

Transformational Integrated Greenhouse Gas Emission Reduction (TIGHGER) Plan

Overview

Agenda

Time	Item
5 mins	Project overview (a reminder)
30 mins	Model process
30 mins	Action development
5 mins	Next steps

What is the TIGHGER Plan?

- Ambitious, transformative, and financially realistic economy-wide decarbonization actions and pathways
- Designed to achieve Oregon's target of 45% GHG reductions
- Includes the identification and analysis of co-benefits that support an equitable economy-wide transition
- Serve as input to the Oregon Global Warming Commission's Roadmap to 2035

What is the TIGHGER Plan?

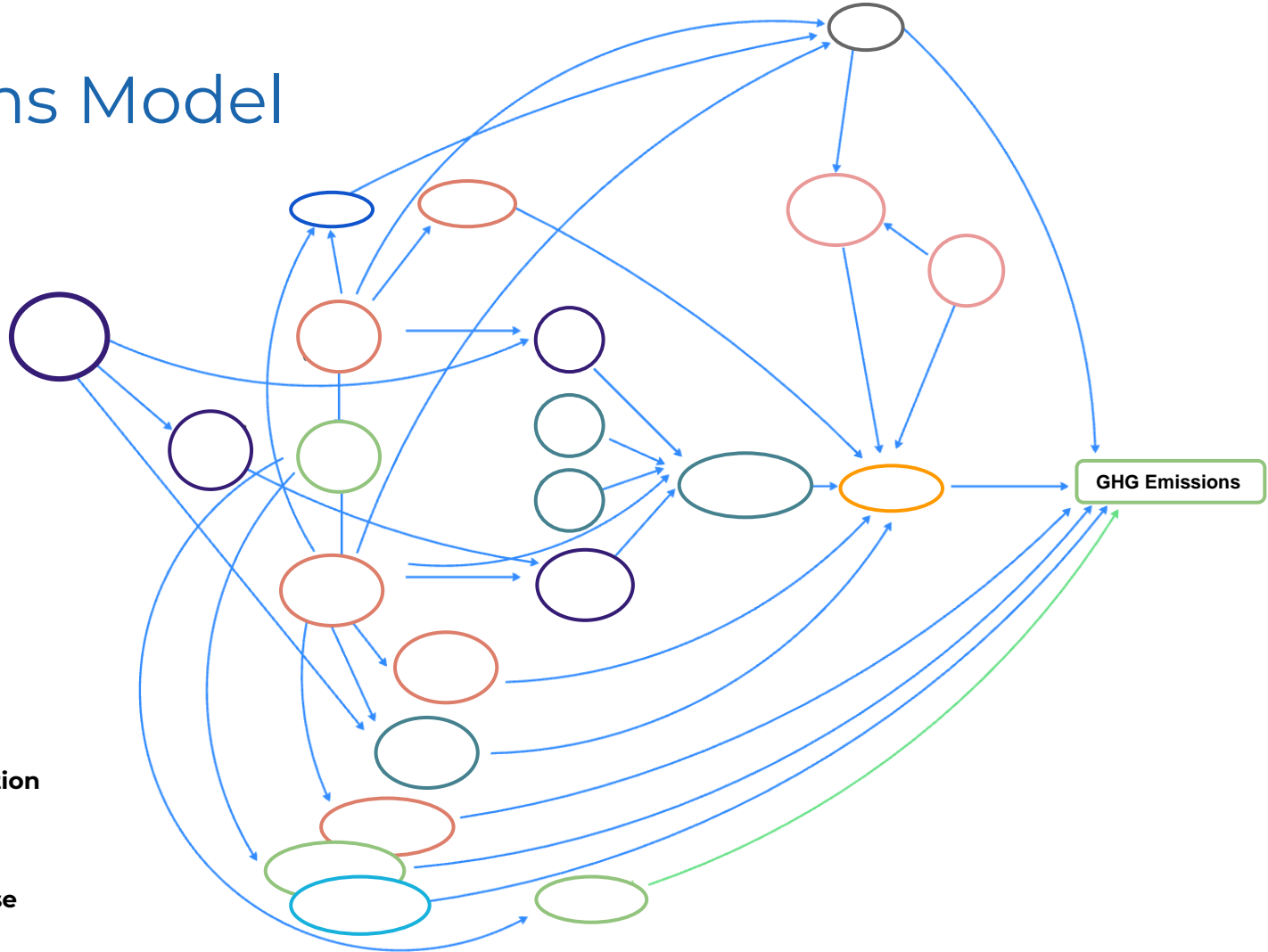
- Here is what we are here to do today
 - Understand the approach to identify potential new actions
 - Understand the process used to model actions
 - Receive any initial input on the draft list of actions
- Here is what we are not here to do today
 - Decide on the final list of actions
 - Parameterize the actions

How do we do it?

