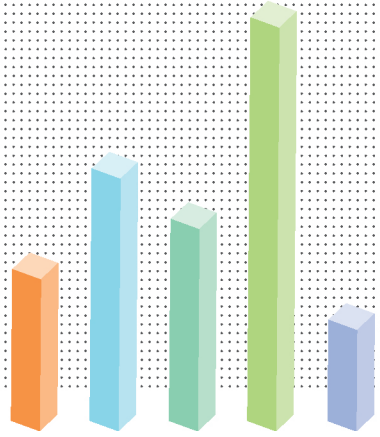


U.S. **METRO** CLEAN TECH INDEX

October 2012

EXECUTIVE SUMMARY

CLEAN EDGE

THE CLEAN-TECH MARKET AUTHORITY

2012 U.S. METRO CLEAN TECH INDEX EXECUTIVE SUMMARY

This executive summary provides a glimpse at topline findings from the inaugural U.S. Metro Clean Tech Index, an element of a larger advisory subscription service offered to Clean Edge clients. Along with access to the full Metro Index report – containing detailed Index results, comprehensive data tables, and individual metro area report cards – subscribers receive additional benefits including custom presentations, company database access, and advisory hours. Refer to the back pages of this executive summary for more information about the Metro Clean Tech Index subscription service and to set up a private demonstration.

What is the Metro Clean Tech Index?

Clean Edge created the Metro Clean Tech Index as a tool for regional comparative research, a source for aggregated industry data, and a jumping-off point for deep, data-driven analysis of the U.S. clean-energy market. Modeled after Clean Edge's highly successful State Clean Energy Index, the Metro Index leverages nearly two dozen metro-area indicators to establish performance scores and ranks for the 50 largest metro regions in the United States. The Index provides an unparalleled level of industry intelligence to corporations, economic development agencies, investors, policy makers, technology innovators, foundations, and other key stakeholders actively involved in the clean-tech marketplace.

U.S. METRO CLEAN TECH INDEX

- **GREEN BUILDINGS** — 3 INDICATORS
- **ADVANCED TRANSPORTATION** — 7 INDICATORS
- **CLEAN ELECTRICITY & CARBON MANAGEMENT** — 4 INDICATORS
- **CLEAN-TECH INVESTMENT, INNOVATION, & WORKFORCE** — 8 INDICATORS

How is the Metro Clean Tech Index structured?

The Metro Clean Tech Index is a set of 50 metro scores which evaluates each metro area based on involvement and leadership in clean tech. Each metro area's index score is based on a 100-point scale, and is constructed from performance in four equally-weighted categories of indicators: green buildings; advanced transportation; clean electricity & carbon management; and clean-tech investment, innovation, & workforce. Individual indicators, which are used to create the four category scores, track a broad range of activities including green building deployment, clean vehicles in use, advanced transportation infrastructure, public transportation ridership, regional electricity mix, GHG emissions, venture capital investment, clean energy patents, and clean economy jobs, among other things.

