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SHELTER ISLAND MASHOMACK PRESERVE

SUSTAINABILITY STRATEGIES FOR RENOVATING IN A SENSITIVE ECOSYSTEM

CLIENT The Nature Conservancy. Mike Laspia. Cynthia Belt **TEAM** G. Arnold, S. Coulter, L. Cheng, F. Dieye, R. Futrell, A. Guerrero, S. Jiang, J. Louie, E. Quigley. R. Schwarz, M. Shurtleff, M. Weiss **ADVISOR** Susanne DesRoches

INTRODUCTION SITE

INTRODUCTION CLIENT

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INTRODUCTION OBJECTIVES

CLIENT MISSION

PRIMARY

Protect the sensitive environment

SECONDARY

Fundraising, increase occupancy and further educational mission

TEAM OBJECTIVE

RESEARCH

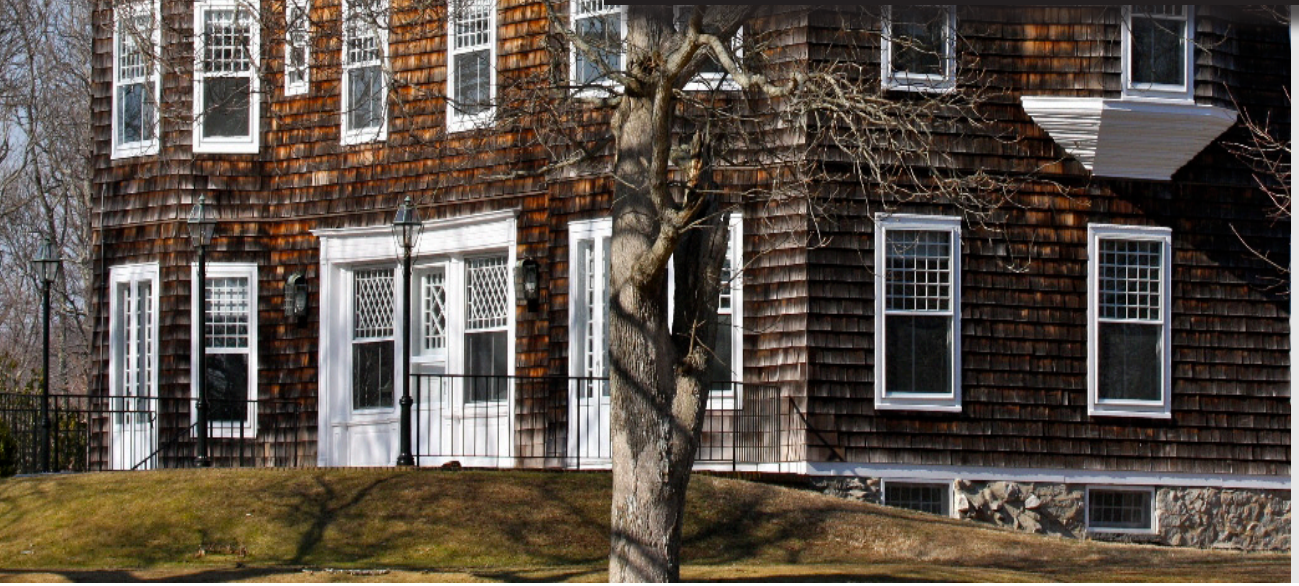
Identify sustainable building strategies and best practices