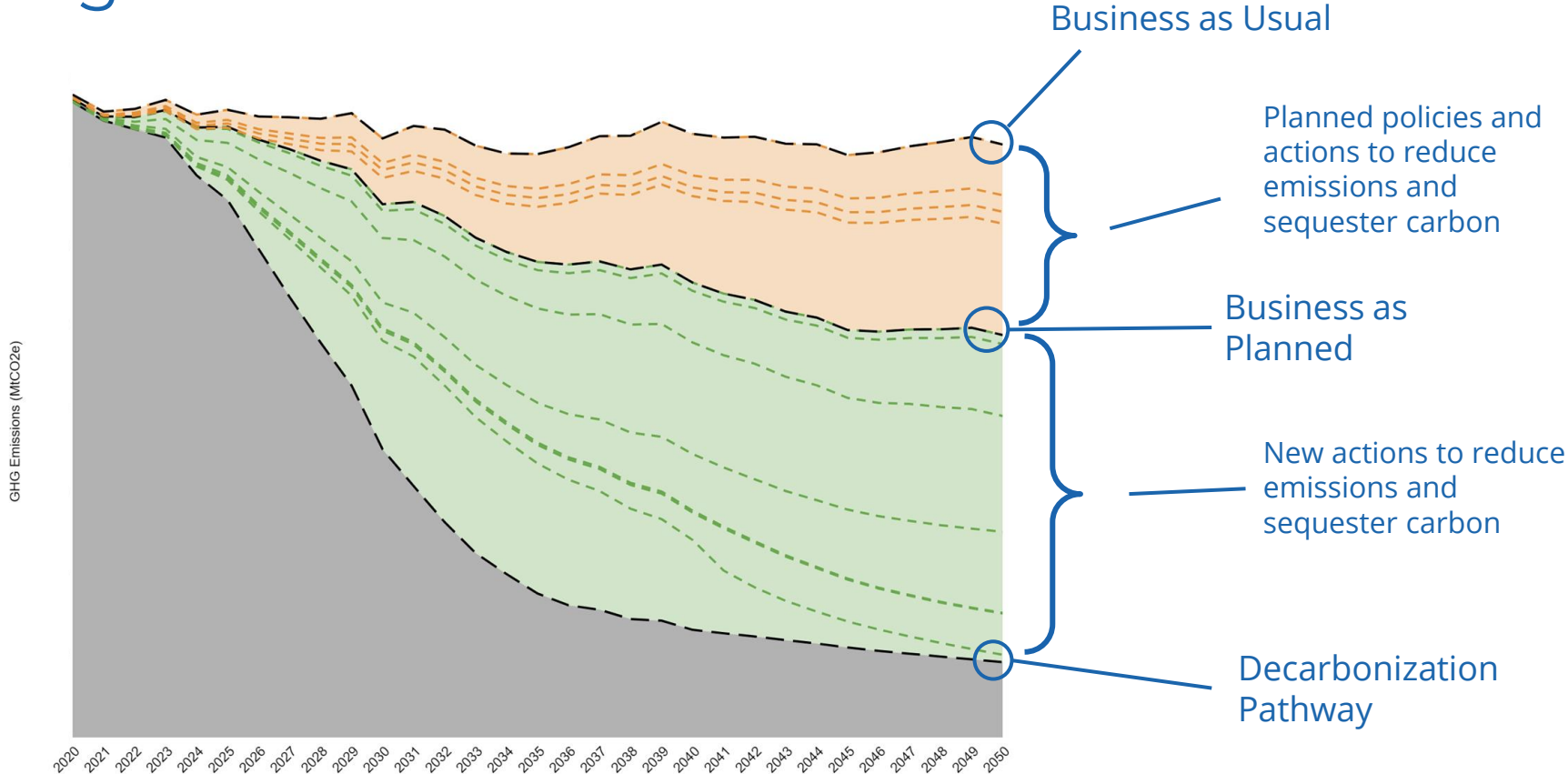
Modeling Process

Systems Model

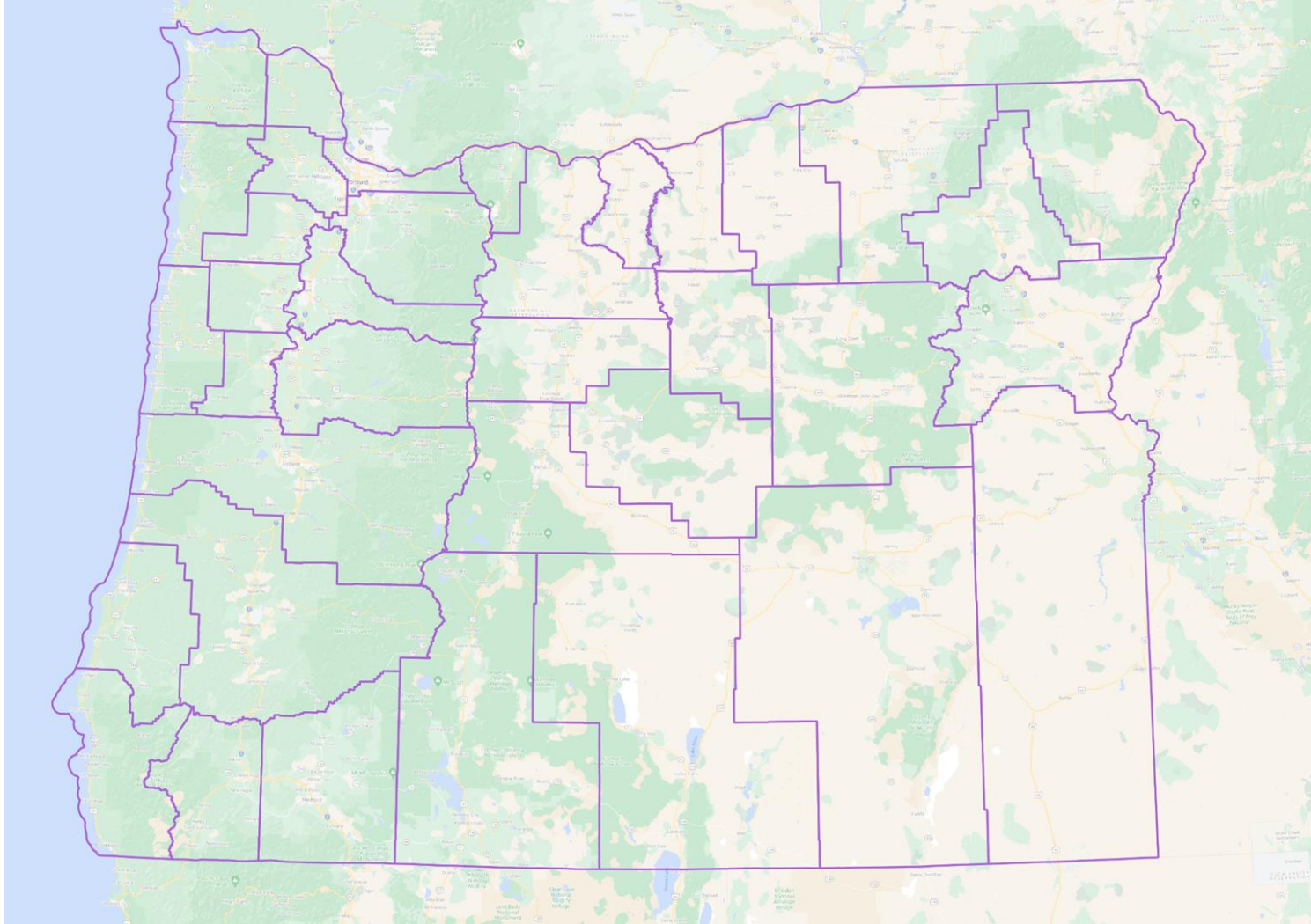
- Demographics
- Land Use
- Buildings
- Transportation
- Water
- Energy Generation
- Waste
- Total Energy Use



