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ISSUE BRIEF

# *Paris Climate Conference:* CITIES

In preparation for the Paris climate conference, governments have pledged significant commitments to cut climate pollution. National pledges for emissions reductions are significant, but not enough to get the world on the pathway to keeping global temperature rise below 2 degrees Celsius, relative to preindustrial temperatures. This is where cities—home to the majority of the world's population—can play a major role. Pollution from transport and wasted energy from large buildings are the two most important areas of potential improvement. City-level initiatives to reduce emissions in both areas can complement national pledges and help the world avert the worst impacts of climate change.

## OVERVIEW OF INTERNATIONAL CIRCUMSTANCES—A FOCUS ON BUILDINGS

Around the world, buildings account for a large share of energy consumption and greenhouse gas (GHG) emissions. Buildings are the largest domestic energy wasters in the United States and emissions can be significantly reduced by way of energy use by buildings. Building efficiency can have a similar effect in the European Union. Industrialized countries face a massive job of retrofitting existing buildings, while developing countries that are rapidly urbanizing have a unique opportunity to integrate low-carbon development in their urban planning. For example, China has established measures for improving building efficiency, extending the quality and life spans of buildings, and intensifying energy conservation for existing buildings—and the share of green buildings in new construction is expected to reach 50 percent by 2020.[1]

Some two-thirds of global energy consumption and GHG emissions are associated with urban activity, including the use of buildings.[2] Cities can leverage innovation to bridge the gap between national climate change pledges and the necessary measures stay below the scientifically accepted threshold of 2 degrees Celsius in temperature rise. A recent report by the Global Commission on the Economy and Climate states that sustainable cities, good agricultural and forestry practices, and standards for energy efficiency and clean energy, can reduce the emissions gap by 59 to 96 percent.[3]

## CITIES AND EQUITY

Deciding on the best use of natural resources in cities is of global importance because urban areas are centers of commerce, innovation and recreation—as well as focal points for social justice. Targeting climate solutions to low income-communities and communities of color is of high priority because such populations are the most vulnerable, either in developed or developing nations. Traditional measures of costs and benefits often leave out disproportional impacts on these communities. Such issues can be addressed by creating energy efficiency funding priorities and identifying such communities as major stakeholders and partners for change.

## CITIES' CLIMATE PLEDGE

The idea that cities can be major promoters of energy innovation is not new. In 2005, Seattle's then-Mayor Greg Nickels started an initiative among U.S. cities to advance climate protection, which eventually became the U.S. Conference of Mayors' Climate Protection Agreement. To date, more than 1,000 American cities have signed on.[4] In Europe, 6,400 mayors have joined the Covenant of Mayors, committing to increasing their area's energy efficiency and use of renewable energy.[5] And last year, Michael Bloomberg, U.N. Secretary Ban Ki-moon's Special Envoy for Cities and Climate Change and New York's former mayor, launched the Compact of Mayors, which has been signed by more than

200 cities as of November 2015. The Compact is designed to:

- Increase mayors' overall visibility as climate change leaders,
- Demonstrate cities' commitments to the ambitious global response to climate change at the Paris conference in December 2015,
- Encourage public and private sector investments in cities through transparent standards similar to those followed by national governments,
- Build a methodologically consistent body of data on the impact of city climate action, and
- Expedite ambitious, collaborative, and sustainable local climate action.[6]

## CLIMATE MITIGATION POLICY

New research calls on world leaders to put cities on "a low-carbon trajectory"—focusing on buildings, transportation, land use, and other key areas. New data shows just why these areas are so important.

### IMPORTANCE OF DATA

A recent report by the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) supports the idea that cities are a prime focal point for establishing a clean energy future.

