Launch Presentation

FEBRUARY 29, 2024

NEW YORK HEALTHCARE DECARBONIZATION GUIDE

STRATEGIES FOR RESILIENT BUILDING & FACILITY CARBON REDUCTION

WELCOME & INTRODUCTION

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TODAY'S SPEAKERS

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ACKNOWLEDGEMENTS

A public/private partnership consisting of State and Local Agencies and Authorities including, but not limited to:

- New York State Energy Research & Development Authority (NYSERDA)
- New York State Department of State (DOS)
- Department of Environmental Conservation (DEC)
- Department of Health (DOH)
- New York City Mayors Office
- New York City Department of Buildings (DOB)
- Utilities

Industry leaders such as:

- Hospital Association of New York State (HANYS)
- Greater New York Hospital Association (GNYHA)
- Steering Committee & Core Team Members – The New York Healthcare Protocol
- Other Healthcare affiliates and partners that have a vested interest in decarbonization, New York City Local Law-97 compliance, and achievement of a timely and cost-effective path to achieving the necessary building emissions targets.

COLLABORATION

FOUNDER'S CIRCLE

ASHRAE

ASHRAE New York City Chapter

NEW YORK STATE | NYSERDA

AKF

TRANE

ASHRAE LEADERSHIP CIRCLE

ASHRAE Twin Tiers Chapter

ASHRAE Rochester Chapter

ASHRAE Bi-State Chapter

ASHRAE Buffalo Chapter

ASHRAE Central New York Chapter

ASHRAE Northeast Chapter

HEALTHCARE SECTOR LEADER

CHA

INDUSTRY SUPPORTER

DLA CONSULTING ENGINEERS

CONTRIBUTORS

- Architecture & Design Firms
- Consulting Firms
- Engineering Firms
- Government Organizations
- Hospitals
- Legal
- Manufacturers
- Professional Associations
- Schools & Universities
- Utility Companies

LEARNING OBJECTIVES

Upon completion of this course, individuals will be able to…

1. **Why** was this guide developed and how did we did it.
2. How the guide can bring organizational **value**: Designated leader for decarbonization strategy
3. Importance of **visibility and understanding** of the regulatory landscape.
4. How to leverage mechanical components within the building and their sources of emissions, to create **line of sight** for building GHG benchmark
5. Importance of building a team with the necessary skillset to **identify and implement changes**
6. The importance of **vision and strategy alignment** with both leadership and tactical teams.
7. Financial feasibility: How to secure outside **funding** to support solution implementation.
8. How the guide can help **assess your** progress against your baseline toward your established journey.

ELEVATOR SPEECH

The **Healthcare Decarbonization Guide**, developed by the New York Healthcare Protocol (NYHP), is a simple and clear how-to resource that can help any healthcare organization — no matter their size, their budget, or where they are in their decarbonization journey — to formulate a financially viable sustainability plan, that maximizes energy resiliency and delivers top-quality patient care.

WHAT'S GOING ON?

CLCPA

New York State's Climate Leadership and Community Protection Act

LL97

New York City's Local Law 97

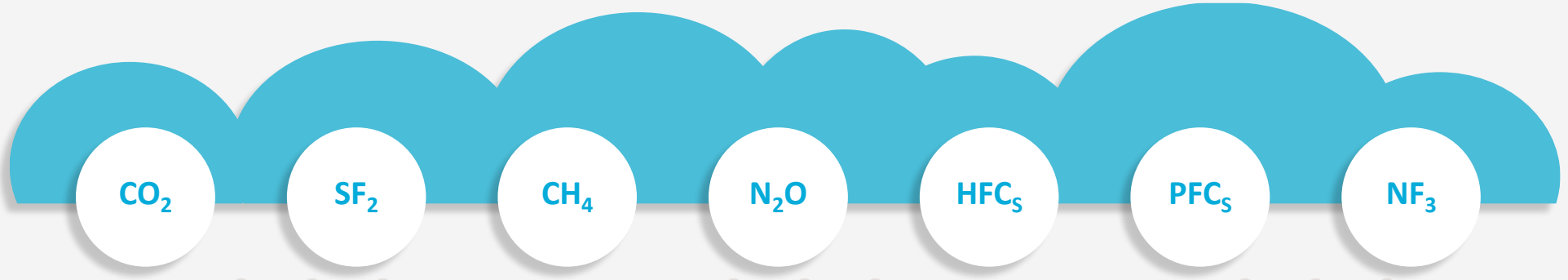
WHAT DOES THIS MEAN FOR HOSPITALS?

Hospitals and other healthcare-related buildings

8.5%
of carbon emissions in U.S.

4.4%
of carbon emissions worldwide

WHAT “DECARBONIZATION” REALLY MEANS



1 DIRECT SOURCES

Onsite energy consumption and materials processing from sources controlled by an organization. *(emissions from vehicles, boilers, furnaces, fuel combustion)*

2 INDIRECT SOURCES

Emissions associated with the purchase of electricity, district steam, heat and cooling.

3 UPSTREAM AND DOWNSTREAM SOURCES

Transportation and distribution, investments, use of sold products, business travel, end-of-life treatment of sold products.

