Pathway to Deep Carbon Reductions
50 x 2030 Scenario

- Today Estimate: 4.3 M CO₂ eq.
- 2030 BAP: 6.3 M CO₂ eq., 8.3 M CO₂ eq., -34.3%, -1.9%
- Electricity Decarb: -29.1%
- Active Transport: -5.5%
- Efficient Heating: -3.3%
- Building Technologies: -50.8%
- Transportation Technologies: 2.1 M CO₂ eq.

2030 PGH
City Performance Tool

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:

- Public transport
- Private transport
- Traffic management
- Freight
- Building envelope
- Building automation
- Monitoring and optimization
- Renewable generation
- Combined Heat and Power
- Grid management

70+ technologies

GHG
Air Quality
Jobs & Costs

* Available in CyPT-Air China only
CyPT Scope: Consider Scope 1, 2 and 3 Emissions
GHG Emissions, Today to 2030 Projected

Today:
- Transport: 0.6M
- Building: 5.7M

2030 BAU:
- Transport: 0.6M
- Building: 6.3M

2030 BAP:
- Transport: 0.5M
- Building: 7.7M

+29% Compared to Today
High-Performing Technologies

**GHG Reduction**
- District Heating
- Rooftop PV
- Non-Res. Building Automation
- Non-Res. Window Glazing
- Home Automation

**Air Quality Improvement**
- Rooftop PV
- Electric Buses
- Non-Res. Building Automation
- Electric Cars
- Non-Residential Window Glazing

**Job Creation**
- Rooftop PV
- New Tram Lines
- Non-Res. Window Glazing
- Residential Wall Insulation
- Non-res Room Automation

**Cost Efficiency**
- Intelligent traffic light management
- Electric Taxis
- Home Automation
- Electric Cars
- Non-Res Building Automation

Reduction in Annual CO₂eq Emissions from 2030 BAP (million tons)
- District Heating: 0
- Rooftop PV: 2.2
- Non-Res. Building Automation: 0
- Non-Res. Window Glazing: 0
- Home Automation: 0

Reduction in Annual NOx Emissions from 2030 BAP (kg)
- District Heating: 0
- Rooftop PV: 0
- Non-Res. Building Automation: 0
- Non-Res. Window Glazing: 0
- Home Automation: 0

Direct, Indirect, and Induced FTEs between Today and 2030 (000s)
- District Heating: 0
- Rooftop PV: 32
- Non-Res. Building Automation: 32

kgCO₂eq savings / CapEx + OpEx
- District Heating: 0
- Rooftop PV: 9
- Non-Res. Building Automation: 9
High-Performing Technologies – 50x2030 Scenario

**GHG Reduction**
- Wind Power
- CHP
- Rooftop PV
- Non-Res. Building Automation
- Home Automation

**Air Quality Improvement**
- Wind Power
- Rooftop PV
- Non-Res. Building Automation
- Electric Buses
- Home Automation

**Job Creation**
- Rooftop PV
- Electric Car Sharing
- CHP
- Non-Res Window Glazing
- Residential Wall Insulation

**Cost Efficiency**
- Intelligent traffic light management
- Electric Taxis
- Network Optimization
- Power System Automation
- Home Automation

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**GHG Reduction Metrics**
- Reduction in Annual CO₂ eq Emissions from 2030 BAP (million tons): 2.2

**Air Quality Improvement Metrics**
- Reduction in Annual NOx Emissions from 2030 BAP (million kg): 2.2

**Job Creation Metrics**
- Direct, Indirect, and Induced FTEs between Today and 2030 (000s): 32

**Cost Efficiency Metrics**
- kgCO₂ eq savings / CapEx + OpEx: 9
# Uptown EcoInnovation District

<table>
<thead>
<tr>
<th>Buildings, Today</th>
<th>Pittsburgh</th>
<th>Buildings, Today</th>
<th>Uptown District</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-Residential - Pittsburgh</strong></td>
<td><strong>Non-Residential - Uptown District</strong></td>
<td><strong>Non-Residential - Pittsburgh</strong></td>
<td><strong>Non-Residential - Uptown District</strong></td>
</tr>
<tr>
<td>223M ft²</td>
<td>31</td>
<td>11,193k ft²</td>
<td>21</td>
</tr>
<tr>
<td>Total Non-residential building footprint</td>
<td>Average miles traveled per person per day</td>
<td>Total Non-residential building footprint</td>
<td>Average miles traveled per person per day</td>
</tr>
<tr>
<td>4,147,331 MWh</td>
<td>111,397 (/0.8)</td>
<td>61,000 MWh</td>
<td>367 (/0.5)</td>
</tr>
<tr>
<td>Total electricity consumption</td>
<td>No. of cars on the road (/cars per household)</td>
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<td>No. of cars on the road (/cars per household)</td>
</tr>
<tr>
<td>145 kBtu/ft²</td>
<td>23 mpg</td>
<td>226 kBtu/ft²</td>
<td>23 mpg</td>
</tr>
<tr>
<td>Average energy use intensity</td>
<td>Average fuel economy miles per gallon</td>
<td>Average energy use intensity</td>
<td>Average fuel economy miles per gallon</td>
</tr>
<tr>
<td></td>
<td>Realistic</td>
<td>Intermediate</td>
<td>Aggressive</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Building technologies</strong></td>
<td>Less aggressive—assuming less than <em>50-60%</em> of building stock equipped with energy efficient and automation technologies</td>
<td>More aggressive - assuming almost <em>80-100%</em> of building stock equipped with energy efficient and automation technologies</td>
<td>More aggressive - assuming almost <em>80-100%</em> of building stock equipped with energy efficient and automation technologies</td>
</tr>
<tr>
<td><strong>Electricity Generation</strong></td>
<td>No additional energy levers (district energy and rooftop PV) modeled</td>
<td><em>10%</em> of electricity generation from rooftop PV</td>
<td><em>15%</em> of electricity generation from rooftop PV</td>
</tr>
<tr>
<td><strong>Building Heating</strong></td>
<td>No additional energy levers (district energy and rooftop PV) modeled</td>
<td><em>20%</em> of building heating from NG based District Heating</td>
<td><em>50%</em> of building heating from NG based District Heating</td>
</tr>
</tbody>
</table>
Delivering More - Faster
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

Electric cars in Pittsburgh would have lower emissions as compared to gasoline cars:
- 33% reduction in CO₂ eq. emissions per km
- 60% reduction in 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

Elaine Trimble
Urban Development
Cities Center of Competence
✉ elaine.trimble@siemens.com
🐦 @Lainey_Trimble

siemens.com/cypt @SiemensUSA #cypt