

AMMAN PLAN SECTOR GOALS

Within these pillars, measures have been identified across all sectors that will be essential to achieving Amman's 2050 vision. The goals for each sector will drive the actions identified in the following section.



THE ELECTRICITY SOURCE for the city will need to be predominately carbon free in 2050.



NEWLY CONSTRUCTED BUILDINGS will all comply with green building guidelines, and a majority of existing buildings will be renovated to improve energy efficiency.



CITIZEN ENGAGEMENT - a cross-cutting program that includes launching a city-wide awareness program about climate change action and GAM's ongoing efforts.



RENEWABLE ENERGY WILL BE EXPANDED

- Building integrated solar photovoltaics (PVs) will provide residential and commercial buildings with the majority of their energy needs.
- The Greater Amman Municipality will produce its own renewable energy.



SUSTAINABLE MOBILITY

- Public transport will be clean, efficient and widespread.
- A majority of private vehicles and taxis will be electric powered.
- Walking will be a core mode of mobility in the city center.



WASTE

- Waste will be reduced, sorted, composted and recycled.
- Remaining solid waste will be processed in waste to energy sites.



WATER AND WASTE WATER

- Water will be efficiently used.
- Rainwater will be captured and reused.
- Waste water will be effectively treated, with a focus on capturing gases for energy use.



URBAN PLANNING AND LAND USE

- New development areas will be focused on public transit-oriented corridors
- Green spaces, parks and urban forestry will increase, and new building will be focused on underutilized land

CLIMATE ACTIONS IN AMMAN'S KEY SECTORS

This section will address the challenges and opportunities identified in each key sector. It will also present current projects or policies that are contributing to emission reductions. In addition, it will identify future actions that build the foundation for sustainable growth. When implemented,

these actions will produce a range of benefits for Amman's inhabitants, including improved health, job growth, and enhanced livability. Amman will forge partnerships to implement and achieve these sector goals.

GUIDANCE ON THE SECTOR ACTIONS

Actions identified in each sector will be measured according to the following metrics:

- **Timeframe** - short-term actions identify those actions that can be implemented in 10 years; medium-term for those to be implemented in 10-15 years; and long-term actions for those to be implemented in 15-30 years.
- **The volume of emissions (low, medium or high)** describes the general reduction in emissions. These do not equate to specific tonnages. Rather, they are meant to be directional. As such, the exact volume of emissions that will be reduced for each action has not been calculated.
- **Sustainability benefits** refer to those benefits that will accrue from this project, apart from emission reductions.
- **The pillars and the actions identified in this Plan** are aligned with the following documents: the Jordan National Green Growth Plan; Jordan's National Determined Contributions; the Amman Resilience Strategy; and the Amman Metropolitan Growth Plan. Some actions will inevitably overlap, signifying an even greater need for national, local and private sector collaboration.



BUILDINGS WHERE AMMAN RESIDENTS LIVE, WORK, AND STUDY



Highest Emitter:
COMMERCIAL &
RESIDENTIAL
ELECTRICITY USE

CHALLENGES

The energy sector is the highest emitting sector in the Hashemite Kingdom of Jordan, and in Amman in particular. A large portion of the country's energy needs are met using imported oil and gas because the country lacks large fossil resources of its own. In recent years the percent of renewable energy sources steadily increased. However, the national grid still predominately uses fossil fuels. Therefore, the country's reliance on imported foreign energy is a significant burden on its economy, leaving it vulnerable to price fluctuations.

Electricity usage in commercial and residential buildings is the primary source of emissions in Amman. During 2004-14, residential energy consumption grew at a rate of 8.5 percent at the national level, notably faster than the overall economic growth (Hashemite Kingdom of Jordan 2017). The country is making progress toward a decoupling of economic development and energy consumption. This trend needs to continue and

scale up in order to achieve Amman's 2050 Vision.