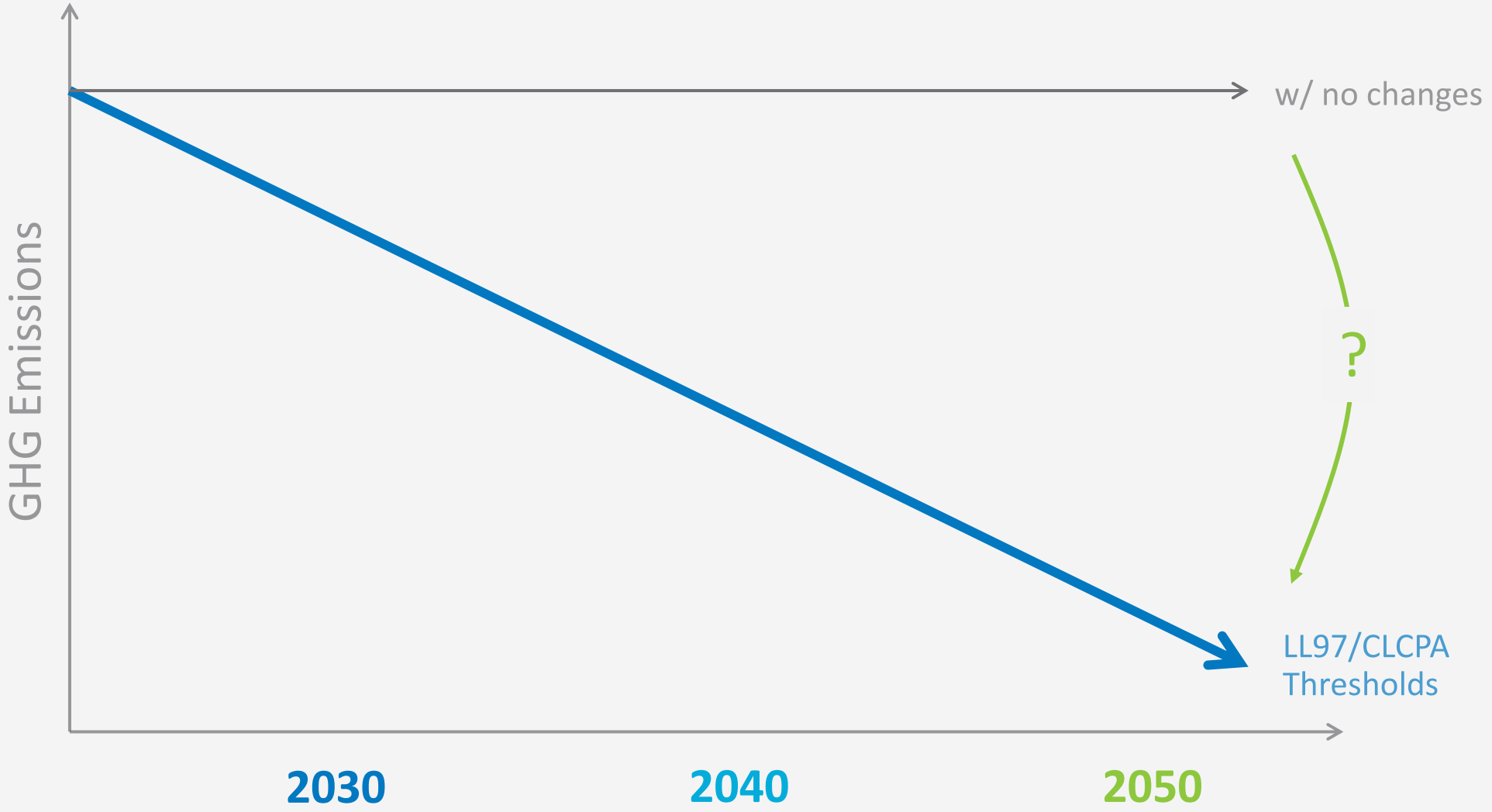
DECARBONIZATION IS AN OPPORTUNITY

ENERGY EFFICIENCY
increases both patient safety
and care quality

ADVANCED CONTROL TECHNOLOGIES
contribute to leaner operations,
reduced utility consumption,
and lower operating costs

RESILIENCY MEASURES
provide critical life safety backup
in emergency situations

DO YOU HAVE A PLAN TO REDUCE YOUR GHG EMISSIONS?



WHAT WE KNOW.

- Turnover
- Prioritization of patient quality of care and resiliency
- Decarbonization projects can be expensive
- Challenges with funding projects
- Capital constraints and difficult return on investment evaluations
- Utility electrical grid decarbonization timeline and coordination can slow progress
- Concerns around the reliability of the electrical grid reliability
- Lack of workforce training to operate and maintain new low-carbon HVAC system solutions
- Technology gaps to replace-in-kind HVAC solutions with existing HVAC system infrastructure
- Building electrical infrastructure limitations for electrification solutions for HVAC systems

HOSPITALS NEED

GUIDANCE, SUPPORT AND RESOURCES.

BUT WHAT SEEMS IMPOSSIBLE

IS DOABLE.

An industry-driven initiative focused on aligning all of healthcare in New York State around the goals of the Climate Leadership and Community Protection Act (CLCPA) and the Climate Mobilization Act (CMA).

