



Preparing the Workforce for a Clean Energy Economy

*A Focus on LEED Cities
Advancing a Just
Transition*



Local Government Leaders Forum | February 17, 2021

This event is hosted by the LEED for Cities program at the U.S. Green Building Council.



Local Government Leaders Forum

February 17 | May 19 | August 18 | November 17

A program of LEED for Cities at the U.S. Green Building Council

Monthly series on the 3rd Wednesday through December 2021

Local Government Leaders | Global Leaders | Urban Sustainability Solutions

March 17: Making a Business Case for Climate Mitigation and Equity

April 21: Innovation Hubs and Incubators

May 19: Tackling Urban Heat in Miami Beach, Cincinnati and Louisville


- Go to USGBC Events Calendar to register
- Go to Courses on Education @ USGBC for on-demand education and CEUs

The screenshot shows the USGBC homepage on a mobile device. The browser's address bar displays 'usgbc.org'. A teal banner at the top contains the text 'Take the USGBC and GBCI community survey by March 1.' and a 'Share your feedback' button. The navigation bar includes a hamburger menu icon, the USGBC logo, and links for 'About', 'LEED', 'Credentials', 'Education' (which is underlined), and 'Membership'. On the right side of the navigation bar are links for 'Store', 'Resources', 'Directory', 'Articles', 'Donate', and 'Account', along with a search icon. A dark grey mobile menu is open, listing the following options: 'Professional education', 'LEED v4.1 education', 'LEED exam prep', 'K-12 education', 'Higher education', 'Courses on Education @USGBC' (highlighted in teal), 'Events calendar', and 'Subscribe →'. The background of the page features a large image of a city skyline with solar panels in the foreground. A teal button labeled 'Read now' is visible on the right side of the page.

USGBC homepage | U.S. Green x +

usgbc.org

Take the USGBC and GBCI community survey by March 1. [Share your feedback](#)

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Agenda

- Welcome
- Introduction of Speakers
- Opening Remarks
- Stories from local leaders in St. Louis, Charlotte and Denver
- Questions from Audience

Our Speakers



Lauren Ross
ACEEE



Catherine Werner
City of St. Louis, MO



Sal Martinez
Employment Connection



Emily Cantrell
City of Charlotte, NC



Liz Babcock
City of Denver, CO

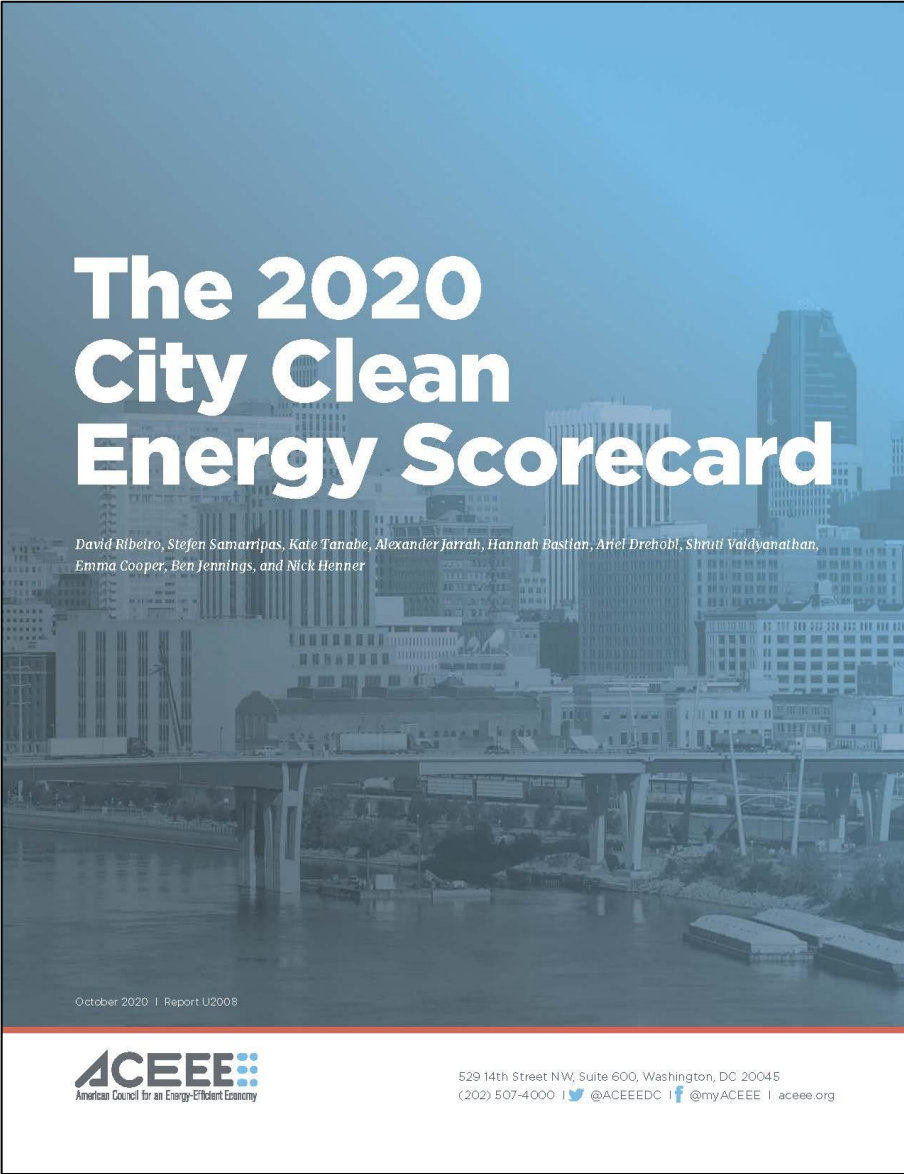
Cities as Leaders: A Look Back at 2020

Lauren Ross

Senior Director of Policy

American Council for an Energy-Efficient Economy (ACEEE)





The 2020 City Clean Energy Scorecard

*David Ribetro, Stefan Samarripas, Kate Tanabe, Alexander Jarrah, Hannah Bastian, Ariel Dreihobl, Shruti Vaidyanathan,
Emma Cooper, Ben Jennings, and Nick Henner*

