MRA-Electric sets an example in the Netherlands

Working towards 1.9 million electric cars and 514,000 public charging points by 2030

MRA elektrisch

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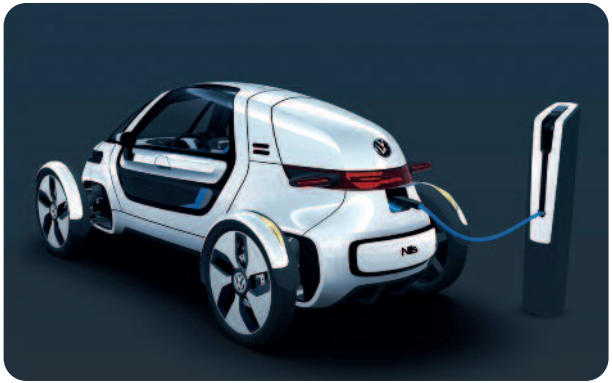

1. About MRA-Electric

There are currently approximately 180,000 electric vehicles in the Netherlands. Fully electric car sales are expected to grow rapidly in the near future, and by 2030, almost 2 million e-vehicles are expected to be in use. This is partly because the Dutch government has determined that, from 2030 on, all new cars must be electric.

The majority of the more than 100,000 fully electric cars currently registered in the country are registered in the provinces of Noord-Holland, Flevoland and Utrecht, where MRA-Electric is running an effective incentive programme.

Ambitious goal

Established in 2012, Metropolitan Region Amsterdam Electric (MRA-E) promotes and facilitates electric transport in order to contribute to clean air and climate objectives. The Dutch government has set a clear and ambitious goal for this: by 2030, CO_2-emissions must be reduced by at least 49 percent. Electric driving significantly contributes to this reduction, with the added benefit of making our society less reliant on oil and gas. A modern, clean and quiet method of transport that brings us closer to achieving our climate objectives without having to sacrifice comfort or convenience.

Proven approach

Around the world, MRA-E is perhaps best known for its extensive and reliable network of public charging points. The density of the network is one of the highest worldwide. Creating a reliable public charging network is a prerequisite for the success of electric driving. MRA-E has observed that local governments play a crucial

role in establishing this network. For the 80 local municipalities in the above-mentioned three provinces, MRA-E organises joint tenders for public charging points. The majority of the municipalities are eager to participate in this project, for various reasons, including achieving economies of scale, promoting innovations and keeping control over the public area, for which they are responsible. The Dutch government has invited MRA-E to join the National Steering Committee for Loading Infrastructure to share knowledge and experience. The aim: to get a similar regional cooperation off the ground in other parts of the country as well.

'In MRA-E 80 local municipalities have found an effective way to jointly promote electric driving'

And there's more

But of course, there is more to it than public charging points alone. For the 80 municipalities in the three provinces, the MRA-E project bureau acts as a central and readily available source of information and expertise. The bureau successfully supports the introduction of electric taxis, electric car-sharing and electric 'last mile' delivery services in city centres. Typically, MRA-E applies a project-based approach in which both knowledge and costs are shared and that enables participants to achieve results that are beyond their individual reach. There is also a strong focus on innovation, by including a focus on electric driving in the energy transition. MRA-E contributes to this goal by introducing projects that include deferred charging and charging with locally-generated solar and wind energy. The idea is not to wait passively until new technologies are fully developed, but to start and learn by doing. The result is a stimulating environment that has brought us to the forefront of electric driving. Read more about it in the next chapters and get inspired!

'MRA-E applies a project-based approach that enables local governments to achieve results beyond their individual reach'

MRA-E region in figures

- Three provinces:
  Noord-Holland, Utrecht and Flevoland
- Total area: 8,064 km2
- 80 municipalities
- Population: 4,541,000 residents
- 60,000 fully electric cars
- 18,200 (semi) public charging points.

(Per October 2019)

MRA-E works alongside the provincial authorities of Noord-Holland, Flevoland and Utrecht, and the Greater Amsterdam Metropolitan Region. The region as a whole has a very strong international position in several economic sectors, including: financial services, international commerce, IT, media, creative industry, tourism, knowledge and logistics.