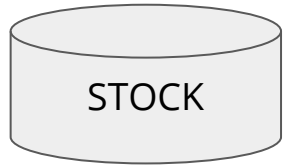
Integrated Scenarios



Space

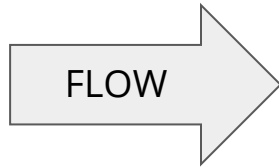


Stocks and Flows

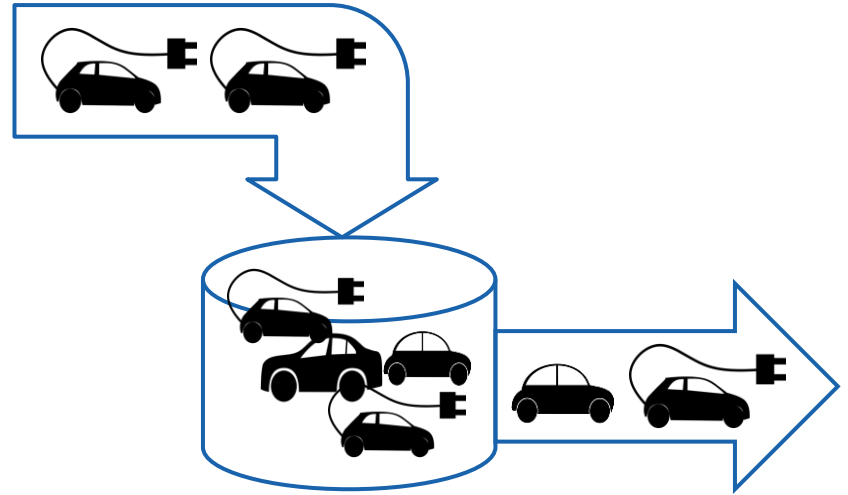


Measure of a collection of objects at a specific time

Provides balance but also lag in the system

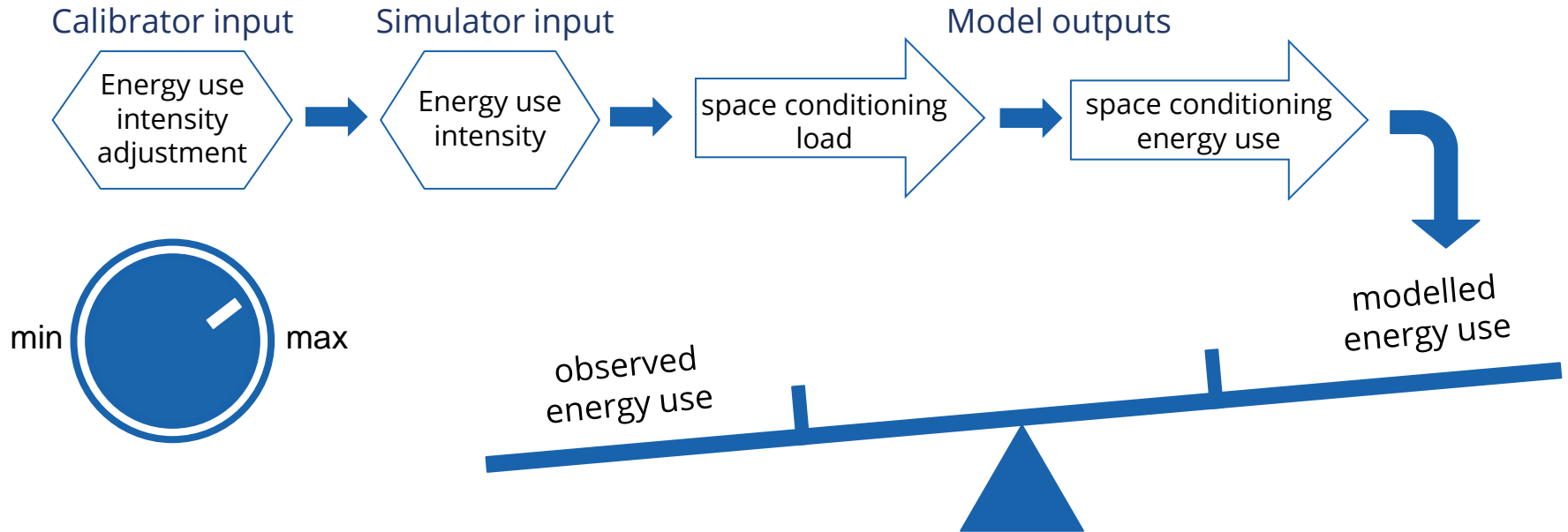


Measures the change of a stock over a period of time



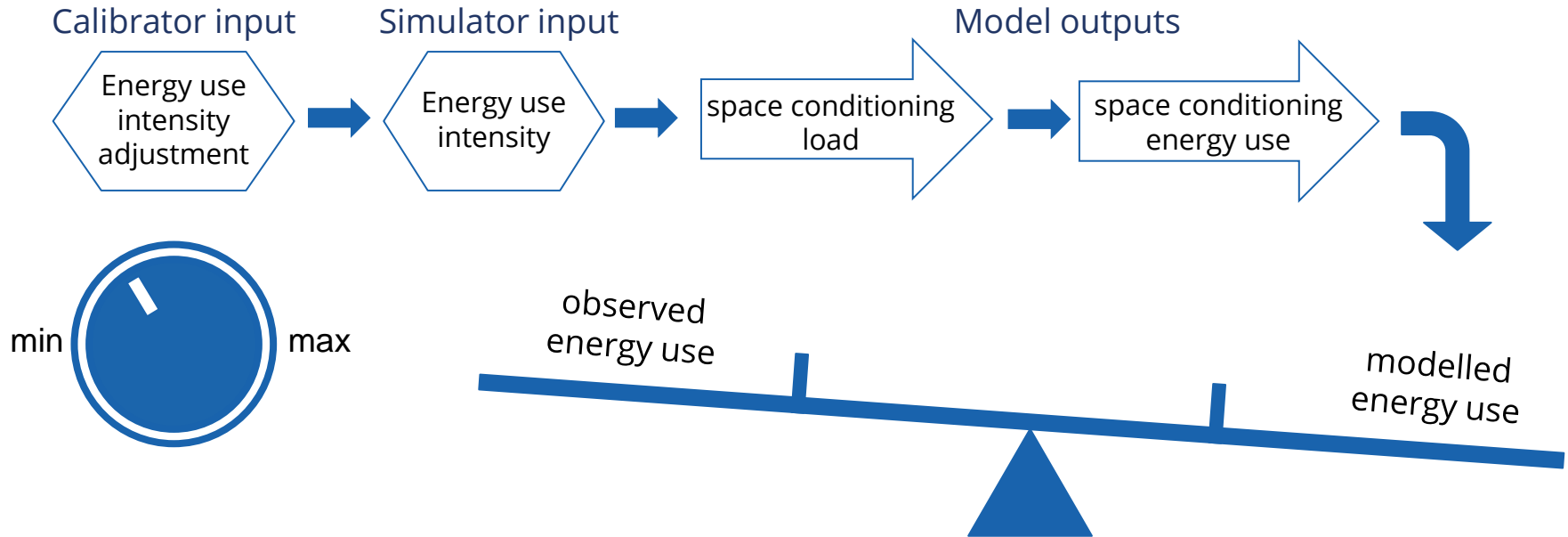
Calibration

Adjust calibrator input parameters to ensure that model outputs align with observed data



