

# GLOSSARY

- CURB** CURB, or Climate Action for Urban Sustainability, is an Excel-based tool that is used by cities for climate action planning. It provides tailored analyses using city emissions data to help cities evaluate low carbon actions, and project future emissions based on the actions selected.
- Near zero emissions** C40 Cities Climate Leadership Group defines near zero emissions for their Deadline 2020 commitment as 0.01 tons of carbon dioxide equivalent (tCO<sub>2</sub>e)/person/year.
- Residual emissions** Residual emissions are the emissions remaining after all technically and economically feasible opportunities to reduce emissions in all covered scopes and sectors have been implemented.
- Carbon neutral** used interchangeably with near-zero emissions, considering that offsetting can be applied to any minimal residual emissions that still occur at the year 2050.
- C40 Cities** C40 is a network of the world's megacities committed to addressing climate change. C40 supports cities in effectively collaborating, sharing knowledge and driving meaningful, measurable and sustainable action on climate change.
- Business as usual** a baseline projection that estimates what emission levels would be in the future with no emission reduction actions taken.



# ANNEX 1

## CURB TOOL ANALYSIS

Amman completed the first city-wide inventory of greenhouse gas emissions for the year 2014 using the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories. This inventory of greenhouse gas emissions reports emissions in the following sectors: stationary energy (electricity and gas use in residential and commercial buildings); transportation; and waste and waste water. At the time, there was little data available for reporting emissions from industrial processes or agricultural activities within Amman. As such, for now, these are not included in the climate action plan. However, Amman is continuing to improve its data collection and tracking processes. It will also attempt to include these sectors in future updates of the emissions inventory.

Amman's 2014 inventory shows that the two sectors that contribute the most emissions are stationary energy and transportation. According to the inventory, 64 percent of Amman's emissions came

from the stationary energy source category, and 31 percent from transportation. More specifically, the largest sub-sectors of emissions were electricity for buildings, and on-road transport.

Data from the inventory was used in the creation of a CURB model. The CURB tool provides tailored analyses to help cities evaluate low carbon actions, and projects future emissions based on the actions selected. The outputs below come from the CURB model. The scenario projects the GAM achieving the 2030 reduction target based on a set of actions across all sectors. There are no new actions added between 2030 and 2050, only a dramatic scaling up of existing actions and an increase in penetration rates.

The actions were selected based on discussions within the GAM regarding what is feasible for particular sectors. Almost all of the actions reflect actions that Amman is already taking or exploring, albeit on a much smaller, pilot project scale.

### BUSINESS AS USUAL SCENARIO DATA

TYPE	VALUE	SOURCES
Population (2014)	3,400,000	Amman Urban Observatory
Emissions (2014)	7,431,422 tons of carbon dioxide equivalent	GAM Inventory (Basic, not including industry and agriculture sectors)
Boundary (square kms)	801.92	GAM Inventory
Population growth factor until 2030	1.795	Hashemite Kingdom of Jordan Department of Statistics
GDP growth factor	2%	Economist Intelligence Unit, 2015

## BUSINESS AS USUAL (BAU) SCENARIO

The business as usual scenario shows a projection of future emission levels in Amman without taking any action to reduce emissions. The scenario includes assumptions about projected population growth (obtained from the Jordan Department of Statistics) and GDP growth, and uses the 2014 emissions data. Below are the key data points included in the business as usual scenario.

## TARGET SCENARIO

An interim 2030 target will provide a check for the city on its path to carbon neutrality. As noted, looking to 2030, absolute emissions for Amman can grow. However, per person emissions need to be kept at or below current levels of around 2.2 tons of carbon dioxide equivalent (tCO<sub>2</sub>e)/person. This is based on analysis done by C40. To achieve this, the 2030 target should be set at a 40 percent reduction in emissions over the baseline scenario.

The tool allows for the identification of the year by which actions will be implemented. For all actions inputted (as reflected in the Plan), target dates for implementation were set as follows:

- The 2030 target actions are projected to be implemented by 2030.
- The 2050 target actions are projected to be implemented by 2045.

## ACTION AUTHORITY

The national government sets policies regarding building efficiency, and action in this sector will need to be led by the national government. However, for illustration purposes, the CURB model currently assumes that GAM has control over the private building sector policies and actions - this sector is the largest contributor to emissions in Amman

## 2030 OUTCOMES

The following is a list of the key actions and scale of implementation that would be needed to achieve Amman's target:

### DECARBONIZATION OF AMMAN'S ELECTRICITY SOURCE

- Renewables = 30% or more

### MUNICIPAL ACTIONS

- 100 MW of installed municipal solar PV
- 100% LED street lights

### GREEN BUILDING PENETRATION

- 15-90% for existing and newly constructed buildings depending on income level

### ROOF TOP SOLAR

- 20% penetration rate for residential buildings
- 25% penetration rate for commercial buildings

### MODE SHARE SHIFT

- Private automobile reduction from 33 to 23% mode share
- BRT from zero to 9% of mode share, and public standard bus mode share stays roughly the same

### ELECTRIFICATION OF VEHICLES

- 20% of private passenger vehicles are electric
- 20% of taxis are electric
- 100% of BRT buses are electric

### WASTE TREATMENT IMPROVEMENTS

- 30% of food and yard waste is treated in anaerobic digester and 10% is composted
- Bio gas capture is achieved for 50% of anaerobic treatment of waste

and action in this sector can potentially contribute over 1 million tons of emission reductions by 2030. Amman and the national government will need to work together to leverage policy setting and the private sector, along with local enforcement of

licensing, to achieve more widespread adoption of green building strategies. Additionally, as noted in the report, any achievement of Amman's emission reduction targets is reliant on national action to decarbonize the electrical grid.

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