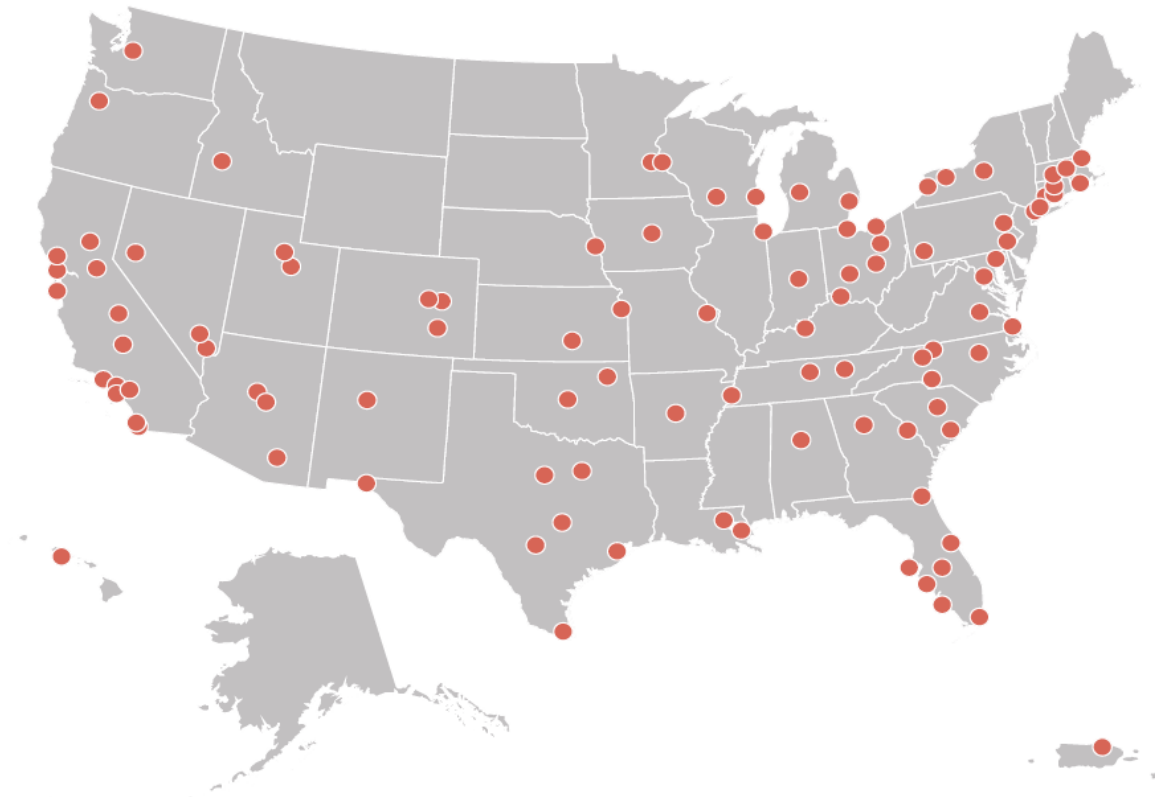
October 2020 | Report U2008

ACEEE
American Council for an Energy-Efficient Economy

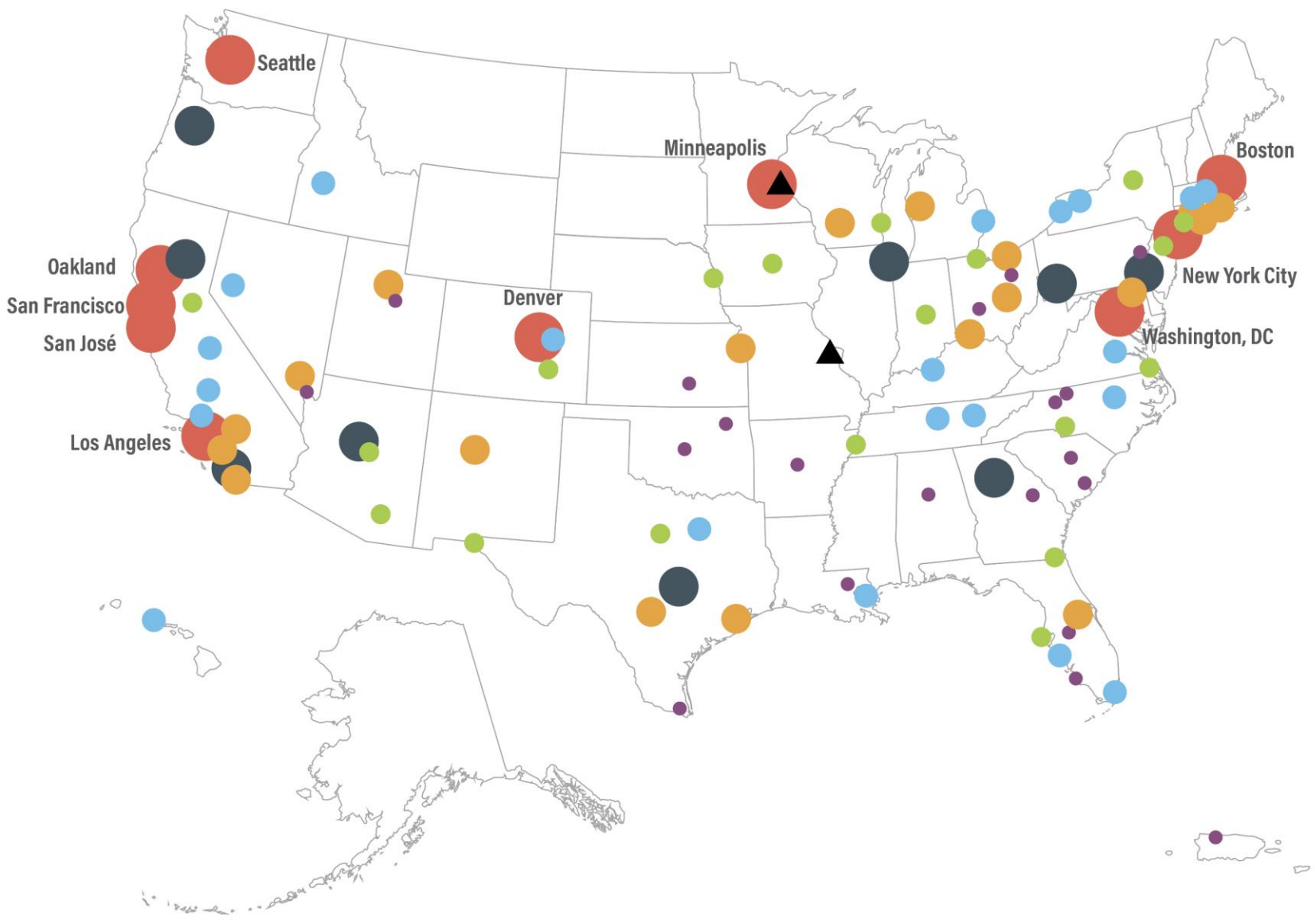
529 14th Street NW, Suite 600, Washington, DC 20045
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Overview of City Clean Energy Scorecard



2020 City Clean Energy Scorecard



1–10

1. New York, NY
2. Boston, MA
2. Seattle, WA
4. Minneapolis, MN
4. San Francisco, CA
6. Washington, DC
7. Denver, CO
8. Los Angeles, CA
9. San José, CA
10. Oakland, CA

11–20

11. Portland, OR
12. Austin, TX
13. Chicago, IL
14. Atlanta, GA
15. Philadelphia, PA
16. St. Paul, MN
17. Sacramento, CA
18. San Diego, CA
19. Phoenix, AZ
19. Pittsburgh, PA

▲ Most Improved Cities:
St. Paul, St. Louis

21–40

21. Orlando, FL
22. Chula Vista, CA
23. Hartford, CT
23. Providence, RI
25. Kansas City, MO
26. Long Beach, CA
27. Salt Lake City, UT
28. St. Louis, MO
29. Cleveland, OH
29. Columbus, OH
31. San Antonio, TX
32. Baltimore, MD
33. Grand Rapids, MI
34. Houston, TX
34. Riverside, CA
36. Cincinnati, OH
36. Las Vegas, NV
36. Milwaukee, WI
36. New Haven, CT
40. Albuquerque, NM

61–80

62. Des Moines, IA
62. Indianapolis, IN
64. Madison, WI
65. Charlotte, NC
66. Fort Worth, TX
66. Stockton, CA
68. Bridgeport, CT
68. Tucson, AZ
70. Memphis, TN
70. Syracuse, NY
72. Colorado Springs, CO
72. Virginia Beach, VA
74. Jacksonville, FL
75. Tampa, FL
76. Mesa, AZ
76. Newark, NJ
78. Omaha, NE
79. Toledo, OH
80. El Paso, TX

