



CAP 1.5°

PRIORITISATION ANALYSIS OF CLIMATE ACTIONS

An analysis of Mexico City's most relevant Climate Actions of the 2014-2020
Climate Action Program in order to align the city's commitment with the Paris Agreement.



FOREWORD



“[T]he planet is just too small for [...] developing countries to repeat the economic growth in the same way that the rich countries have done it in the past. We don’t have enough natural resources, we don’t have enough atmosphere. Clearly, something has to change.”

Dr. Mario Molina

Climate Action is urgent. Last year’s natural catastrophes as hurricanes and floods have only been a minor hint of what is to be expected in the future if we are not able to stop the uncontrolled Climate Change. Adequate Climate Action Planning is crucial for the preservation of this planet and should hence be of highest priority for policymakers. The present Prioritisation Analysis for the new Climate Action Plan (CAP1.5°) shall define and facilitate the achievement of Climate objectives of Mexico City.

The report is dedicated to the victims of the devastating earthquake that struck Mexico on September 19, 2017.

My deep sense of gratitude goes out to the truly remarkable friends and colleagues at the Secretary of Environment (SEDEMA) in Mexico City.

A handwritten signature in black ink, appearing to read 'PA', with a stylized flourish at the end.

Philip Audebert

This report has been delivered through a collaborative partnership of the Secretary of Environment of Mexico City (SEDEMA) and the C40 Cities Climate Leadership Group (C40). The C40 Cities framework connects over 90 of the world's greatest cities, representing more than 650 million people and one quarter of the global economy.

Together with seven other cities in this world, Mexico City is part of a pilot program to deliver a detailed Climate Action Plan on how to achieve net zero emissions in 2050. This Climate Action Plan called "Deadline 2020" is then thought to be replicated in other cities of the C40 framework. The partnership foresees guidance and help by the C40 Cities framework during the elaboration and implementation process.

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PHOTOGRAPH

Enrique Abe Takahashi

Philip Audebert

The photos of this report were taken in the various boroughs of Mexico City. They are thought to give the reader both an insight into the City's urban geography and its different Climate Actions.



EXECUTIVE

SUMMARY



Ambitious climate action plans require a clearly stated prioritisation of measures. In fact, it is important to have a variety of options when it comes to decision-making. The present study is a socio-economic Prioritisation Analysis of Mexico City's current climate actions, i.e. the climate actions contained in the previous Climate Action Program PACCM. The purpose of this analysis is to provide guidance for future climate action planning. The calculated mitigation reductions and cost-benefits are projected to 2050 in a business as usual (BAU) trajectory.

PRIORITISATION OF CLIMATE ACTIONS

The prioritisation analysis should follow the following criteria.

1) Identification of a “trigger action”

First, climate actions have to be analysed with respect to their influence on other actions. This means that if a climate action triggers another climate action so that this new action will be implemented, it is to be defined as “trigger action”. This assignation takes into account the links and the complementarity of actions. The analysis is based on interviews with each of the responsible dependencies and on the action's operative and administrative capacities.

2) Actual greenhouse gas emission reductions

This aspect of the prioritisation analysis is the least complex, because it only considers the actual mitigated greenhouse gas emissions per action. Data on the actual mitigated emissions were calculated by each of the responsible dependencies at the SEDEMA. For future years, the SEDEMA assumed emission reductions comparable to the most recent year (usually 2017).

3) Cost-benefit analysis of mitigation actions

According to the Cambridge Dictionary, cost-benefit analysis are to be defined as “the process of comparing the costs involved in [implementing an action] to the advantage or profits it may bring.”¹ The aim of cost-benefit analysis in this Climate Action Plan is to provide decision-makers with a monetised estimate of the costs or benefits of fifteen major climate actions, adjusted for the time value of money. Given constrained and static public funds, actions with the highest benefits per invested peso maximise general welfare of society. Costs and benefits were divided into four categories: social benefits and losses, environmental benefits and losses, economic benefits and losses and public and private costs. The costs and benefits were discounted at an annual rate of 10% from year 2017 on. This corresponds to the official discount rate estimated by both the Federal Government of Mexico² and the World Bank³.