2. Charge anywhere

A reliable network of public charging points is essential to the success of electric driving. Fast charging stations next to all major roads help reduce range anxiety and enable electric drivers to cover long distances without much delay. Public charging points are vital too. This is especially true in places where the majority of drivers rely on street parking, like in the Netherlands.

Present and future drivers of electric vehicles must always be able to rely on the availability of public charging points. MRA-Electric has developed an effective approach for rolling out this network, that includes using the key position held by local municipalities and that can easily be scaled up now that a rapid growth of electric cars is expected.

Key-role for local governments

The number of electric cars in the Netherlands will grow from around 180,000 now to an expected almost 2 million in 2030. One of the reasons for this is the Dutch government's requirement that by 2030 the only new cars on the market will be electric. Research shows that 1.8 million charging points will be needed nationwide, 514,000 of which must be installed in the public area. The government states that setting up the public charging network is uniquely the domain of local governments, as they are in charge of managing the public space. Public charging points can best be installed and operated by the market, under the direction and supervision of local governments, which are in a key position to safeguard the quality of the public domain, achieve public goals and ensure fair pricing.

Effective co-operation

MRA-E underlined the key position for local governments when the project bureau was

launched back in 2012. Since then, MRA-E has organised joint tenders for public charging points for the 80 municipalities in the project area. These tenders create volume for market parties and enable them to reduce their price, whilst the municipalities don't have to reinvent the wheel. The Schedule of Requirements in this joint tender place high demands on quality and innovation. This approach has proven to be very effective and municipalities are eager to participate. All the more reason for the national government to invite MRA-E to join the National Steering Committee for Loading Infrastructure (NAL) and contribute knowledge and experience. The aim is to get a similar regional approach off the ground in other parts of the country as well.

'Electric drivers, and those yet to come, must always be able to rely on the availability of a public charging point'

Call for innovation

Currently the network counts well over 4,000 public charging points. The number of public charging stations is growing rapidly and their use is on the rise. By the end of 2018, there were around 3,000 charging points (24% increase as compared to 2017) and nearly 39,000 unique users (25% increase). That year over 5,5 million kWh was charged, which corresponds to more than 30 million emission-free kilometres as MRA-E guarantees the usage of renewable energy. This is one of the standard conditions set in the joint tenders' schedule of requirements. To push innovation, the latest tender also invited market parties to give their vision on price transparency, services aimed at electric drivers and deferred charging. The latter contributes to inclusion of electric driving in the energy transition, that MRA-E places an increasingly stronger focus on. Charging with locally generated wind and solar energy could make our future look even more bright.


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3. The energy transition

Electric driving and the energy transition are closely related and could have a positive effect on each other. Areas of overlap include charging with renewable energy (charging with wind and solar energy to minimise CO_2-emissions) and deferred charging (delay charging during peak hours to avoid overburdening the electricity network).

In March 2019, the Dutch government received a research report on the costs and benefits of renewable and deferred charging, based on data provided by the charging points of MRA Electric and four major cities (65% of the public charging points in the Netherlands are located there). The report concluded that both ways of charging are a 'must' for the future expansion of electric driving within the existing electricity network. The challenge is to develop a dynamic system that allows for a continuous alternation between the two as you wish and make the best use of both.

Best of both worlds

MRA-E has already been, and still is, experimenting with both renewable and deferred charging. The organisation recognises that wind and solar energy is not always available when needed, and sometimes available when not needed. This type of energy can strongly fluctuate, which can cause undesirable peaks and flows in the energy network. MRA-E has launched projects with the purpose of investigating how to deal with this uncertainty in practice. How can batteries of electric cars be used to store a surplus of locally-generated solar energy, and how can this energy be delivered back to the network when the supply of solar energy is low?

MRA-E is also gaining useful experience with deferred charging. The key question here is how to prevent electric drivers from charging at the same time, for example when they arrive home from work, as this causes an undesirable peak demand in the network. A project in Alkmaar has shown that low off-peak rates can encourage electric drivers to charge their vehicles at night, when the demand for energy is low and sustainable energy is more readily available. Sufficient experience has already been gained to include deferred charging in a joint tender for public charging points. Technically this is feasible.

