CIVITAS indicators

Public charging stations per inhabitant (ENV_ES_EA1)

DOMAIN

Transport	Environment	Energy	Society	Economy

TOPIC

Energy supply	
Availability of alternative energy supply *Increasing the number of public charging stations for electric vehicles*	**ENV_ES**

IMPACT

Category

Key indicator	Supplementary indicator	**State indicator**

CONTEXT AND RELEVANCE

As cities shift towards decarbonized transport systems, electric mobility has emerged as a key component of sustainable urban mobility strategies. Electric vehicles contribute to environmental goals by reducing tailpipe emissions of greenhouse gases and air pollutants such as nitrogen oxides (NOx) and particulate matter.

The widespread adoption of electric vehicles (EVs) hinges, among other factors, on the availability of a reliable and extensive public charging infrastructure. This indicator measures the number of electric charging stations within the pilot area, **allowing to evaluate policy actions aimed at expanding charging infrastructure. A successful intervention is reflected in a <u>HIGHER</u> value of this indicator.**

DESCRIPTION

The indicator measures the number of electric charging stations per inhabitant in the experiment area. The unit of measurement is **charging stations per inhabitant**.

METHOD OF CALCULATION AND INPUTS

The indicator should be calculated exogenously based on direct observation **and then coded in the supporting tool.**

Method		
Estimation of the indicator based on observed data	Significance: **0.25**	

INPUTS

The following information is needed to compute the indicator:

    a) **The number of charging stations for electric vehicles in the experiment area.**
    b) **The population size of the experiment area.**

The experiment would result in an increase in the number of charging stations in the experiment area.

METHOD OF CALCULATION

The indicator is computed exogenously according to the following steps:

- **Retrieval of the number of charging stations for electric vehicles in the experiment area.** This value can be obtained from municipal records or by inquiring with charging station operators in the experiment area.

- **Retrieval of the number of inhabitants within the experiment area.** This information can be obtained from census data.

- **Estimation of the indicator** by computing the ratio between the number of charging stations obtained in the first step and the number of inhabitants obtained in the second step.

> ### EQUATIONS
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> The equation computing the index (last step of the method of calculation) is the following:
>
> $$ChrgStPerInh = \frac{ChrgSt}{Pop}$$
>
> Where:
>
> $ChrgSt$ = Number of electric charging stations in the experiment area
>
> Pop = Population in the experiment area

ALTERNATIVE INDICATORS

This indicator measures the number of electric charging stations per inhabitant in the experiment area.

Alternative indicator **ENV_ES_EA2** distinguishes charging stations based on their charging speed. This alternative can be used for more detailed assessments; for example, it allows to evaluate policy measures aimed at increasing the availability of specific types of charging infrastructure, such as fast-charging stations.