1 Cambridge Dictionary (2017), “CBA”.

2 Secretaría de Hacienda y de Crédito Público, “Tasa social de descuento”, Gobierno de México.

3 World Bank (2017), “Tasa de interés real (%)”.

Each action was evaluated for different periods:

- **2013-2017**, period that includes the year prior to the PACCM 2014-2020 to this day.
- **2018-2020**, period of the first four years of the administration in order to facilitate decision making.
- **2018-2030**, period in which Mexico City must reduce its greenhouse gas emissions by 50%.
- **2018-2050**, period in which Mexico City must reduce its net greenhouse gas emissions to zero.

Based on this analysis, an interrelation chart of the criteria is established. Each criterion is thereby represented by a circle and the different intersections between the circles define common areas of prioritisation. The prioritised actions should be the ones where all three criteria apply (the intersection of the three criteria). In other words, those actions are all cost-efficient, have great mitigation potential and they trigger other climate actions, reducing the total burden of greenhouse gas emissions in Mexico City (to achieve the goal of net zero emissions in 2050).

According to the present analysis, the following actions should be highly prioritised for their respective period, as they fall into all three criteria.

For the period 2013 to 2017, actions GIR3.1 (Compost plant for organic waste) and REC7 (Implementation of new corridors to the Metrobús scheme) should have been prioritised.

For the period 2018 to 2022, actions GIR3.1, REC7, REC6.1 (Implementation of renewable mobility schemes: expanding the public biking system ECOBICI) and EE1 (Energy efficient measures and modernisation of public transport system “Sistema de Transporte Colectivo (STC)”) should be prioritised.

For the period 2018 to 2030, actions GIR3.1, REC7, REC6.1, EE1 and EE7 (Renovation and modernisation of public lighting on the primary road network in Mexico City) should be prioritised.

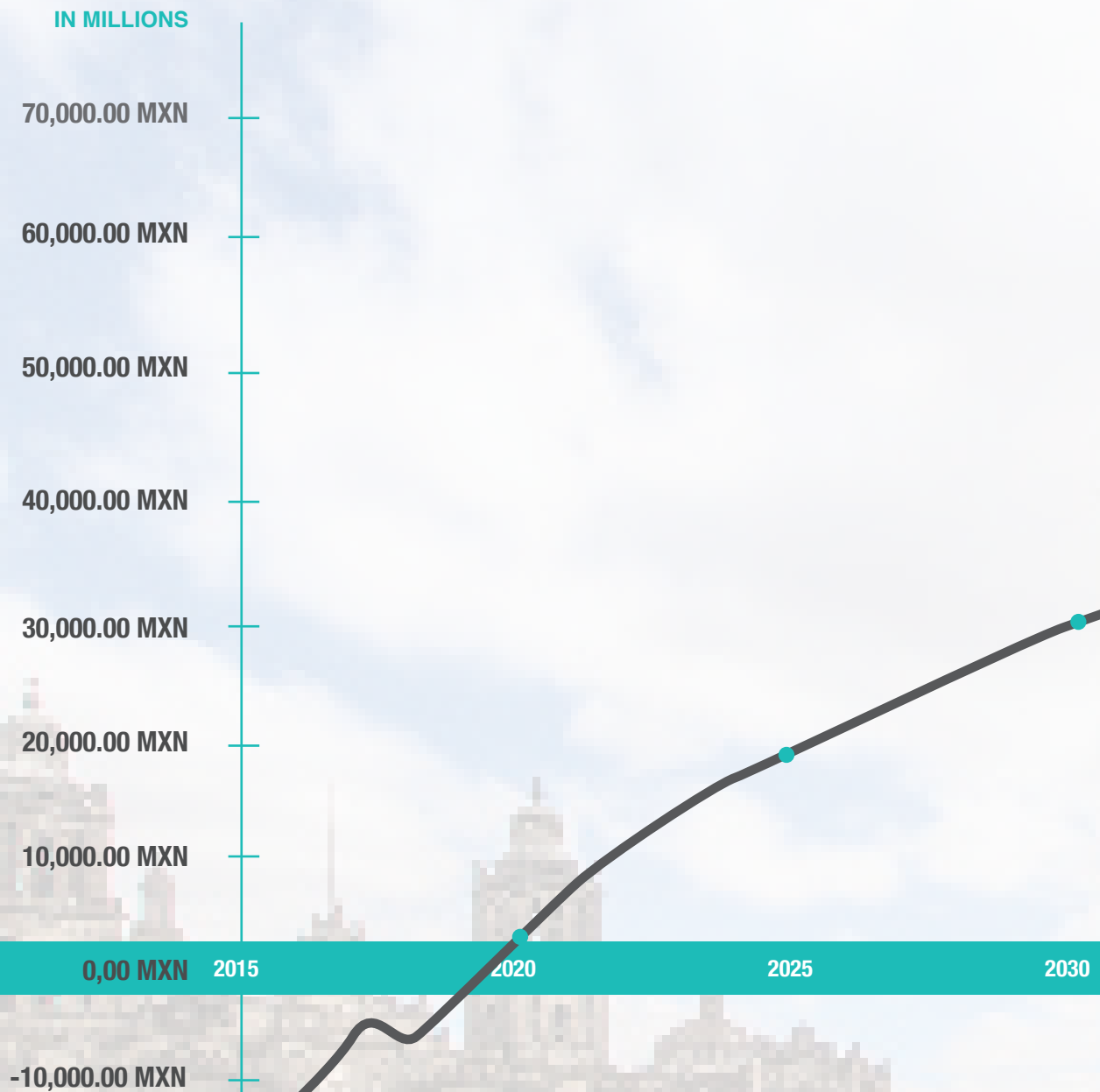
For the period 2018 to 2050, actions GIR3.1, REC7, REC6.1, EE1 and EE7 should be prioritised.