THE NEW YORK HEALTHCARE PROTOCOL

THE PROTOCOL IS COMPRISED OF THREE KEY COMPONENTS:

1

THE PLEDGE

The commitment of the healthcare sector and New York to work together to decarbonize healthcare facilities as much as possible without sacrificing patient care and resiliency.

2

THE ROADMAP

A roadmap that clearly identifies target outcomes, best practices implementation timing, barriers, mitigations solutions, innovation pathways, and specific enabling actions needed to achieve them identified.

3

THE GUIDE

A robust step-by-step guide, complete with resources and tools, that assists healthcare institutions in decarbonizing their facilities by the agreed to date.

THE STEERING COMMITTEE

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ASHE

Shannon O'Geen
Founder, Co-Owner
Oxygen Group

HOW DID WE GET TO THIS POINT

HOW DID WE GET TO THIS POINT?

SCHELLINGPOINT STRATEGIC COLLABORATION APPROACH

SCHELLINGPOINT STRATEGIC COLLABORATION APPROACH

JAN 2023 APRIL 2023 MAY 2023

THE SOLUTION

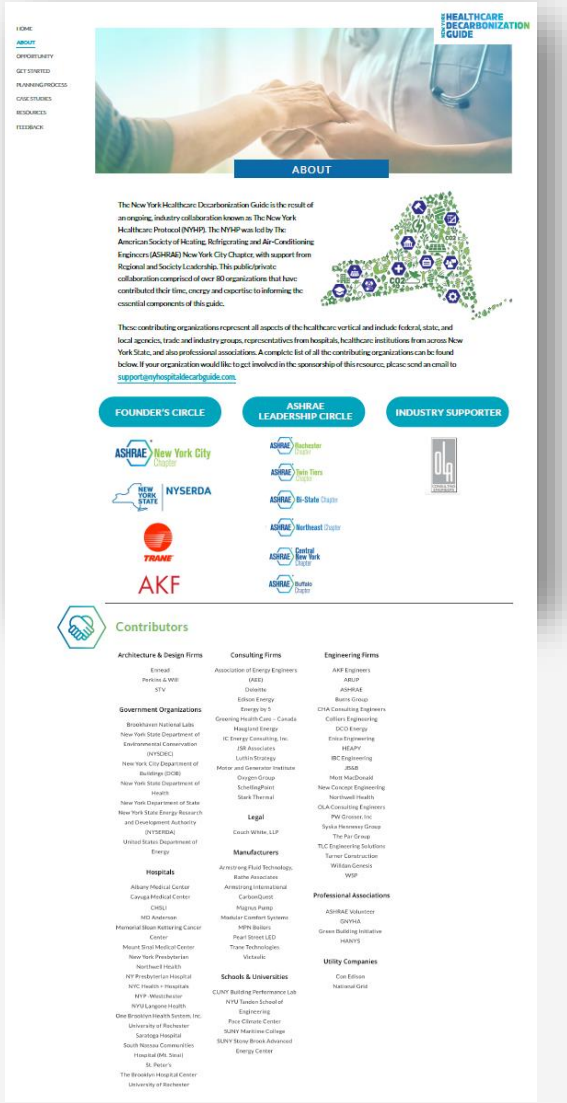
The first and primary resource of the New York Healthcare Protocol

A foundational resource for hospital decarbonization and resiliency projects in New York State and beyond.

First-steps assistance and technical guidance to hospitals preparing to meet federal, state and local guidelines.

WHAT DOES THIS LOOK LIKE?

WHAT CAN YOU FIND IN THE GUIDE?



