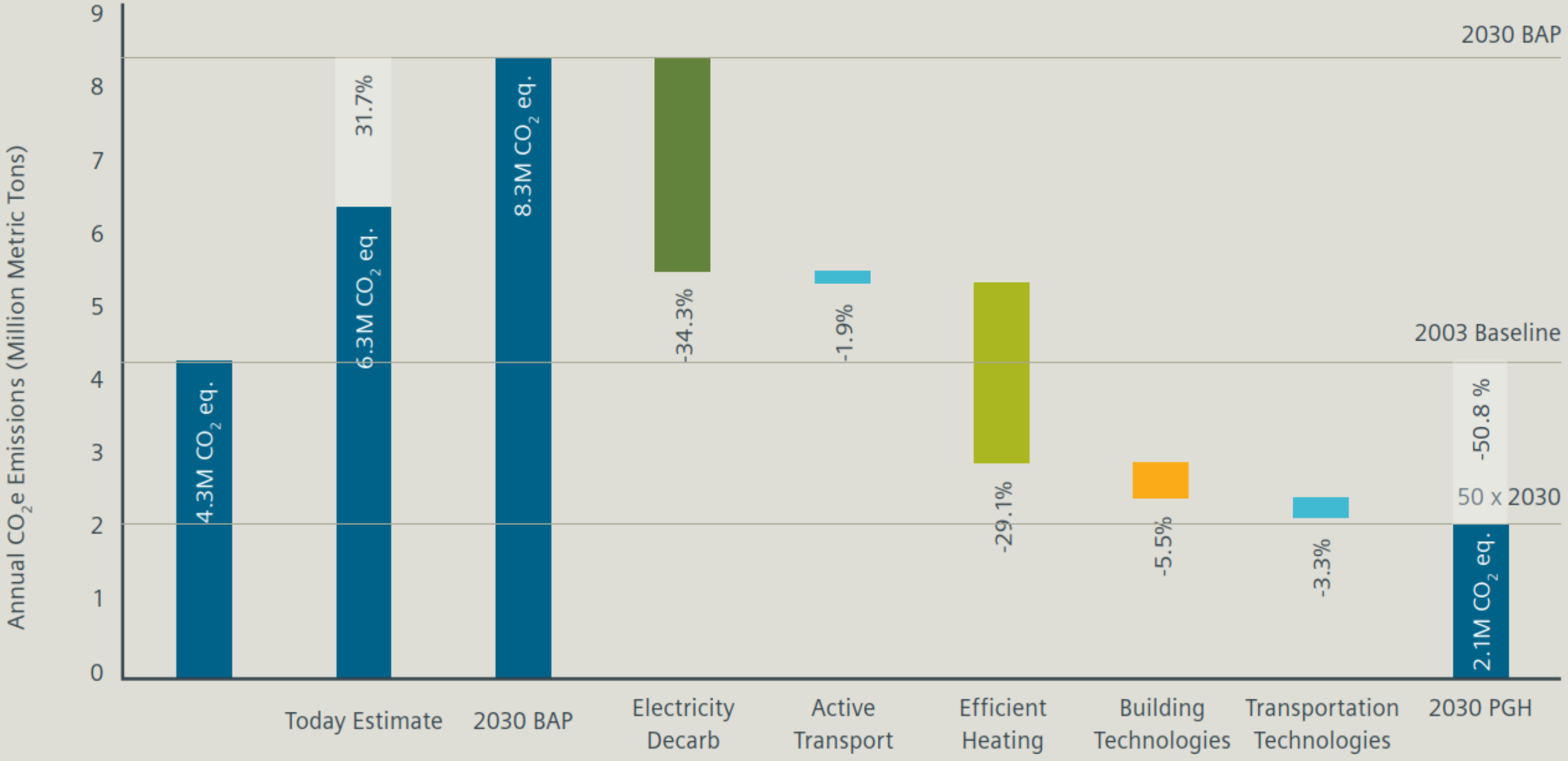
City of Pittsburgh

Linking Climate and Innovation

siemens.com/cypt

Pathway to Deep Carbon Reductions

50 x 2030 Scenario



City Performance Tool

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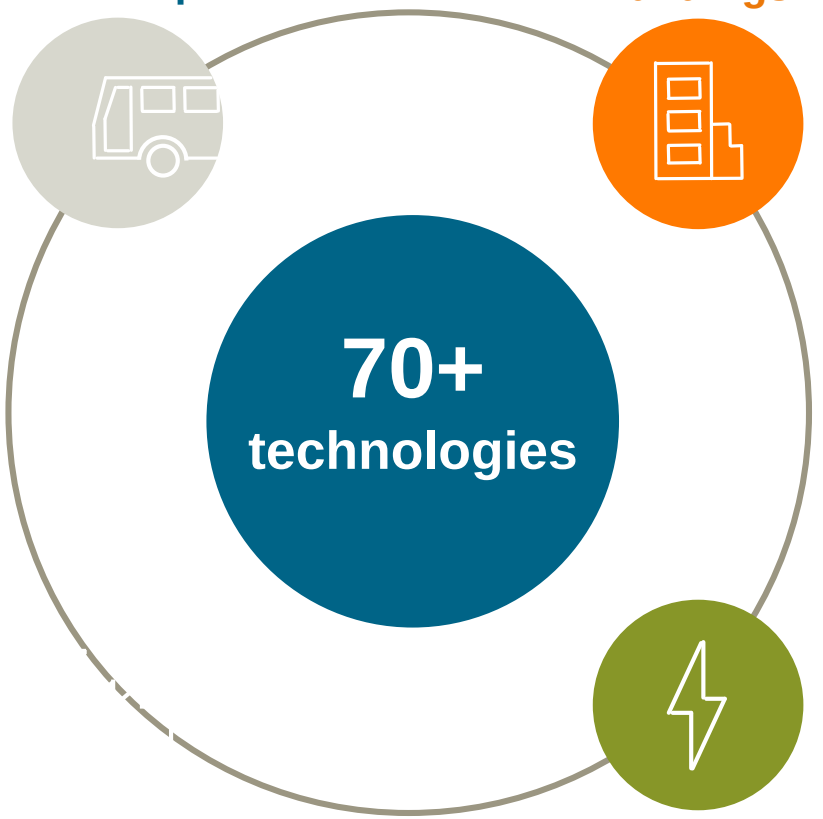
Allows urban decision makers to optimize infrastructure technology investments based on estimated economic and environmental impacts

Tool includes 70+ technologies, and models effects of those technologies on:

GHG

Air Quality

Jobs & Costs



- Public transport
- Private transport
- Traffic management
- Freight

- Building envelope
- Building automation
- Monitoring and optimization

- Renewable generation
- Combined Heat and Power
- Grid management

* Available in CyPT-Air China only

CyPT Scope: Consider Scope 1, 2 and 3 Emissions

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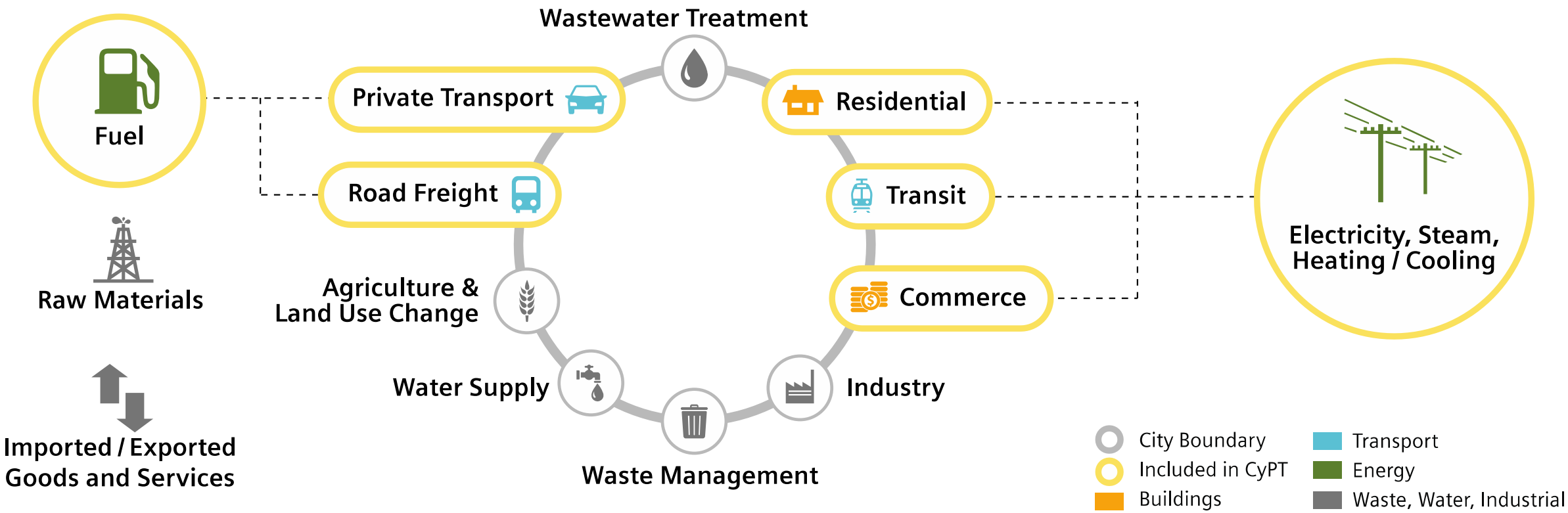
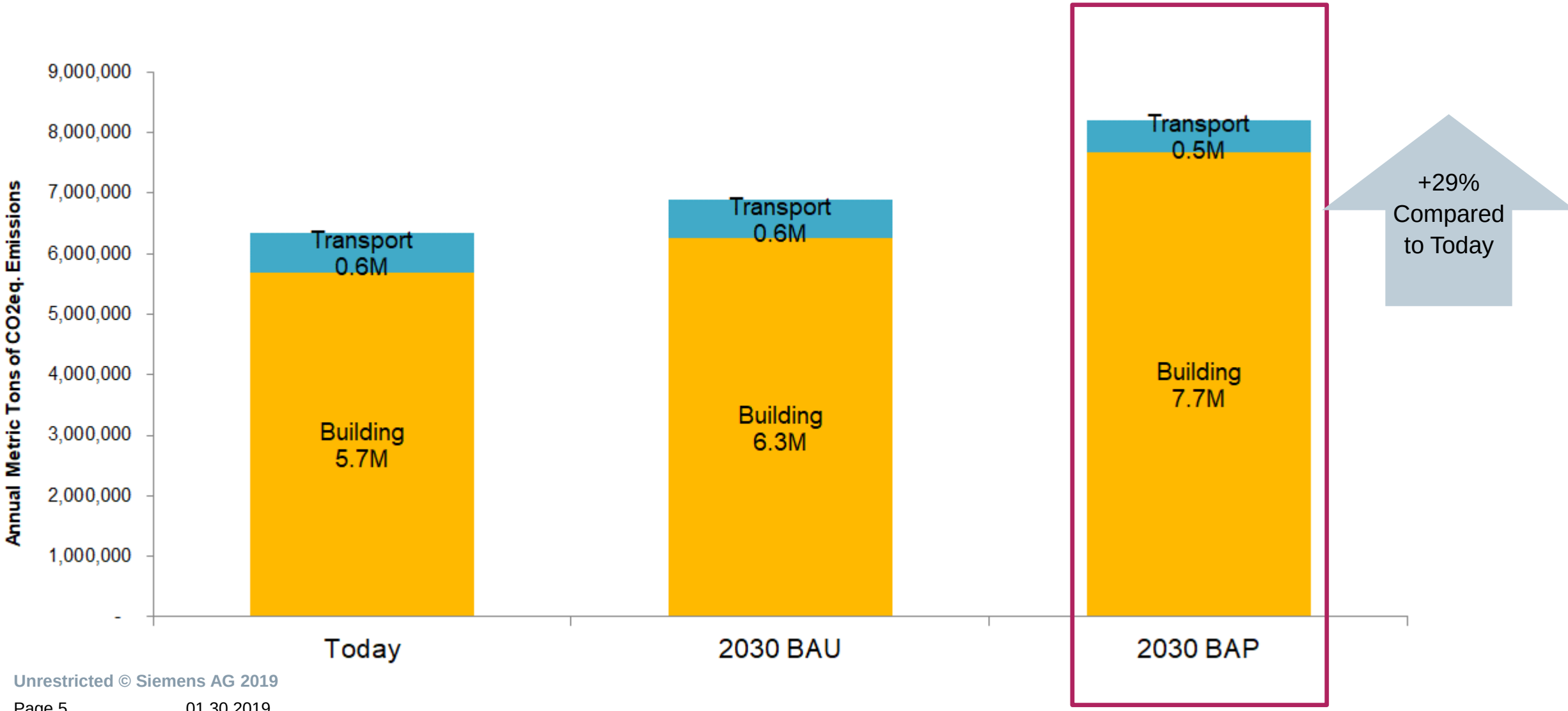
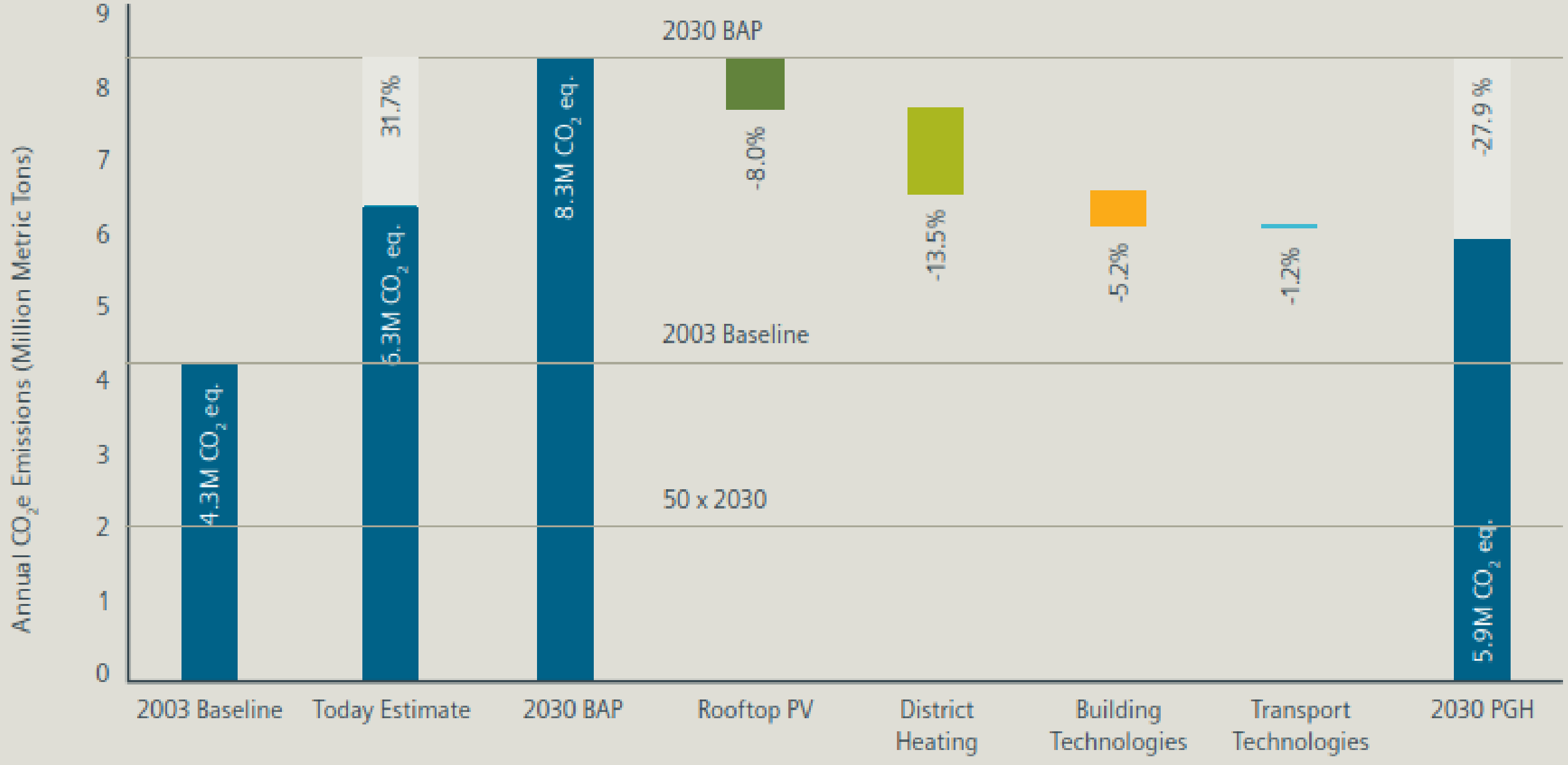