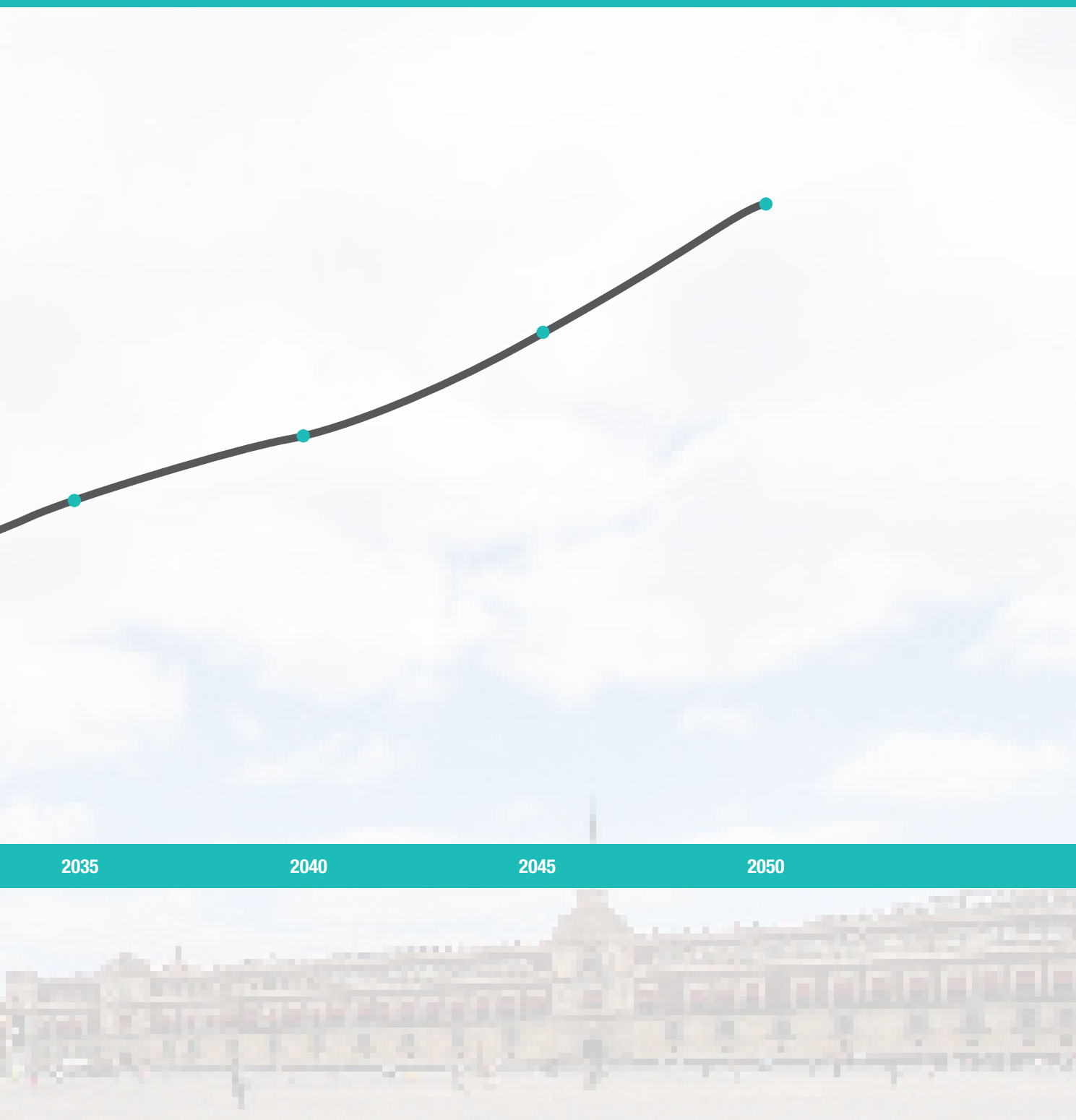
However, if the decision-makers prefer one criteria to another, because of financial distress or other reasons, a detailed [description of each of the criteria can be found in the following sections](#).