CONSIDERATION

Minimize risk to the sensitive environment

PROJECT SITE

THE MANOR HOUSE IS THE HEART OF MASHOMACK'S OPERATIONS



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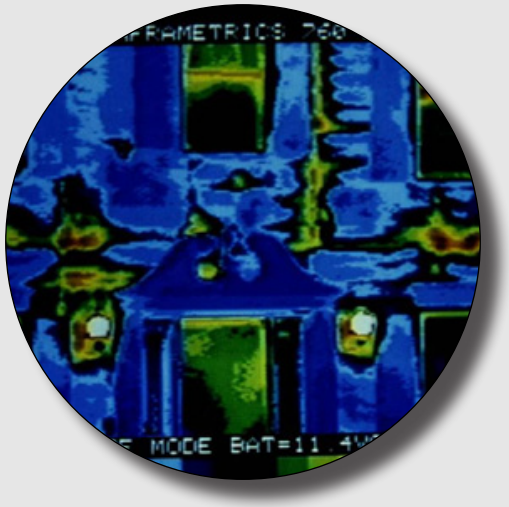
PROJECT STRATEGY

REDUCE IMPACT ON BUILDING OPERATIONS AT MASHOMACK PRESERVE

Water Conservation &
Wastewater Management



Energy Efficiency

Renewable Energy

PROJECT CHALLENGES

OPERATIONAL

Suggested opportunities may be inconsistent with seasonal occupancy patterns

TECHNICAL

Research limited to available data

ENVIRONMENTAL

Unique site conditions prohibit installation of certain technologies

PROJECT FINDINGS

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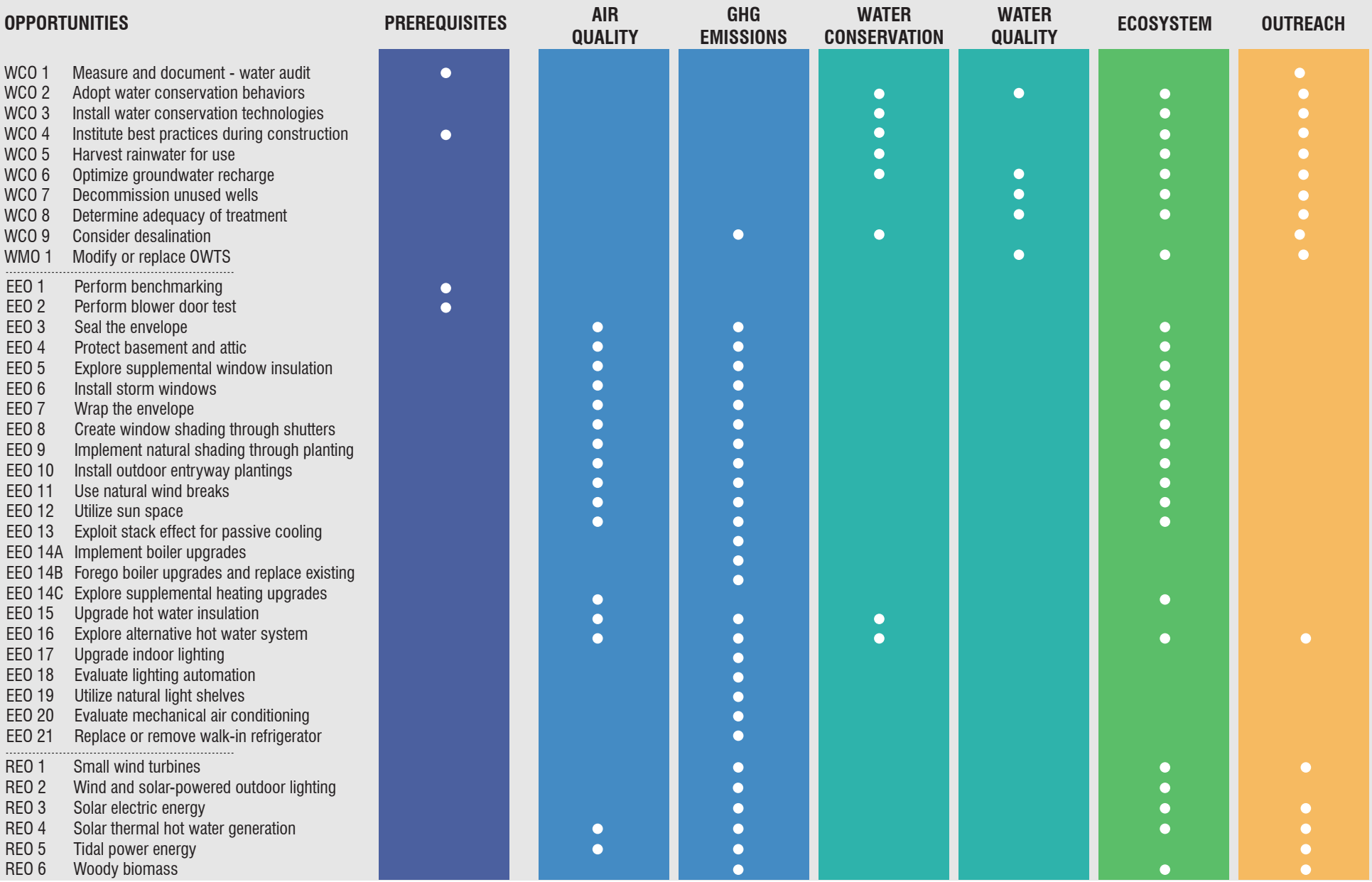
