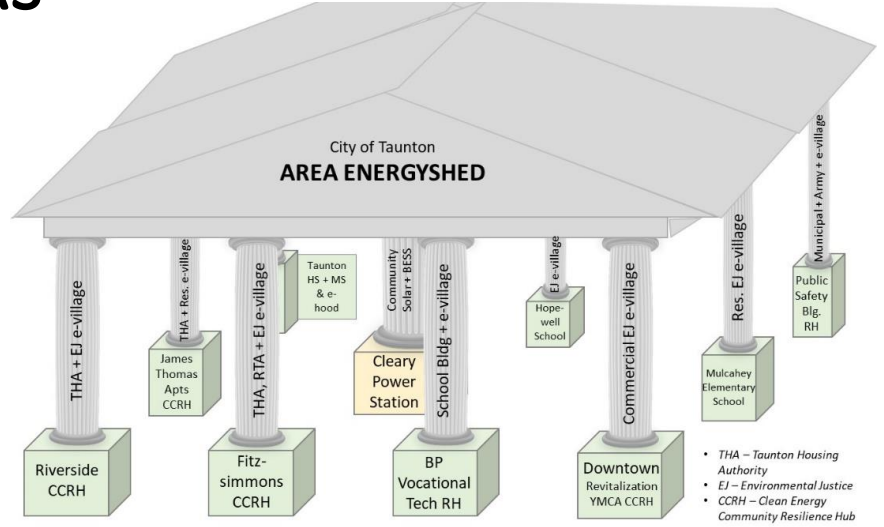
The T-CRED Vision: A Resilient Energyshed Built from Community DERs