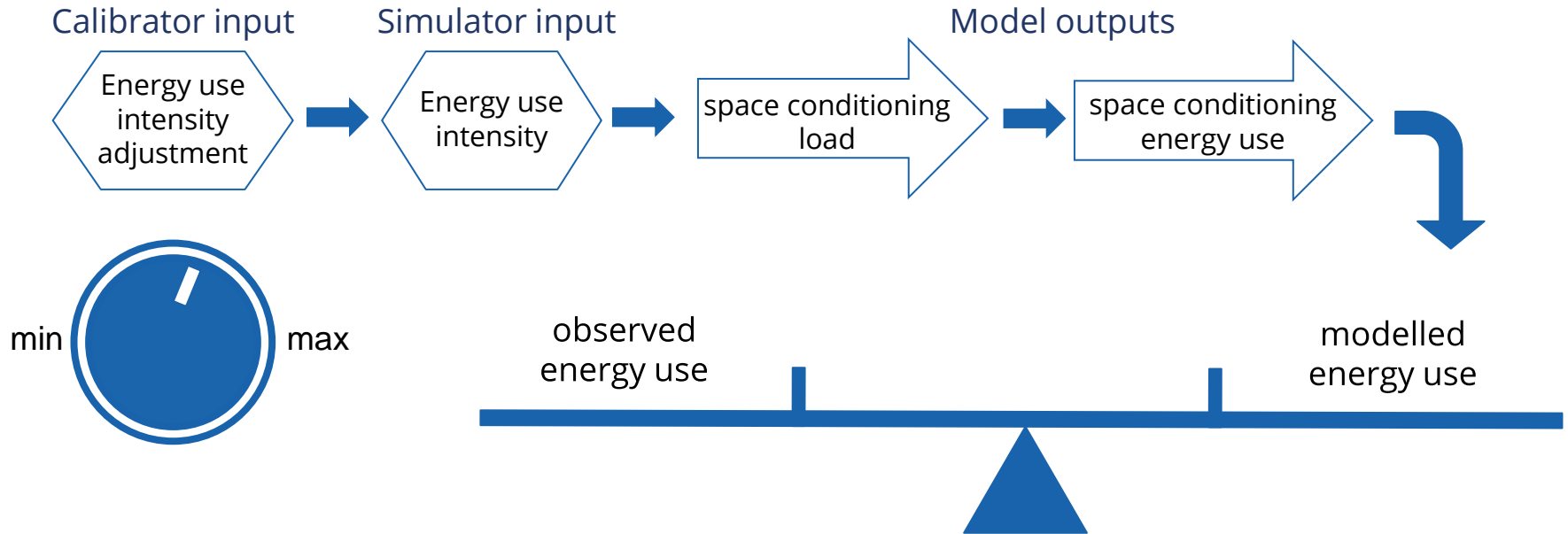
Calibration

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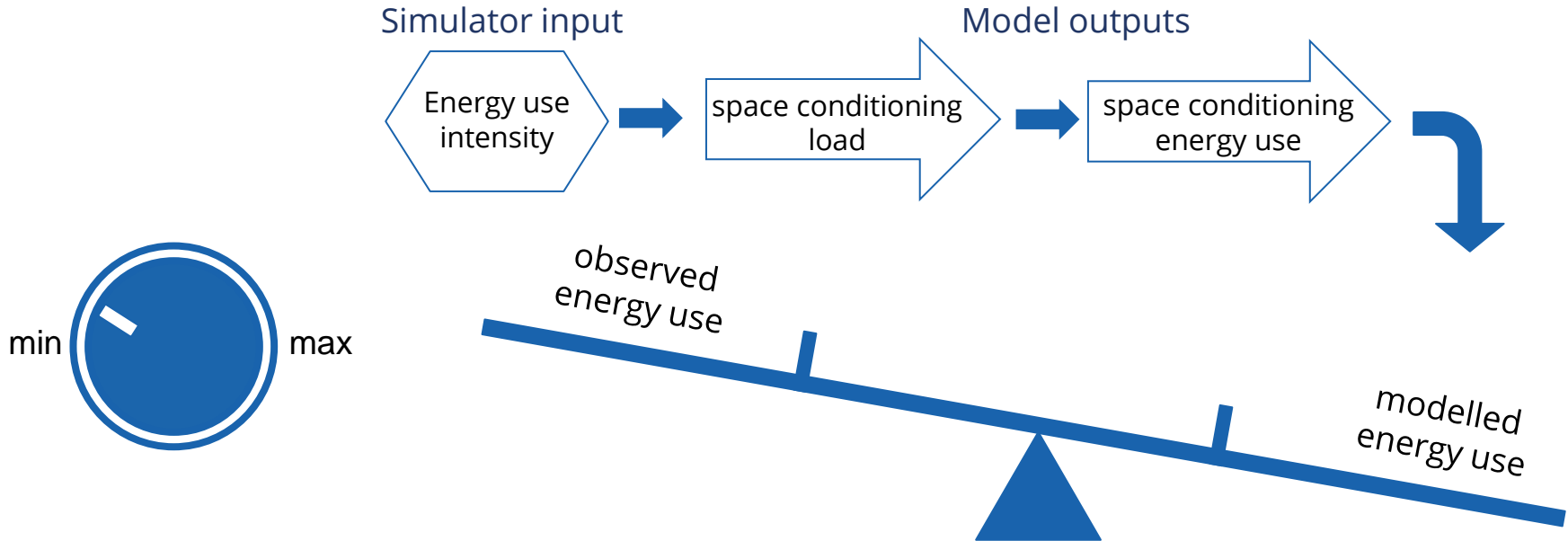
Calibration

Adjust calibrator input parameters to ensure that model outputs align with observed data



Simulation

Adjust simulator input parameters to simulate the new action based on new parameters



Overview

Action development

New actions are additional actions that could help us meet our GHG emissions reduction goals, which have not yet been developed or included into a State plan.

Planned actions are actions already identified in a State plan, strategy, policy, or law, that are highly likely to be implemented.

