# Chargers of Electric Vehicles in Learning

*Electric mobility is expanding at a rapid pace...*

To stay ahead of development in the market for electric mobility, there is a vast need to educate future electricians about the key technical elements of Electric Vehicle (EV) charging.

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# Electric mobility is expanding at a rapid pace

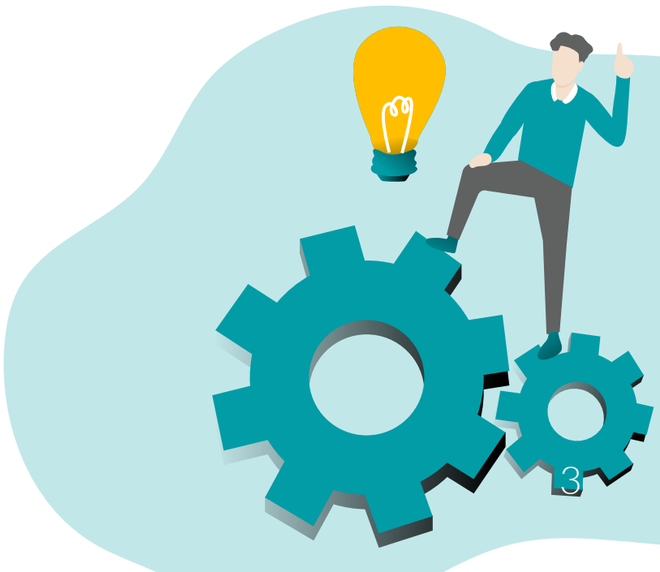
*The number of charging points worldwide was estimated to be approximately 5.2 million at the end of 2018, up 44% from the year before.*

# Educate future electricians about EV charging

To stay ahead of development in the market for electric mobility, there is a vast need to educate future electricians about the key technical elements of Electric Vehicle (EV) charging.

Within the C-Evil project, partners from Hungary, Slovakia, Romania, Greece, Turkey, Spain and the Netherlands join forces to develop new learning and training materials on EV chargers in order to fill the gap in electricity education.

The growing number of electric vehicles needs more and more EV chargers which require adequate electricity professionals who can install, operate and maintain the equipment properly. Expert partners will provide a special knowledge that can be taught to electricians or future professionals (VET students). Together with the VET partners, they will elaborate materials that can be used anywhere in the EU. The materials will cover the main areas connected to EV chargers such as charger types, electric connections, licencing and permitting, installation, electricity standards, management, maintenance and error maintenance. We will put special focus on not only the hardware part of the EV chargers, but also on its software features, i.e. smart management applications.



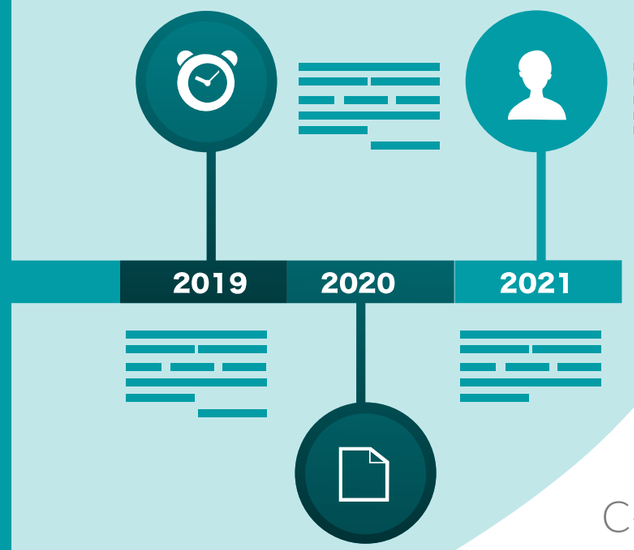
# The C-Evil project

## Target group

Our main target groups are electricians, both in work and unemployed, and future professionals who would like to compliment their skills.

The project will also indirectly target VET teachers and trainers as well as professionals from the electric mobility sector.

The C-Evil partnership will also work with their wide network of contacts in the government and social sectors.




## Timeline

In the course of the two year C-Evil project various meetings, events and activities will be carried out in all of the partner countries.

The project started in October 2019 and will run until September 2021.

# Project outputs

Within the C-Evil project, partners join forces to develop new learning and training materials on EV chargers in order to fill the gap in electricity education. The first results are completed:

## Learning objectives and curriculum

How do students learn best about electric vehicle chargers? Blended learning! So besides the necessary theory that vocational students need to make their own, meeting experts from the field is indispensible. C-Evil adapts guest lectures, site visits and lots of examples from the field in their learning materials.

**The C-Evil curriculum includes:**

1. An introduction to EV charging, including the history of EV charging, battery technologies and charger types.
2. Installation, including information on safety considerations and electricity standards.
3. The management of EV chargers including smart management.
4. Maintenance, such as error management and EV charger fault diagnoses.

The learning objectives and curriculum can be downloaded here.



In the coming months, C-Evil partners will develop the following outputs:

## ‘Train the trainer’ materials

Based on the defined learning objectives, methodology and curriculum, expert and VET partners will prepare and validate the content of the training materials together.

## Set of learning materials

At this stage of the project, training content is elaborated, teachers have already been introduced to it, and they have provided feedback and recommendation. In order to facilitate understanding, training material will be adapted in a student and user-friendly way.

## Guidelines for stakeholders

EV charger training materials are intended to spread not only in the project partners’ institutions and in their network but also in other organisations in the territory of the European Union. Project partners will prepare guidelines for the most important stakeholders: VET institutions, VET teachers and electrical professionals in the participating countries and in Europe.

# Project partners

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CAM Consulting, Hungary

Vocational Training Center of Kecskemét, Hungary

Colegiul Stefan Odobleja, Romania

Learning Hub Friesland, The Netherlands

Italian-Slovak Chamber of Commerce, Slovakia

Services Extremeños Enseña, Spain

EGE University, Turkey

Avaca Technologies, Greece

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