

**RVAgreen 2050 Buildings and Energy Working  
Group**

*Wednesday, June 16th, 2021*

*Impacts & Indicators*



**Equitable climate action for a healthy and resilient Richmond**

# Agenda

- I. **Intro:** Settling in & ground rules
- II. **Review:** Revised strategies after the prioritization activity
- III. **Key concept:** impact mapping
- IV. **Activity:** Making impact maps for the prioritized strategies
- V. **Conclusion:** Wrap-up and next steps

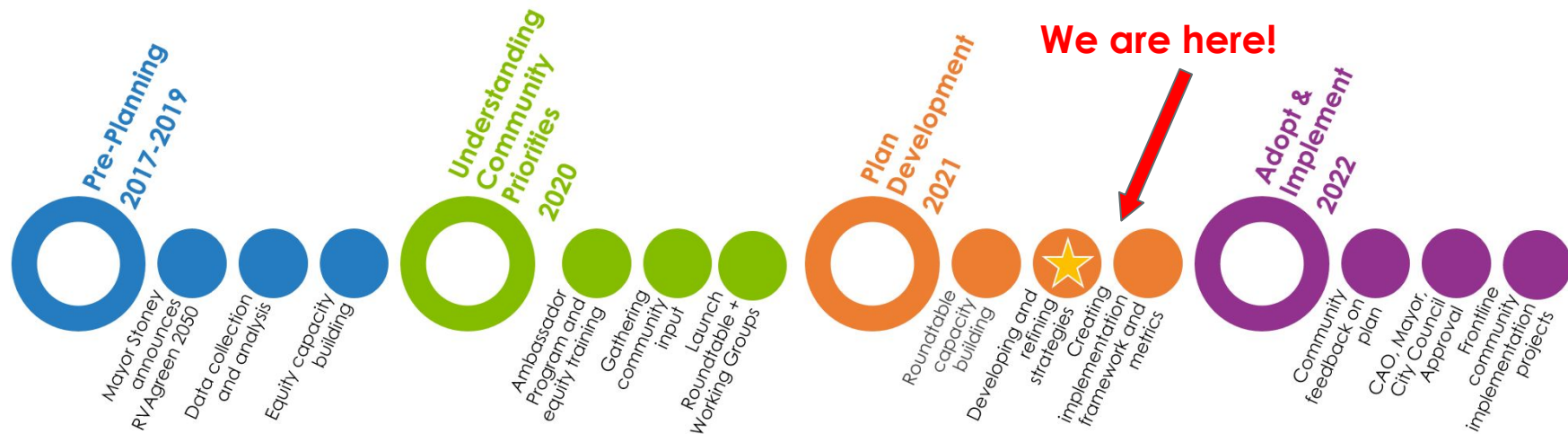
# Today's Objectives

- Identify the potential impacts of the prioritized strategies
  - *What are we trying to impact?*
  - *What does success look like for each strategy and what is our shared understanding of what is achievable?*

# Ground Rules / Group Expectations



# Process Overview



# Strategy Refinement Process Summer 2021



## Strategy Prioritization

During our last meeting, we discussed:

- What strategies will most help us achieve our 2030 goals?
- Are we comfortable with the number of strategies to be prioritized?

## Impacts and Indicators

Today, we will be asking the questions:

- What are the potential impacts of our strategies?
- How can those impacts inform the indicators that we use to measure success?

## Implementation and Accountability

Over the next two meetings (**July 14** & **August 4**), we will be thinking about:

- How will we equitably implement the plan?
- How will we ensure accountability and transparency?

# RVAgreen 2050 DRAFT Structure

Goals	What is the purpose of RVAgreen 2050?
Vision	What does the ideal future look like when RVAgreen 2050 is implemented?
Community Priorities	What cross-cutting public values do we want to center in our plan?
Pathways	What leverage points will lead us towards realizing and operationalizing the goals and community priorities?
Objectives	What are the long-term aims we want to accomplish, organized into the different pathways?
Prioritized Strategies	What are the strategies that will help us achieve our goals and what are the SMARTIE actions that will lead us there?
Impacts	How will our strategies impact the community and lead to a more equitable, resilient, and adaptive Richmond?
Indicators	How will we measure success?
Implementation	How are we going to implement, measure progress, and ensure accountability in this plan?



*Refined strategies*

# Strategy distribution after prioritization

		Obj 1	Obj 2	Obj 3	Obj 4
<b>B&amp;E</b>	<b>12</b>	4	3	3	2
<b>Community</b>	<b>10</b>	6	4		
<b>Transportation</b>	<b>9</b>	4	3	2	
<b>Environment</b>	<b>9</b>	3	3	2	1
<b>Waste</b>	<b>9</b>	2	3	2	2





# Objective 1 Refined Strategies

**Objective 1: Achieve climate neutrality and increase resilience in government buildings, infrastructure, and operations.**

**A. ENERGY MANAGEMENT PROGRAM:** Develop a municipal energy management program to achieve energy efficiency goals of RVAgreen2050 and Richmond300.

- **Convert all city-owned streetlights to LED lighting, minimize operation during daylight hours,** and identify opportunities for solar panels in the lighting infrastructure. Prioritize improvements in historically disenfranchised neighborhoods.
- **Benchmark energy use in all city buildings,** set a goal to meet energy Star Certification guidelines, improve building energy use, and make information available in a public portal.
- **Prioritize energy efficiency retrofits of city buildings** in those that serve the public therefore improving their health, safety, and accessibility while rating the highest return on investment in cost savings and GHG reductions.
- **Create an Energy Manager position** with authority to work across departments and establish partnerships in the community.

**B. NET ZERO BUILDINGS:** Incorporate measures to convert all city buildings to clean energy by 2050.

- **Incorporate electrification requirements** into all Capital Improvement Plans (CIPs)
- **Catalog and track natural gas usage** of all city buildings
- **Require green buildings standards** in all new construction to achieve net zero energy and incorporate the infrastructure required to make them solar-ready, wired for EV chargers, and compatible for demand response enrollment.
- **Phase out fossil fuel dependence** in all city agreements and contracts by giving preference to companies that reduce the city's energy footprint.

# Objective 1 Refined Strategies

**Objective 1: Achieve climate neutrality and increase resilience in government buildings, infrastructure, and operations.**

**C. CLIMATE PROJECTIONS:** Establish a protocol for tracking greenhouse gas emissions and planning for climate impacts.

- **Create a departmental GHG tracking protocol** and identify reduction opportunities and publicize key performance indicators (KPIs) quarterly and incorporate data and equity into performance based budgeting.
- **Incorporate a review of City operations every 5 years** to identify opportunities to address climate impacts and incorporate climate projections into land use planning, building regulations, and capital investments prior to implementation.

**D. CLIMATE VULNERABILITY & RISK ASSESSMENT:** Conduct a climate vulnerability and risk assessment of all city property (including buildings and parcels). Identify and prioritize properties for specific resilience projects.

# Objective 2 Refined Strategies

## Objective 2: Maximize energy efficiency, performance and resilience in all existing buildings.

**A. ENERGY BURDEN:** Implement measures to reduce the energy burden of Richmond's most vulnerable communities and improve residential resilience to climate change.

- **Facilitate energy efficiency upgrades** through community-based programs, advocacy, partnerships, and low/no-cost financial options.
- **Establish partnerships to provide equitable thermal comfort** through immediate cooling relief in the way of equipment, tree canopy, and utility bill assistance to low income residents and/or residents of formerly redlined neighborhoods and heat islands.
- **Educate** all residents about the benefits of electrification by sharing targeted case studies in the areas of highest utility burden.