1

Identification

2

Mapping to
sectors

3

The relative
impact

4

Setting
parameters

5

Defining
scenarios

1

Identification

Interviews

Studies

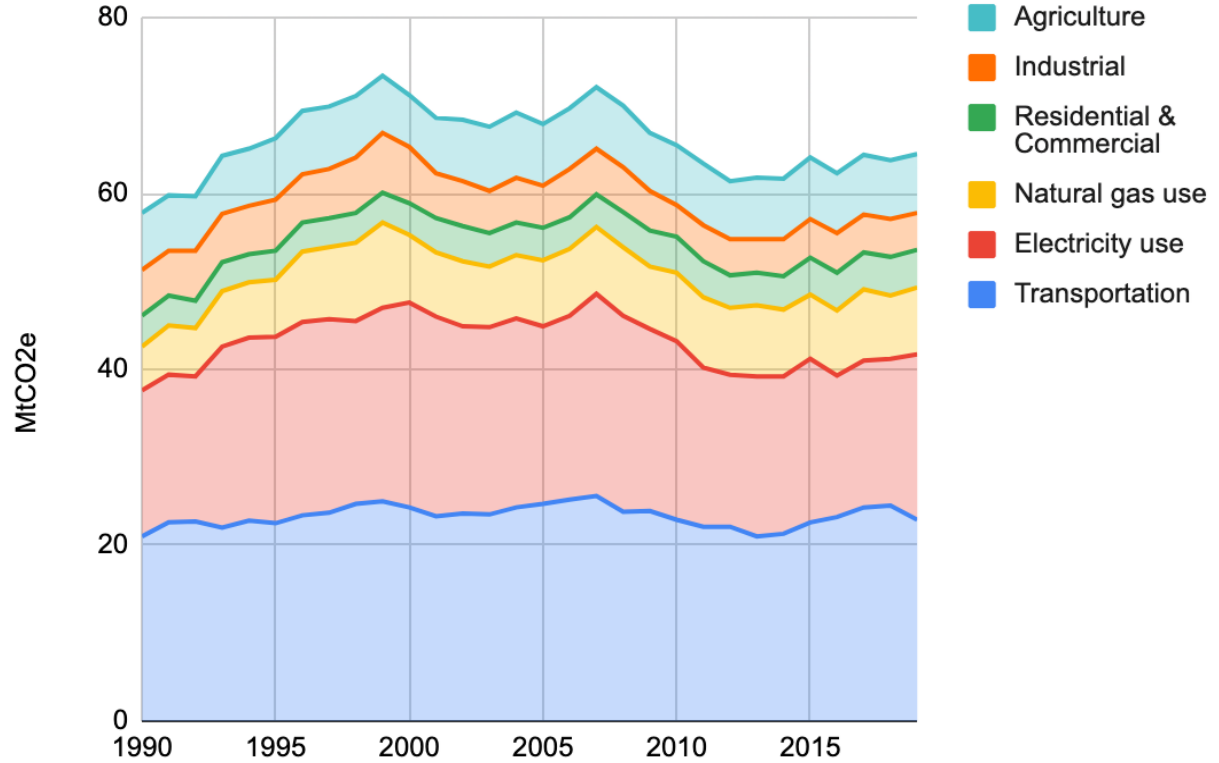
Literature

Best practices

ID	Sector	Status	Description	Qualitative assessment of	Category	Variables Impacted
1	Buildings	New Action	Increase new building efficiency	High	Direct	Building energy use intensity
2	Buildings	New Action	Require new buildings to be net zero emissions	High	Direct	Building energy use intensity
3	Buildings	New Action	Increase the energy efficiency of existing buildings through retrofits	High	Direct	Building energy use intensity
4	Buildings	New Action	GHG performance requirement of existing buildings	High	Direct	Fuel switching, energy efficiency
5	Energy	New Action	A goal of developing 3 GW of floating offshore wind energy off the Oregon Coast	High	Direct	Emissions factor of electricity
6	Energy	New Action	Increase large scale solar deployments	High	Direct	Energy generation
7	Energy	New Action	Develop offshore wind	High	Direct	Energy generation
8	Energy	New Action	Heat pumps for residential and commercial buildings	High	Direct	Fuel switch
9	Energy	New Action	Create a retrofit carbon building code	High	Direct	Fuel switching, energy efficiency
10	Agriculture	New Action	Deploy clean hydrogen fuel cells for homes	Medium	Direct	Fuel switching
11	Agriculture	New Action	Enhanced nitrogen management	Medium	Direct	Reduced nitrous oxides
12	Buildings	New Action	Reduce the floor area of homes	Medium	Direct	Reduced residential floor area
13	Ecosystem	New Action	Coastal wetland restoration	Medium	Direct	Sequestration
14	Ecosystem	New Action	Coastal wetland protection	Medium	Direct	Sequestration
15	Ecosystem	New Action	Restore sagebrush	Medium	Direct	Sequestration
16	Ecosystem	New Action	Restore tidal wetlands	Medium	Direct	Sequestration
17	Energy	New Action	Enable distributed community energy generation	Medium	Direct	Energy generation

2

Mapping sectors



3

Relative
impact

Road usage program (OReGO)	Medium
Hydrogen fuel cell electric vehicles	Medium
Electric micro-mobility strategy	Low

4

Setting parameters

Residential Retrofits

Action	Parameterization
Increase the energy efficiency of existing buildings through retrofits	Target 75% of residential buildings built before 2019 are retrofit to decrease space conditioning energy use by 50% and non space conditioning energy use by 10% by 2040.

4

Setting
parameters

Clean Fuel Standards

Action	Parameterization
Reduce carbon intensity to fuels (e.g., gasoline, diesel, and alternative jet fuel)	The current rule requires a 10% reduction in average carbon intensity from 2015 levels by 2025. 20% reductions by 2030, 25% by 2035.