Amman has limited direct control over the building sector. The municipality issues building licenses, provides certificates of occupancy, and sets zoning regulations. Building codes and incentive structures are set at the national level through the Ministry of Public Works and Housing, the Ministry of Finance, and the Ministry of Energy and Mineral Resources. Voluntary green building guidelines were published in 2014 by the Jordan Green Buildings Council, and are based on Leadership in Energy and Environmental Design (LEED) certification. These guidelines cover energy, water, and indoor air quality, as well as sites and materials. Both mandatory building codes and voluntary guidelines have a low level of penetration in Amman because of a lack of enforcement. In addition, there is a misalignment of incentives and a perception that more efficient buildings greatly increase costs.

KEY GOALS AND OPPORTUNITIES

KEY SHORT-TERM GOALS

- Improving energy efficiency in all GAM-controlled municipal buildings and public lighting to show leadership and demonstrate cost effectiveness.
- Improving enforcement of existing building codes.
- Incentivizing and encouraging best practice in passive design and green construction for commercial buildings.
- Partnering with the national government and international organizations to implement energy efficient programs for existing residential buildings.

The national government has demonstrated a strong commitment to energy efficiency. The recently completed Second National Energy Efficiency Action Plan for the Hashemite Kingdom of Jordan commits the country to a 20 percent improvement in energy efficiency by 2020 (over the 2006-2010 baseline). Despite the existence of building codes and green building guidelines at the national level, enforcement of building codes is weak.

As national attention is now turned toward energy efficiency, Amman can facilitate a pipeline of projects that addresses residential, commercial and public building energy efficiency standards.

CASE STUDY AMMAN'S GREEN BUILDING DENSITY BONUS

CHALLENGE • Green building has been slow to build market share in Amman because of cost concerns, to date only 10 buildings have received green building certification in Jordan. The government of Amman is constrained in acting, as building codes and policies are set at the national level.

SOLUTION • The city focused on encouraging participation in green building through a voluntary density bonus program linked to the Jordan Green Building Guide published in 2013 by the Jordan Green Buildings Council. Certified green buildings are totally or partially exempt from fees according to Amman's Buildings and zoning law in 2019. The incentive provides a 'Density Bonus' in the form of an additional percentage to the original floor area ratio (FAR). As an additional incentive, building applications are free of charge.

BENEFITS • Lowered costs for developers and residents.

GRAPHIC Based on Amman's climate and heating and cooling demand, improvements in the following areas of the building sector can create the highest emission reductions:



Residential

New construction

- building lighting, envelopes (insulation and windows)
- cooling and heating equipment

Existing buildings

- lighting
- appliances
- cooling and heating equipment
- thermal insulation techniques



Commercial

New and Existing buildings

- lighting
- cooling and heating equipment

BENEFITS

Improving energy efficiency in buildings results in positive economic and social impacts at the household level, as well as for the broader economy. At the household level, increased efficiency means smaller utility bills and better health due to reduced

air pollution. For the broader economy, scaled up building retrofits could potentially produce a 150 percent increase in jobs in a city the size of Amman by 2030 according to the Global Covenant of Mayors for Climate and Energy Opportunity Dashboard.⁷

PARTNERS & STAKEHOLDERS

The city government has limited ability to control policies and regulations in the building sub-sector. In this context, partners will be key to developing projects that can scale across the residential and commercial building sub-sectors. Addressing energy efficiency in buildings will require close coordination with national ministries and regulatory organizations. Amman alone cannot lead many of the actions identified in this plan because of national control of policy and regulatory structure for buildings. Therefore, the government of Amman is working closely with the national government to identify existing and new policies that will support these actions. The city can act

as an advocate, expanding awareness among its residents and can perform regulatory and licensing actions that support these transformational shifts.

There are additional local organizations that will have a key role in this sector, including the Jordan National Building Code Council. It is active in the country, helping to establish local green building guidelines. In this sector, it is especially important to have the engagement of private sector actors, for example real estate developers, commercial banks, energy-efficient building product manufacturers and others. Together, they will be key partners for the city.

⁷ The Global Covenant of Mayors for Climate and Energy Opportunity Dashboard uses city data to estimate the impacts from climate action in cities. <https://www.globalcovenantofmayors.org/climate-opportunity/>