**B. EFFICIENCY PROGRAMS:** Develop policies, incentives, and financing mechanisms to improve commercial energy efficiency and offer assistance and technical expertise to those that are financially challenged and facilitate workforce development.

- **Join the statewide Commercial Property Assessed Clean Energy (cPACE)** program to facilitate energy efficiency upgrades and encourage builders and developers to hire Small, Women-owned and Minority-owned businesses (SWaM).
- **Require retrocommissioning** for existing commercial buildings to improve the efficiency of a building's equipment and systems.
- **Develop and promote a Green Business Challenge and/or certification program** that prioritizes small businesses in underserved communities.
- **Benchmark existing commercial buildings** to establish a baseline and conduct ongoing measuring/tracking in conjunction with energy audits and retrofits
- **Require an equitable building performance policy** for existing commercial buildings over 5,000 sf through a phased-approach.

# Objective 2 Refined Strategies

**Objective 2: Maximize energy efficiency, performance and resilience in all existing buildings.**

- C. CONSTRUCTION & ENERGY PERFORMANCE:** Prioritize updated energy requirements in all new construction and site plan approvals.
- **Facilitate Energy Code Adoption** by working with allied organizations to encourage the Board of Housing and Community Development to adopt the most recent International Energy Conservation Code (IECC) for all commercial and residential buildings.
  - **Enforce energy efficiency requirements during plan review** by training building inspectors and cultivating the department's capacity to enforce letter and spirit of building energy code provisions.

# Objective 3 Refined Strategies

## Objective 3: Ensure all Richmonders have equitable access to affordable and renewable clean energy.

**A. SOLAR INSTALLATIONS:** Provide financial assistance and education for solar installations to make homes and small businesses healthy, safe, and affordable, focusing on frontline communities reducing disproportionately high energy burden in these neighborhoods.

**B. INCENTIVES & ACCESSIBILITY:** Encourage community solar through the removal of zoning restrictions, incentivising opportunities, and increasing funding for microgrids.

- **Incentivize opportunities for ground-mounted solar and community solar farms** on parking lots and non-buildable or previously disturbed land with access to community solar for energy-burdened communities
- **Provide funding for microgrids and battery backup** for energy storage to community-based organizations particularly in frontline communities
- **Fully exempt solar from property tax increases** through the adoption of an ordinance per VA state energy code Section 58.1-3660 and 3661.
- **Improve access to renewable energy** by reviewing existing zoning ordinances and policies for impediments and revise to reduce all barriers and allow solar and battery storage to be placed in more places.

**C. WORKFORCE DEVELOPMENT:** Establish training programs, apprenticeships and a conservation corps/job placement program in low-income and diverse neighborhoods to build capacity for jobs related to solar installation and maintenance as well as weatherization upgrades and energy efficiency auditing (e.g., prison to solar training).

# Objective 4 Refined Strategies

## Objective 4: Achieve climate neutrality and maximize resilience in all new buildings.

- A. NET-ZERO ENERGY DESIGN:** Develop measures to advance net-zero energy design and green building measures in all new buildings.
- **Develop a central repository of funding opportunities and incentives** for green and net-zero construction that supports the local labor workforce with a focus on affordable housing in frontline communities.
  - **Promote legislation** that allows for adoption of building codes requiring all new buildings to be powered by clean energy with the goal of net-zero energy design.
  - **Require solar readiness measures** for all new buildings.
- B. DESIGN GUIDELINES:** Develop Resilient Design Guidelines and require builders to incorporate design measures to reflect a changing climate, increased precipitation and flooding in concert with a public education campaign to convey the benefits of adaptive and resilient buildings.

# *Strategy Impact mapping*

# Purpose of Impact Mapping

**What?** A framework for describing and measuring the wider impacts of urban climate action

**Why?** Strategies produce multiple benefits which can become powerful tools for more & better designed climate actions and are critical to reducing barriers to action.

The **distribution** of an impact - whether it is equitable - is at the core of this approach.

## For Example...

If the net growth in jobs was focused on a part of the population where employment is already high, such as high-skilled workers, but detracts from those in areas of high unemployment, this could be inequitable and possibly damaging.

### PATHWAYS STEPS

ACTION



OUTPUTS



OUTCOMES

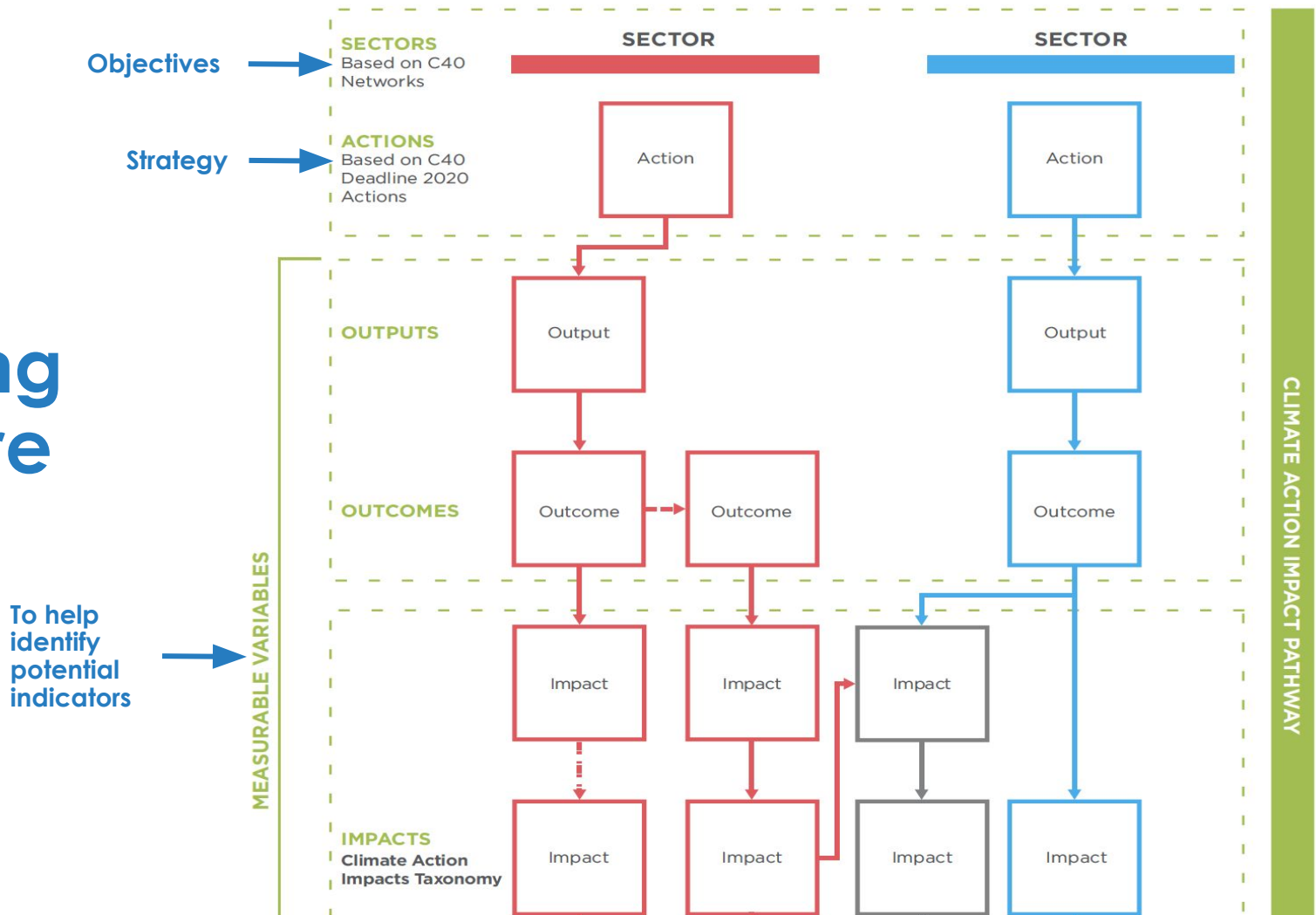


IMPACTS  
(costs and benefits)

“This is the evidence that urban stakeholders need to guide and make the case for climate action.”