4

Setting
parameters

Zero Emissions Vehicles

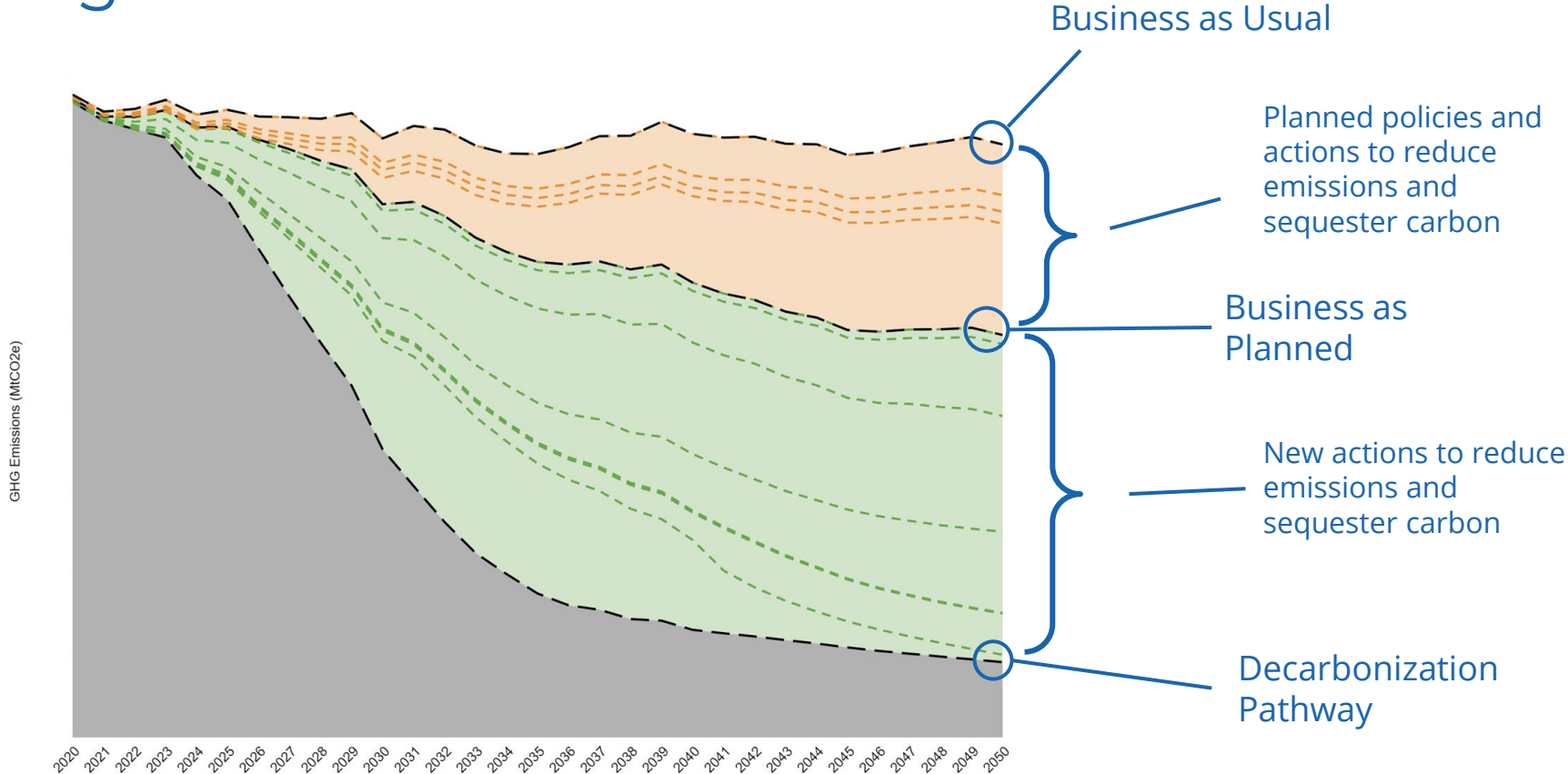
Action	Parameterization
Hydrogen fuel cell electric vehicles	Target 10% of new vehicles sales for light, medium and heavy duty vehicles by 2035.