THE GEOGRAPHY OF CLEAN TECH

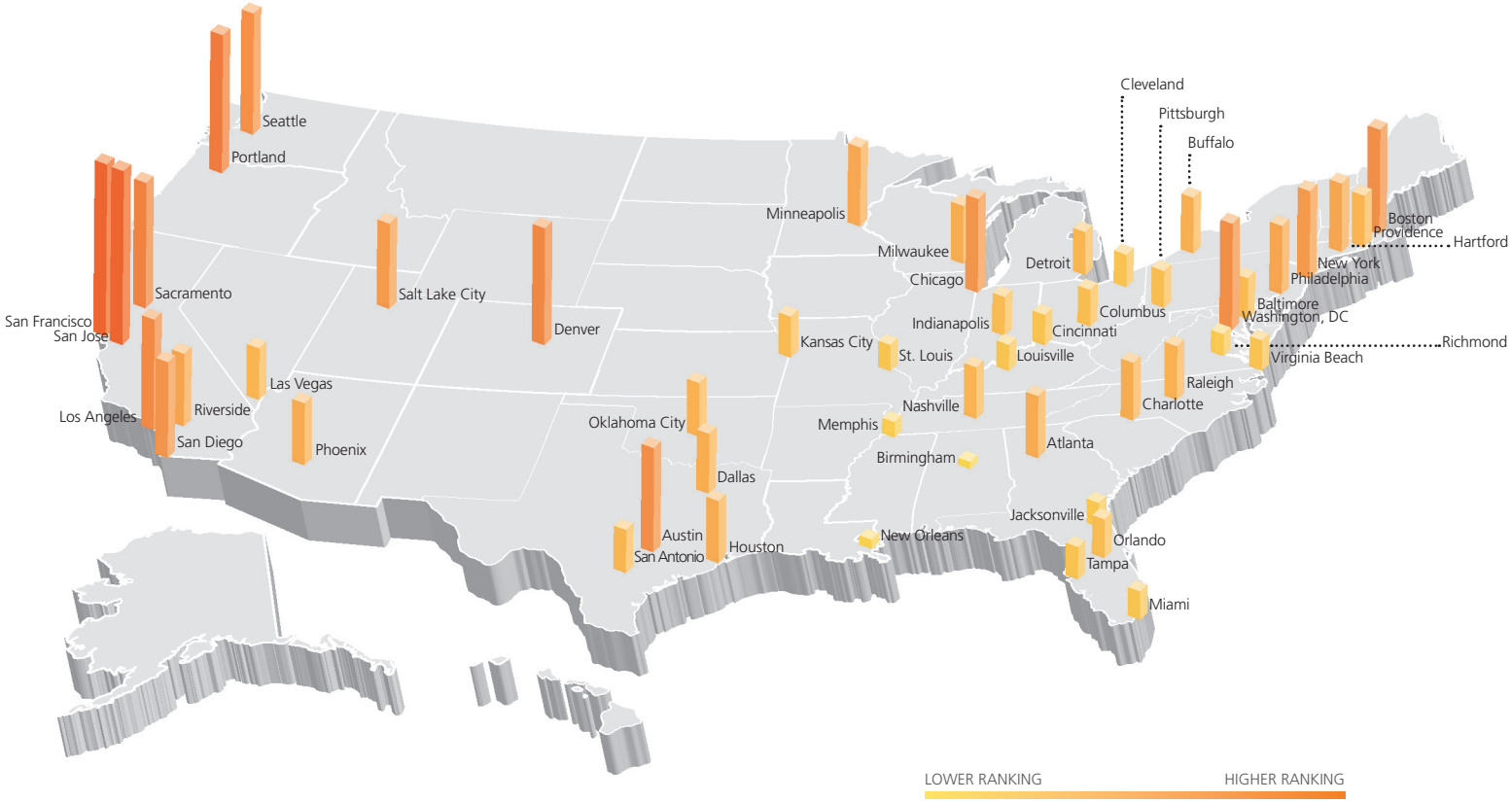
Cities are the lifeblood of our modern economy, and they will only grow more important in the future as accelerated urban migration continues. Home to only three percent of the world's population as recently as 1800, urban centers passed the 50 percent mark in 2008 – and, if projections hold true, by 2030 this number will increase to more than two-thirds of all people on the planet. More telling than population trends are snapshots of economic activity. "The world's top 20 mega-regions [extended urban population areas] in terms of economic activity account for 10 percent of population, 57 percent of economic activity, 76 percent of patented innovations, and 76 percent of the most-cited scientists," urban demographic specialist Richard Florida explained in his 2008 book *Who's Your City*?.