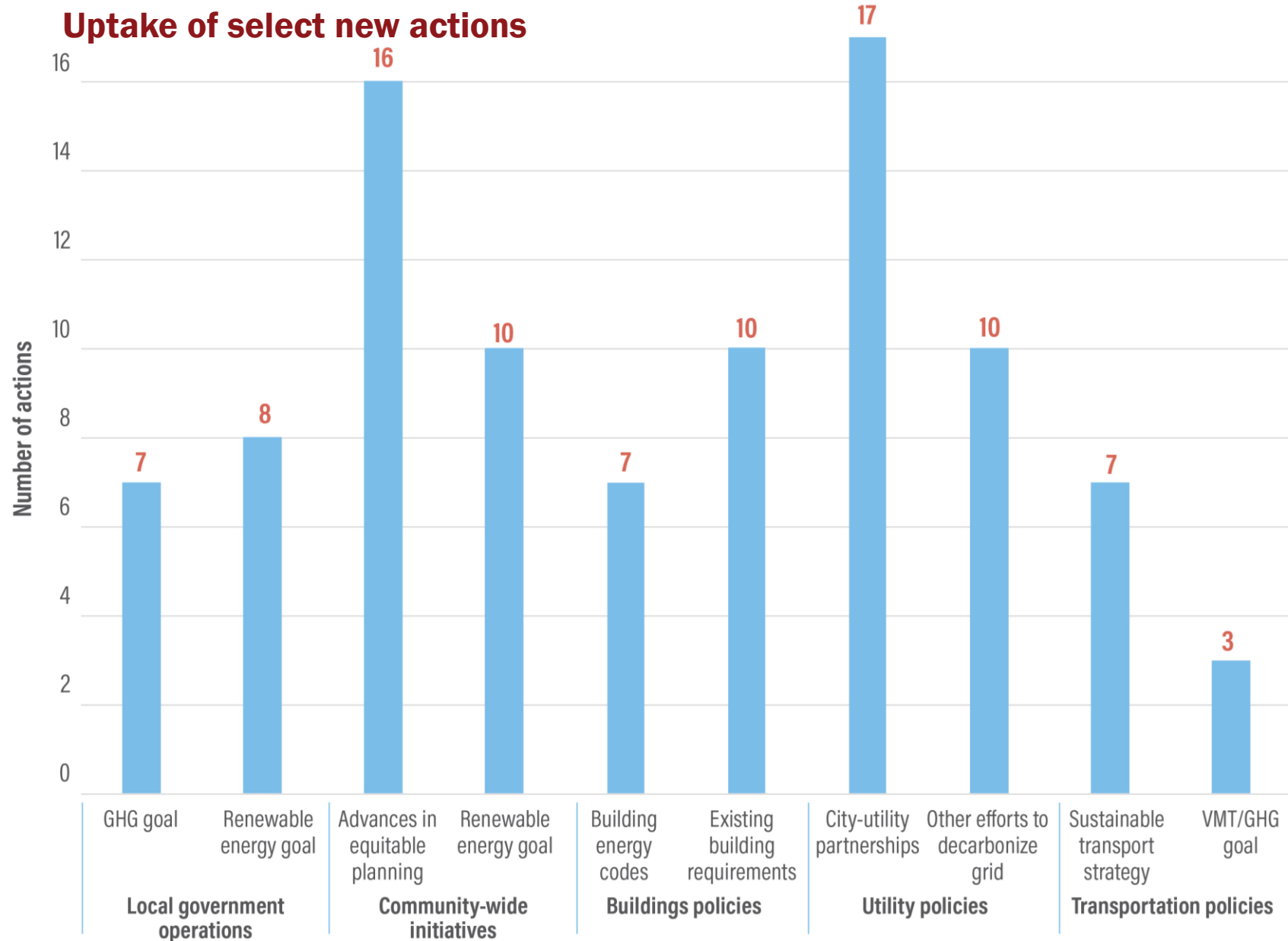
41–60

41. Honolulu, HI
42. Boise, ID
43. Aurora, CO
43. Buffalo, NY
43. Richmond, VA
43. Rochester, NY
43. Springfield, MA
48. Dallas, TX
48. Louisville, KY
50. Worcester, MA
51. Knoxville, TN
51. Miami, FL
51. New Orleans, LA
51. St. Petersburg, FL
55. Detroit, MI
55. Oxnard, CA
55. Raleigh, NC
58. Nashville, TN
58. Reno, NV
60. Bakersfield, CA
60. Fresno, CA

81–100

81. Dayton, OH
82. Lakeland, FL
83. Akron, OH
83. Winston-Salem, NC
85. Tulsa, OK
86. Allentown, PA
86. Henderson, NV
88. Birmingham, AL
89. Charleston, SC
89. Greensboro, NC
91. Columbia, SC
91. Little Rock, AR
93. Cape Coral, FL
93. Provo, UT
95. McAllen, TX
96. San Juan, PR
97. Baton Rouge, LA
97. Oklahoma City, OK
99. Wichita, KS
100. Augusta, GA