# Mapping Structure



# Structure of impact maps

<b>Sector</b>	The area of the action/strategy; these are analogous to the objectives that fall under each Pathway.
<b>Strategies</b>	Any policy, program, or investment initiated with the intention to provide some contribution to equitable climate mitigation or adaptation.
<b>Output(s)</b>	What a strategy produces, such as a provided service, facility, infrastructure, or a financial tool.
<b>Outcomes</b>	The change generated by the output; it is necessary for the intended impact to occur.
<b>Impacts</b>	The medium- or long-term effect of the outcome (e.g., increased/decreased air pollution, safety, physical health, city spending, etc.).

# Types of impacts

## The 3 Pillars of Sustainability

Social

Economic

Environmental

**Racial Equity & Environmental Justice:** Potential to promote racial equity and support historically disenfranchised communities

**Government Accountability:** Potential to promote government accountability and transparency

**Community Wealth:** Potential to build community wealth and Increase jobs and education access

**Housing & Buildings:** Potential to expand affordable housing and reduce housing cost burden

**Neighborhoods:** Potential to support beautiful and safe neighborhoods

**Health:** Potential to promote physical and mental health and well-being

**Engagement & Communications:** Potential to support equitable engagement and communication

THEME	IMPACT GROUP	IMPACT	SDG #	SPECIFIC GROUP	DESCRIPTION
ECONOMIC IMPACTS	Environmental quality	Biodiversity	14, 15, 11	Biodiversity protection	Protection of ecosystems and species.
				Ecosystem services	Value of services offered by ecosystems, and impact on these ecosystems and services.
				Biological diversity	""Biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." (Convention on Biological Diversity, Article 2). This impact relates to changes to biological diversity and urban green surface.
				Species population	(Changes to) the size of a species population.
		Climate Change	7, 11, 13	Greenhouse gas emission	Volume of greenhouse gases, which drive global warming, emitted from man-made sources
		Air quality	3, 11, 15	Indoor air pollution	Air pollution in buildings and households.
				Outdoor air pollution	Air pollution in cities.
				Olfactory pollution	"Pollution produced by gaseous emissions in the atmosphere that, even in very small amounts, may cause injuries or a condition of general unease or sickness to persons living in the vicinity." (European Environment Information and Observation Network)
		Noise	No related SDG	Indoor noise	Noise in buildings.
				Outdoor noise	Noise due to traffic and other urban activities.
		Soil quality	3, 11, 12, 15	Soil pollution	Contamination of the soil due to the presence of pollutants such as heavy metals and chemicals (herbicides, industrial wastes, and others).
				Soil degradation	"Change in the soil health status resulting in a diminished capacity of the ecosystem to provide goods and services for its beneficiaries." (Food and Agricultural Administration)
				Soil texture	Size and type of soil particles composing the land, and its impact in land subsidence and stability.

# Example Buildings and Energy impact map

**WORKFORCE DEVELOPMENT:** Establish training programs, apprenticeships and a conservation corps/job placement program in low-income and diverse neighborhoods to build capacity for jobs related to solar installation and maintenance as well as weatherization upgrades and energy efficiency auditing (e.g., prison to solar training).

## Strategy

## Output(s)

## Outcomes

## Impacts



*Activity*

# Activity

Develop maps of outputs, outcomes, and impacts for each strategy using the Urban Climate Action Impacts Framework structure

Breakout room discussion - 30 minutes per strategy-briefly identify outputs and outcomes and concentrate on impacts

1. For the strategy, consider scale and scope, as well as business as usual scenario, i.e. what would it look like if the strategy were not implemented to provide context
2. What are the **outputs** of this strategy? *What are direct, tangible results of the strategy?*
3. What are the **outcomes** of this strategy? What is the change generated by the output?
4. What are the potential **impacts** that could result from this strategy? *Remember to integrate equity considerations. Who are key stakeholders? What are their priorities and concerns? How is the strategy potentially impacting them-positively or negatively?*
5. Which impacts are **most significant**?

Dawn	Wendy	David	Alexis	Alex
<p>Commercial Energy Efficiency Programs (Obj 2)</p> <p>Community Construction &amp; Energy Performance (Obj 2)</p>	<p>Residential Energy Burden (Obj 2)</p> <p>Community Solar Incentives &amp; Accessibility (Obj 3)</p>	<p>New Construction Net Zero Energy Design (Obj 4)</p> <p>New Construction Resilient Design Guidelines (Obj 4)</p>	<p>Municipal Climate Projections (Obj 1)</p> <p>Municipal Climate Vulnerability &amp; Risk Assessment (Obj 1)</p>	<p>Municipal Energy Mgmt Program (Obj 1)</p> <p>Municipal Net Zero Buildings (Obj 1)</p>
<p>Sign-Up</p> <ul style="list-style-type: none"> <li>• Jessica Greene</li> <li>• Fred Bell</li> <li>• Joe</li> <li>•</li> </ul>	<p>Sign-Up</p> <ul style="list-style-type: none"> <li>• Michael Donnenberg</li> <li>• Bill</li> <li>• Damian</li> <li>• Erich</li> </ul>	<p>Sign-Up</p> <ul style="list-style-type: none"> <li>• Ed</li> <li>• Josh Young</li> </ul>	<p>Sign-Up</p> <ul style="list-style-type: none"> <li>• Irina</li> <li>• Rob Andrejewski</li> <li>• Maeve</li> </ul>	<p>Sign-Up</p> <ul style="list-style-type: none"> <li>• Jeff C.</li> <li>• Adam H</li> <li>• J Endicott</li> <li>• Doug T</li> </ul>

