I. Project Context

Country Context

China’s rapid economic growth in the last three decades has been manifested by the rise of cities, and the tide of urbanization will continue to swell in the next two decades. Between 1990 and 2010, urban population and urban built-up area more than doubled and urban building stock more than tripled. The share of official urban population crossed the 50 percent milestone in 2011 and is projected to reach almost 70 percent in 2030. In the next two decades China’s cities need to assimilate about 300 million new citizens, most of them migrants from rural areas. Investments in urban infrastructure will be enormous. If the historical trend continues, the urban building stock will increase by about 65 percent, or about 13 billion m2, with multiplier effects on other urban infrastructure needs. Many Chinese cities are already on a high-carbon-emission growth path. For example, per capita carbon emissions in Beijing, Tianjin and Shanghai are among the highest of major cities in the world, about twice the levels of Paris or Tokyo. Bending the trajectory of carbon intensity while modernizing will challenge Chinese cities to break away from their current growth model.

The Government of China (GOC) has pledged to reduce the economy’s carbon intensity by 40-45 percent by 2020, compared with 2005. Binding targets were set in the 12th Five-Year-Plan (FYP, 2011-2015) period to cut GDP energy intensity by 16 percent and GDP carbon intensity by 17 percent. Targets were also set for increasing the share of non-fossil energy, i.e., nuclear and RE energy sources, in primary energy use from 8 percent in 2010 to 11.4 percent by 2015 and to 15 percent by 2020. The GOC also plans to increase the installation of rooftop solar PV systems from under 1 GW in 2010 to 3 GW by 2015. Cities account for about 80 percent of the GDP and 75 percent of the energy consumption in China. They are key to meeting GOC’s energy intensity and carbon emission reduction targets.

Beijing Municipality (urban population 17 million) has been a strong supporter of sustainable urbanization but also encountered challenges which are common to other large Chinese cities. Beijing achieved a 26.5 percent reduction in GDP energy intensity during the 11th FYP period (compared with the national target of 20 percent), the highest reduction among all Chinese cities, in large part due to the significant shift of its economic structure from manufacture to services. The new reductions in carbon intensity called for in the 12th FYP translate to challenges in changing the structure of energy use in Beijing by deepening energy conservation efforts and in addressing carbon emissions associated with the urban form of the city and its infrastructure. Successfully addressing urban energy issues in Beijing will have a large replication potential in other major cities in China. For the 12th FYP, Beijing has committed to reduction of its GDP energy intensity and carbon intensity by 17 and 18 percent, respectively.

Ningbo Municipality (urban population million 2.2 million) of Zhejiang Province is among the most innovative Chinese cities in economic and environmental management. It is among the first national pilot cities for building and renewable energy integration. Ningbo is located in the climate zone with hot summer and cold winter, which requires substantially different approach in building design to reduce active energy use, compared with the cold-climate zone represented by Beijing. Ningbo municipal government has pledged support for scaling up green buildings and piloting innovative urban spatial planning and designs to achieve the low-carbon urbanization objective. Demonstrating the impact on EE and carbon emissions of bioclimatic green building designs and low-carbon urban planning could provide important experience and lessons for other Chinese cities of similar climate or size. For the 12th FYP, Ningbo has committed to reduction of its GDP energy intensity and carbon intensity by 18 and 19 percent, respectively.

II. Sectoral and Institutional Context

The expansion and renewal of China’s cities should create urban forms which support low-carbon lifestyle, be adaptive to the changing urban economic landscape, and livable for all of their citizens. There is much global evidence, including China’s own, that such low-carbon, adaptive and livable (LOCAL) urban forms are highly efficient both in supporting the social and economic functions of cities and in overall energy use. LOCAL urban forms demonstrate the following common characteristics:

(a) Compact urban areas with high densities of buildings and residents;
(b) Dense and interconnected network of streets of different sizes and functions;
(c) The streets are places for people and promote walking;
(d) A variety of amenities, including transit, schools and parks, accessible by walking;
(e) Neighborhoods with mixed uses at street-block scale;
(f) Small street-blocks with diversified block typologies and adaptive qualities; and
(g) Buildings designed to optimize sun exposure and local climate conditions.