In analyzing economic trends within the U.S., these city demographics become extremely important. While Clean Edge's State Clean Energy Index evaluates industry performance as defined by political borders and state governments, the U.S. Metro Clean Tech Index represents a scope that focuses on more organic, free-forming regions of economic activity. In 2011, 51 different "metropolitan statistical areas" (MSAs, as defined by the U.S. Census Bureau) had populations exceeding 1 million; the sum population of the 50 largest MSAs totaled 168 million, roughly 54 percent of the nation's entire population. So this inaugural edition of the Metro Index looks at these top regions – the 50 biggest MSAs – to highlight clean-tech leadership, innovation, and cluster development. From New York-Northern New Jersey-Long Island's 19 million residents to Birmingham-Hoover, Alabama's 1.1 million people, this report presents a comprehensive survey of key players in the nation's burgeoning clean-tech economy.

At first, clean tech may evoke some very non-urban imagery – wind farms dotting the Great Plains, solar projects scattered in remote Southwest deserts, or biofuel refineries near farms in the Heartland. But in reality it is the demand from major population centers that drives this activity, as wind keeps the lights on in Denver, the sun powers air conditioners across Los Angeles, and ethanol and advanced biodiesel fuel vehicles in Minneapolis.

Metro areas are also home to the clean-tech economy's entrepreneurs, investors, innovators, and consumers. A staggering 87 percent ($13 billion out of $14.9 billion) of all U.S. clean-tech venture capital dollars from 2009 through 2011 went to companies headquartered in the top 50 metro areas. These regions also account for 72 percent of LEED-certified square footage, more than 70 percent of U.S. company clean-energy patents, and more than 95 percent of the country's registered HEVs. The pulse of clean tech in the U.S. is undeniably urban. As the industry expands and competition heats up, these metro areas will increasingly compete against one another (and against cities around the world) to capture the clean-tech opportunity. And as this unfolds, the Metro Clean Tech Index will provide an unparalleled perspective on regional activity and leadership.

2012 U.S. METRO CLEAN TECH INDEX



RANK	METRO AREA	LEADERSHIP SCORE
1	San Jose, CA	82.2
2	San Francisco, CA	81.4
3	Portland, OR	64.8
4	Sacramento, CA	59.4
5	Seattle, WA	56.5
6	Denver, CO	54.5
7	Los Angeles, CA	52.2
8	Washington, DC	50.4
9	Boston, MA	49.4
10	Austin, TX	48.6
11	San Diego, CA	44.7
12	Chicago, IL	43.9
13	New York, NY	41.2
14	Salt Lake City, UT	40.1
15	Minneapolis, MN	36.9
16	Riverside, CA	33.5
17	Philadelphia, PA	32.0
18	Hartford, CT	32.0
19	Atlanta, GA	29.4
20	Phoenix, AZ	29.4
21	Houston, TX	28.7
22	Dallas, TX	28.2
23	Charlotte, NC	27.4
24	Milwaukee, WI	27.0
25	Buffalo, NY	26.2
26	Oklahoma City, OK	25.0
27	Raleigh, NC	24.8
28	Las Vegas, NV	23.8
29	Nashville, TN	23.8
30	Providence, RI	23.6
31	San Antonio, TX	20.3
32	Detroit, MI	19.9
33	Kansas City, MO	18.9
34	Baltimore, MD	18.8
35	Indianapolis, IN	18.3
36	Orlando, FL	18.3
37	Pittsburgh, PA	17.4
38	Columbus, OH	16.5
39	Cleveland, OH	15.2
40	Tampa, FL	14.5
41	Virginia Beach, VA	14.4
42	Cincinnati, OH	13.7
43	Miami, FL	12.7
44	Louisville, KY	11.7
45	St. Louis, MO	11.5
46	Jacksonville, FL	10.6
47	Richmond, VA	9.5
48	Memphis, TN	6.6
49	New Orleans, LA	3.6
50	Birmingham, AL	2.9

TOP METRO AREAS & INDEX HIGHLIGHTS

1. SAN JOSE, CA – Edging out its neighbor to the north, San Jose emerges as the frontrunner in the 2012 U.S. Metro Clean Tech Index with a score of 82.2. As home to Silicon Valley, the region is buoyed particularly by its role as an innovation hub and ranks first in concentration of clean-tech venture capital while performing remarkably well in patent activity, university technology development, and EV/HEV deployment.