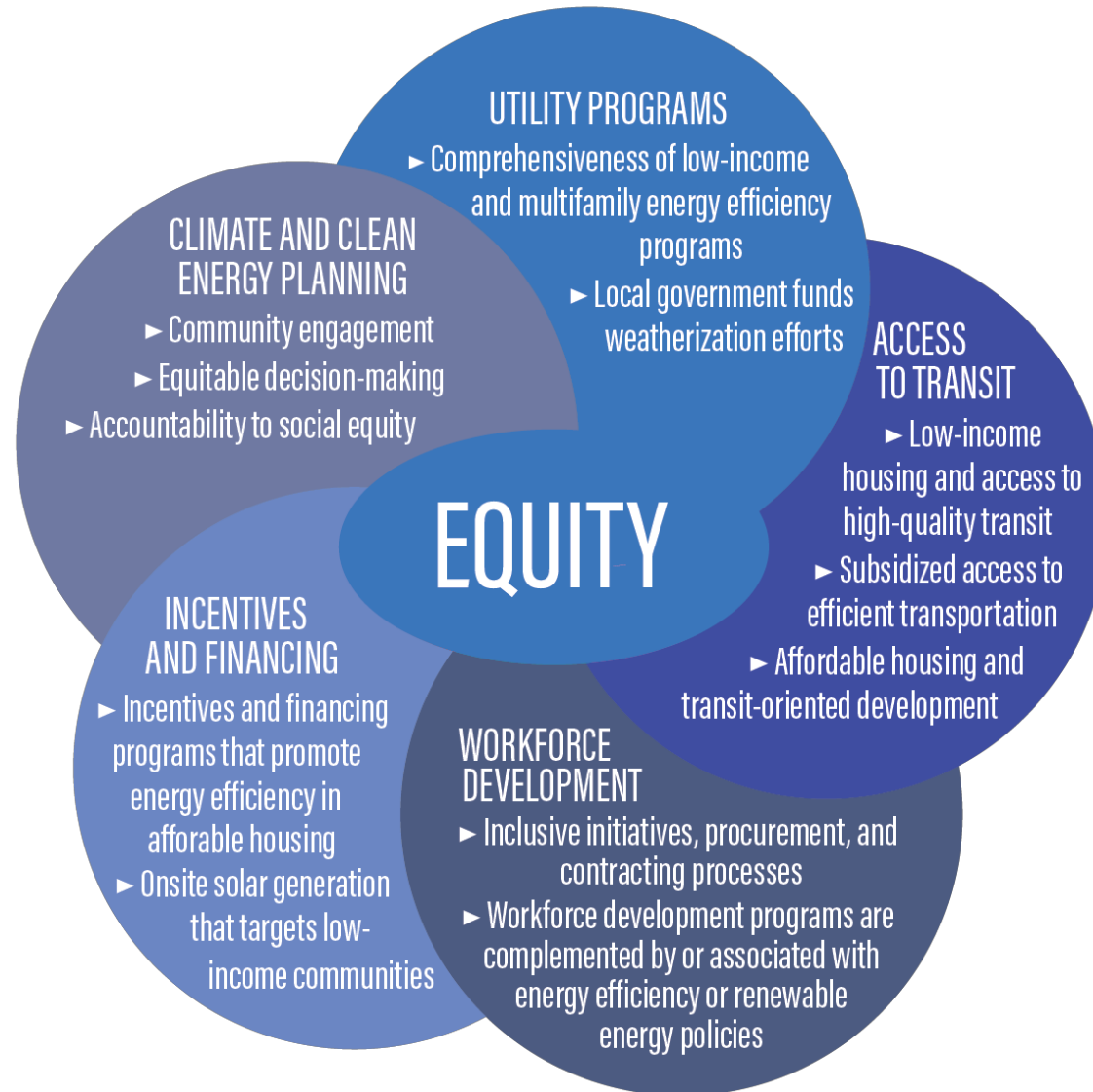
Uptake of select new actions



Cities continue to pursue new initiatives

Cities took more than **160 new actions** to advance energy efficiency or renewable energy, or to integrate equity into policies and programs between April 2019 and May 2020

Fostering Equity in Local Clean Energy Policy





City of St. Louis Solar Workforce Development Pilot

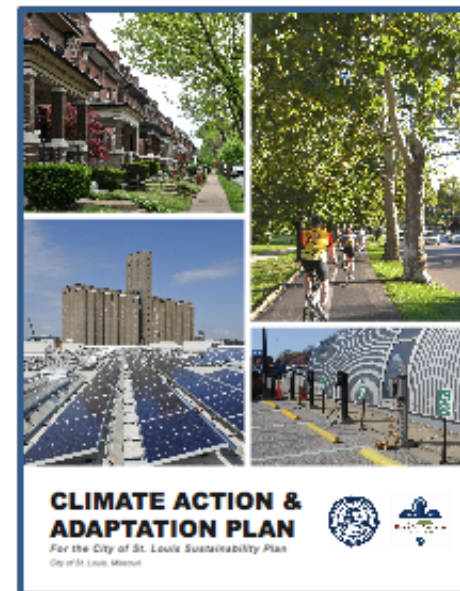
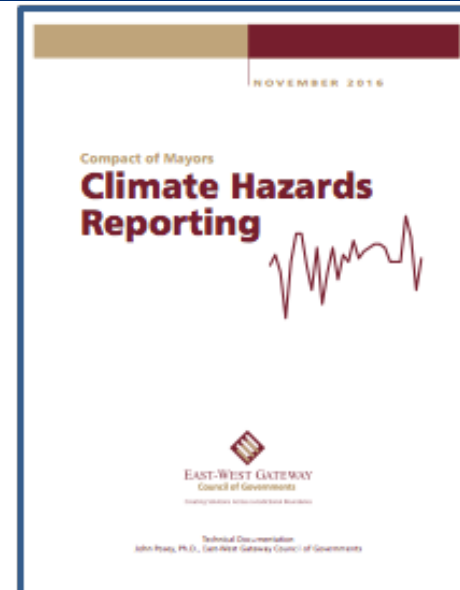
Sal Martinez, CEO, Employment Connection

Catherine Werner, Sustainability Director, City of St. Louis

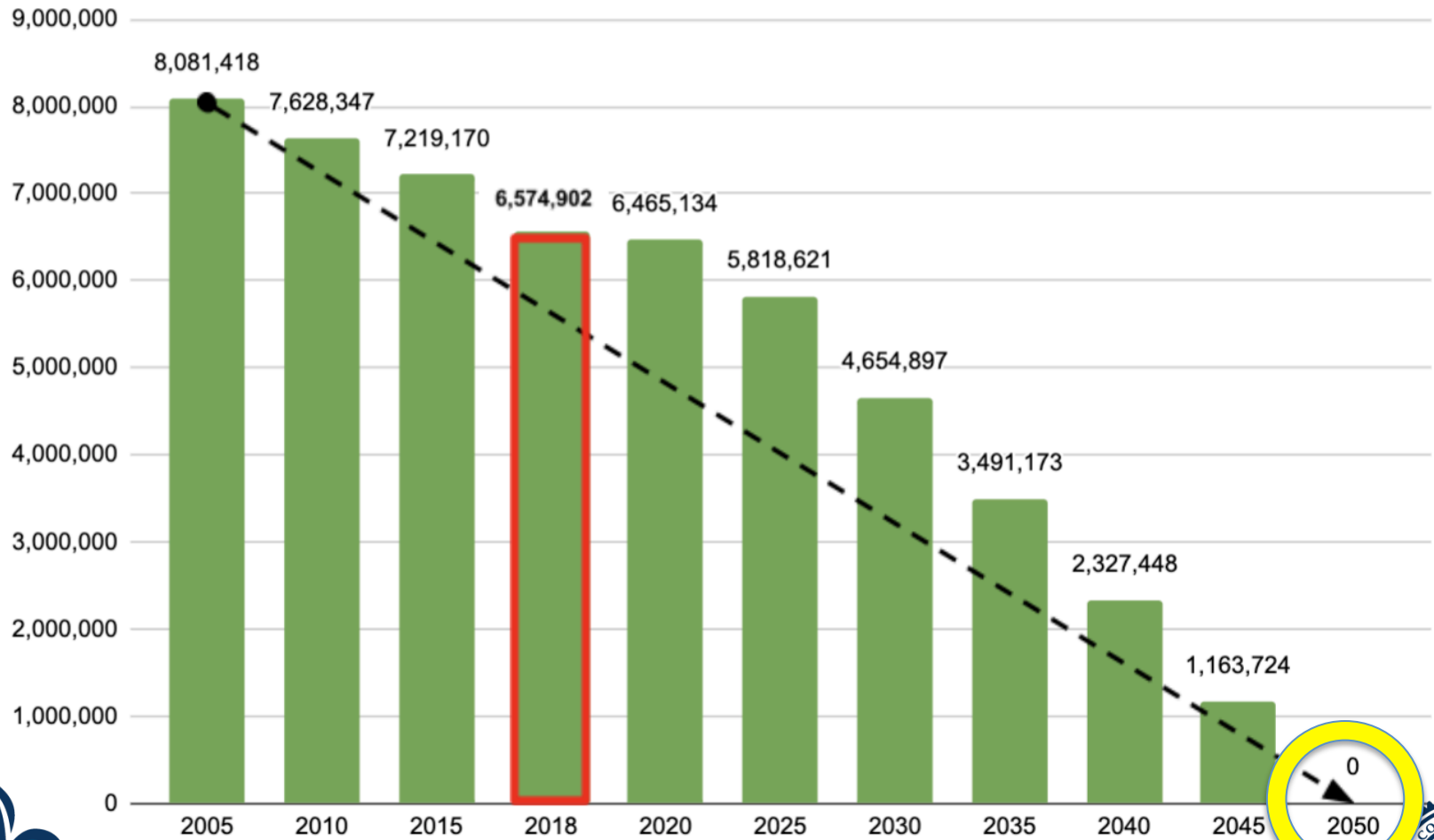
February 2021



City of St. Louis Sustainability & Climate Protection



City Goal: 100% Greenhouse Gas Reduction by 2050



2018 City of St. Louis Greenhouse Gas Emissions

GHG Emissions by Sector:

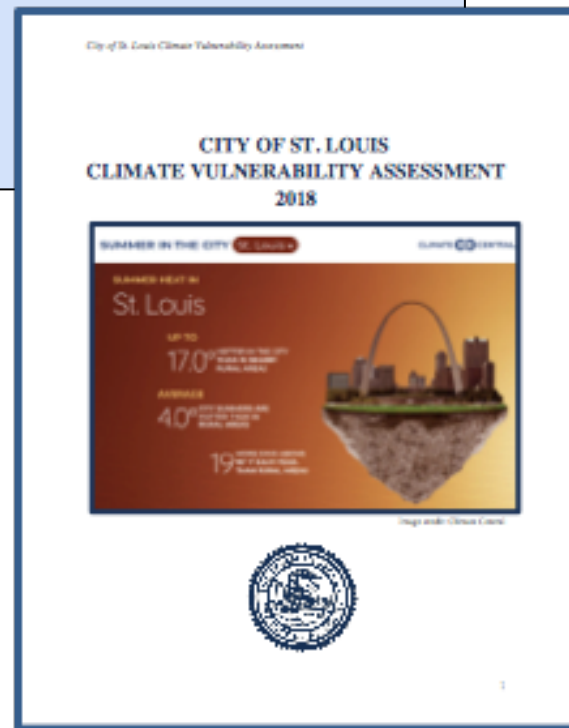
- Commercial 41%
- Residential 24%
- Industrial 15%
[Buildings = 80%]
- Transportation 17%
- Other 3%

GHG Emissions by Source:

- Electricity 59%
- Natural Gas 23%
- Gasoline 17%
- Other 1%

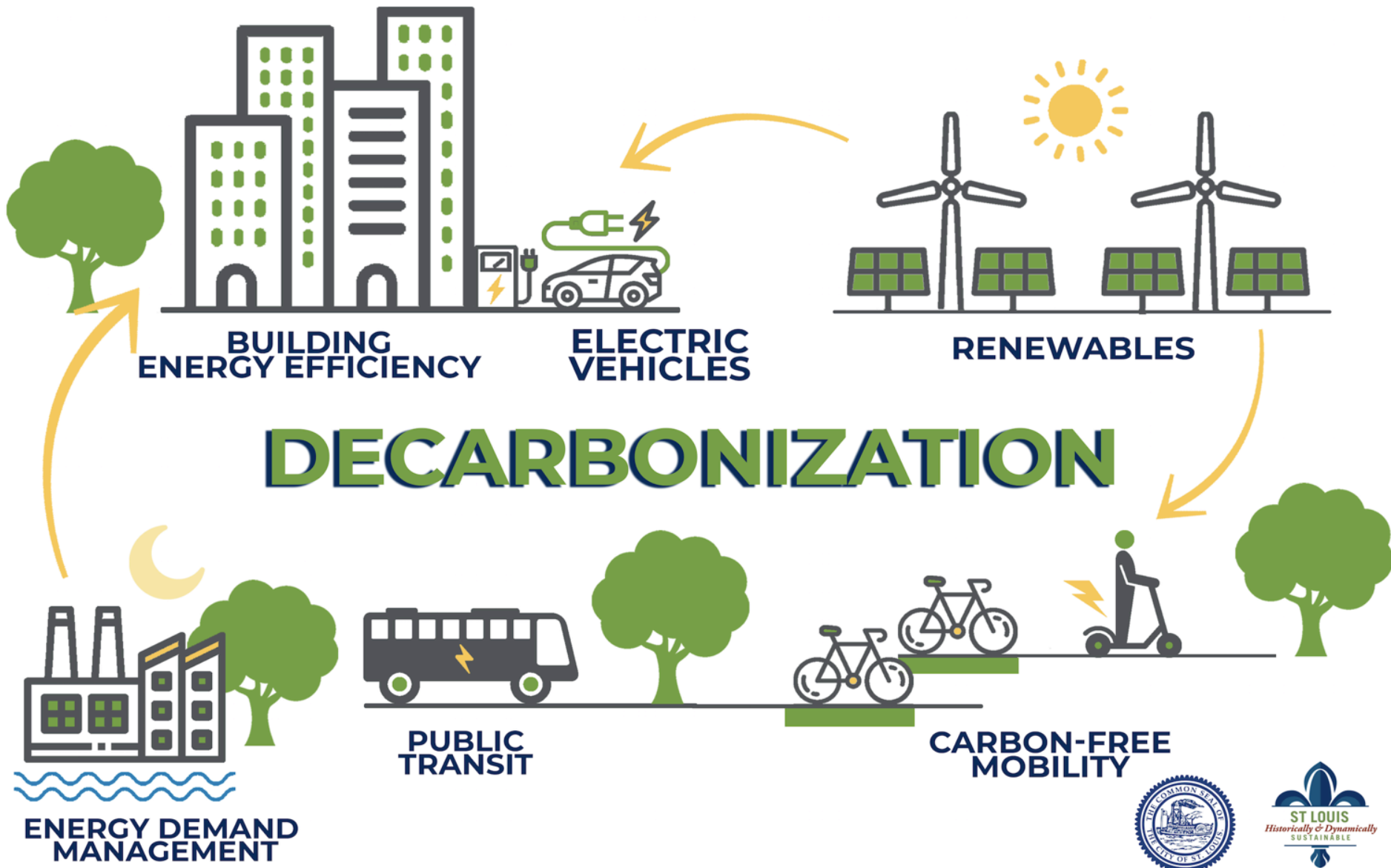


Photo: Courtesy IKEA



CITY OF ST. LOUIS CLIMATE PROTECTION INITIATIVE

An Integrated Approach Toward Carbon Neutrality



Electric vehicle by monkik, electric station by b farias, Electric bus by Rutmer Zijlstra, cycling by mynamepong, arrow by SANB, factory by Petai Jantrapoon, green energy by made, buildings by made, tree guilherme furtado, Electric Scooter by Luis Prado from the Noun Project from the Noun Project



CITY OF ST. LOUIS AMERICAN CITIES CLIMATE CHALLENGE WORK 2019-2021

Building Energy Efficiency

- **Develop a Building Energy Performance Standard "BEPS" Ordinance for buildings 50,000 square feet or larger**
- **Create a BEPS oversight board and implementation program**
- **Develop building performance scorecards**
- **Conduct outreach / enforce the City's Building Energy Awareness "Benchmarking" Ordinance**

Renewable Energy

- **Evaluate municipal options for renewable energy procurement and on-site solar generation**
- **Develop a Solar Readiness Ordinance for new construction projects that are 5 stories or lower**
- **Launch a solar workforce development pilot to better promote diversity, equity and inclusion in the regional green economy**

Low-Carbon Transportation

- **Prioritize municipal purchases of Electric Vehicles (EVs) & charging stations using VW Trust Funds**
- **Issue a clean vehicle purchasing strategy for municipal fleet**
- **Develop an EV Ordinance**
- **Conduct an EV pilot that centers equity considerations**
- **Map a network of calm streets corridors that improves cycling & mobility**

**American Cities
Climate Challenge**

February 2021



STL Solar Expo

reNEWSTL solar
AFFORDABLE, SIMPLIFIED SOLAR FOR COMMERCIAL
& NON-RESIDENTIAL CUSTOMERS

GROW SOLAR
ST. LOUIS

- Solar Demand is Growing
 - More solar panel installations lead to more solar panel installation jobs
- ## Who will get those jobs?