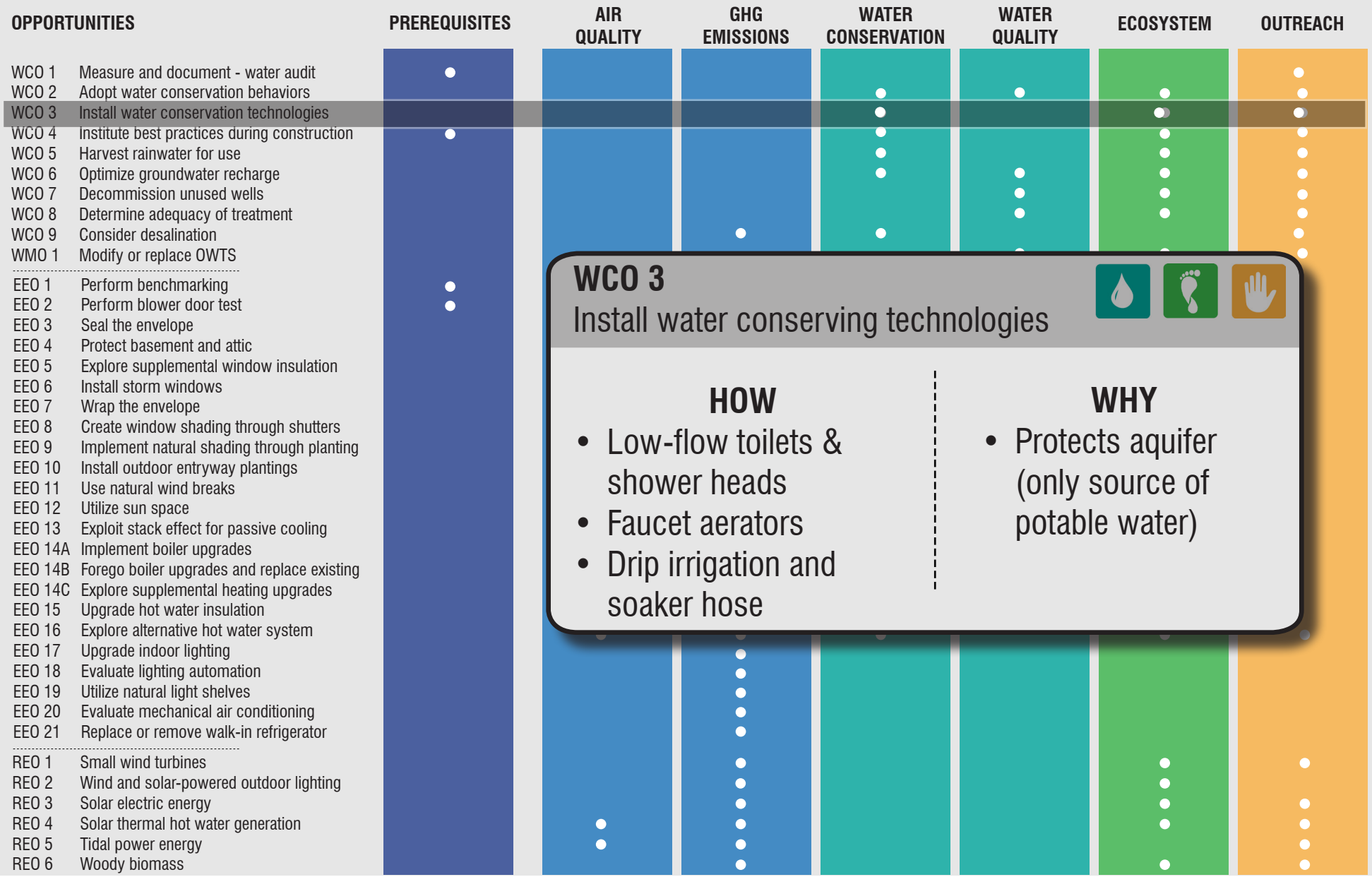
1. Measure and document - water audit
2. Adopt water conservation behaviors
3. Install water conservation technologies
4. Institute best practices during construction
5. Harvest rainwater for use
6. Optimize groundwater recharge
7. Decommission unused wells
8. Determine adequacy of treatment
9. Consider desalination
10. Modify or replace OWTS
11. Perform benchmarking
12. Perform blower door test
13. Seal the envelope
14. Protect basement and attic
15. Explore supplemental window insulation
16. Install storm windows
17. Wrap the envelope
18. Create window shading through shutters
19. Implement natural shading through planting
20. Install outdoor entryway plantings
21. Use natural wind breaks
22. Utilize sun space
23. Exploit stack effect for passive cooling
24. Implement boiler upgrades
25. Forego boiler upgrades and replace
26. Explore supplemental heating upgrades
27. Upgrade hot water insulation
28. Explore alternative hot water system
29. Upgrade indoor lighting
30. Evaluate lighting automation
31. Utilize natural light shelves
32. Evaluate mechanical air conditioning
33. Replace or remove walk-in refrigerator
34. Small wind turbines
35. Wind and solar-powered outdoor lighting
36. Solar electric energy
37. Solar thermal hot water generation
38. Tidal power energy
39. Woody biomass