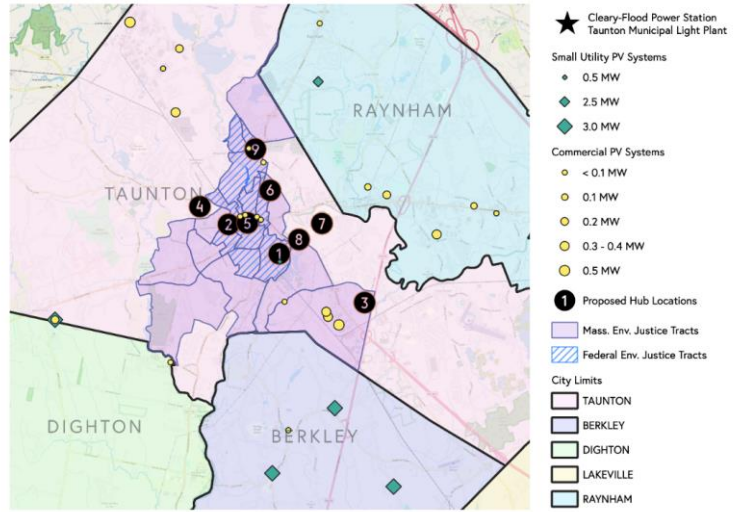
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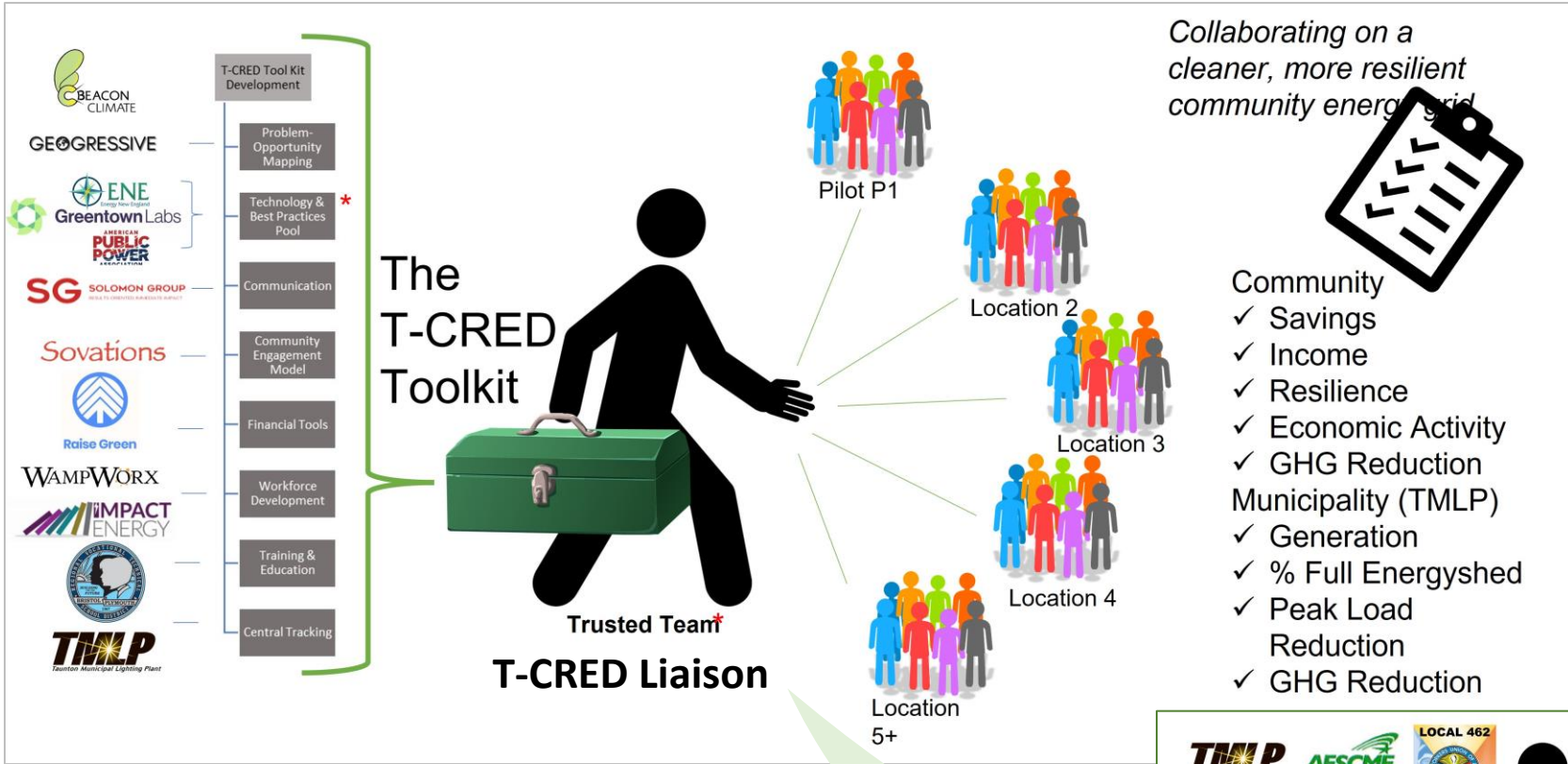
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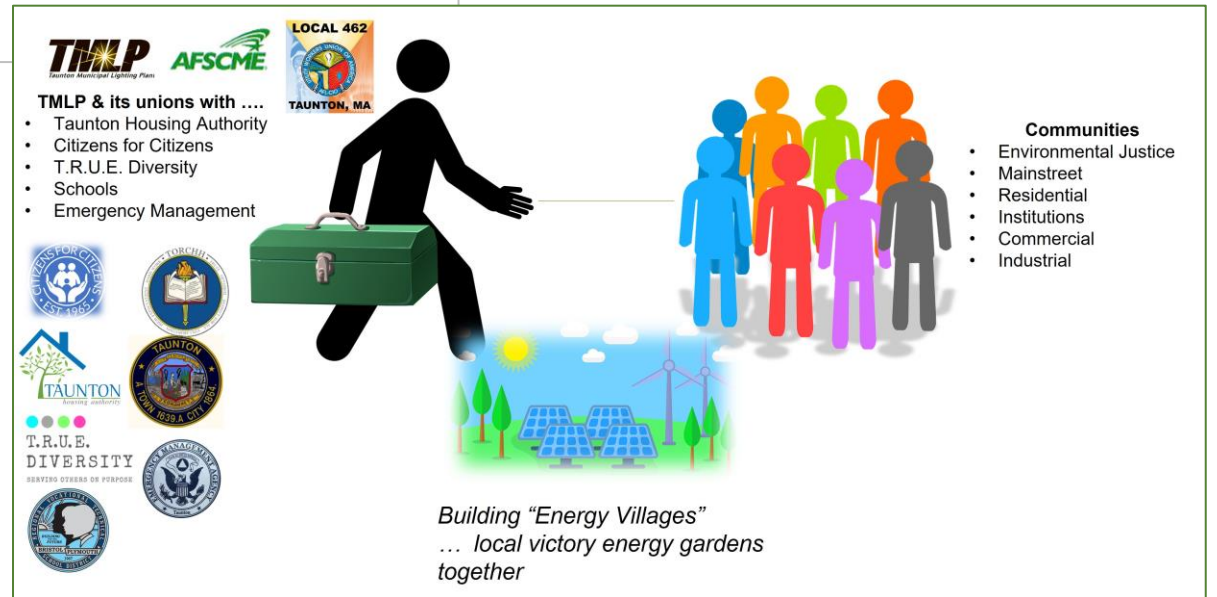