*Go into breakout  
rooms!*

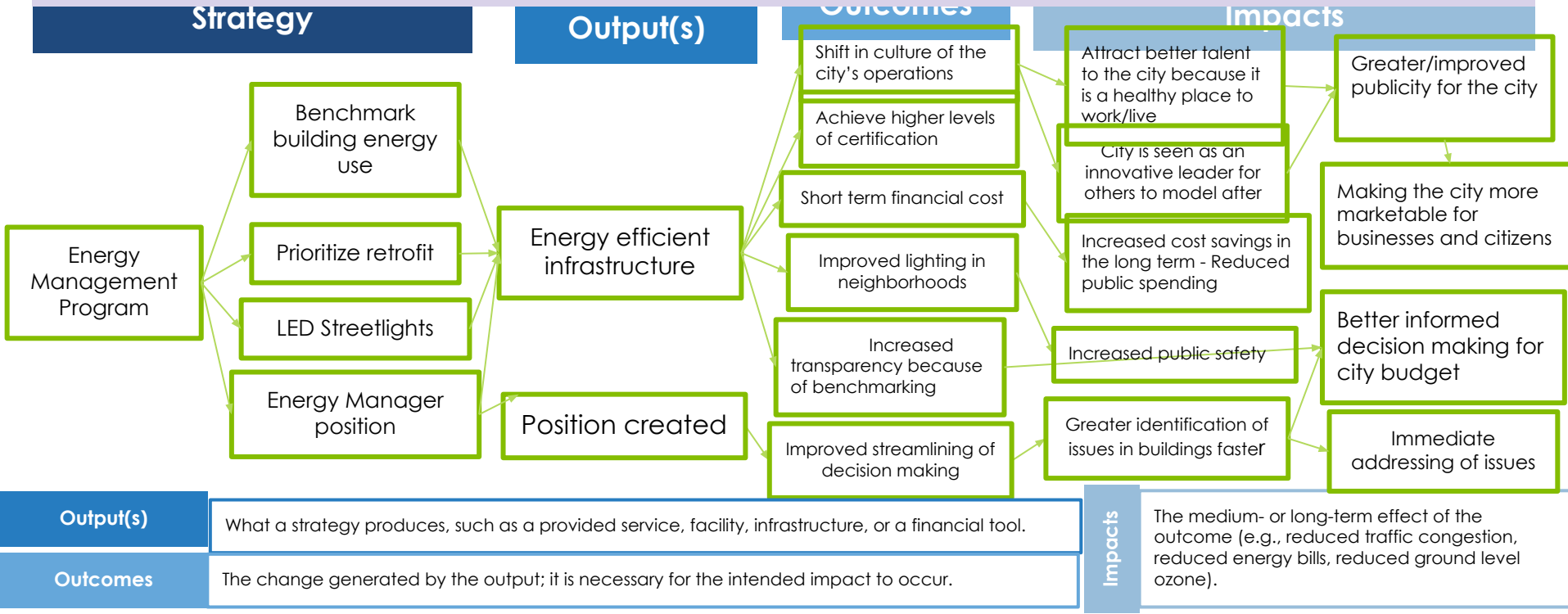


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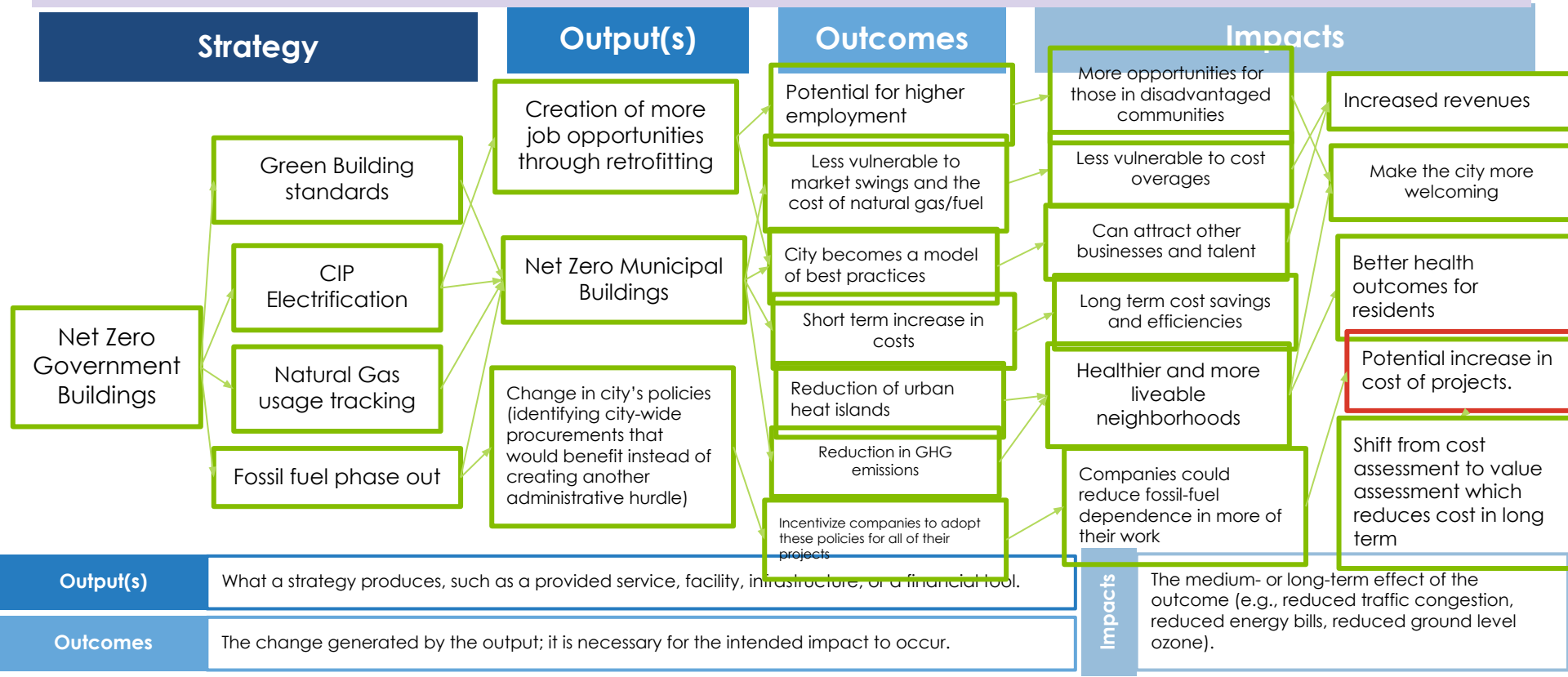
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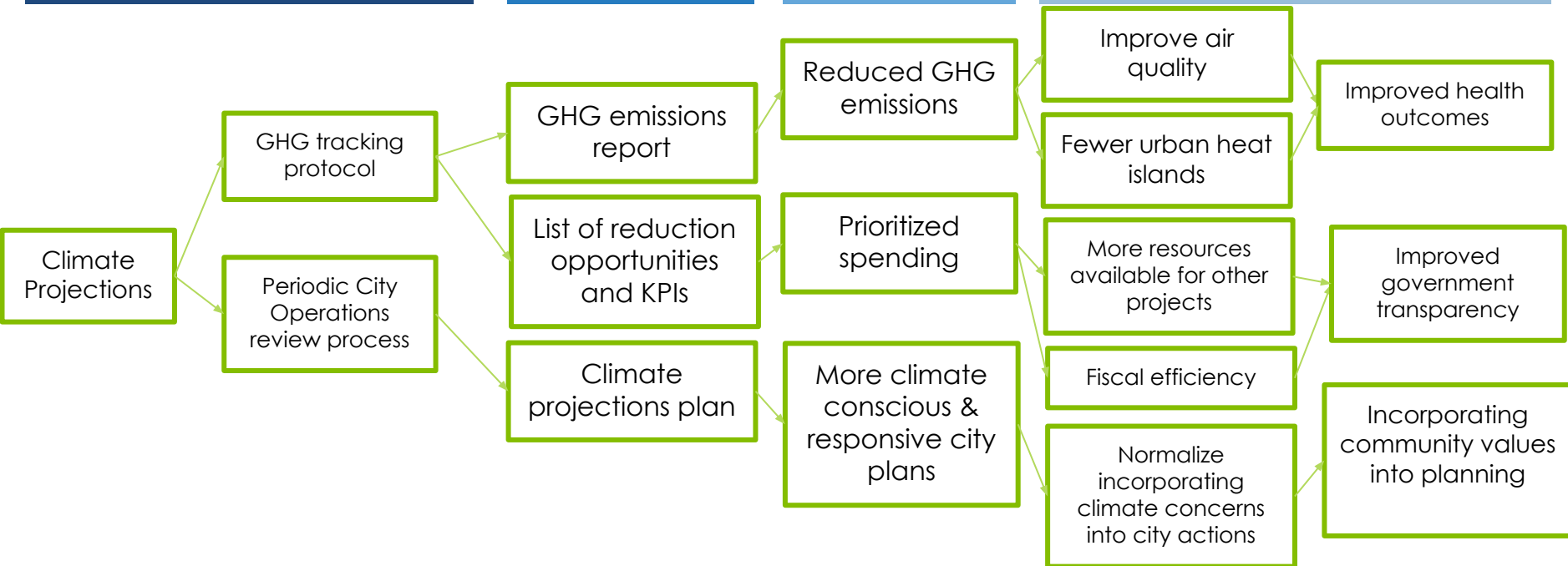
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### Strategy