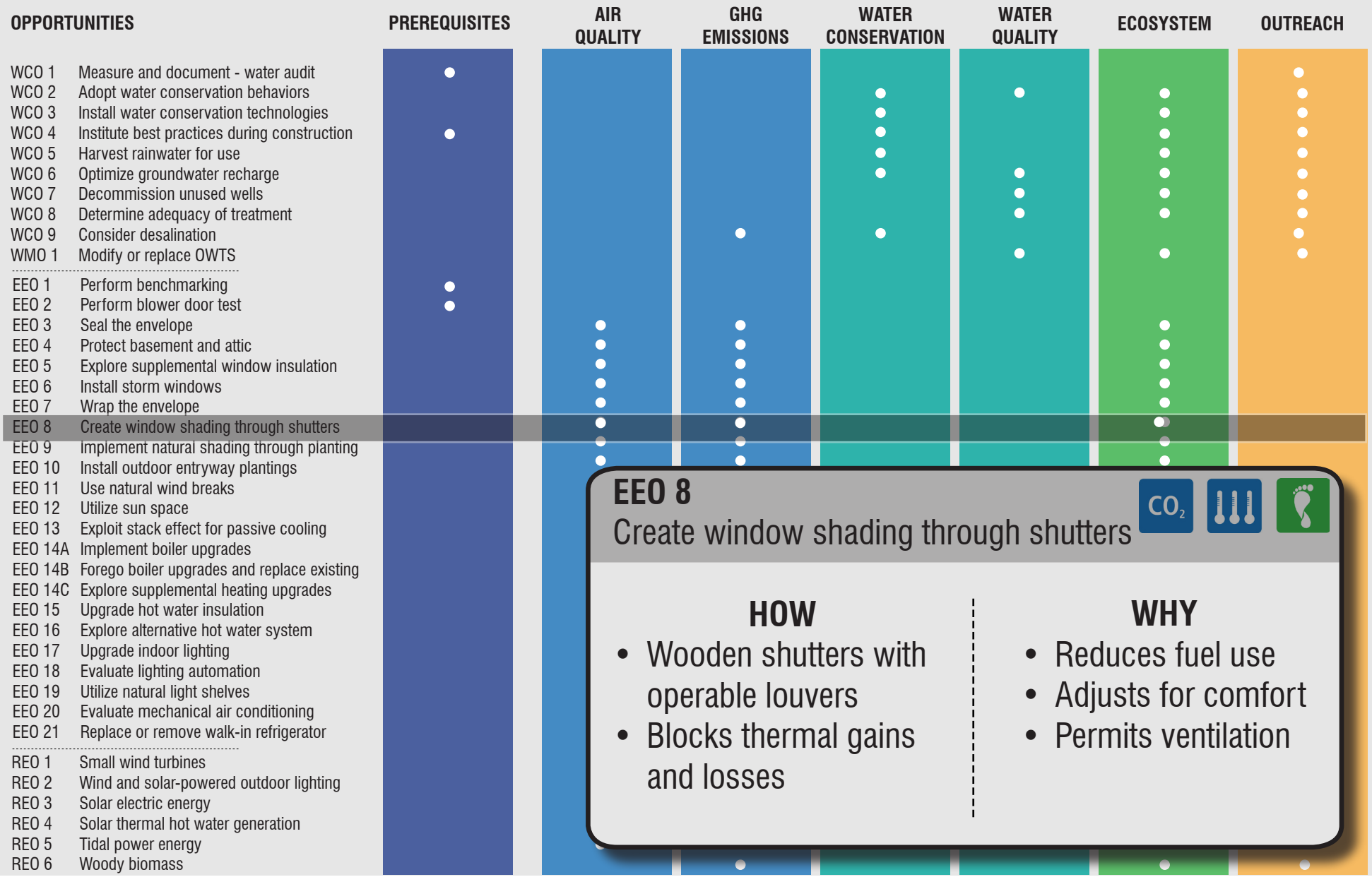
PROJECT FINDINGS



PROJECT FINDINGS



PROJECT FINDINGS