TOTAL BENEFITS

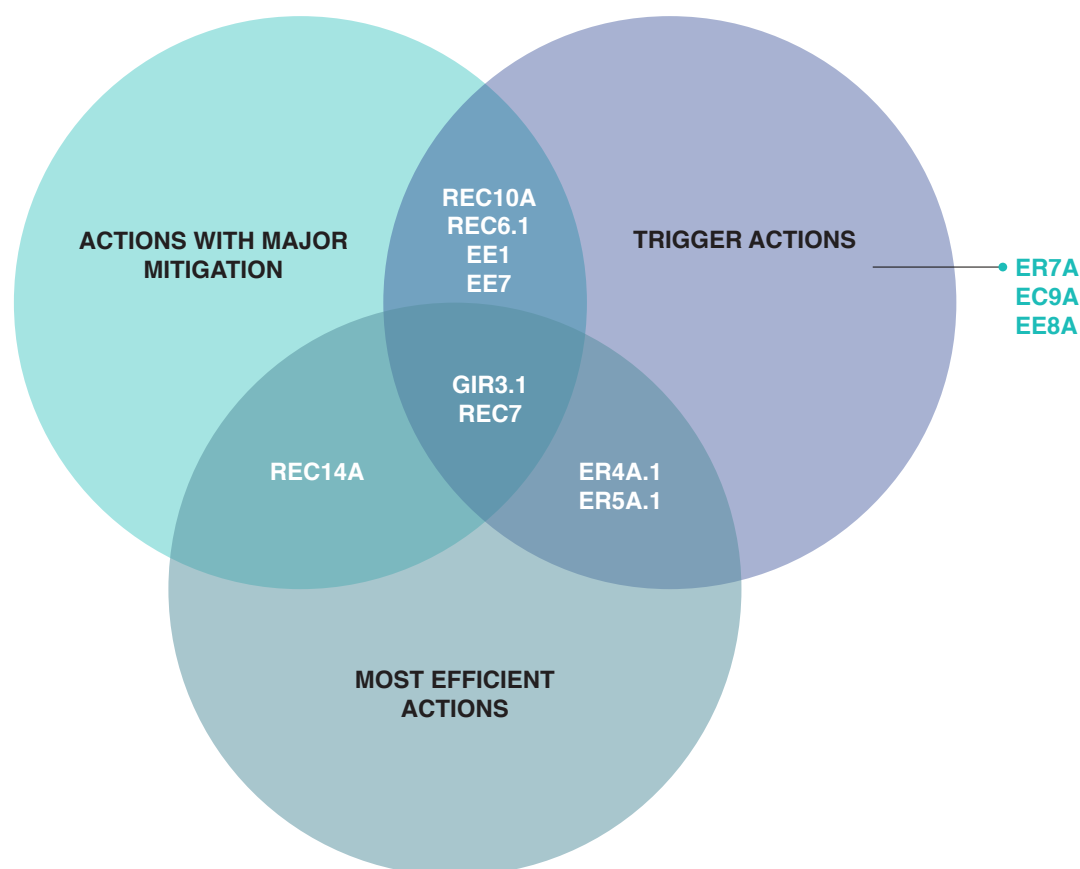
Implementing all measures will generate a total accumulated surplus of MX\$ 60,927,264,934.58 by the year 2050. However, the first year with net socioeconomic gains is 2020. In other words, until 2020, investment and operation costs exceed social, environmental and economic benefits. From 2020 on, those benefits will outweigh the costs and Mexico City will have socioeconomic gains. Figure 1 shows the distribution of accumulated benefits along the timeframe 2015 to 2050.