GHG Emissions, Today to 2030 Projected

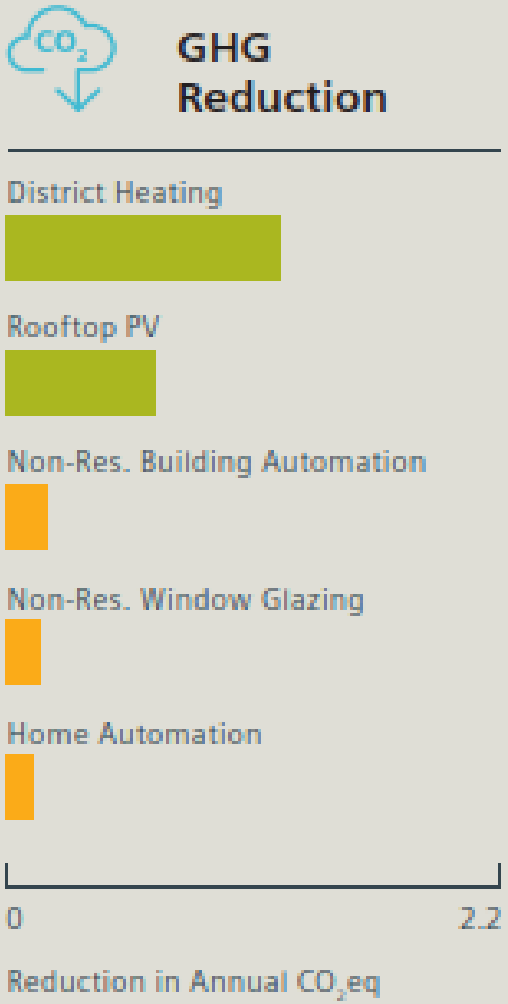


Pathway to Deep Carbon Reductions
Original Scenario



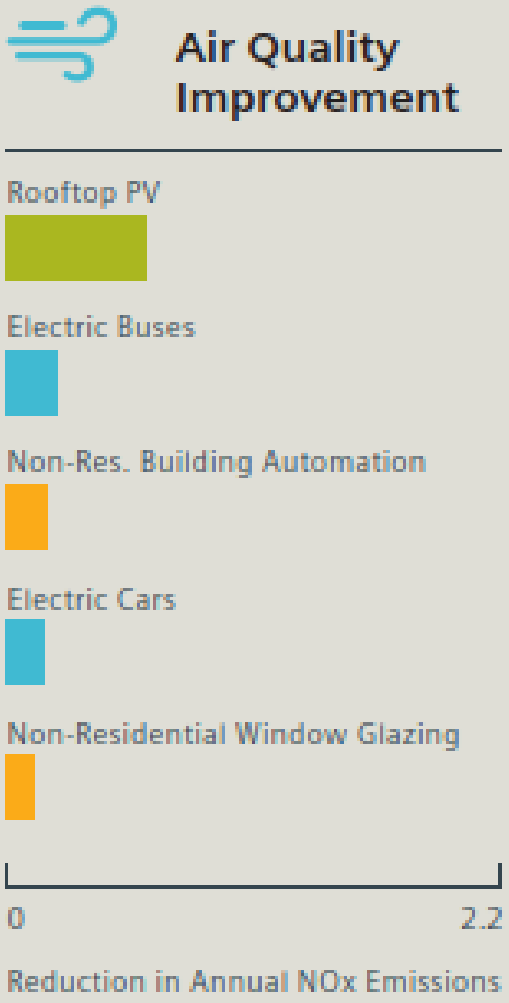
High-Performing Technologies

GHG Reduction