PROJECT FINDINGS

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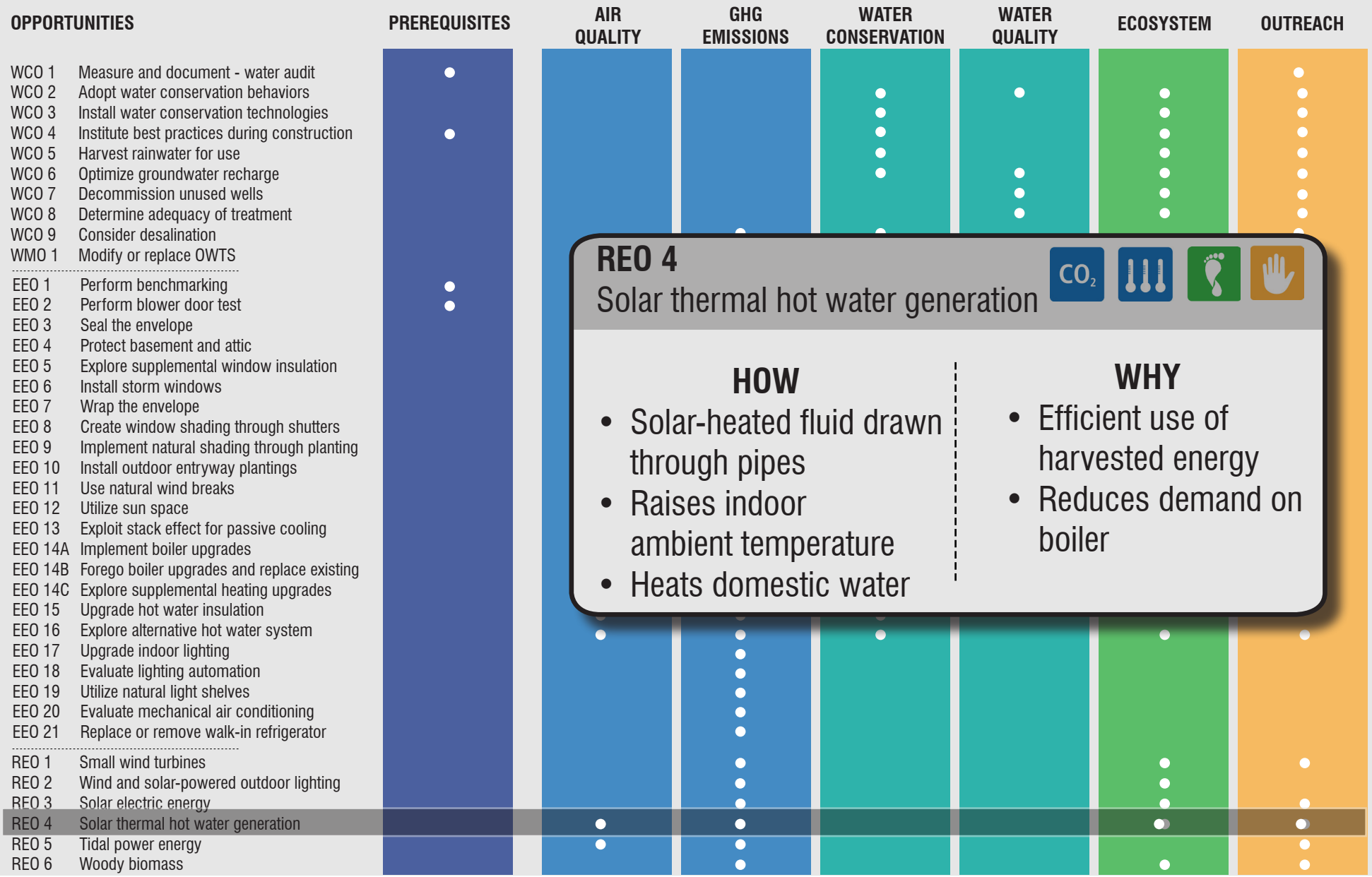