FIGURE 1.

TOTAL SOCIOECONOMIC SURPLUS 2015-2050

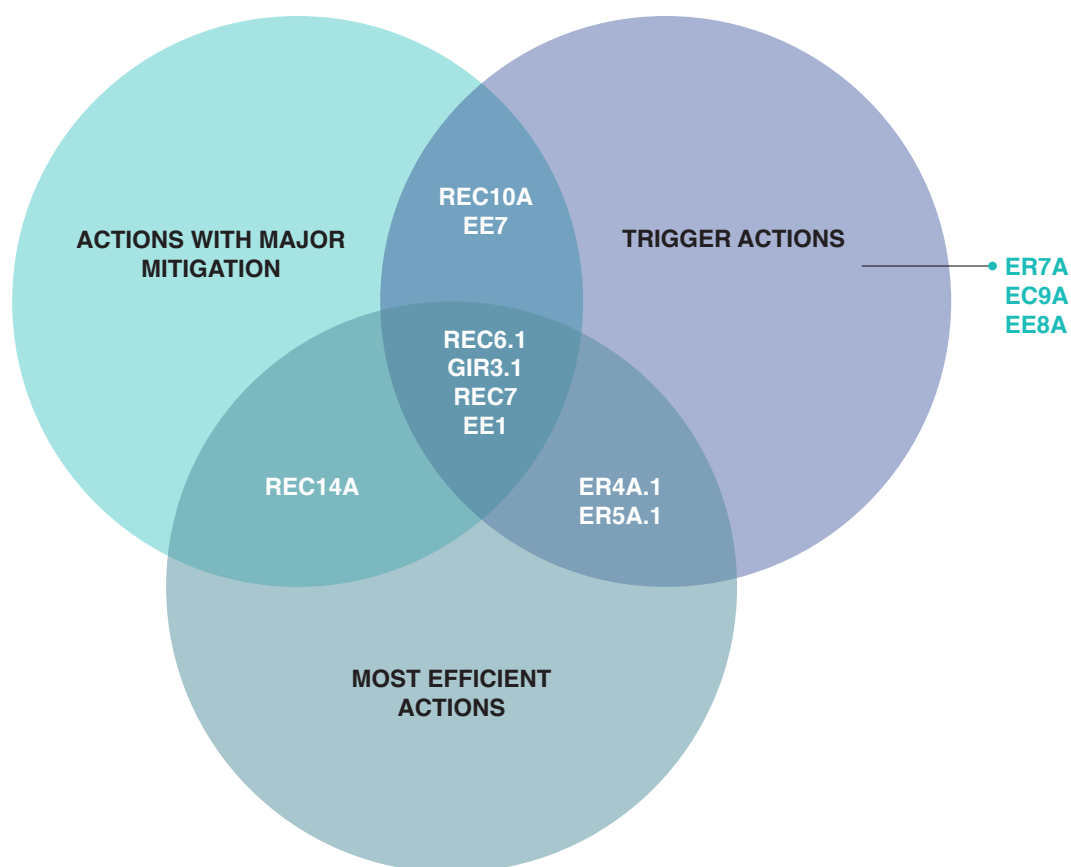


2013-2017



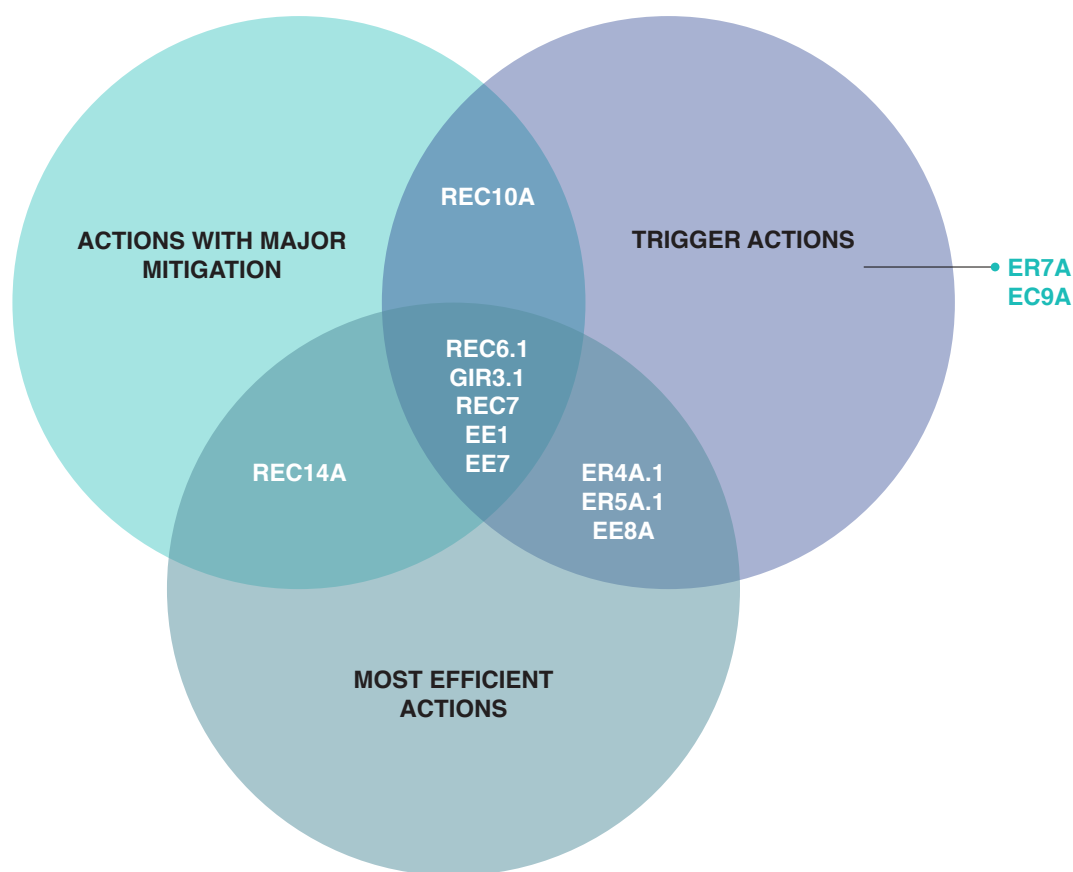
EC9A	Environmental education program “Mercado de Trueque CDMX”
EE1	Energy efficient measures and modernisation for and of the public transport system “Sistema de Transporte Colectivo (STC)”
EE7	Renovation and modernisation of public lighting of the primary road network in Mexico City
EE8A	Introducing a fleet of 20 electrical taxis to Mexico City
ER3.1	Introducing solar systems for public lightning in Bosque de Chapultepec
ER3.2	Introducing solar systems for public lightning in Bosque San Juan de Aragón
ER3.3	Introducing solar systems for public lightning in Centros de Educación Ambiental
ER4A.1	Changing the use of energy by introducing renewable energy sources to 12 hospitals in Mexico City

