

# TRACE

Tool for Rapid Assessment of City Energy

## Helping Cities Use Energy Efficiently



The Tool for Rapid Assessment of City Energy (TRACE) is a decision-support tool designed to help cities quickly identify underperforming sectors, evaluate improvement and cost-saving potentials, and prioritize sectors and actions for energy efficiency (EE) intervention. It covers six municipal sectors: passenger transport, municipal buildings, water and waste water, public lighting, solid waste, and power and heat.

TRACE consists of three modules: an **energy benchmarking** module which compares key performance indicators (KPIs) among peer cities, a **sector prioritization** module which identifies sectors that offer the greatest potential with respect to energy-cost savings, and an **intervention selection** module which functions like a “playbook” of tried-and-tested EE measures and helps select locally appropriate EE interventions.

TRACE is designed with the intention to involve city decision makers in the deployment process. It starts with benchmark data collection, goes through an on-location assessment involving experts and decision makers, and ends with a final report to city authorities with recommendations of EE interventions tailored to the city's individual context.

### WHAT DOES TRACE DO?

#### 1. Energy Benchmarking

TRACE's benchmarking module has a database of KPIs for more than 90 cities. The data are entered into the tool using a simple web-like interface and analyzed in order to benchmark city energy use against a range of peer cities. The peer cities may be selected based on city population, climate, and human development index.

#### 2. Sector Prioritization

TRACE's sector prioritization module uses "relative energy intensity," "sector energy spending," and "city authority control" to prioritize sectors with the most significant energy efficiency potential. The "sector spending function" allows the user to enter the total amount of money



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that the city spends in the sector, and the "city authority control" function allows the user to indicate the amount of control that the city authority has in the sector. The "relative intensity function" shows the potential energy efficiency improvement the city may realize if it were to match the average of better-performing cities. Based on these functions, TRACE provides the prioritized list of sectors that the city can engage in order to realize potential energy savings.

### 3. Intervention Selection

TRACE contains a set of 59 EE interventions which combine a blend of both high level strategic level programs and specific activities that a city can pursue. These recommendations are supported by a database of 191 case studies that link to appropriate resources and tools. Each recommendation is "rated" on three attributes: (a) energy savings potential (b) first cost (c) speed of implementation.

The initial appraisal step enables the user to match city capability to the capabilities required to implement each recommendation. City officials can then select from the set of ranked recommendations.

The energy savings assessment step allows the user to quantify the potential energy savings using spreadsheets that come with TRACE, and the final review process allows the city authorities to assess the viability of recommendations in order to come up with a final list of actions for prioritized sectors.

### WHERE IS TRACE BEING USED?

Deployment	
<ul style="list-style-type: none"> <li>Banja Luka and Sarajevo (Bosnia Herzegovina)</li> <li>Belo Horizonte (Brazil)</li> <li>Addis Ababa (Ethiopia)</li> <li>Tbilisi (Georgia)</li> <li>Accra (Ghana)</li> </ul>	<ul style="list-style-type: none"> <li>Surabaya (Indonesia)</li> <li>Nairobi (Kenya)</li> <li>Prishtina (Kosovo)</li> <li>Skopje (Macedonia)</li> <li>Cebu and Quezon (Philippines)</li> <li>Belgrade (Serbia)</li> <li>Gaziantep (Turkey)</li> <li>Da Nang (Vietnam)</li> </ul>

TRACE was initially field-tested with positive results in Quezon City, Philippines. The tool has since been deployed in 14 other cities.

- In Turkey, TRACE helped define the Sustainable Cities pillar in Turkey's US\$ 4.5 Billion Country Partnership Strategy with the World Bank for the years 2012-2015.
- In Indonesia, the World Bank used TRACE to create city-level case studies, the results of which are being used to create Sustainable Urban Energy Program guidelines for cities across the region.
- In Macedonia, TRACE work feeds into the country's Green Growth Agenda, and is helping inform the World Bank-financed Municipal Infrastructure Investment Project.
- In Georgia, TRACE contributed to the development of the Georgia Municipal Development fund where a third generation of the fund will consider using the sustainable cities framework.

Demand for TRACE is growing quickly and it is expected to be deployed in cities in Africa, Latin America and the Middle East in 2012-13. As new cities use TRACE, additional city benchmark data will be added to the tool, as well as more case studies and energy efficiency interventions, making it even more effective in the years ahead.

### IS THERE ANY TRAINING OR SUPPORT TO USE TRACE?

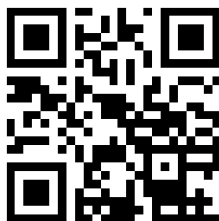
A TRACE e-learning course was created in partnership with the World Bank Institute. This self-guided course can be accessed through ESMAP's website at | <http://esmap.org/esmap/TRACE>.

ESMAP also provides group training (in person or via video) to cities or implementing agencies planning to use TRACE. Please contact Pedzi Makumbe ([pmakumbe@worldbank.org](mailto:pmakumbe@worldbank.org)) if you are a city team or implementing agency interested in the training.

FOR MORE INFORMATION,  
TRAINING, OR TO DOWN-  
LOAD TRACE

<http://esmap.org/esmap/TRACE>

TIP | Snap the QR  
Code to learn more  
about TRACE.



*The Energy Sector Management Assistance Program (ESMAP) is a global knowledge and technical assistance program administered by the World Bank. It provides analytical and advisory services to low- and middle-income countries to increase their know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth. ESMAP is funded by Australia, Austria, Denmark, Finland, France, Germany, Iceland, Lithuania, the Netherlands, Norway, Sweden, and the United Kingdom, as well as the World Bank.*