The State Council identified key actions for the building sector in 12th FYP period, including comprehensive promotion of energy efficiency (EE) in buildings through planning, regulations, standards, technologies and designs; development and implementation of a green building action plan; strengthening the energy monitoring and management system for public and commercial buildings; improving energy audit and energy disclosure to support building energy retrofit and operational management; and promotion of RE and building integration. The State Council specifically called for carrying out low-carbon community pilots to integrate community planning and design, transportation, energy and other infrastructure systems, green buildings, and lifestyle.

The World Bank will partner with the Ministry of Housing and Urban-Rural Development (MOHURD), Beijing and Ningbo Municipal Governments to address some of the critical constraints in the development of LOCAL urban forms, improvement of EE in public and commercial buildings, and deployment of grid-connected rooftop solar PV systems. The proposed activities in the project will establish linkages between city-level efforts and those of MOHURD, forming the basis of a national dissemination platform that would promote replication of good practices and policies, accelerating adoption of both EE and RE in urban areas.

III. Global Environmental Objective(s)

The proposed project development objective is to improve selected national and city-level policies for promoting low-carbon, adaptive and livable (LOCAL) urban forms, increasing energy efficiency (EE) in public and commercial buildings, and scaling up commercially viable rooftop solar PV deployment.

The global environment objective of the proposed project is to reduce carbon dioxide emissions in selected Chinese cities by supporting improved policy making and implementation in promoting LOCAL urban forms, increasing EE in public and commercial buildings, and scaling up commercially viable rooftop solar PV deployment.

IV. Project Description

Component Name
Component 1: Promoting Low-Carbon, Adaptive and Livable Urban Forms
Component 2: Improving Energy Efficiency in Public and Commercial Buildings
Component 3: Scaling up Commercially Viable Rooftop Solar PV Deployment in Beijing
Component 4: Project Management

V. Financing (in USD Million)

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<th>For Loans/Credits/Others</th>
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<td>BORROWER/RECIPIENT</td>
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<td>Global Environment Facility (GEF)</td>
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<td>Total</td>
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VI. Implementation

The proposed project will be implemented by MOHURD, Beijing Housing and Urban-Rural Development Commission (BHURDC), Beijing Development and Reform Commission (BDRC) and Ningbo Housing and Urban-Rural Development Commission (NHURDC), each is accountable for a defined set of activities that collectively contribute to the achievement of the Project Development Objective. Each implementation agency has established a Project Management Office (PMO), which will be responsible for implementing activities under its respective implementation agency, including procurement management, financial management and progress monitoring and reporting. The PMO of MOHURD will be responsible for overall project coordination.

A National Advisory Committee (NAC) on promoting LOCAL urban forms has been established. The NAC, chaired by a vice minister of MOHURD and consisted of representatives from concerned departments of MOHURD, the National Development and Reform Commission, Ministry of Finance, Beijing and Ningbo Municipalities, will provide guidance for the implementation of activities supporting the development of LOCAL urban forms. An annual national conference on promoting LOCAL urban forms will be organized with participating cities and the NAC to review the progress on pilots and share empirical evidence and analytical results. This will continuously increase the knowledge base for national decision making, while also encourage more cities to pursue the development of LOCAL urban forms.

MOHURD has strong commitment and ownership to the proposed project which directly supports its efforts in improving national guidelines, standards and regulations on urban planning and design, building EE and green buildings, as well as integration of renewable energy in building and community designs. Beijing and Ningbo have strong commitment and ownership of the proposed project which directly support their respective municipal agendas on building EE and green buildings, as well as their desire to lead the innovation in sustainable urban development in China.

Beijing and Ningbo will collaborate closely with MOHURD to ensure that the successful pilot guidelines and programs that they tested will be replicated to other cities in China. The project will spur replication of the experience in Beijing and Ningbo through: (a) comprehensive monitoring and evaluation to provide concrete information on results, benefits, and lessons learned; and (b) design and implementation of a dissemination
program through MOHURD. Lessons learned will be incorporated for additional pilot cities and shared with other cities in China, as well as with other countries.

VII. Safeguard Policies (including public consultation)

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<th>Safeguard Policies Triggered by the Project</th>
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<tr>
<td>Environmental Assessment OP/BP 4.01</td>
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<td>Projects in Disputed Areas OP/BP 7.60</td>
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