### Output(s)

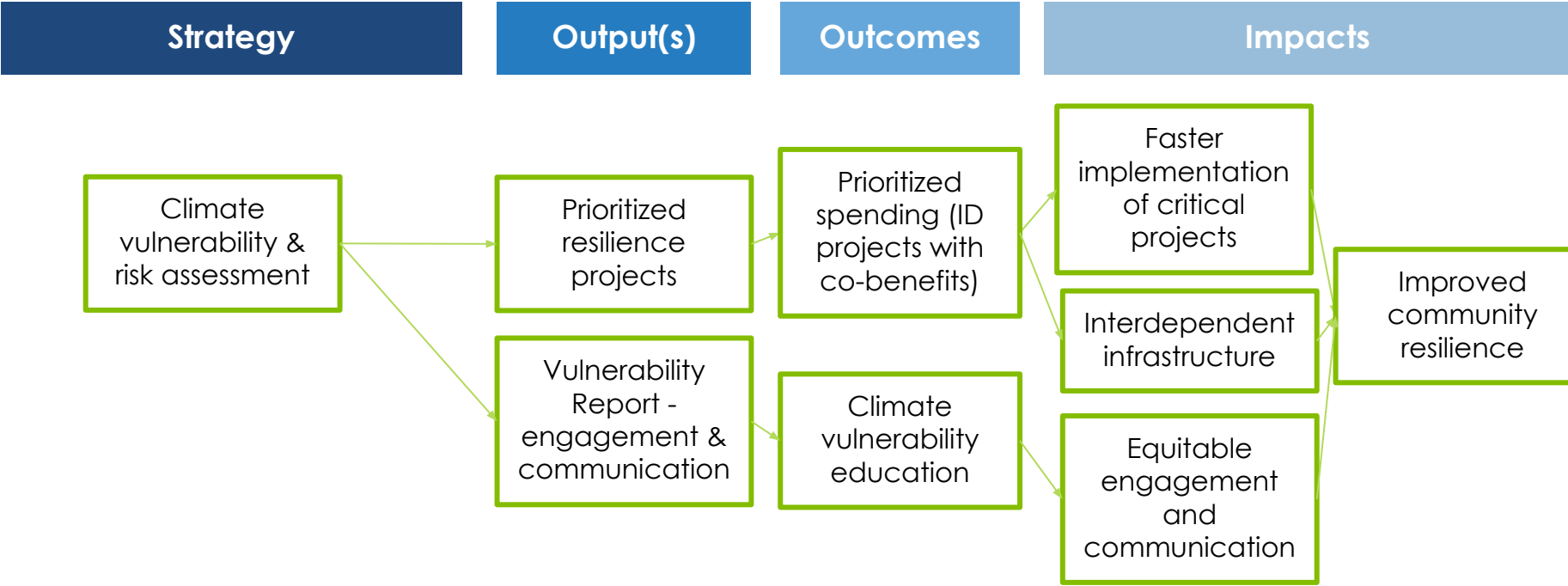
### Outcomes

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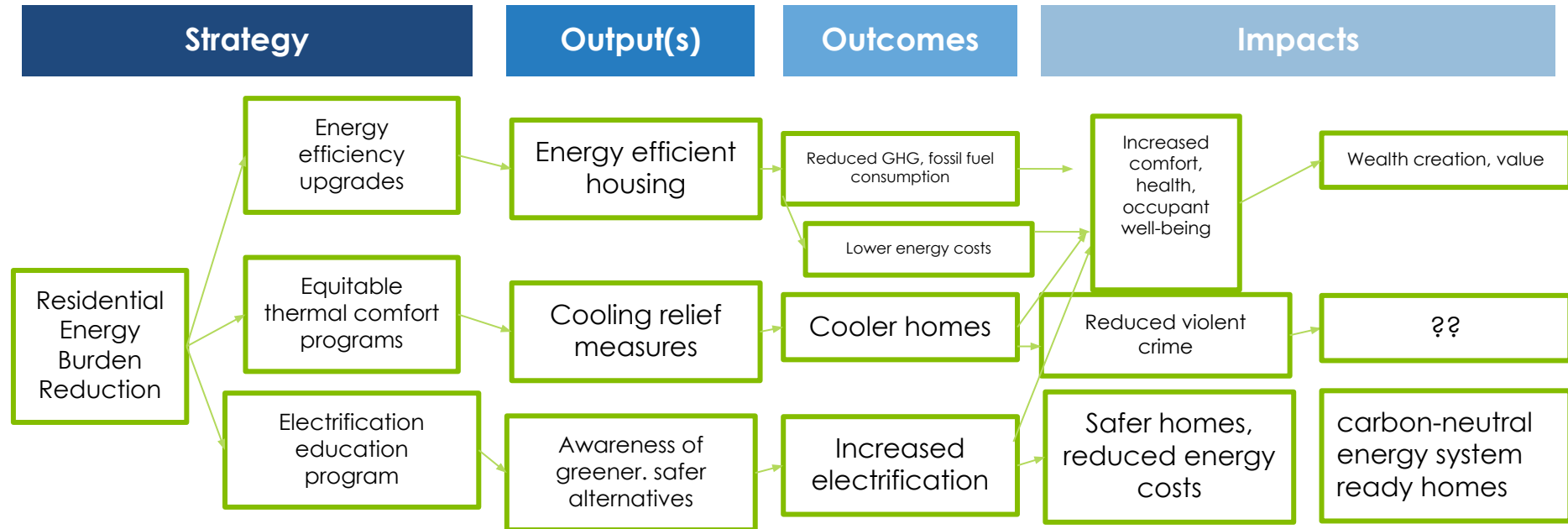
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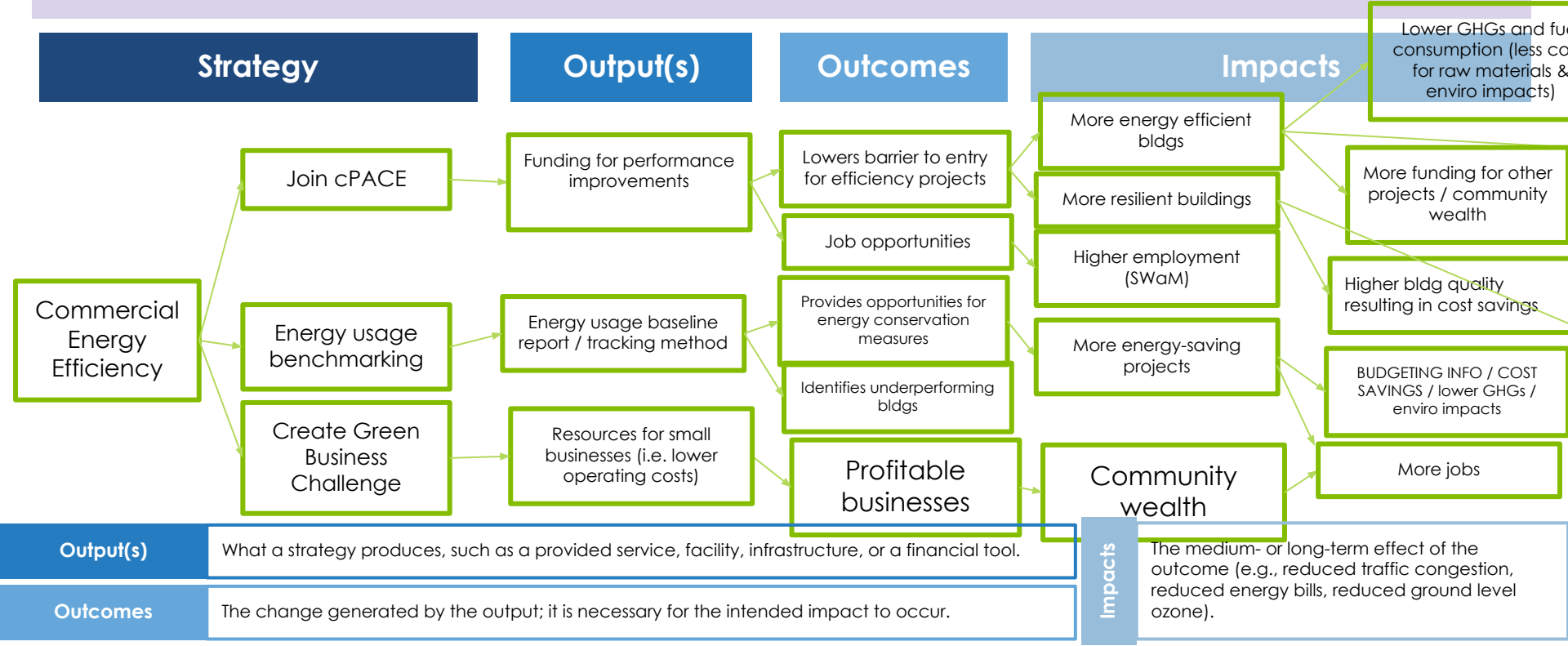
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### Strategy