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ANALYSIS CONTEXT

FEASIBILITY

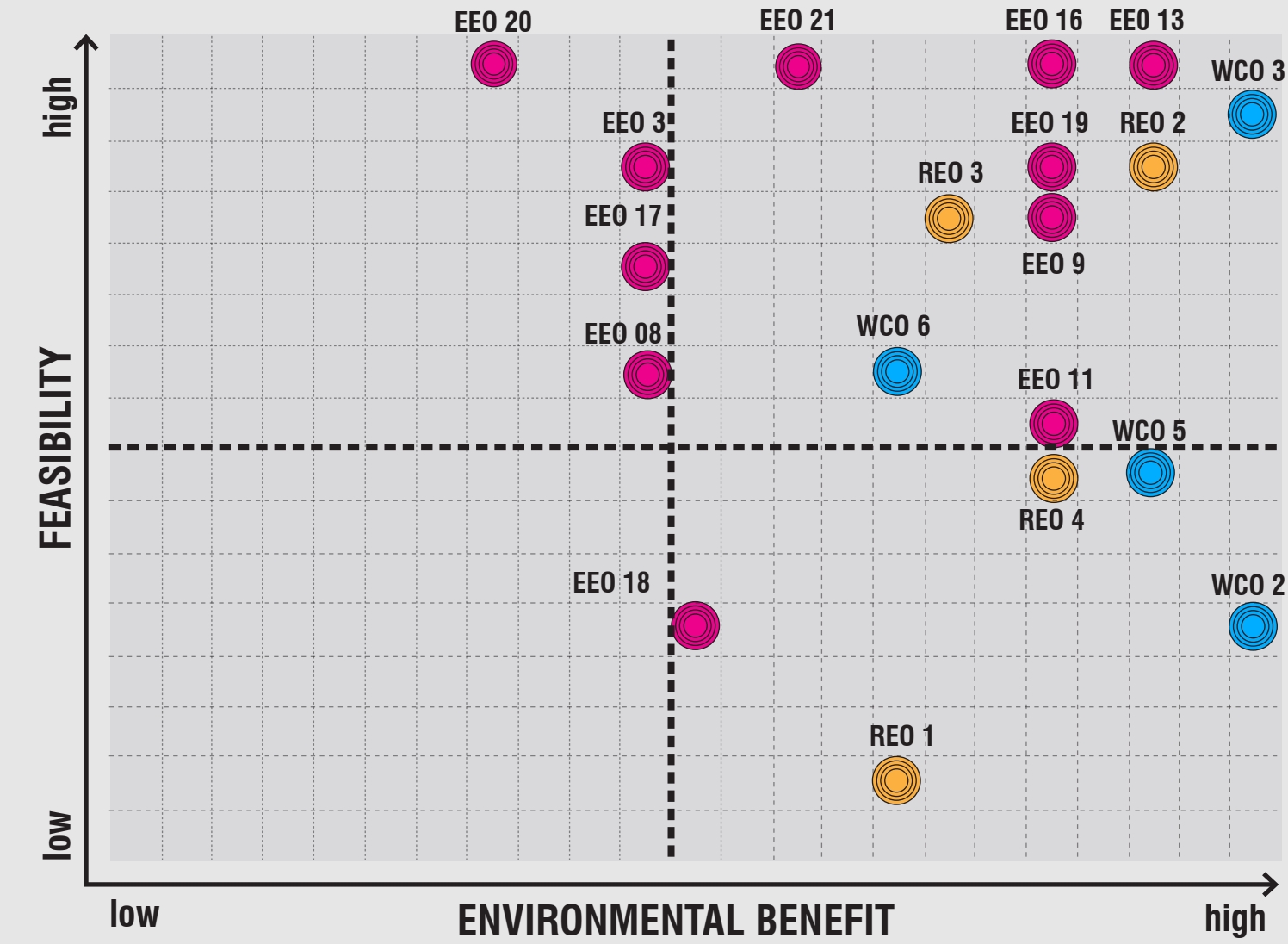
Time and effort, ease of implementation

VS.