2. SAN FRANCISCO, CA – Scoring 81.4, with a profile similar to that of San Jose, the San Francisco Bay Area is a leader across the board – ranking in the top 10 (and very often in the top five) in almost every Metro Index indicator. Unarguably an epicenter of clean-tech activity, San Francisco and its Bay Area neighbors are home to a high concentration of LEED-certified buildings, draw the cleanest electricity from the grid for local consumption, and get around with highly efficient personal and public transportation.

3. PORTLAND, OR – Although a fair distance behind the top two metros, Portland comes in third at a score of 64.8. With a solid performance throughout, the region in northwest Oregon is a standout in several specific measures: it's home to the highest concentration of LEED projects in the nation, has more EV charging stations per capita than anywhere else, and its main utility, Portland General Electric, operates the nation's leading green power purchasing program.

4. SACRAMENTO, CA – One of only two metro areas to rank in the top ten in all four Metro Index categories (along with San Francisco), the state capital of California's clean-energy behemoth comes in fourth with a score of 59.4. The region ranks first among major metro areas in clean economy job concentration, has emerged as an early hub for EVs, and maintains an exceedingly efficient building stock, particularly those qualifying for Energy Star certification.

5. SEATTLE, WA – Continuing the trend of West Coast city leadership, Seattle's score of 56.5 closes out the Metro Index top five. With a green landscape extending across Western Washington, the Seattle area trails only Portland in concentration of EV charging stations, emits fewer greenhouse gases than almost anywhere in the country, and is a leading market for LEED-certified building deployment.

6. DENVER, CO – Just barely trailing Seattle, Denver's score of 54.5 is good enough for sixth place. Denver is home to a high concentration of green buildings – both LEED and Energy Star certified – and the region's main electricity provider, an Xcel Energy subsidiary, is one of the nation's leading wind utilities. Home to the DOE's National Renewable Energy Laboratory (NREL), the Denver area also serves as a hotspot for cutting-edge technology development.

7. LOS ANGELES, CA – L.A.'s score of 52.2 is good enough for seventh place. As the second largest metro area in the nation, it's not surprising to see that the Los Angeles region is the largest market for a number of clean technologies including EVs and EV charging stations, HEVs, natural gas vehicles, and Energy Star buildings. While the sheer size of the greater Los Angeles area makes it difficult to achieve

the highest concentration of clean-tech deployment, the region is nonetheless a key center of activity.

8. WASHINGTON, DC – Scoring 50.4, the nation's capital comes in at eighth place. Benefitting from the federal government's effort to boost efficiency in its building stock and vehicle fleet, DC is home to more LEED-certified projects than any other metro area, is a leading market for Energy Star buildings, has one of the highest concentrations of HEVs, and is a national leader in public transportation ridership. Lack of a clear national energy plan may be cause for grief on Capitol Hill, but at the local level it can't be denied that the nation's capital is leading by example.

9. BOSTON, MA – The only Northeast representative in the top 10, Boston earns ninth place with a score of 49.4. With relatively solid performance in buildings, transportation, and electricity, the Boston area's claim to clean-tech leadership comes from its role as a powerhouse of technology development and venture capital activity. Led by MIT, the region is home to the highest concentration of university-developed technologies, trails only San Francisco/San Jose in venture capital dollars per capita, and is among the top five in clean-energy patent activity.

10. AUSTIN, TX – Rounding out the top ten is Austin, with a score of 48.6. Leading the Lone Star State, Austin is a true center of innovation, attracting the fifth most clean-tech venture capital per capita of any metro area; is home to many green-minded consumers, showcased by its leading concentration of HEVs; and is served by one of the nation's most clean energy-minded utilities, Austin Energy.