BACKGROUND

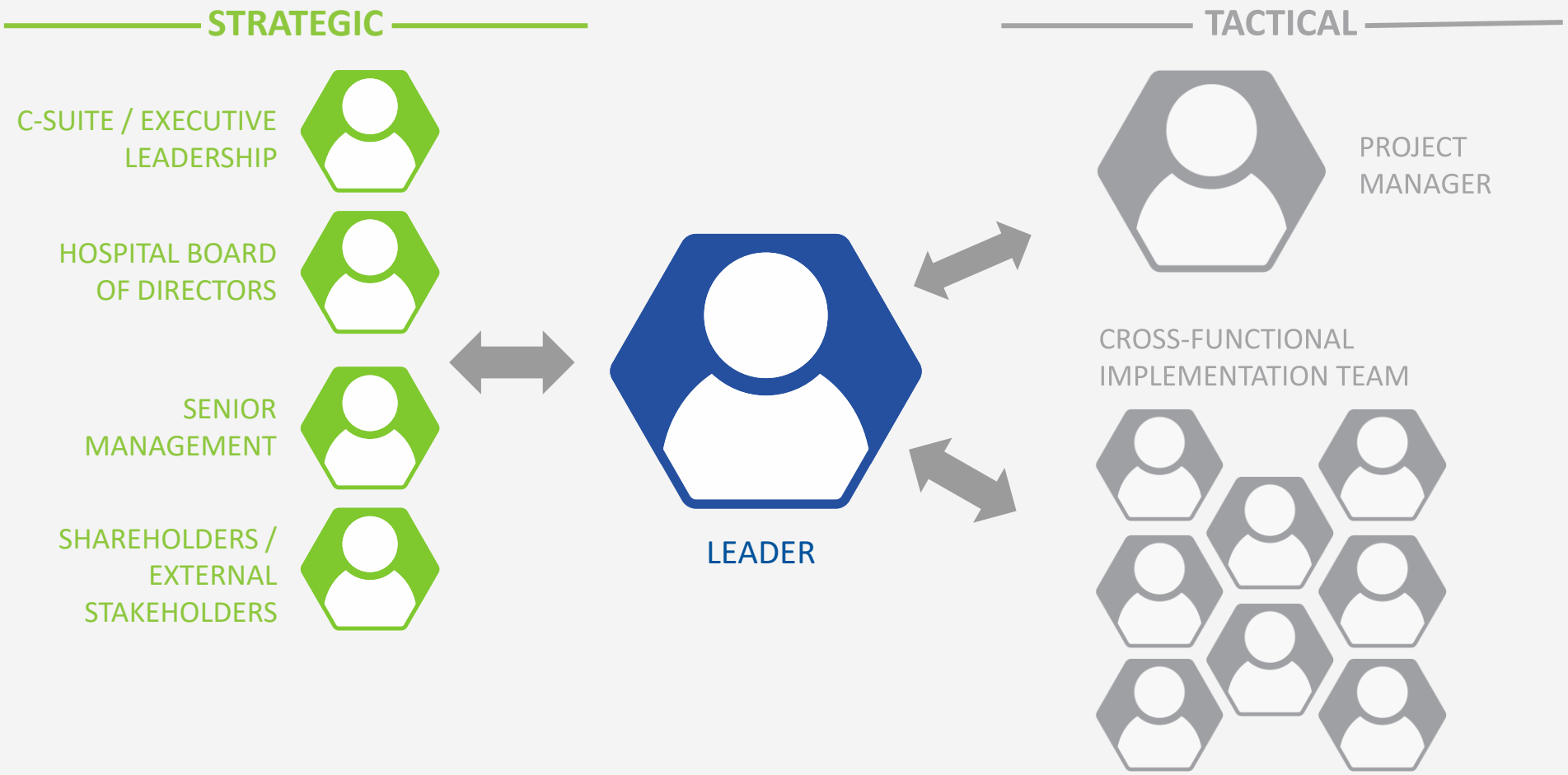
- About
- Opportunity
- Getting Started

PLANNING PROCESS

CASE STUDIES

RESOURCES

DESIGNATE AN INITIATIVE LEADER



UNDERSTAND THE REGULATORY LANDSCAPE

FEDERAL

Biden Administration
"National Climate Task Force"

GOAL: reduce U.S. greenhouse gas emissions

- 50-52% below 2005 levels in 2030
- 100% carbon pollution-free electricity by 2035
- net-zero by 2050

STATE

Climate Act or CLCPA

New York State's Climate Leadership and Community Protection Act

GOAL: reduce economy-wide greenhouse gas emissions

- 40 % by 2030
- No less than 85% by 2050 from 1990 levels

LOCAL

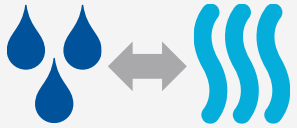
Local Law 97 (LL97)
GOAL: make New York City carbon neutral by 2050

LL11 (facade), LL88 (lighting and sub metering), LL84, LL87

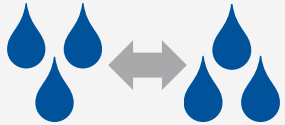
Codes & Requirements **Code/Policy Changes**

ESTABLISH YOUR BASELINES

TAKING INVENTORY

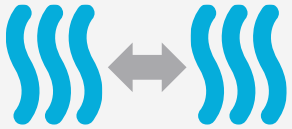


WATER-TO-AIR

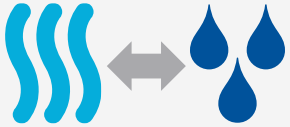


WATER-TO-WATER

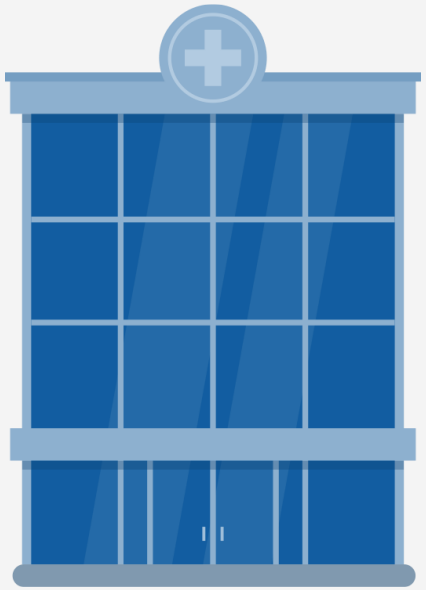
TYPES OF HVAC SYSTEMS



AIR-TO-AIR



AIR-TO-WATER



ESTABLISH BASELINE

- HVAC
- \+
- Energy
- \+
- Lighting
- \+
- Utilities
- \+
- Telecom

= **Total Current GHG Emissions**

HVAC System Design Schematics

Decarbonize with Resilience Baseline Survey

GATHER YOUR TEAM

STRATEGIC

- C-SUITE / EXECUTIVE LEADERSHIP
- HOSPITAL BOARD OF DIRECTORS
- SENIOR MANAGEMENT
- SHAREHOLDERS / EXTERNAL STAKEHOLDERS