Solar-Ready Ordinance for New Construction in the City of St. Louis

Solar-Readiness Helps Minimize or Avoid Common Costly Barriers to Installing a Rooftop Solar System

1 Benefits of Solar Power in St. Louis City

- Fossil Fuel Generated Electricity Replaced by Renewable Energy Sources
- Customer Energy Bill Savings
- Implements City Sustainability Plan and Climate Action Plan Strategies
- Reduces Harmful Air Pollutants which can Cause Health Problems
- Creates Demand for Local Solar Installations that Support Green Jobs

3 Environmental Benefits of a Solar-Ready Ordinance in the City of St. Louis

If 10% of single-family and commercial buildings that are impacted by the ordinance install solar panels every year starting in 2022, by 2030 the City may avoid emitting approximately 23,000 metric tons of CO₂ by 2030. This would be:

- Equivalent to taking 4,900 Passenger Vehicles off the Road or
- Conserves enough Emissions to Power 2,664 Homes electricity needs for one year

5 Financial Benefits of a Solar-Ready Ordinance in the City of St. Louis

Building owners are likely to enjoy significant savings on solar system installation costs:

- Single-family Homeowners may save **\$4,000** on their Solar Installation Costs
- Multi-family and Low-rise Commercial Building Owners may Save up to **\$25,000** on their Solar-Installation Costs

7 Solar-Ready Budget for New Construction

- Average Cost to make a **2000 sqft** Residential Single-Family home Solar-Ready Ranges from **\$.30c/sqft - .50c/sqft**
- Average Cost to make a **100k sqft** office building development Solar Ready ranges from **\$.18c/sqft - .23c/sqft**



2 What does it Mean to be "Solar-Ready"?

The **National Renewable Energy Lab (NREL)** defines a Solar Ready Building as being designed and built "to Enable Installation of Solar (PV) Systems at some time after the Building is Constructed." Solar-Ready Provisioning is Performed during the Design Phase of Project Development.

Effective Rooftop Solar Design Considerations Include:

- Minimal Rooftop Shading
- Continuous Roof Space
- Electrical Conduit to the Roof
- Right-Sized Electrical Panel

4 Issues that Drive Up the Cost of a Rooftop Solar Installation

- Significant Upgrades Needed to increase size of the Electrical Service Panel
- Insufficient Space for an Inverter, DC & AC Safety Disconnects and other Protection Devices
- Significant Upgrades Needed to Run Conduit/Conductor to the Rooftop Area

6 Requirements of the City's Solar-Ready Ordinance

- A Minimum Unobstructed Roof Area Dedicated to Future Solar (PV) Panels
- Adequate Electrical Service Panel Capacity
- Routing of Conduit from the Electrical Service Panel to the Rooftop Area
- Roof is Adequate to Support Future (PV) Panel Load

SOURCES:

Bureau of Labor Statistics
Clayco
Environmental Protection Agency
GHG Equivalence Calculator
NREL
NRDC
Solar Energy Industries Association and
Wood Mackenzie: Power & Renewables
The Solar Foundation
U.S. Green Building Council

PREPARED BY:



February 2020

How St. Louis Laid the Foundation For Enhancing Solar Workforce Development



A Solar Workforce Development Pilot graduate during a post-pilot paid internship. Photo courtesy StraightUp Solar

Pathway to the St. Louis Pilot:

1. Research best practices
2. Conduct a Gap Analysis
3. Survey existing assets
4. Prioritize needs for pilot
5. Target pilot beneficiaries
6. Hold pilot(s)
7. Conduct feedback loops
8. Explore opportunities to grow from Pilot to Permanence

Elements Recommended for the St. Louis Pilot



ARE YOU INTERESTED IN A GOOD-PAYING "GREEN JOB" OR PURSUING A CAREER IN THE ELECTRICAL TRADES?

PAID TRAINING: SOLAR PANEL INSTALLATION

FALL 2020 | ST. LOUIS

**APPLY TODAY TO JOIN
OUR PILOT COHORT**

JOIN US AS WE PROMOTE EQUITY
IN THE GREEN JOBS WORKFORCE
OF ST. LOUIS CITY

TO LEARN MORE CALL
(314) 333-JOBS (5627)
OR VISIT
EMPLOYMENTSTL.ORG/GREENJOBS



- **Soft Skills**
- **Job Readiness**
- **On The Job Experience**
- **Mentoring**
- **Technical Training**
- **Wrap Around Services**
- **Job Placement / Retention**



St. Louis Solar Workforce Development Pilot Partners



Azimuth Energy

Straight Up Solar



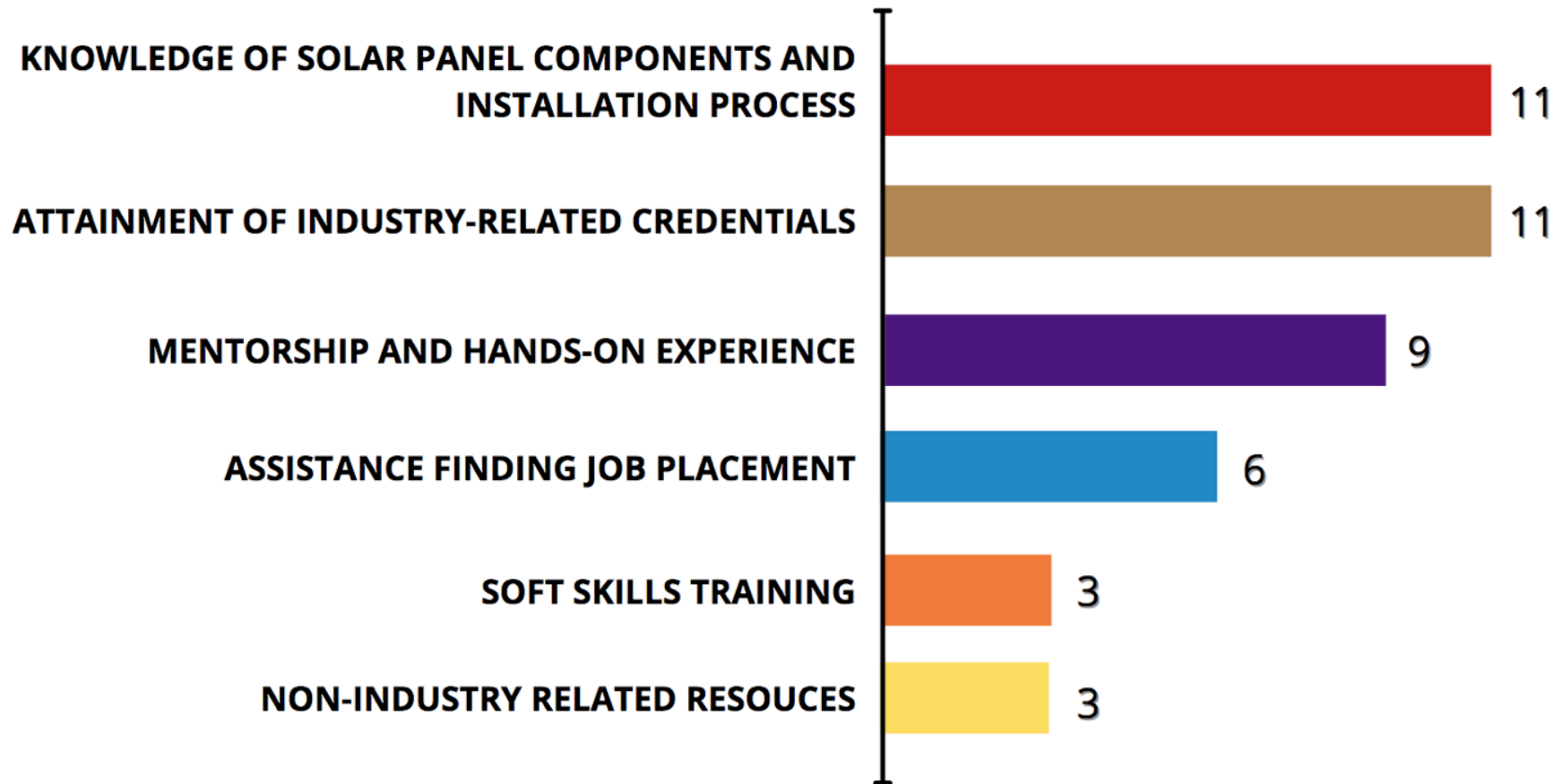
Solar Workforce Development Pilot 1.0 Modules