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### Impacts

Commercial  
Energy  
Efficiency

Retrocommissioning

High  
performance  
building policy

incentives

Energy efficient  
buildings

Business  
continuity

Health & safety  
for building  
occupants

??

Penalties for  
not achieving

Businesses leave  
the community

Increased  
unemployment

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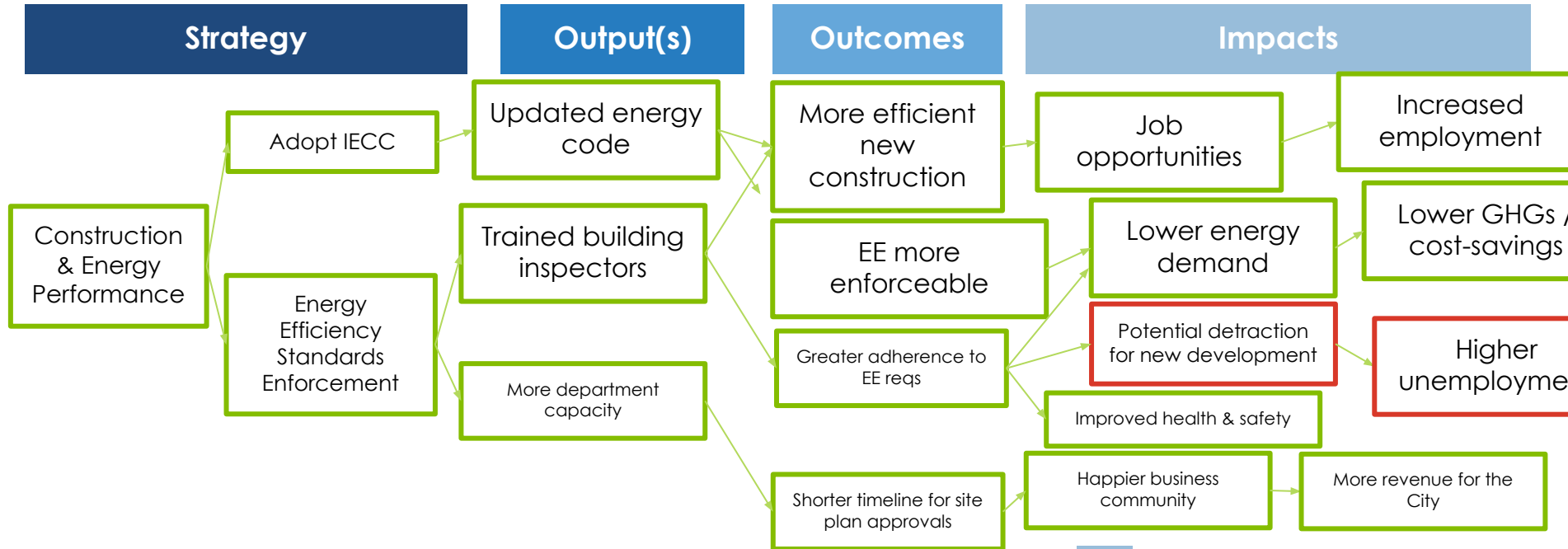
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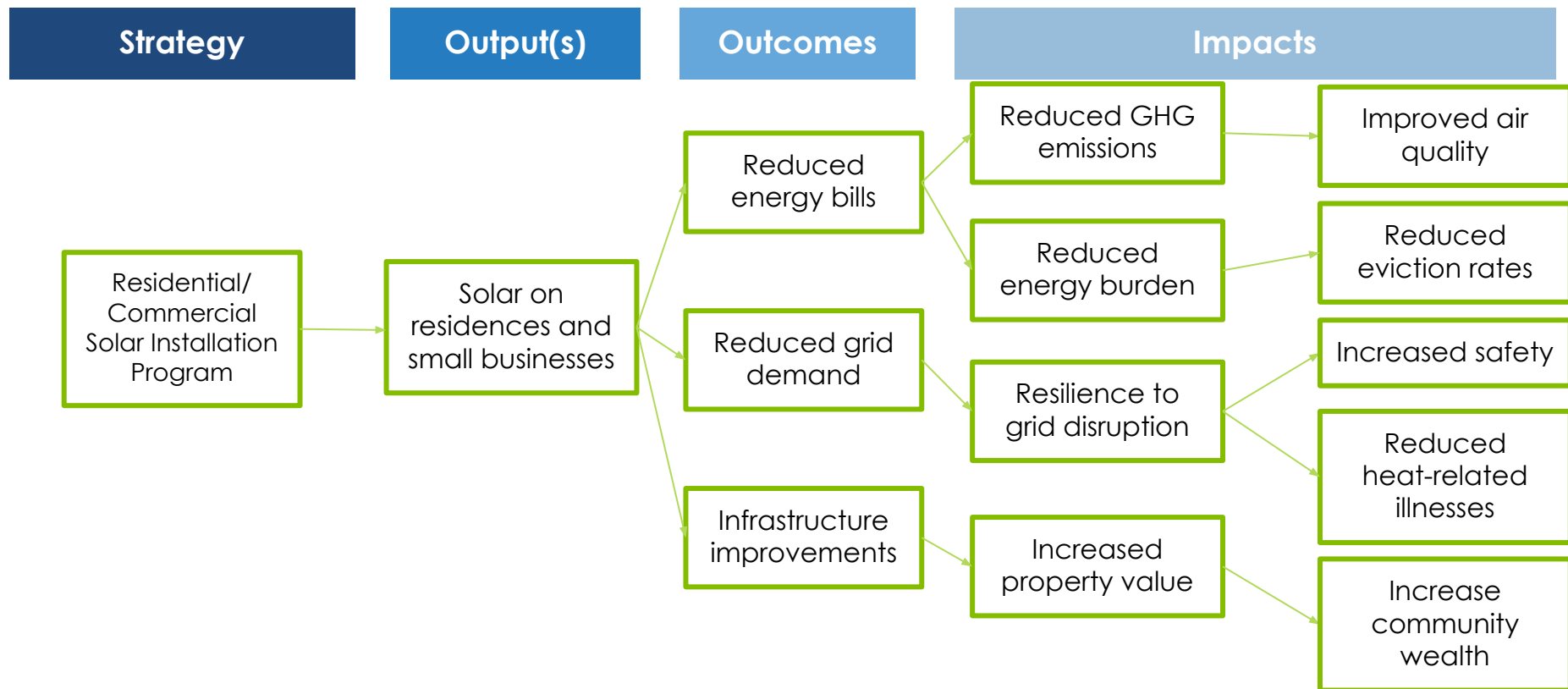
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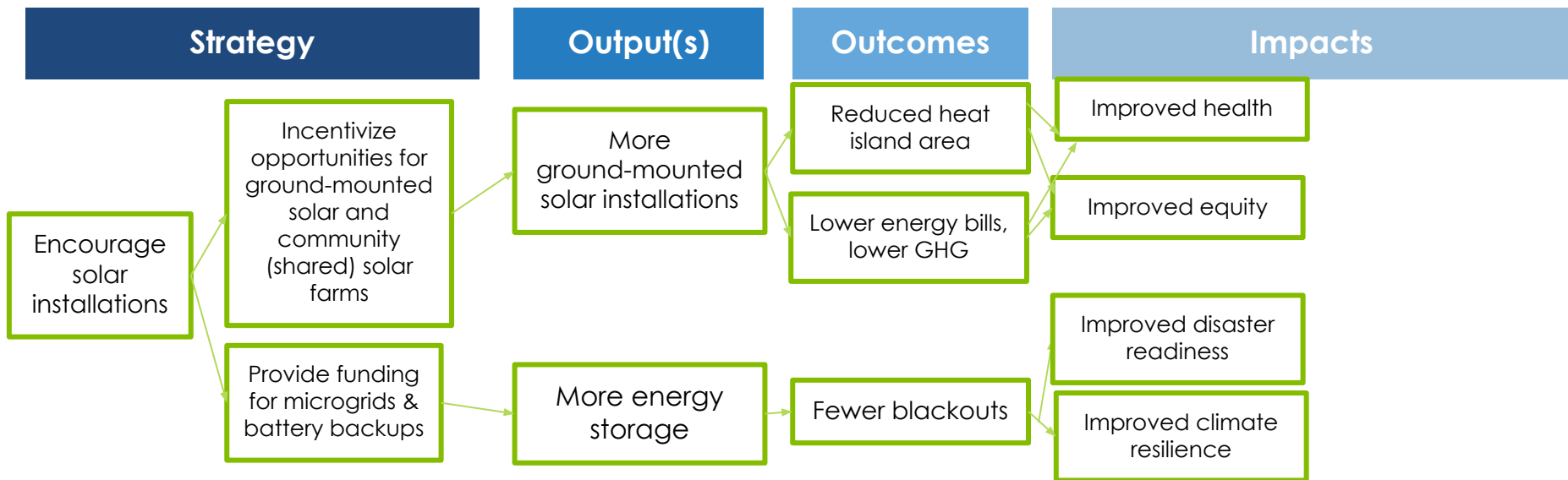
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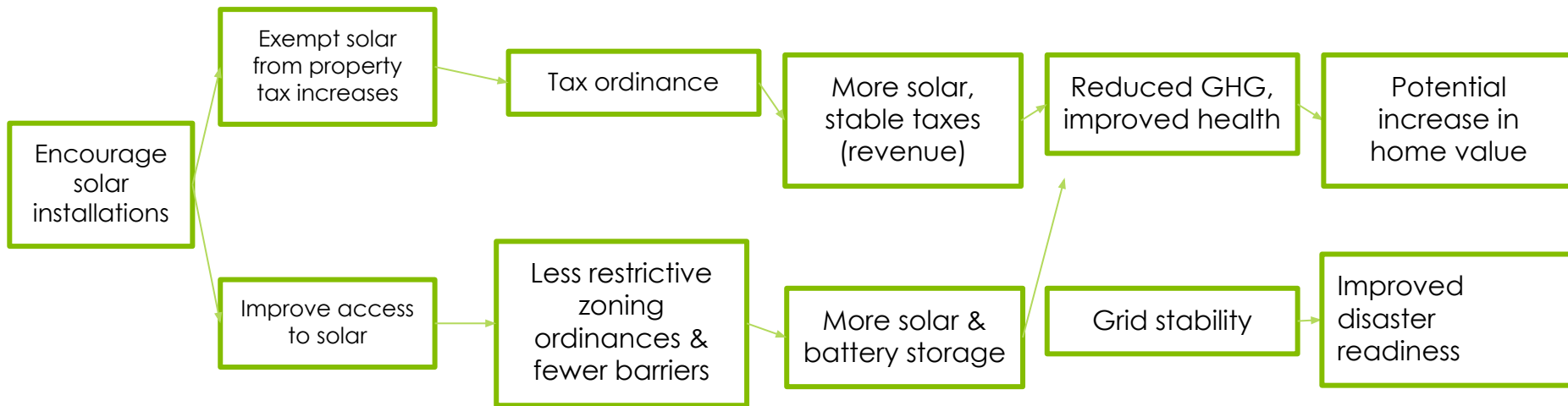