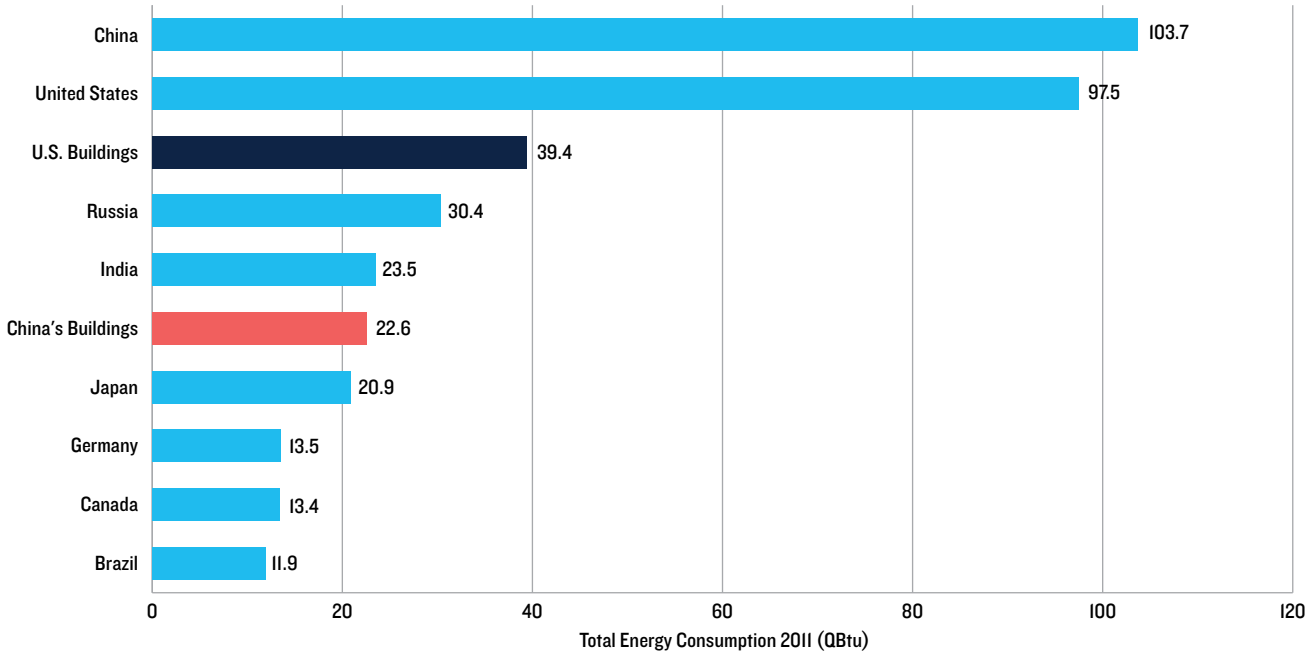
The report, "City-Level Energy Decision Making: Data Use in Energy Planning, Implementation, and Evaluation in U.S. Cities,"[7] is based on a sample of 20 U.S. cities and provides data-driven tools to help city-level practitioners access resources to make better climate policy. Recommendations include:

- Tailoring energy-related actions and goals to city characteristics, including socioeconomics, geography, and built environment.
- Understanding the cost-effectiveness of specific actions.
- Integrating energy considerations into all planning processes (capital improvement plans, comprehensive plans, etc.).

### NRDC'S CITY ENERGY PROJECT PARTNERSHIP

America's buildings consume more energy than all other countries in the world, aside from China (see Figure 1). Buildings are responsible for more U.S. GHG emissions than any other end-use sector and more than 40 percent of total energy consumption, approximately 75 percent of total electricity consumption, approximately 38 percent of total U.S. carbon dioxide emissions, and more than $420 billion in annual energy bills. In most major American cities, buildings account for the majority of energy use and carbon pollution. If cities want to be more competitive and more resilient against energy- and climate-related crises, they must boost the energy efficiency of their buildings. Usually, just a handful of large buildings account for a considerable portion of a city's total energy use. Improving the energy performance of these buildings will yield significant, rapid results.

**COMPARISON OF ENERGY USE OF U.S. BUILDING SECTOR AND LARGEST ENERGY-CONSUMING NATIONS[9]**




*Source:* EIA International Energy Statistics, http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=44&pid=44&aid=2; EIA April 2015 Monthly Energy Review, Table 2.1 Energy Consumption By Sector) http://www.eia.gov/totalenergy/data/monthly/http://www.eia.gov/totalenergy/data/monthly/; and China Energy Data Book v8.0 (Chapter 4; Table 4A.4.1) https://china.lbl.gov/research-projects/china-energy-databook.https://china.lbl.gov/research-projects/china-energy-databook.
*Note:* Conversion from MTCE to QBTU based on IEA rate (.027778245 QBTU/MTCE) https://www.iea.org/statistics/resources/unitconverter/.

NRDC and the Institute for Market Transformation launched the City Energy Project (CEP)[8] to create healthier and more prosperous U.S. cities by improving the energy efficiency of large, existing buildings. The participating cities are supporting innovative and practical solutions that cut energy waste, boost local economies, and reduce GHG emissions. The pioneering actions of the original 10 participating cities are becoming models for communities nationwide and around the world.

The first round of CEP cities are: Atlanta; Boston; Chicago; Denver; Houston; Kansas City, Missouri; Los Angeles; Orlando; Philadelphia; and Salt Lake City. The CEP has partnered with these 10 major cities on the design, adoption, and implementation of customized policies and programs to address energy performance transparency, awareness, split-incentives, accountability, inertia, lack of capital, and other market barriers. The CEP is leveraging best practices in policy and program design, adoption, and implementation from various policies and efficiency programs that have been adopted by cities like New York and San Francisco.