2012 U.S. Metro Clean Tech Index Highlights

- 87 percent of all U.S. clean-tech venture capital dollars from 2009 through 2011 went to companies headquartered in the top 50 metro areas.
- These regions also account for 72 percent of LEED-certified square footage, more than 70 percent of U.S. company clean-energy patents, and more than 95 percent of the country's registered HEVs.
- The Portland, OR and Seattle, WA metro areas rank first and second for the number of non-residential EV charging stations per capita, a clear sign that the Pacific Northwest is looking to lead in electrified transportation.
- California's low-carbon ambitions are apparent in its regional electricity mix – arguably the nation's cleanest – as well its minimal GHG emissions, with four of its five major metro areas ranking in the top ten for least emissions from large facilities.
- Clean energy patent leadership is evident in metro areas home to industry hubs (Detroit, MI), corporate technology developers (Hartford, CT), and academic research centers (Boston, MA).
- Only four metro areas are home to a DOE lab, a Clean Energy Alliance member incubator, and a top-ranked Green MBA program – Chicago, Denver, New York, and San Jose.

REPORT DESCRIPTION

Metro Clean Tech Index Annual Report

At the center of the Clean Edge Metro Index subscription service is access to the annual Metro Index report. At 150+ pages (including data appendixes), the report offers findings of the latest Index, discussion of metro-by-metro performances in each category, and easily digestible presentation of indicator data.

MARKET ANALYSIS & COMMENTARY An extensive look at competitiveness in the U.S. clean-energy economy, including analysis of metro performance and key national developments. Indicator Performance Tables serve as an informative reference source for the vast amount of industry data used to compile the Metro Index, these tables display metro-level statistics for each indicator.

METRO AREA REPORT CARDS A review of the largest 50 metro areas' performance in the individual underlying indicators that make up the Metro Clean Tech Index. Each report card summarizes a metro area's scores and shows all supporting indicator data and rankings.

Custom U.S. Market Research & Advisory

For clients interested in further investigating particular aspects of the clean-tech landscape, Clean Edge's Metro Clean Tech Index subscription service provides a cost-effective way to combine access to aggregated industry data with customized research/advisory efforts.

SUBSCRIPTION SERVICE PRICING & BENEFITS

Clean Edge's U.S. Metro Clean Tech Index provides an unparalleled analysis of the clean-tech marketplace, including data, trends, and insights. No other service offers such deep tracking and understanding of the most relevant metro area clean-tech activities and developments.

A Must-Have Tool for Clean-Tech Decision Makers

Economic development organizations, nonprofits, government agencies, foundations, corporations, and other industry stakeholders consider the Metro and State Indexes a go-to resource. Clients leverage Clean Edge's Index service to understand major market developments and inform strategies through the comparative benchmarking, rich datasets, and in-depth analysis.

BECOME A SUBSCRIBER AND TURN INSIGHTS INTO ACTION:

Report & Data Access (Metro & State Indexes)	Access to the private datasets and reports including indicator performance tables, state and metro report cards, and summary analysis.
Advisory Support	Clean Edge analysts are available to help subscribers apply the research findings to their initiatives and strategies.
Webinar Presentation	Clean Edge analysts deliver live, customized webinar to clients. Slides are available to share with entire organization.
Data Citation	Subscribers can use the data from the State or U.S. Metro Index for a variety of public communications, outreach, and marketing purposes.
Partner Access	Enterprise subscribers are able to share Index access with their close partner organizations.
Brainstorming & Public Presentations	Clean Edge can visit your location to support strategic planning exercises and to present Index findings and other industry insights to small or large stakeholder groups.

METRO & STATE INDEX SUBSCRIPTION PRICING:

State & Metro Clean Tech Index Service	**Data Access Metro & State** $5,000	**Data & Webinar** (Single Organization) $7,500	**Data, Webinar, & Advisory** (Enterprise) $12,500	**Data, Webinar, & Advisory** (Enterprise Plus) $25,000
Metro & State Index Access	2 staff	5 staff	10 staff	25 staff
Advisory Hours			10 hours	20 hours
Custom Webinar		1	1	2
Partner Access			2 Partners, up to 5 Seats	5 Partners, up to 20 Seats
Full Day Brainstorming and/or Public Presentation				✓ (plus travel expenses)

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