LEADER

TACTICAL

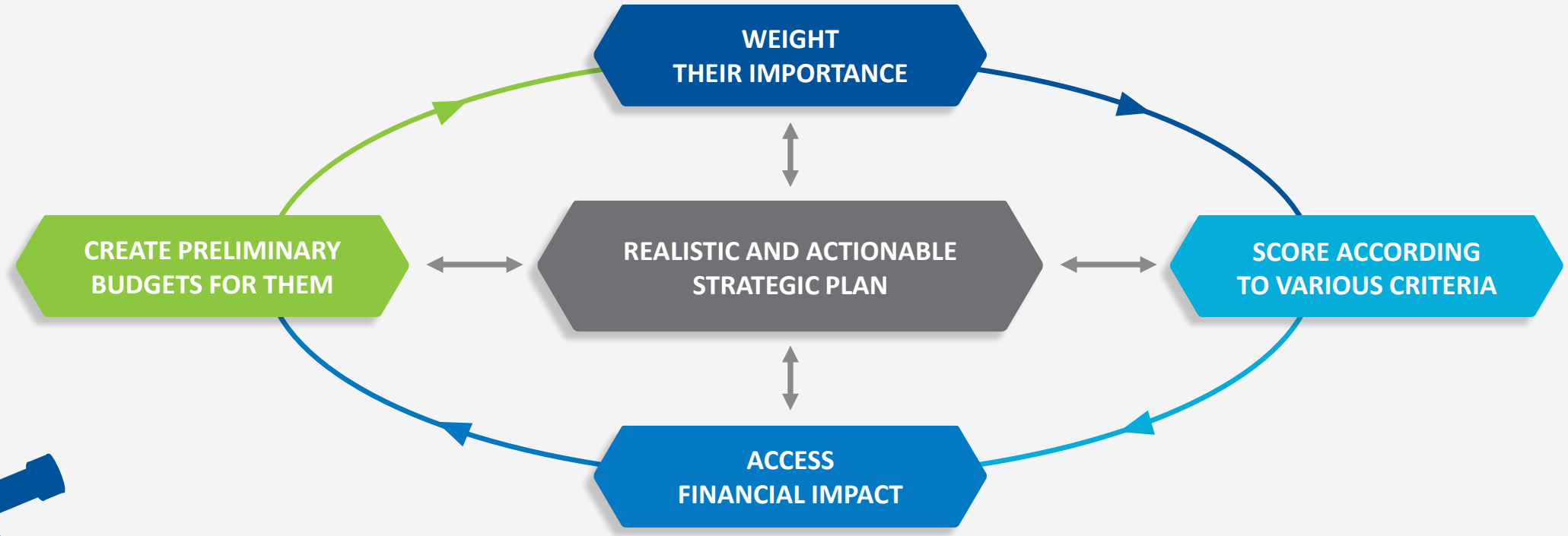
PROJECT MANAGER

CROSS-FUNCTIONAL IMPLEMENTATION TEAM

- Clinical Staff / Infection Control
- Engineering & Design & Construction
- Facilities & Operations
- Procurement Purchasing
- Finance / Tax
- Legal / Contracts
- Sustainability / ESG
- Human Resources
- Marketing & Communications
- IT/Security Infrastructure

RACI Matrix

SET VISION & MAP STRATEGY



Decision-Making Matrix

SET VISION & MAP STRATEGY

Project Scoring

Select Project Type	*Enter Project Name*
NewConstruction	**Addition Option #2**

Project Type	Project Name	CRITERIA	FACTORS	Scoring Cue (Select)	Weighted Score
NewConstruction	Addition Option #2	Education & Training	Education & Training	0 = NA	0.00%
		Project Financial Data	Budget Cost	2 = $1MM - $2.5MM	0.75%
			Incentive Dollars Included	3 = $1MM - $2.5MM	11.25%
			Payback (Years)	3 = 1-2 years	4.50%
			IRR (Percentage)	4 = Greater than 10%	4.50%
			Implementation Duration	3 = 6-12 mo.	2.25%
		Institutional Financial Impact	Cash On Hand (Days)	3 = Medium	3.75%
			Net Operating Margin	3 = Medium	3.45%
			Cashflow Impact	2 = Low	1.70%
			Utility Cost Change (Electricity)	3 = Medium	2.25%
			Fuel Cost Change (Steam, Oil, etc.)	3 = Medium	1.50%
			Water Consumption Change	3 = Medium	1.50%
		Organizational Business Objectives	Patient Safety Impact	4 = High	3.00%
			Patient Experience	4 = High	3.00%
			Community Service/Outcomes Impact	2 = Low	1.50%
			Strategic Initiatives Alignment	2 = Low	1.50%
			Staffing Efficiency (Nurse/Clinician/Support Ratio)	4 = High	2.25%
			Revenue Generation Impact	4 = High	0.75%
		Facility Operation & Resiliency Objectives	Energy Demand Change	3 = Medium	1.88%
			Energy Consumption Change	3 = Medium	1.88%
			Total Cost Avoidance	3 = Medium	1.50%
			Fossil Fuel Consumption Change	4 = High	2.00%
			Utility / Power Interruption Prevention + Extreme Weather Protection	3 = Medium	0.75%
		Facility Carbon Emissions Impact	Facility Carbon Emissions Impact	4 = High	10.00%
		Regulatory Compliance	Federal	4 = High	4.00%
			State	3 = Medium	2.63%
			City/Local	3 = Medium	1.88%