The CEP is capitalizing on the available policy opportunities in diverse cities and is tackling market barriers through high-value partnerships with the participating municipalities and local nonprofit organizations and professional associations. The CEP is accelerating energy efficiency implementation through collaboration on a shared agenda with local governments, nonprofits, philanthropy, other city networks, and the private sector. The CEP recognizes that no one policy, program, or institutional action can singlehandedly create lasting, large-scale change.

## RECOMMENDATIONS

Cities have long been at the forefront of climate issues but their leaders likely did not realize their potential global impact until they began working together to solve common problems.

A new report, *The New Climate Economy: Seizing the Global Opportunity*, in fact, details how municipalities and other urban stakeholders (e.g., real estate owners, businesses, community institutions, and big employers) can work together to rapidly expand clean energy. The report's goal is to avoid sprawl, make existing and new buildings as energy efficient as possible, and make cities "transit-oriented and livable urban forms."[10]

That work is indeed underway in cities across the globe. There is a growing number of success stories for "green buildings," energy efficiency standards for new construction, and retrofits of existing buildings.

In other words, policies and practices that promote energy efficiency in large buildings—along with other urban emissions-reduction strategies—can offer protection from climate change's worst effects while creating jobs and increasing quality of life. The economic benefits are significant, with low-carbon urban actions creating a $16.6 trillion global economic opportunity. The benefits in improved public health are also substantial.[11]

Cities are not acting alone. They can expand their actions through cooperative, multi-stakeholder partnerships, not just between governments, but among businesses, investors, states and regions, cities, and communities. Cities are taking a lead role in this process—ramping up clean energy, improving infrastructure, and developing low-carbon transportation. They can show national governments how to successfully and cost-effectively make the world safer and more prosperous. Indeed, as New York City Mayor Bill de Blasio said July 21, 2015 at the Vatican after a conference organized a month after Pope Francis' encyclical, "It's increasingly clear that we, the local leaders of the world, have many tools, more than we may have in fact realized, and that we must use them boldly even as our national governments hesitate."[12]

ENDNOTES

1 One of NRDC's recurring recommendations for improving the pledges was for countries to act on energy efficiency. NRDC, Climate Report Card, NRDC, www.nrdc.org/climategrades/. (Accessed November 9, 2015.); Labat, A., et al., *Global Energy and Climate Outlook. Road to Paris*, European Commission Joint Research Centre, 2015, https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/geco2015-global-energy-and-climate-outlook-road-paris-assessment-low-emission-levels-under.

2 "C40 Research, Measurement, and Planning," C40 Cities Climate Leadership Group, http://www.c40.org/why_cities. (Accessed November 6, 2015.)

3 Global Commission on the Economy and Climate, *Seizing the Global Opportunity: Partnerships for Better Growth and a Better Climate*, September 2015, Global Commission on the Economy and Climate, http://2015.newclimateeconomy.report/wp-content/uploads/2014/08/NCE-2015_Seizing-the-Global-Opportunity_web.pdf.

4 Piangiani, G., "At Vatican, Mayors Pledge Climate Change Fight," *New York Times*, July 21, 2015, www.nytimes.com/2015/07/22/world/europe/mayors-at-vatican-pledge-efforts-against-climate-change.html?_r=1.

5 "About: The Covenant of Mayors" Covenant of Mayors, www.covenantofmayors.eu/about/covenant-of-mayors_en.html. (Accessed November 9, 2015.)

6 "Home Page," The Compact of Mayors, www.compactofmayors.org/. (Accessed November 9, 2015.)

7 Aznar, A., et al., *City-Level Energy Decision Making: Data Use in Energy Planning, Implementation, and Evaluation in U.S. Cities*, National Renewable Energy Laboratory, July 2015, www.nrel.gov/docs/fy15osti/64128.pdf.

8 A joint initiative of the Natural Resources Defense Council (NRDC) and the Institute for Market Transformation (IMT), the City Energy Project is supported by Bloomberg Philanthropies, Doris Duke Charitable Foundation, and The Kresge Foundation.

9 "Home," City Energy Project, Natural Resources Defense Council and Institute for Market Transformation, 2015, http://www.cityenergyproject.org/. (Accessed November 9, 2015.)

10 Global Commission on the Economy and Climate, The New Climate Economy.

11 Wright, M., "The Latest Health Trend: Cutting Out Climate Change," NRDC Switchboard, July 9, 2015, http://switchboard.nrdc.org/blogs/mwright/the_latest_health_trend_cuttin.html

12 Piangiana, G., "At Vatican, Mayors Pledge Climate Change Fight," *New York Times*, July 21, 2015, www.nytimes.com/2015/07/22/world/europe/mayors-at-vatican-pledge-efforts-against-climate-change.html.