- **Soft Skills Training & Participant Support**
(Employment Connection)
- **Solar Industry Job Exposure**
(Azimuth Energy & StraightUp Solar)
- **Introduction to Solar Voltaics**
(IBEW/NECA)
- **OSHA-10 Training**
(Building Union Diversity)
- **Paid Internship or Union Apprenticeship**
(StraightUp Solar, IBEW-Local 1)
- **Job Placement & Employee Retention Support**
(Employment Connection)



Surveyed Needs of Pilot 1.0 Participants

TOP NEEDS OF PILOT PROGRAM PARTICIPANTS



*Based on pre-program survey of 14 participants

Looking Ahead To Version 2.0 & Beyond



- Soft Skills and OSHA-10 were highly successful
- Include more “hands on” opportunities
- Pay participants & incentivize prospective employers
- Leverage additional existing assets and programs
- Assess, adapt and evolve



A Solar Workforce Development Pilot graduate during a post-pilot paid internship.
Photo courtesy StraightUp Solar

Sal Martinez

CEO, Employment Connection

E-mail: martinezs@employmentstl.org

Website: www.employmentstl.org

Catherine Werner

Sustainability Director, City of St. Louis

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Website: www.StLouis-MO.gov/Sustainability





LEED for Cities: Preparing the Workforce for a Clean Energy Economy

February 17, 2021

 CITY *of* CHARLOTTE



TRAINING
PROGRAM

Renewable Energy and Energy Efficiency Workforce Training Program (RENEW)

- Paid (\$15/hr) skilled training for Charlotte residents to prepare them for careers in HVAC and electrical occupations with a focus on sustainable technologies in these fields
- Recruit Charlotte residents displaced by COVID-19
- Four 13-week classes through Urban League of Central Carolinas – resulting in 60+ participants over 12 months
- Strong corporate partnership from Trane Technologies, MSS Solutions and others in the industry; goal is full-time placement within industry

Strategic Energy Action Plan



SEAP

STRATEGIC ENERGY ACTION PLAN

 CITY of CHARLOTTE

GOALS

- Strive to source 100% of municipal energy use in buildings and fleet from zero carbon sources by **2030**
- Strive to become a low carbon city by **2050**, emitting less than 2 tons of carbon dioxide equivalent per person

FOCUS AREAS

1. Buildings
2. Transportation
3. Energy Generation
4. Workforce Development & Equity

Read the full SEAP at charlottenc.gov/seap

Funding & Partners



- City of Charlotte committed approx. \$550,000 in CARES Community Relief Funding; additional costs are covered by workforce development program dollars
- Program & Case Managers, Instructor Fees, Materials, Technology, Stipends, etc.
- Approximate cost per participant is \$7,000 - \$7,500.
- Corporate in-kind support through engagement with participants and curriculum advising
- Project Management provided by SchermCo, a social impact consulting firm



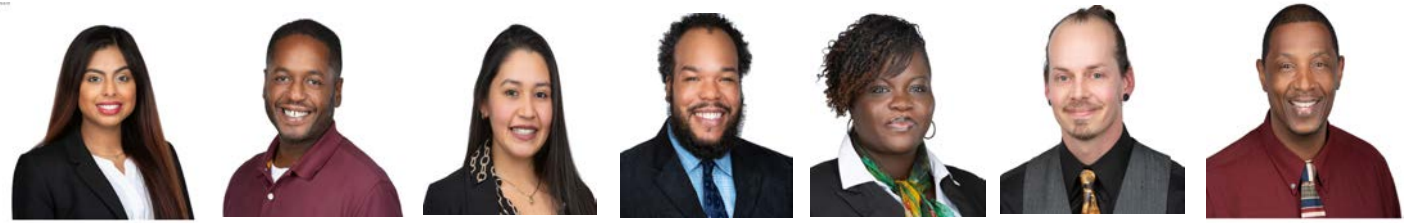
Trane Technologies

SchermCO

Program Timeline

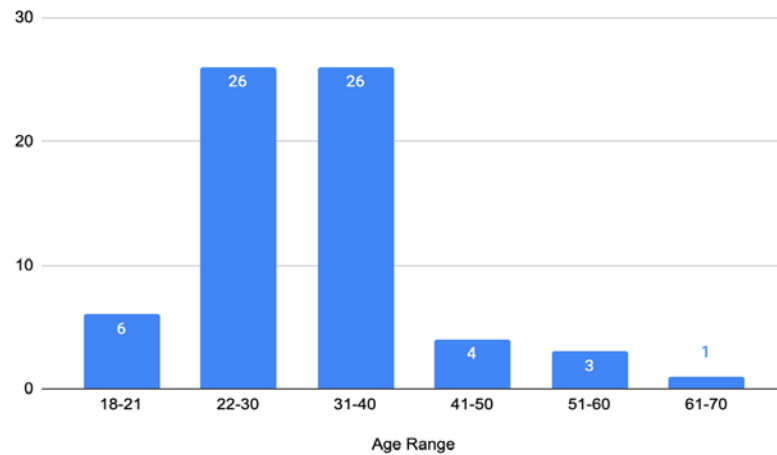
- 
- May – July 2020 ■ RFP Process and Training Partner Selection
 - Sept 21, 2020 - Dec 10, 2020 ■ Urban League - training cohort 1 (22 participants)
 - Oct 6, 2020 - Feb 5, 2021 ■ Goodwill - training cohort 1 (20 participants)
 - Jan 19, 2021 - April 13, 2021 ■ Urban League - training cohort 2 (23 participants)
 - May - August 2021 ■ Urban League - training cohort 3 (15 participants)

Participants



Gender	#	%
Female	19	28.8%
Male	47	72.02%

Race/Ethnicity	#	%
African American	50	75.8%
White	9	13.6%
Hispanic / Latino	3	4.5%
Mixed Race	2	3.0%
Asian	1	1.5%
Other	1	1.5%



Curriculum

- Occupational skills covered include:
 - Basic heating, ventilation, and air conditioning (“HVAC”) training, with an emphasis on energy efficiency and sustainable technologies.
 - Basic electrical training.
 - General energy management accounting concepts including:
 - Energy use intensity;
 - Energy bills;
 - Enthalpy;
 - Power Factor;
 - EPA EnergyStar;
 - Degree day calculations;
 - Rate structures; and
 - Renewable Energy sources.

In conversation with the Association of Building Controls, our Community College System and University of North Carolina Charlotte to explore adding building automation technologies. This would provide an enhanced pathway for career development and commercial building maintenance.

Best Practices – Curriculum Delivery

Interplay Learning

ONLINE, ON-DEMAND SKILLED TRADES TRAINING COURSES.

TRAIN TO BE JOB-READY IN WEEKS, NOT YEARS.

Prepare the next generation of skilled workers with SkillMill™, the world's leading skilled trades training platform. Digital training simulations and VR develop on-the-job skills quickly and efficiently, building better careers and better lives for the essential skilled trades.