Addition Option #2 Score	75.90%

SET VISION & MAP STRATEGY

Scoring Criteria, Factors, Weights

Criteria		Weightage
	Education & Training	5%
	Project Financial Data	30%
	Institutional Financial Impact	20%
	Organizational Business Objectives	15%
	Facility Operation & Resiliency Objectives	10%
	Facility Carbon Emissions Impact	10%
	Regulatory Compliance Score	10%
	max	
		100%

		Weightage	Rating Cues				
Education & Training Factor	Training course	100%	0 = NA	1 = Nominal	2 = Low	3 = Medium	4 = High

		Weightage	Rating Cues				
Project Financial Data Factors	Budget Cost	5%	0 = NA	1 = Greater than $2.5MM	2 = $1MM - $2.5MM	3 = $500K - $999K	4 = $1 to $499K
	Incentive Dollars Included	50%	0 = NA	1 = $1 to $499K	2 = $500K - $999K	3 = $1MM - $2.5MM	4 = Greater than $2.5MM
	Payback (Years)	20%	0 = NA	1 = Greater than 3 years	2 = 2-3 years	3 = 1-2 years	4 = less 1 year
	IRR (Percentage)	15%	0 = NA	1 = Less than 5%	2 = 5%-7.5%	3 = 7.6%-10%	4 = Greater than 10%
	Implementation Duration	10%	0 = NA	1 = Greater than 24 mo.	2 =12-24 mo.	3 = 6-12 mo.	4 = Less than 6 mo.
		max					
		100%					

		Weightage	Rating Cues				
Institutional Financial Impact Factors	Cash On Hand (Days)	25%	0 = NA	1 = High	2 = Medium	3 = Low	4= Nominal
	Net Operating Margin	23%	0 = NA	1 = High	2 = Medium	3 = Low	4= Nominal
	Cashflow Impact	17%	0 = NA	1 = High	2 = Medium	3 = Low	4= Nominal
	Utility Cost Change (Electricity)	15%	0 = NA	1 = Nominal	2 = Low	3 = Medium	4 = High
	Fuel Cost Change (Steam, Oil, etc.)	10%	0 = NA	1 = Nominal	2 = Low	3 = Medium	4 = High

SET VISION & MAP STRATEGY

Project Comparisons

Select projects to compare.

Addition Option #1 | Addition Option #2 | Emmisions Safety Train... | Sample Constrution #1 | Sample Constrution #2 | Sample Constrution #3 | Training #2

EducationTraining | ExistingFacility | NewConstruction

	Wgtd. Score
Education & Training	
Education & Training	5.00%
Facility Carbon Emissions Impact	
Facility Carbon Emissions Impact	0.00%
Facility Operation & Resiliency Objectives	
Energy Consumption Change	0.00%
Energy Demand Change	0.00%
Fossil Fuel Consumption Change	0.00%
Total Cost Avoidance	0.50%
Utility / Power Interruption Prevention + Extreme Weather Protection	0.00%
Institutional Financial Impact	
Cash On Hand (Days)	5.00%
Cashflow Impact	0.85%
Fuel Cost Change (Steam, Oil, etc.)	0.00%
Net Operating Margin	4.60%
Utility Cost Change (Electricity)	0.00%
Water Consumption Change	0.00%
Organizational Business Objectives	
Community Service/Outcomes Impact	2.25%
Patient Experience	3.00%
Patient Safety Impact	3.00%
Revenue Generation Impact	0.56%
Staffing Efficiency (Nurse/Clinician/Support Ratio)	1.69%
Strategic Initiatives Alignment	1.50%
Project Financial Data	
Budget Cost	1.50%
Implementation Duration	0.00%
Incentive Dollars Included	3.75%
IRR (Percentage)	1.13%
Payback (Years)	6.00%
Regulatory Compliance	
City/Local	0.00%
Federal	1.00%
State	0.00%
Grand Total	41.33%

Addition Option #1 | Addition Option #2 | Emmisions Safety Training | Sample Constrution #1 | Sample Constrution #2 | Sample Constrution #3 | Training #2