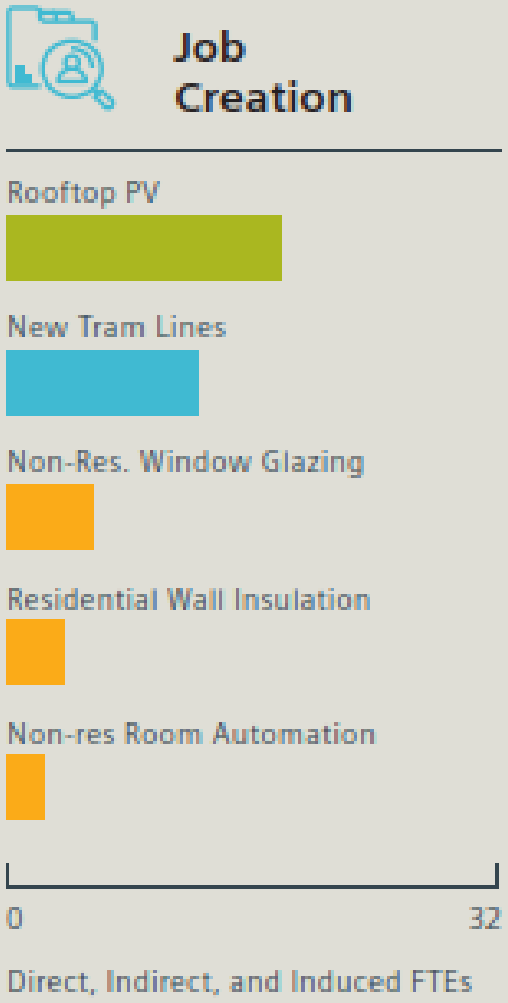
Reduction in Annual CO_2eq Emissions from 2030 BAP (million tons)

Air Quality Improvement



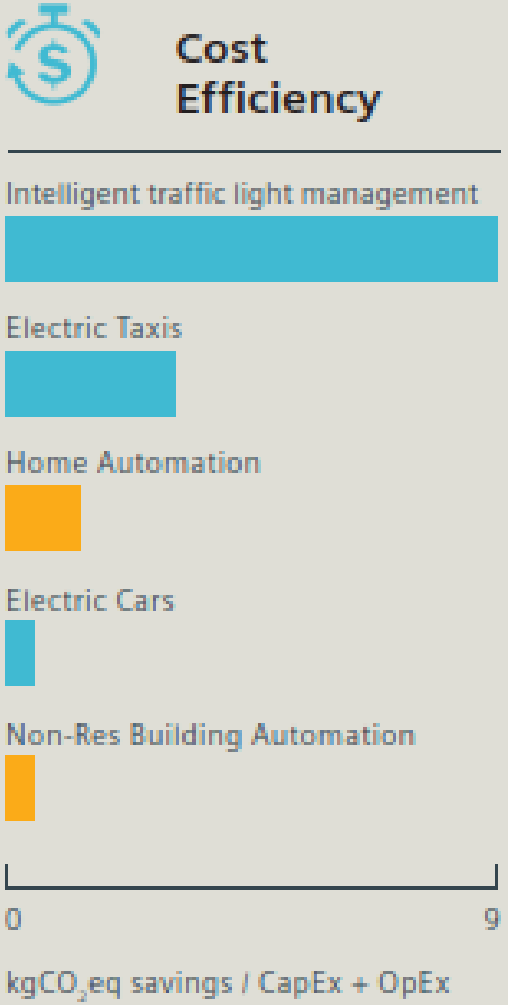
Reduction in Annual NOx Emissions from 2030 BAP (kg)