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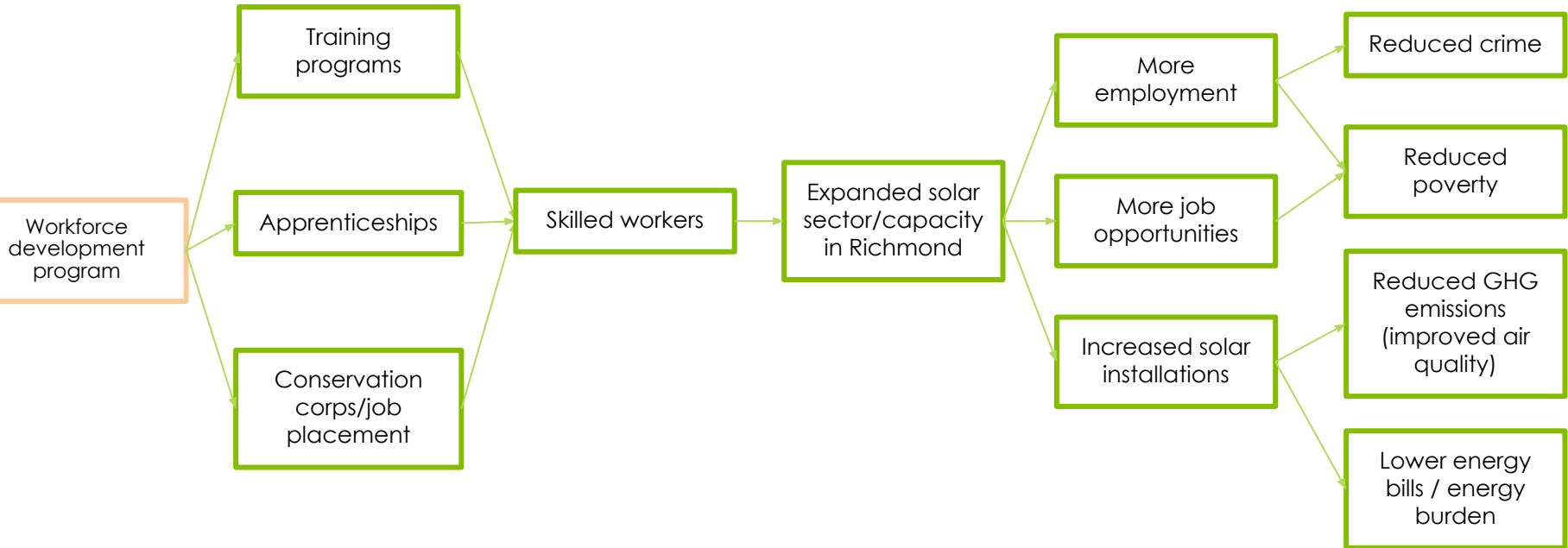
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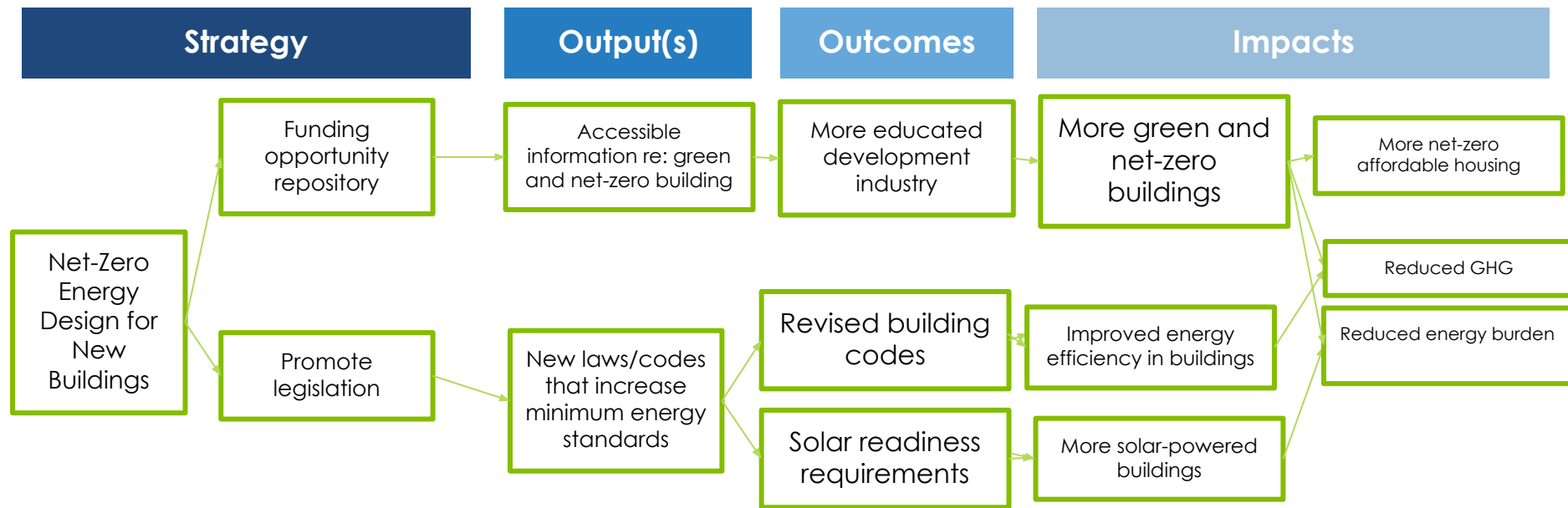
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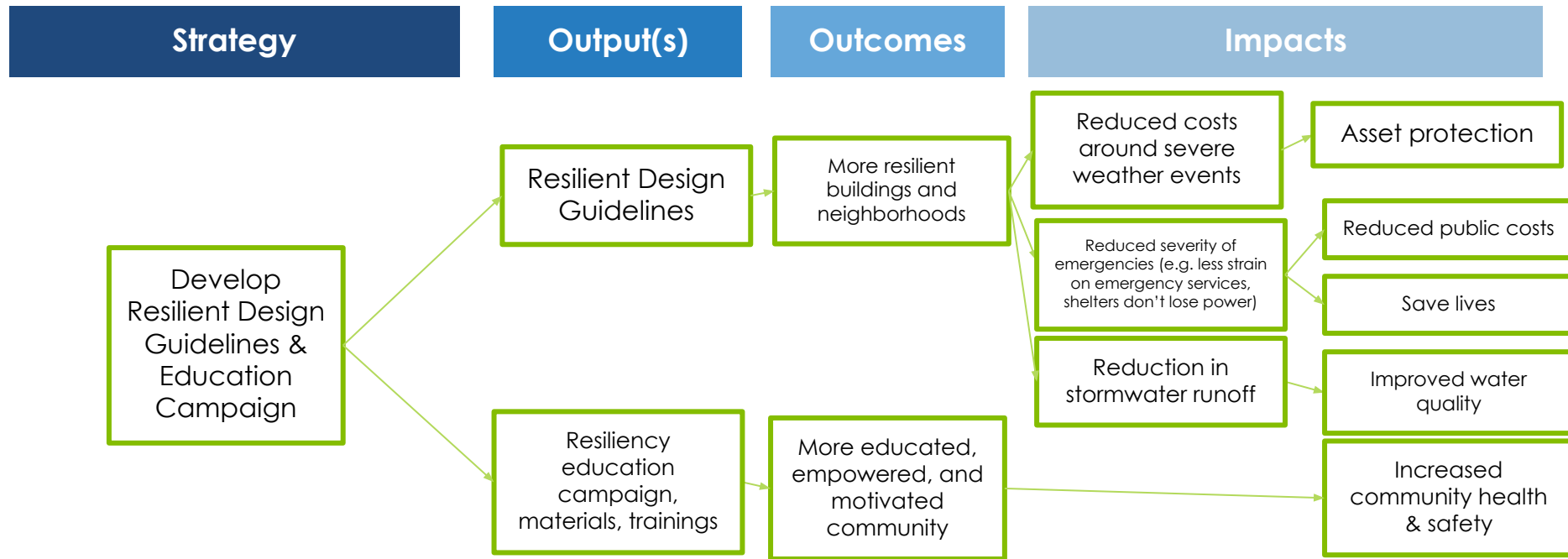
The change generated by the output; it is necessary for the intended impact to occur.

### Impacts

The medium- or long-term effect of the outcome (e.g., reduced traffic congestion, reduced energy bills, reduced ground level ozone).

## Objective 4: Achieve climate neutrality and maximize resilience in all new buildings.

**B. DESIGN GUIDELINES:** Develop Resilient Design Guidelines and require builders to incorporate them to reflect a changing climate, increased precipitation and flooding in concert with a public education campaign to convey the benefits of adaptive and resilient buildings.



### Output(s)

What a strategy produces, such as a provided service, facility, infrastructure, or a financial tool.

### Outcomes

The change generated by the output; it is necessary for the intended impact to occur.

### Impacts

The medium- or long-term effect of the outcome (e.g., reduced traffic congestion, reduced energy bills, reduced ground level ozone).

*Exit breakout rooms!*

# Wrap-up and next steps

- Next meeting: July 14th @ 11am, “RVAgreen2050 Implementation and Accountability”
- NOW:
  - General reflections?
  - Fill out feedback survey
  - Share updates, upcoming events, and resources in the chat

THANK YOU!

# Example