NewConstruction | EducationTraining | ExistingFacility

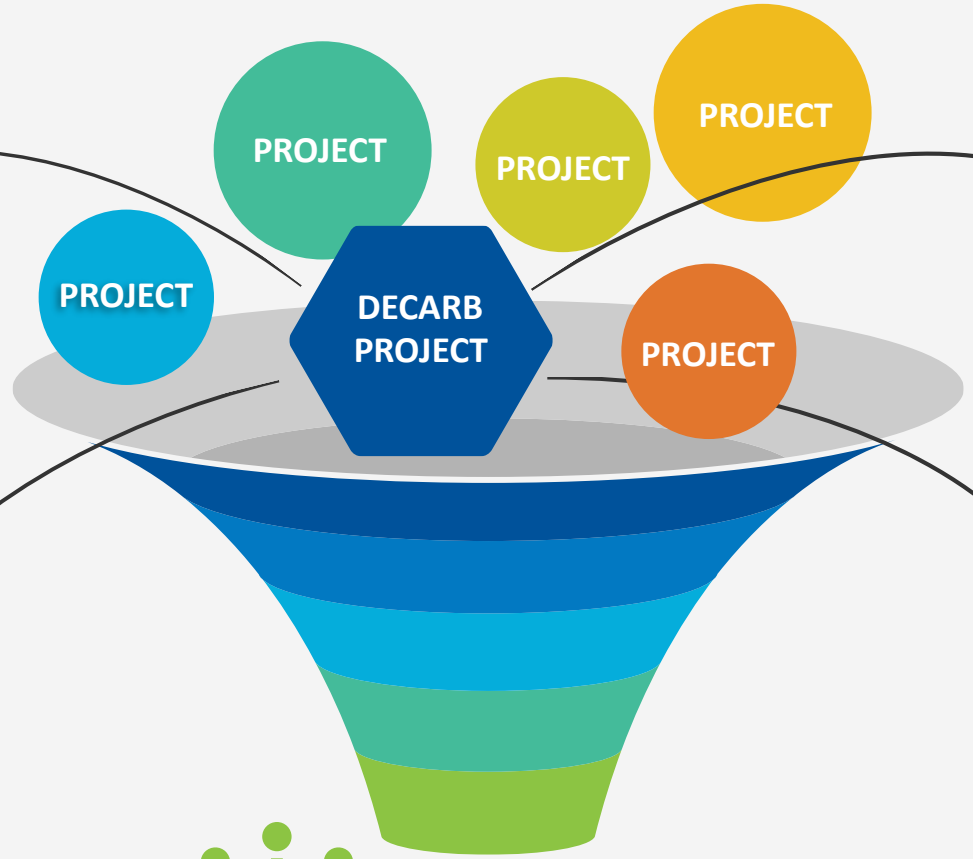
	Wgtd. Score
Education & Training	**0.00%**
Education & Training	0.00%
Facility Carbon Emissions Impact	**10.00%**
Facility Carbon Emissions Impact	10.00%
Facility Operation & Resiliency Objectives	**8.00%**
Energy Consumption Change	1.88%
Energy Demand Change	1.88%
Fossil Fuel Consumption Change	2.00%
Total Cost Avoidance	1.50%
Utility / Power Interruption Prevention + Extreme Weather Protection	0.75%
Institutional Financial Impact	**14.15%**
Cash On Hand (Days)	3.75%
Cashflow Impact	1.70%
Fuel Cost Change (Steam, Oil, etc.)	1.50%
Net Operating Margin	3.45%
Utility Cost Change (Electricity)	2.25%
Water Consumption Change	1.50%
Organizational Business Objectives	**12.00%**
Community Service/Outcomes Impact	1.50%
Patient Experience	3.00%
Patient Safety Impact	3.00%
Revenue Generation Impact	0.75%
Staffing Efficiency (Nurse/Clinician/Support Ratio)	2.25%
Strategic Initiatives Alignment	1.50%
Project Financial Data	**19.50%**
Budget Cost	0.75%
Implementation Duration	2.25%
Incentive Dollars Included	7.50%
IRR (Percentage)	4.50%
Payback (Years)	4.50%
Regulatory Compliance	**8.50%**
City/Local	1.88%
Federal	4.00%
State	2.63%
Grand Total	**72.15%**

Addition Option #1 | Addition Option #2 | Emmisions Safety Training | Sample Constrution #1 | Sample Constrution #2 | Sample Constrution #3 | Training #2

ExistingFacility | EducationTraining | NewConstruction

	Sum of Column1
Education & Training	**0.00%**
Education & Training	0.00%
Facility Carbon Emissions Impact	**10.00%**
Facility Carbon Emissions Impact	10.00%
Facility Operation & Resiliency Objectives	**7.38%**
Energy Consumption Change	1.88%
Energy Demand Change	2.50%
Fossil Fuel Consumption Change	0.50%
Total Cost Avoidance	1.50%
Utility / Power Interruption Prevention + Extreme Weather Protection	1.00%
Institutional Financial Impact	**13.60%**
Cash On Hand (Days)	5.00%
Cashflow Impact	3.40%
Fuel Cost Change (Steam, Oil, etc.)	0.50%
Net Operating Margin	3.45%
Utility Cost Change (Electricity)	0.75%
Water Consumption Change	0.50%
Organizational Business Objectives	**14.25%**
Community Service/Outcomes Impact	2.25%
Patient Experience	3.00%
Patient Safety Impact	3.00%
Revenue Generation Impact	0.75%
Staffing Efficiency (Nurse/Clinician/Support Ratio)	2.25%
Strategic Initiatives Alignment	3.00%
Project Financial Data	**13.50%**
Budget Cost	0.38%
Implementation Duration	0.75%
Incentive Dollars Included	7.50%
IRR (Percentage)	3.38%
Payback (Years)	1.50%
Regulatory Compliance	**7.75%**
City/Local	1.25%
Federal	3.00%
State	3.50%
Grand Total	**66.48%**

SECURE FUNDING



FEDERAL PROGRAMS & INCENTIVES

- U.S. Department of Energy
- U.S. Department of Health & Human Services
- US Environmental Protection Agency