Job Creation



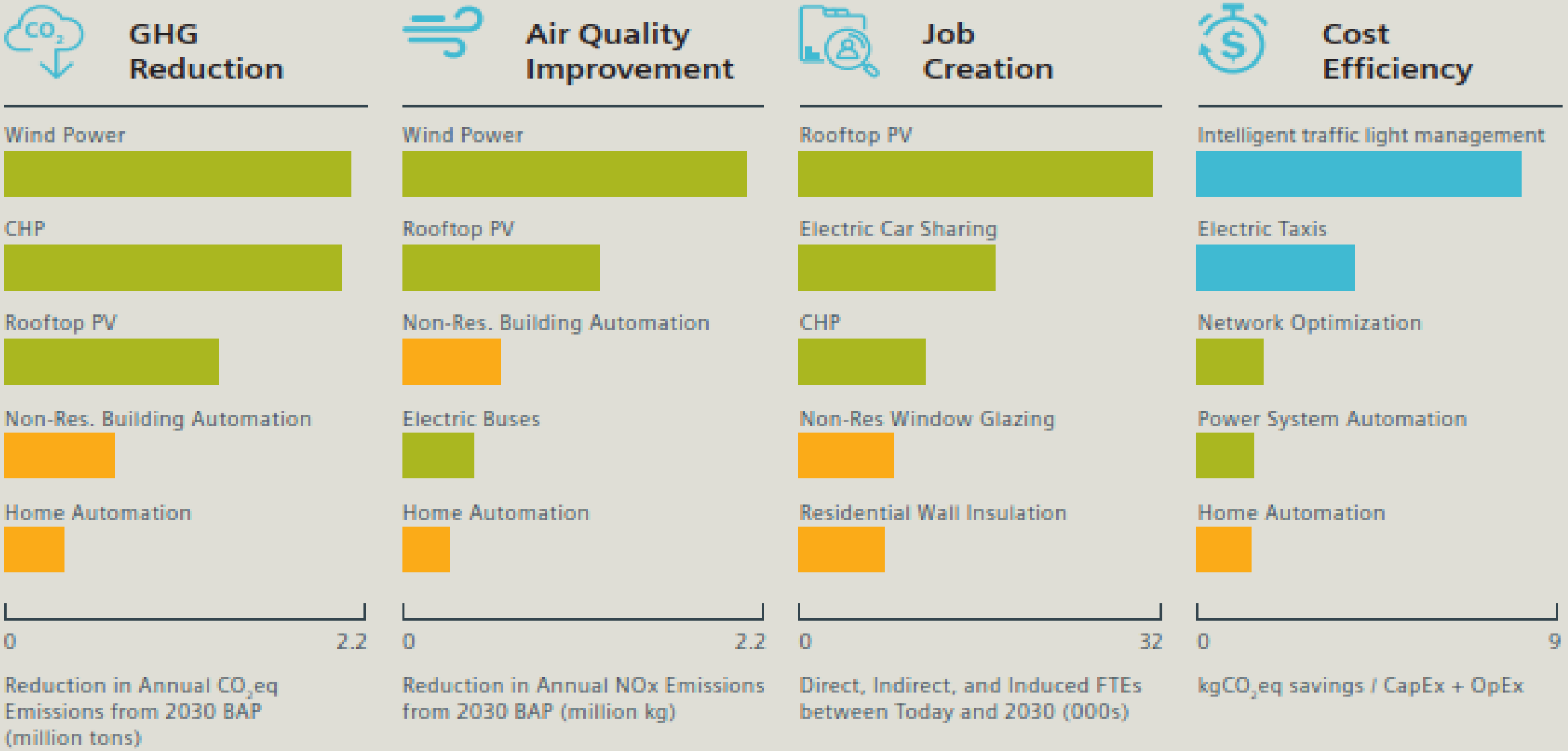
Direct, Indirect, and Induced FTEs between Today and 2030 (000s)

Cost Efficiency



$kgCO_2$eq savings / CapEx + OpEx

High-Performing Technologies – 50x2030 Scenario



Uptown EcoInnovation District

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Buildings, Today Non-Residential - Pittsburgh	Pittsburgh	Buildings, Today Non-Residential - Uptown District	Uptown District
223M ft² Total Non-residential building footprint	31 Average miles traveled per person per day	1,184k ft² Total Non-residential building footprint	21 Average miles traveled per person per day
4,147,331 MWh Total electricity consumption	111,397 (/0.8) No. of cars on the road (/cars per household)	61,000 MWh Total electricity consumption	367 (/0.5) NO. of cars on the road (/cars per household)
145 kBtu/ft² Average energy use intensity	23 mpg Average fuel economy miles per gallon	226 kBtu/ft² Average energy use intensity	23 mpg Average fuel economy miles per gallon

Modeled Scenarios – Uptown District

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	Realistic	Intermediate	Aggressive
Building technologies	Less aggressive– assuming less than ***50-60%*** of building stock equipped with energy efficient and automation technologies	More aggressive - assuming almost ***80-100%*** of building stock equipped with energy efficient and automation technologies	More aggressive - assuming almost ***80-100%*** of building stock equipped with energy efficient and automation technologies
Electricity Generation	No additional energy levers (district energy and rooftop PV) modeled	***10%*** of electricity generation from rooftop PV	***15%*** of electricity generation from rooftop PV
Building Heating	No additional energy levers (district energy and rooftop PV) modeled	***20%*** of building heating from NG based District Heating	***50%*** of building heating from NG based District Heating