5

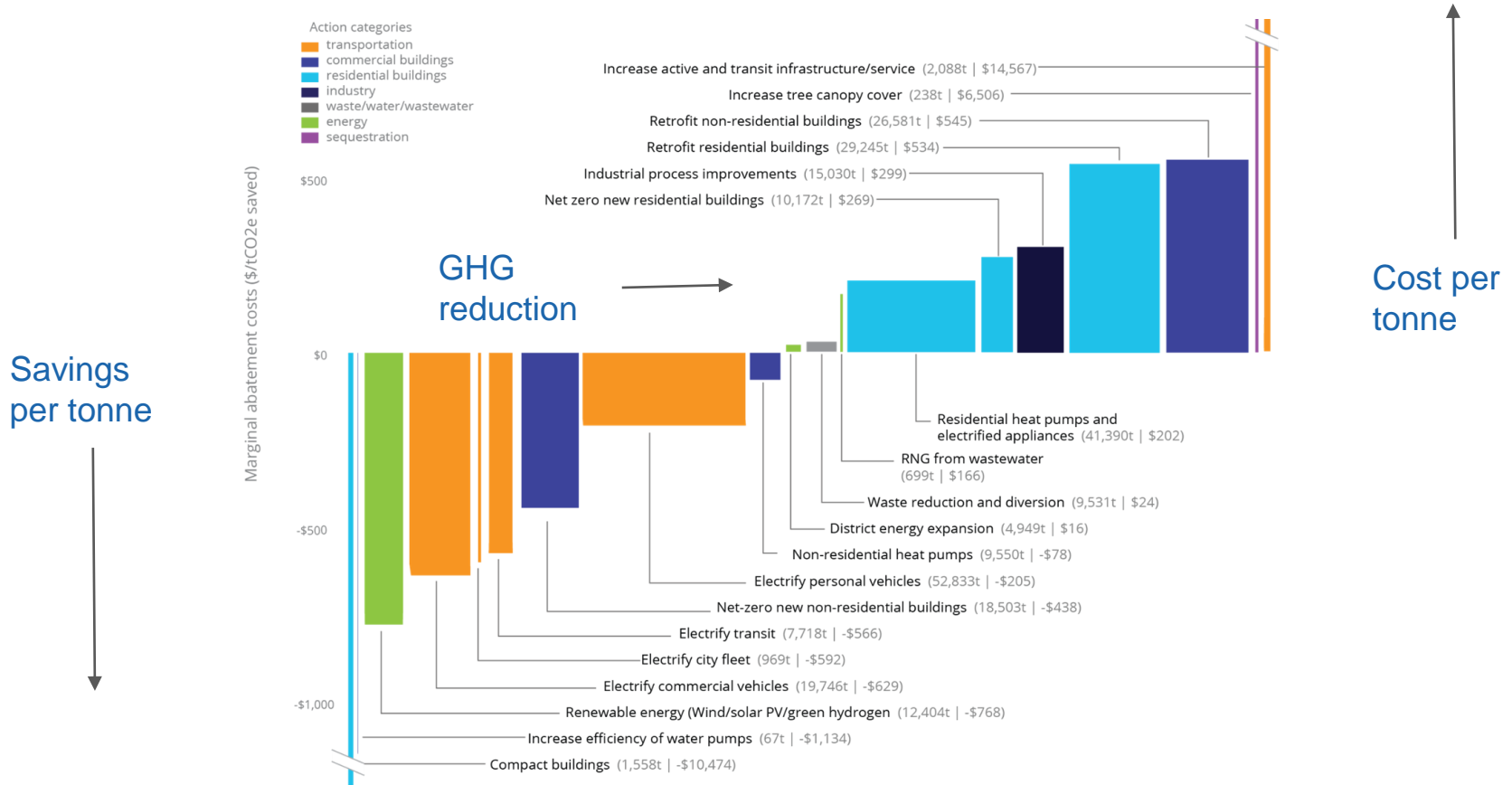
Defining scenarios

NAME	DECARBONIZATION PATHWAY 1	DECARBONIZATION PATHWAY 2
DESCRIPTION	Rapid decarbonization	Tech Transformation
WHAT HAPPENS IF...	We speed up	Technology advances rapidly

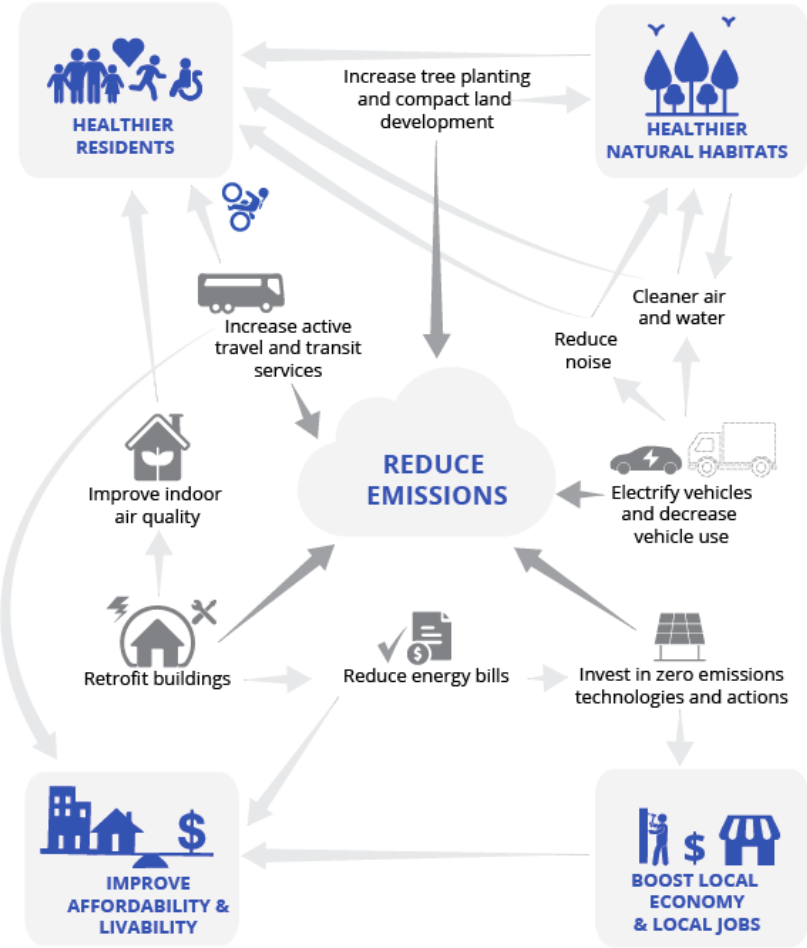
Integrated Scenarios



Cost/savings of actions - Example



Co-benefits



Next Steps

1. Refine list of actions incorporating feedback
2. Model the actions
3. Define scenarios