UTILITY PROGRAMS & INCENTIVES

- ConEdison
- National Grid
- PSEG Long Isalnd
- Rocherster Gas & Electric

STATE PROGRAMS & INCENTIVES

NYSERDA

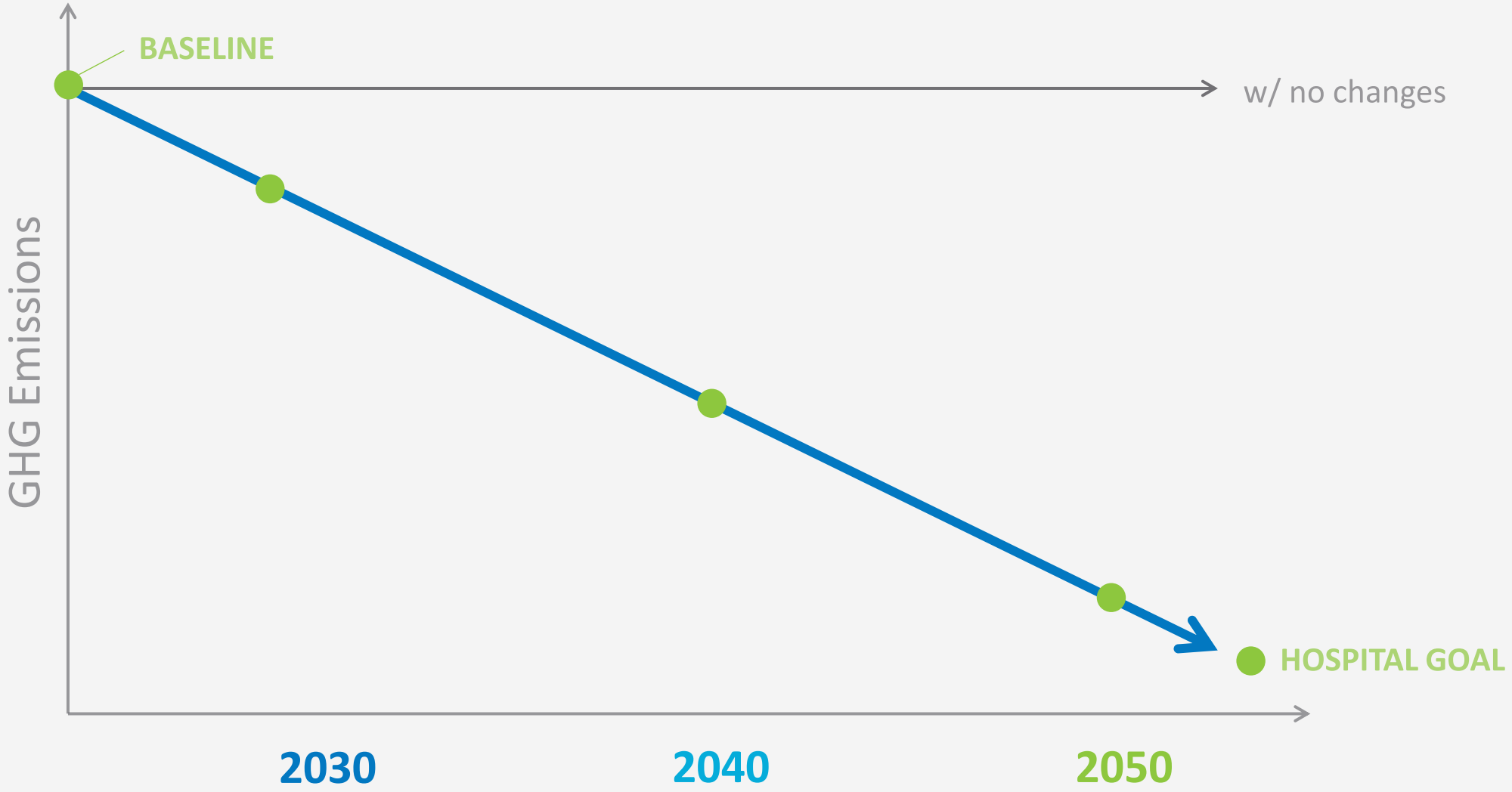
LOCAL PROGRAMS & INCENTIVES

City Renewables Database of State Incentives for Renewables & Efficiency (DSIRE)

ORGANIZATIONAL FUNDS


PROJECT PLANNING AND DESIGN
SCHEDULING
BUDGETING AND CAPITAL ALLOCATION
FUNDING APPLICATIONS AND FINANCING
CONSTRUCTION DELIVERY SELECTION AND BIDDING
CONSTRUCTION
COMMISSIONING / RETRO-COMMISSIONING AND QUALITY CONTROL

MEASURMENT & VERIFICATION



NEXT STEPS ▶

NEXT STEPS

WHERE WE ARE TODAY

Next Steps - 2024

Sustainable Hospital of the Future

Established the "Pledge"

Pathway for hospitals to begin their journey

Identified where decarb & resiliency compete or complement each other

20 of 101
Action Items Complete

Prioritization of Next Cohort of Action Items (MVP-2)

Scope, Timeline, Budget (MVP-2)

Hospital Pilot Coordination

NEXT STEPS

WHERE WE ARE TODAY

Next Steps - 2024

Sustainable Hospital of the Future

- NYHP Core Team Members
  - Evaluate Remaining 81 Action Items give prioritization input.
- NYHP Steering Committee
  - Incorporate Core Team Input Into MVP-2 Action Items List

Q&A

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