2018-2022



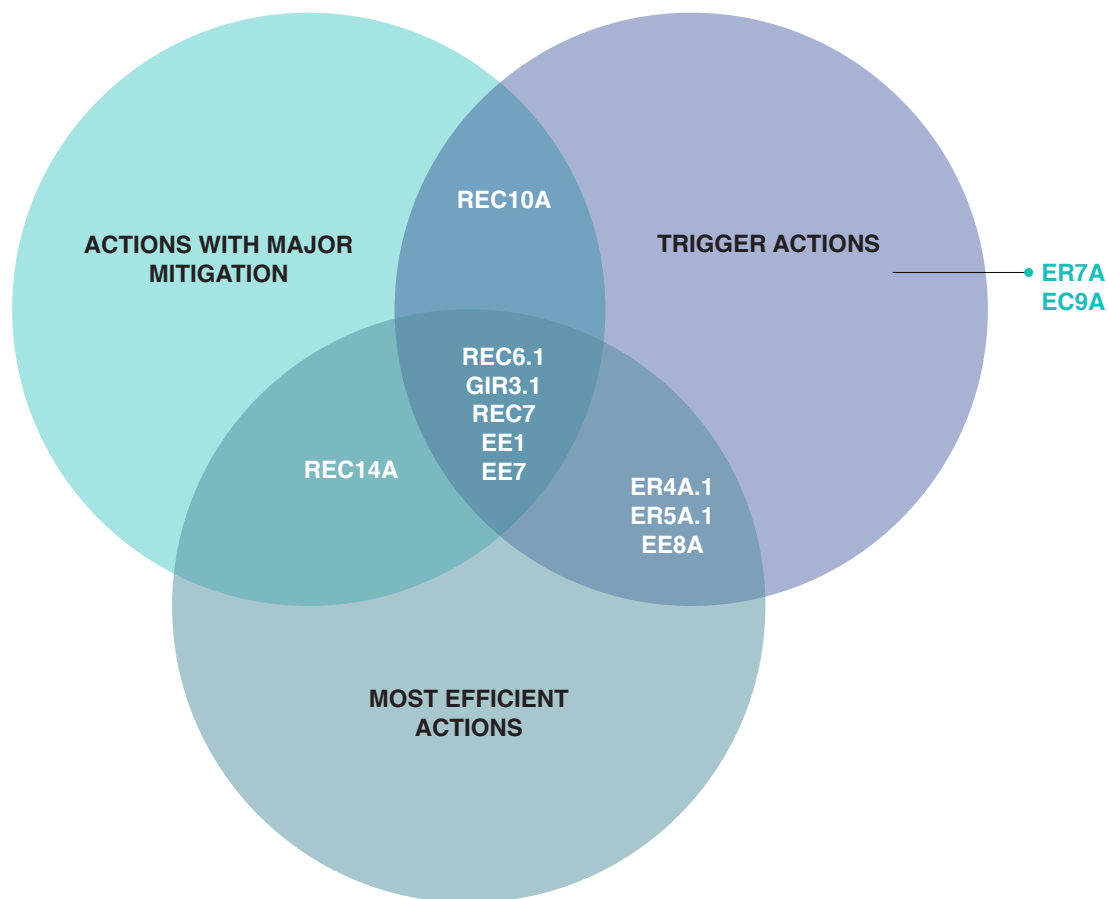
ER7A	Solar power plant for electricity generation with renewable energies
ER5A.1	Program to facilitate access to renewable energies, energy efficiency and the commercialisation of bio fuels to improve health of users
REC6.1	Implementation of renewable mobility schemes: expanding the public biking system ECOBICI
GIR3.1	Using a compost plant for organic waste
REC7	Implementing new corridors to the Metrobús scheme
REC10A	Vehicular emission reductions (Hoy no circula)
REC14A	Strategic installation of taxi bases in Mexico City

2018-2030



EC9A	Environmental education program “Mercado de Trueque CDMX”
EE1	Energy efficient measures and modernisation for and of the public transport system „Sistema de Transporte Colectivo (STC)”
EE7	Renovation and modernisation of public lighting of the primary road network in Mexico City
EE8A	Introducing a fleet of 20 electrical taxis to Mexico City
ER3.1	Introducing solar systems for public lightning in Bosque de Chapultepec
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ER3.3	Introducing solar systems for public lightning in Centros de Educación Ambiental
ER4A.1	Changing the use of energy by introducing renewable energy sources to 12 hospitals in Mexico City

2018-2050



ER7A	Solar power plant for electricity generation with renewable energies
ER5A.1	Program to facilitate access to renewable energies, energy efficiency and the commercialisation of bio fuels to improve health of users
REC6.1	Implementation of renewable mobility schemes: expanding the public biking system ECOBICI
GIR3.1	Using a compost plant for organic waste
REC7	Implementing new corridors to the Metrobús scheme
REC10A	Vehicular emission reductions (Hoy no circula)
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