Ready for the future

These examples show how MRA-E is striving for innovation and is learning by doing. It brings us to the forefront of electric driving, but more importantly it helps to include electric driving in the energy transition and build a robust and reliable system. A system ready for when electric driving will really take off, in the not too distant future.

'MRA-E is striving for innovation and keeps experimenting with both renewable and deferred charging'

4. E-car sharing and urban planning

Public mobility behaviour is changing. An increasing number of people want to travel from A to B at their leisure. The freedom to go where you want to, when you want to, is far more important than actually owning a vehicle. Car sharing, based on the use of modern communications technology, offers this freedom. MRA-Electric anticipates on this trend by promoting e-car sharing and looking to the future: how can municipalities in urban planning projects skilfully anticipate the changing mobility behaviour and electric driving?

E-car sharing

On average, one shared car replaces ten individual vehicles. It should also be noted that people who switch to car sharing tend to drive less than they did before. As a result, car sharing reduces parking pressure and is good for the environment. This is particularly true when the shared car is electric. MRA-E therefore actively promotes e-car sharing by sharing knowledge, providing charging infrastructure and advising municipalities, for example about parking spaces and licenses. Many municipalities turn to MRA-E to find out if their e-car sharing project has a chance of succeeding. MRA-E has documented the more than forty e-car sharing projects and companies the country now counts. This provides a welcome starting point for new initiatives.

'MRA-E actively promotes e-car sharing by sharing knowledge and providing charging infrastructure'

Urban planning

Now that the economy is booming and many new residential areas are being developed, local governments have the opportunity to anticipate changing mobility behaviour, electric driving and the energy transition and make the necessary changes. Until 2040, around 230,000 new homes will be built in the metropolitan region of

Amsterdam alone. These are mainly gasless homes that use electricity as an energy source, at the same time as electric driving is expected to take off. It is estimated that by 2030, there will be almost 2 million electric cars in the Netherlands. This requires a clear vision on the required power and loading infrastructure and excellent planning for the expected future changes.

MRA-E advises municipalities and project developers from the start of the urban planning process onwards. For municipalities MRA-E has developed a guideline that proposes what to consider when designing the energy management of a new residential area, where to place the cables and wires, what the parking policy should be and how the public space should be arranged. There is considerable interest and a growing number of municipalities and project developers are asking for advice, as they begin to realise that there are significant benefits up for grabs. A good example is the municipality of Weesp, where 3,000 energy-neutral houses are scheduled for construction and the local government has a keen eye for innovation. Electric driving is the future, there will be an e-car sharing programme. In addition, the municipality is examining possibilities for electric cars to deliver unused power back to homes (V2H: vehicle-to-home). This could create an additional boost for the energy transition.

'Changing mobility behaviour, electric driving and the energy transition require a clear vision in urban planning: how to prepare for this?'

5. E-taxis

If all taxi operators were to switch to electric vehicles, air quality would greatly improve. Taxis not only account for far greater mileage than the average vehicle, they also generally run on diesel oil. MRA Electric is therefore working alongside the taxi sector to encourage the switch to electric vehicles.

Partly thanks to MRA-E's efforts, the Amsterdam Schiphol Airport Authority has imposed strict sustainability requirements on taxi companies wishing to operate on site. MRA-E has advised taxi companies about the benefits of electric vehicles and has arranged for the installation of designated charging points throughout the local area. By now, over 1,500 electric taxis are serving the city of Amsterdam and Schiphol Airport.

Setting the pace

Taxi Electric, founded in Amsterdam in 2011, is Europe's first taxi company to have an all-electric fleet. Its mission is to make the entire taxi market fully sustainable, which it aims to accomplish by promoting demand for electric transport. Taxi Electric has several designated (fast) charging points, all of which supply only 'green' electricity generated from sustainable sources.