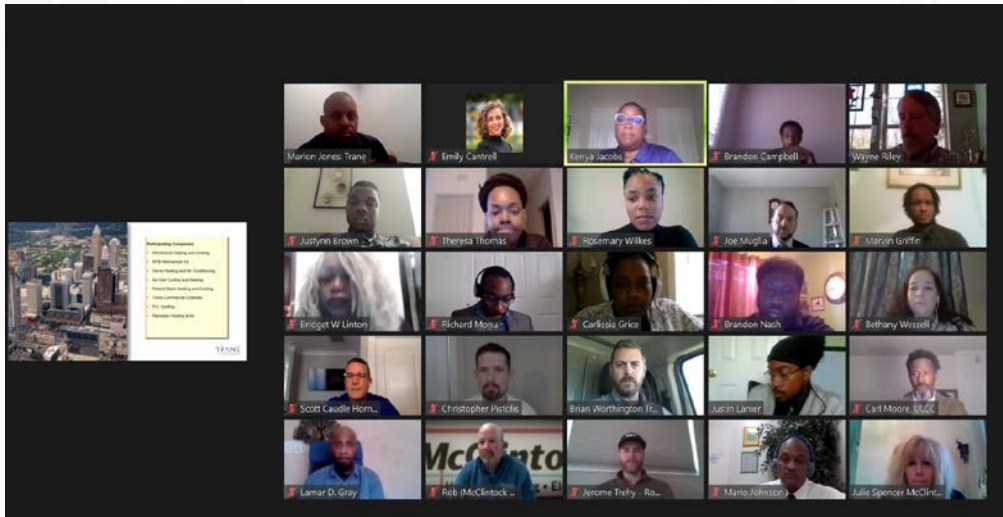
GET STARTED



**Hands-On Instruction
in Learning Labs**

Best Practices – Corporate Engagement

- Monthly Corporate Advisory Committee Meetings
 - Mentor Mondays/Weekly Lunch and Learns
 - Participate in Resume Building and Mock Interview Session
 - Virtual Career Days
- Trane Technologies
 - CBRE
 - Rogers Builders
 - RHC Workforce Solutions
 - MSS Solutions
 - MTB Mechanical
 - Charlotte Airport
 - Duke Power
 - Tarris Interiors
 - Griffin Brothers
 - Horne Heating & Air
 - SPC Mechanical
 - AirFlow Mechanical
 - RJ Leeper Construction
 - Adams Electric



RESULTS

- Approx. 80% Graduation Rate
- 90% Pass Rate for EAP Universal Certification
- Currently, 15 graduates have accepted full-time, permanent positions
- RENEW recently received statewide recognition by the Research Triangle Cleantech Cluster at the 2020 Cleantech Innovation Award as the “Diversity Program of the Year”

Cohort	Applied	Accepted	Graduated
Urban League #1	153	28	22
Goodwill	119	20	17
Urban League #2	142	18	—


**DIVERSITY IN CLEANTECH
AWARD WINNER**







Partners







Q&A

 CITY *of* CHARLOTTE

A black and white photograph of a woman with her arms crossed, wearing overalls, looking upwards. The word "RENEW" is overlaid in large green letters, with the 'N' and 'E' having dashed green outlines.

RENEW

TRAINING
PROGRAM



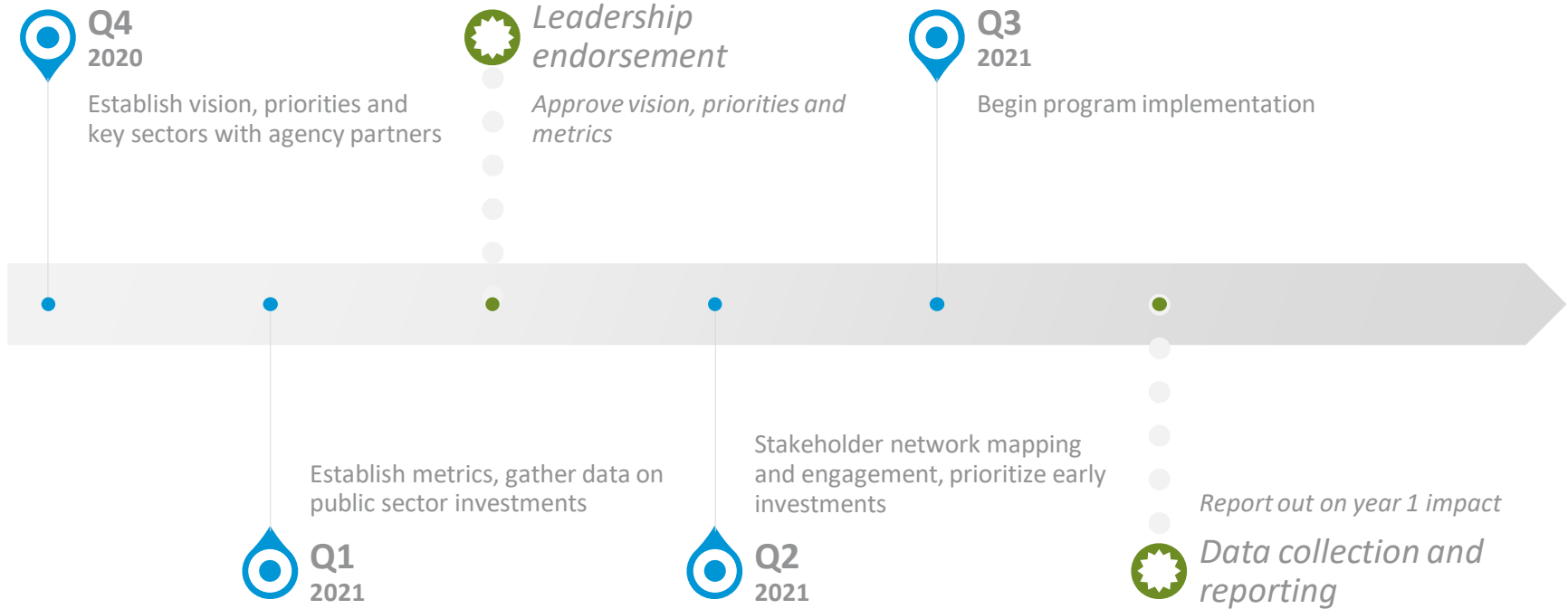
Denver's Green Economic Inclusion Strategy

Elizabeth Babcock, Manager, Climate Action Team

Create shared understanding



Strategy Development Timeline



Summary: Our vision is to **create career pathways** and **expand opportunities** for **individuals from under-resourced communities**, and **enable a just transition** to support a **climate-resilient** and **sustainable** Denver.

Quality

#1: Design policies, incentives, and programs to **drive demand** for quality jobs

Metric: % of Climate Protection Fund spending with labor standards

Access

#2: Reduce barriers and increase **access** to programs and careers for residents from under-resourced communities, people of color, and workers in industries in transition

Metric: % CPF-funded jobs held by residents from under-resourced communities (NEST Neighborhoods), individuals with barriers to career-track employment, and transition industry workers

Quantity and Alignment

#3: Jobs created align with Denver's **sustainability priorities**

Metric: *(Proposed)* Number of jobs supported by CPF (direct and indirect)

Characteristics

- High **growth**
- Existing **relationships** and **levers**
- High skill **transferability**
- High % **unionized**
- Opportunities for **training**, **upskilling**, and **apprenticeships**

Key industries

Construction trades

Operations and maintenance

Key sectors

Green building, building electrification,
and energy efficiency

Distributed energy resources
(Renewables and storage)

Electric vehicle infrastructure

Next steps



Q&A



For more information:

- ✓ Explore the LEED for Cities and Communities rating system
- ✓ Review tools and resources and sign up for updates on our website: usgbc.org/leed/rating-systems/leed-for-cities
- ✓ Email us with questions or to follow up: cities@usgbc.org