Using the T-CRED Toolkit Through the T-CRED Liaison Program

*The Trusted Team



Re-imagining A Local Utility's Relationship with Its Community



Taunton Community Resilient Energyshed Development (T-CRED) Project



AN INNOVATIVE APPROACH TO BUILDING A FULL AREA “ENERGYSHED” THROUGH LOCAL DEVELOPMENT OF INTEGRATED EQUITABLE CLEAN ENERGY COMMUNITY RESILIENCE HUBS (CCRHS) AND DISTRIBUTED ENERGY RESOURCES (DERs) IN ENERGY VILLAGES (“E-VILLAGES”)

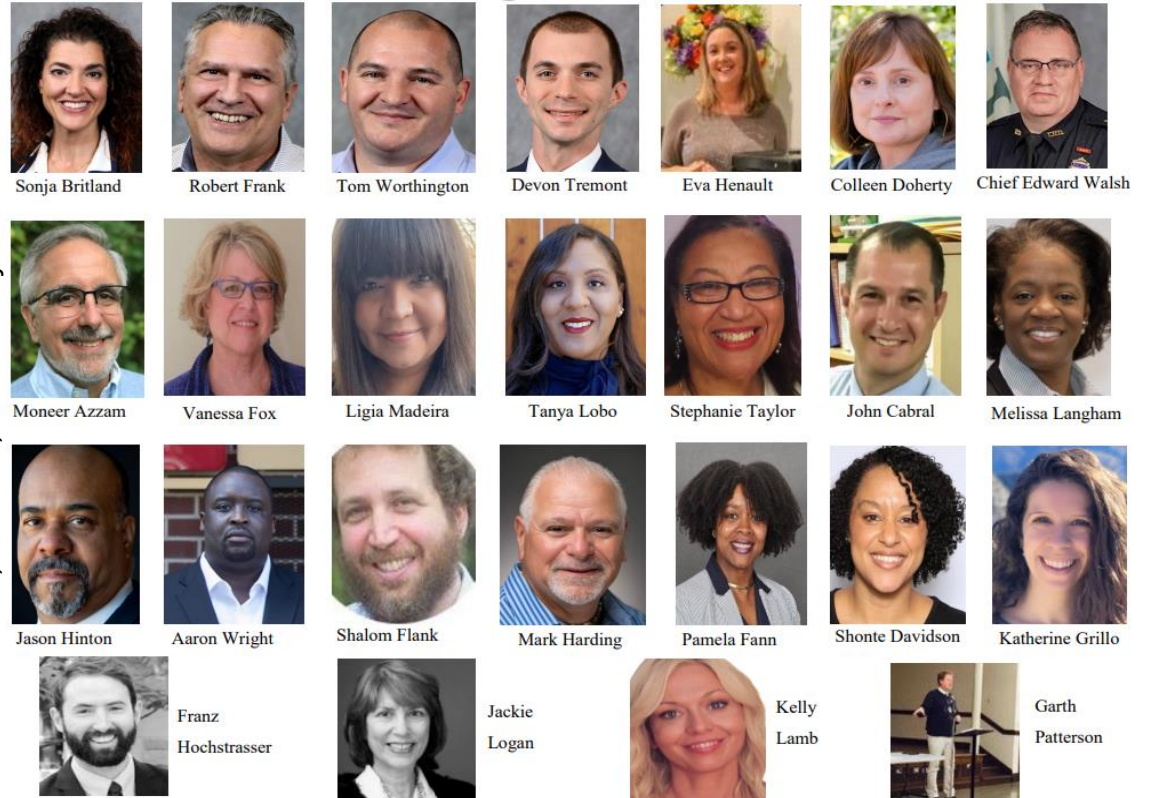


Community Partners

Local Expert Resource Ptrs.



Superintendents, Chiefs, CEOs, Principals, Founders, Directors, Assistants of Listed Partners



Questions?

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