BIOS Group and BBF Schipholtaxi were awarded concessions to operate at Amsterdam Airport Schiphol. One of the main selection criteria was sustainability. Together, these companies own 167 Tesla vehicles. Schiphol wishes to rank among

the top three most sustainable airports in the world and considers its association with BIOS and BBF as a significant step in the right direction.

Looking ahead

Now that electric taxis at Schiphol Airport and in Amsterdam have proven to be viable, MRA-E is looking further. The vast majority of electric taxis are in operation at Schiphol Airport and in Amsterdam. There, the highest turnover is achieved and there is financial room for investments. Major steps forward would include taxis operating between medium-sized cities to switch electric as well. MRA-E examines if this is feasible with proper supporting measures. For example, think of priority parking for electric taxis at taxi ranks. Let's move forward!

'MRA-E is working with the taxi sector to promote the adoption of electric vehicles'


Taxi

6. City distribution

Partly due to the increasing popularity of online shopping, the demand for home delivery services is on the rise. Delivery vehicles generally operate within a limited radius, making several journeys to and from the distribution centre. Delivery vehicles are heavy road users, often running on diesel. The transition to electric vehicles will therefore have many benefits. MRA-Electric is working with parties in the public and private sectors to promote the use of electric delivery vehicles.

However, at present, electric trucks are still hardly available. As the development of these vehicles continues, MRA-E and market parties will continue working together to find alternative ways of replacing the polluting diesel trucks with clean modes of transportation. A logistics company shows that a goods hub is a great step in the right direction. In 2017 the company opened a goods hub in Duivendrecht. Here, goods are unloaded from large diesel trucks and loaded onto small electrical company cars for emission-free delivery in the city of Amsterdam. MRA-E has provided several charging points for electric company cars. In this way the logistics company shows that emission-free delivery in inner cities and towns is already possible. Together with Amsterdam Electric MRA-E supports the further development of this goods hub. The knowledge acquired here, will benefit new initiatives.

'MRA-E is working with market parties to find alternative ways of replacing the polluting diesel trucks by clean transport modes'

7. International cooperation

The Netherlands, Norway, the west coast of the United States and China are all at the forefront of electric driving. The Netherlands has a high number of electric cars and uses a project-based approach to promote electric driving. As a country, we demonstrate that electric driving is possible. Other countries are showing great interest in our approach. MRA-Electric is of the opinion that sharing knowledge pays off and therefore regularly sends attendees to international congresses and meetings.

In the past few years MRA-E was present in the United States, Japan, India and many European cities. MRA-E also organises meetings and has welcomed delegations from countries including Finland, Thailand, UK and Denmark.

In the Netherlands MRA-E regularly meets with grid operators and market parties. An important and recurrent topic during these meetings is price transparency. This will be a decisive factor for the future success of electric driving, and must therefore be included as a standard condition in the joint tenders for public charging points organised by MRA-E. Ultimately, the goal is maximum price transparency. This includes providing drivers of electric vehicles with an overview of available charging stations, their locations, and charging rates. MRA-E strongly believes in price transparency and decided to partner up with other participants in the European project evRoaming4EU, which focuses on developing and implementing the open protocol OCPI for example. The purpose of OCPI is to improve access to charging stations and promotes easy data exchange between service providers and charging station operators. OCPI is the key to optimum information provision for drivers of electric vehicles.

'International cooperation is essential to ultimately achieving maximum transparency for electric drivers: which charging stations are available, where are they located and what are the charging rates'

8. How can we help each other?

What we can do for you

Perhaps you have questions about the best type of charging point, partners who can help, financing arrangements, project management, parking regulations, communication, or any other aspect of electric transport. MRA-E can provide quick answers and useful practical assistance.

What you can do for us

MRA-E is always looking for enterprising partners who can help us achieve our goals, particularly in the following areas:

- placing electric transport on the social and political agendas
- installing new charging points and fast charging stations
- replacing diesel and other non-electric vehicles in your fleet with clean electric cars, taxis or vans.

If you have ideas or suggestions about the above or any related topics, such as the energy transition, we would like to hear from you.

Contact us

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