Delivering More - Faster

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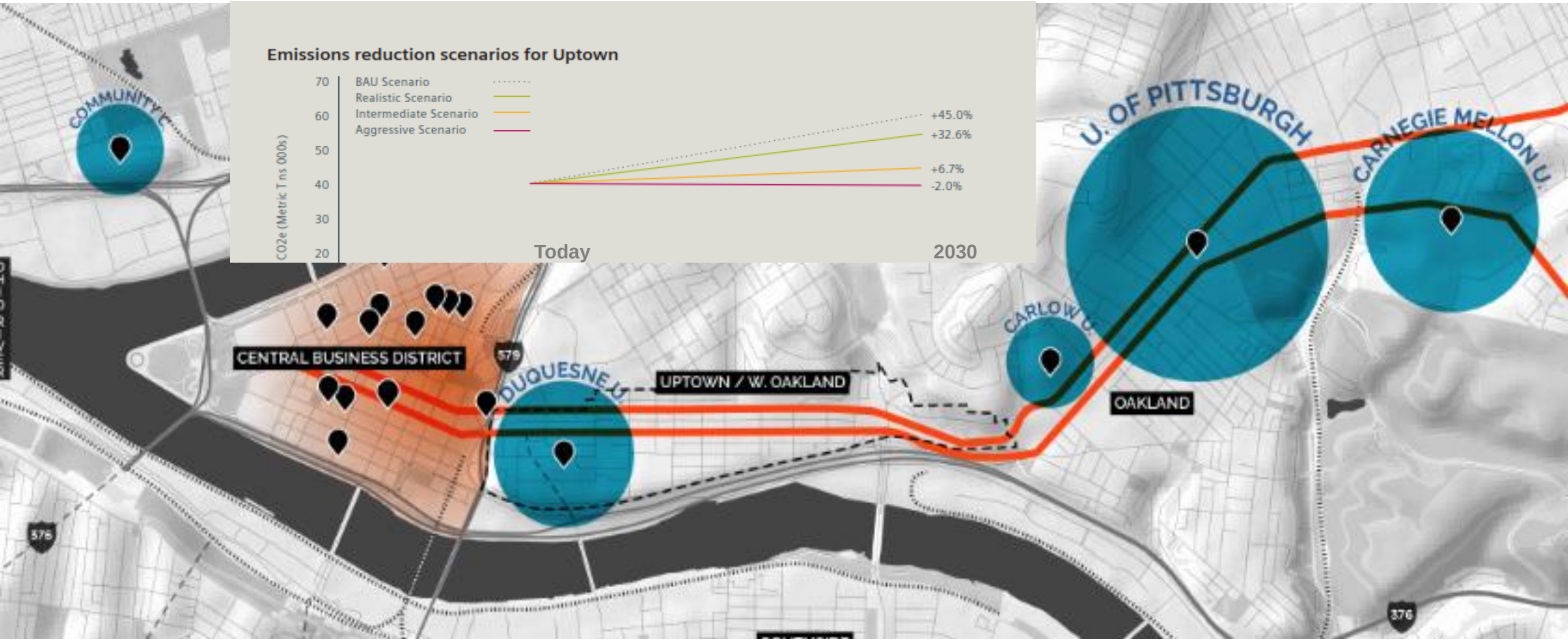

Annual Electricity Demand

Response to Transport Electrification

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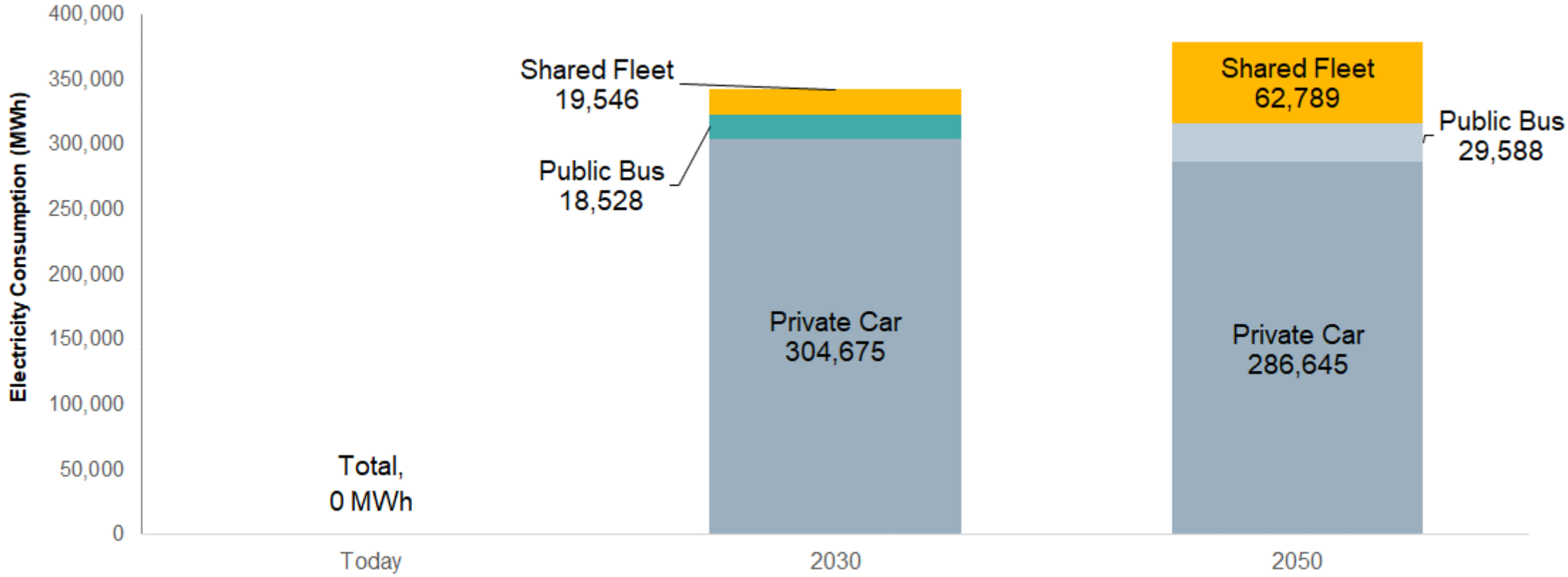
In **2030**, EVs would need **348,000 MWh** of additional annual electricity which would be **6%** of all electricity demand in Pittsburgh in 2030