ENVIRONMENTAL BENEFIT

Impact on the ecosystem

ANALYSIS FINDINGS



WCO
Water Conservation Opportunity

EEO
Energy Efficiency Opportunity

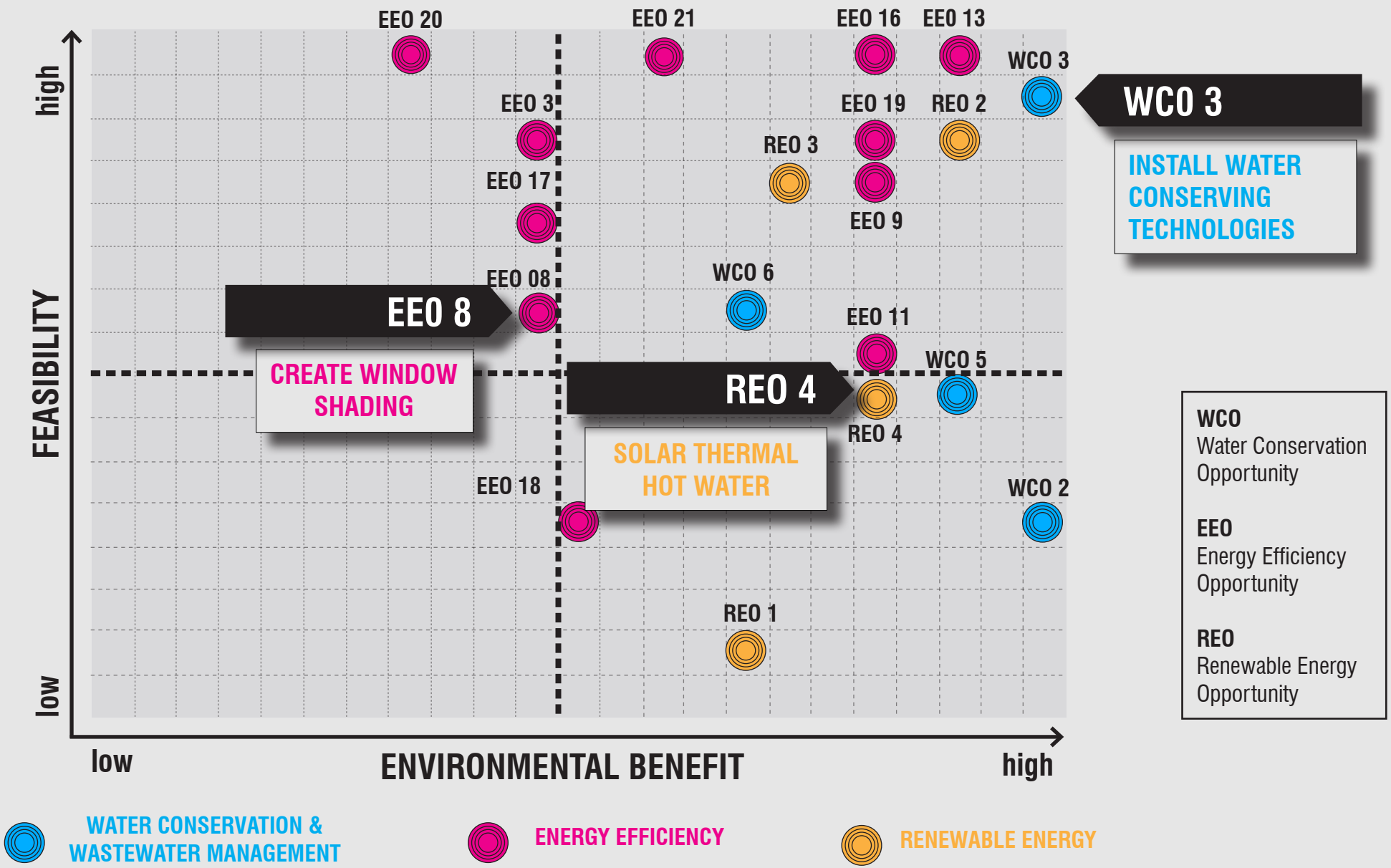
REO
Renewable Energy Opportunity

WATER CONSERVATION & WASTEWATER MANAGEMENT

ENERGY EFFICIENCY

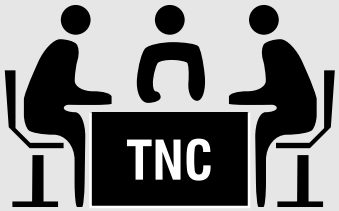
RENEWABLE ENERGY

ANALYSIS FINDINGS



CONCLUSION PURPOSE

REPORT



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The Nature Conservancy
Mike Laspia
Cynthia Belt

DONORS
Individuals
Community
Organizations

COMMUNITY
Shelter Island
Long Island

CONSULTANTS
Engineers
Contractors
Architects

CONCLUSION SUMMARY

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