Sources: Results from Siemens' Shared eMobility Calculator and CyPT analysis for Pittsburgh

Environmental Impacts
Gasoline Car Vs. Electric Car

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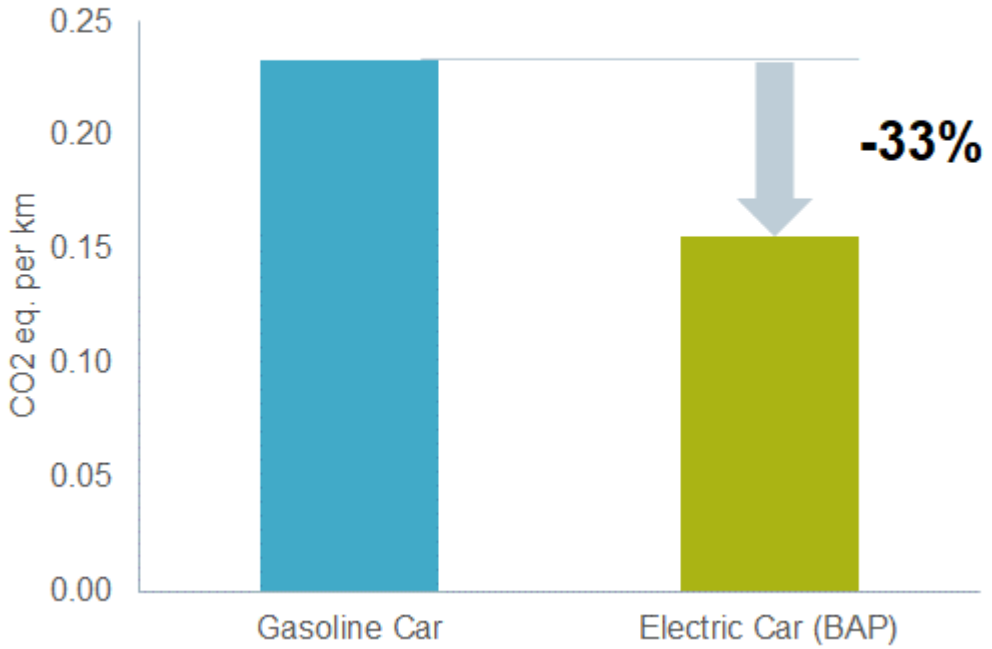
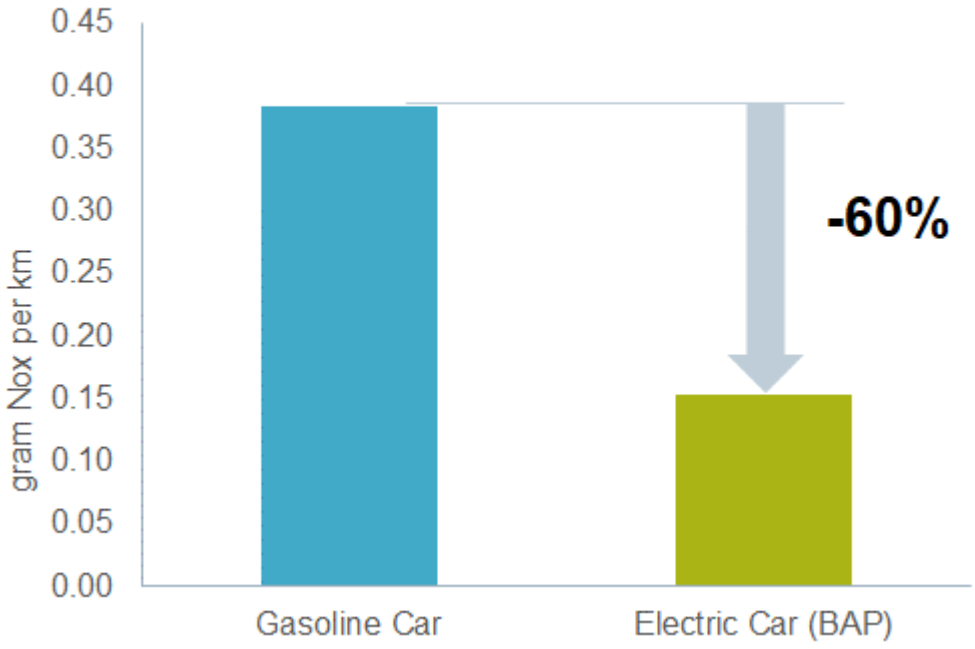
Electric cars in Pittsburgh would have lower emissions as compared to gasoline cars
33% reduction in **CO_2 eq.** emissions per km
60% reduction in **NOx** emissions per km

CO2 eq. emissions per km



NOx emissions per km



Sources: Results from Siemens' Shared eMobility Calculator

Pittsburgh Can Meet Its Targets; but it will need to deliver more and reach out beyond its urban boundaries

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