



Project information

Swedish Electromobility Centre

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Swedish Electromobility Centre

About us

The *Swedish Electromobility Centre (SEC)*'s general task is to develop strategically important knowledge and expertise in the field of electric vehicles. One aim of the Centre is to support and partner the Swedish industry within the field of electromobility including electrical distribution and energy storage companies. It is also important for the Centre to take a holistic approach to its field to meet environmental and societal requirements. SEC will therefore conduct industrially and societally motivated research in electric vehicle technology and the associated charging infrastructure. SEC's primary task is to develop and optimise existing and future technical solutions relating to energy supply, energy storage and propulsion for commercially competitive and energy-efficient electric concepts that have a low impact on the environment. The objective requires research on the electric vehicles, its components and control system, on infrastructure and on the ability of vehicles to make use of the infrastructure.

The knowledge and expertise developed must be such that both Swedish universities, institutes and companies hold their own position in international scientific and market competition. It should be possible to implement the findings of the research projects in vehicles and the charging infrastructure over a period of roughly ten years. Where appropriate, the aim is to find research projects that involve several academic partners, are interdisciplinary and have international collaborations or connections. To enhance the contact between academic and industrial researchers, the Centre regularly holds meetings and workshops that cover several topics. SEC also aims to increase exchanges between industry and academia, in part by linking researchers from industry to SEC and by offering PhD students the opportunity to perform part of their research at an industrial partner for a period of time. SEC also strives to reach a 40/60 % gender balance among its funded project and their participants.

Swedish Electromobility Centre is founded by the Swedish Energy Agency in partnership with Swedish industry and academia. The list of current partners is available at the website emobilitycentre.se.

Vision, Goal and Mission

The **vision** of SEC is that electromobility, together with renewable electricity generation, reaches its full potential for serving as a building block of the sustainable society of the future.

The **goal** is to be an internationally distinguished centre of excellence, renowned for its competence building, research, and development of sustainable technology for electrification, for all types of vehicles – on land, at sea or in the air. The long-term (>10 years) goal is to ensure electromobility being the cornerstone for transition to a sustainable society.

The **mission** of SEC and medium-term (5-10 years) goal is to accelerate the development and implementation of electric propulsion technologies into the transport ecosystem by maximizing their applicability, versatility and efficiency, while minimising their overall impacts on the environment, human health and natural resources, and strengthen the Swedish industry's competitiveness.

SEC Objectives

All SEC projects must contribute to meeting the Centre's overall aim. Six objectives with associated targets have been formulated to measure how well this is achieved. There are also a number of indicators that must be monitored and reported in annual reports. The objectives (see Appendix 1, Success Criteria and Objectives) and the indicators (see Table 1) have been chosen so that together they provide a picture of the scientific excellence of the research and its importance to companies, both in terms of results and the need for qualified workers.

Table 1. Indicators that are monitored annually for Stage VI.

FOCUS AREA	KEY PERFORMANCE INDICATORS	TOTAL STAGE VI	THEME 1	THEME 2	THEME 3	THEME 4	THEME 5
SCIENTIFIC QUALITY AND COMPETENCE DEVELOPMENT	Journal and Conference Publications	150	30	30	30	30	30
	Post docs	15	3	3	3	3	3
	PhD and Licentiate Degrees Awarded	25	5	5	5	5	5
	International Collaborations	10	2	2	2	2	2
	Master's Theses	100	20	20	20	20	20
KNOWLEDGE DISSEMINATION AND OUTREACH	Workshops and Seminars	100	20	20	20	20	20
	SEC in the Media	10	2	2	2	2	2
	Research Presentations to the Programme Council	100	20	20	20	20	20
EQUALITY	Gender Balance (Distribution)	40/60	40/60	40/60	40/60	40/60	40/60
	University Workshops	10					

Objectives 1 – Interdisciplinary projects

80 % of all projects that last for two or more years and are funded by SEC must meet at least one of the criteria below:

- The project must plan and work to ensure that the researcher or PhD student will work for a limited time on site at one of the industrial partners. SEC also encourages industrial researchers to work at one of the academic partners for a limited time within the project.
- The project must plan and work for international exchange.
- The project must work interdisciplinary and combine expertise from more than one field of research.

Objectives 2 – Interdisciplinary research environment

SEC must offer researchers, PhD students and those working on degree projects from industry an interdisciplinary research environment. The industrial parties must also have the opportunity to participate in SEC's planned PhD courses.

Objectives 3 – Scientifically competitiveness

SEC's projects must be scientifically competitive internationally. SEC must, on average over the period of the stage, publish at least thirty reviewed articles in international journals and/or at conferences every year.

Objectives 4 – Dissemination of knowledge & research findings

The theme groups must convene thematic workshops four times a year, and SEC must arrange an activity that concerns all themes areas every year (E-mobility day).

Objectives 5 – Collaboration

SEC must be involved in at least two projects with other centres or research organisations or major international collaboration projects with operations that can be linked to SEC.

Objectives 6 – Competence supply

Half of SEC-funded research projects that last for two years or more must be PhD student projects. The PhD student should be involved in the SEC's Doctoral Student Network and the SEC's Doctoral Student Network PhD courses.

SEC-funded projects

SEC funds three different types of projects; *Pre-studies*, *Research projects <2 years*, and *Research projects ≥2 years*. These projects must contribute in various ways to achieving our objectives according to the specifications below.

Requirements

Maximal number of pages is indicated, excluding first page, CV and annex. Applicants have the possibility to include one appendix (max 3 pages) with images and tables, supporting the project description. The following requirements are valid for the different applications:

Pre-studies	
Application: Max. 5 pages (excl. front page)	
Requirements:	Aim to contribute to one or more of SEC's objectives. Expertise building and the basis of a larger project for which funding may also be applied for from another funding body. If this leads to further work, this must be associated with SEC. It is a strong recommendation that the applicant has discussed the project proposal with theme leaders prior to applying, in order to align with the theme area.
Delivery:	A final report as per template with results, conclusions, and proposals for continuation. Yearly financial and scientific reporting according to SEC instructions.
Research projects <2 years	
Application: Max. 10 pages (excl. front page)	
Requirements:	Aim to contribute to one or more of SEC's objectives. Expertise building and the basis of a larger project for which funding may also be applied for from another funding body. If this leads to further work, this must be associated with SEC. Publish reviewed articles in international journals/at international conferences.
Strong recommendation:	It is a strong recommendation that the applicant has discussed the project proposal with theme leaders prior to applying, in order to align with the theme area. Fund parts of PhD student projects or postdoc projects. The PhD students should participate in SEC's Doctoral Student Network including the SEC's Doctoral Student Network PhD courses.
Recommendation:	Offer an interdisciplinary research environment. Involved in projects with other centres, research organisations and major international collaboration projects with operations that can be linked to SEC. Give an account of the possibility of patent applications.
Delivery:	A comprehensive final report as per template with results, conclusions, and proposals for continuation. The report must clearly state how the requirements and (strong) recommendations have been met. Yearly financial and scientific reporting according to SEC instructions.
Research projects ≥2 years	
Application: Max. 15 pages (excl. front page)	
Requirements:	Aim to contribute to one or more of SEC's objectives.

	Expertise building and the basis of a larger project for which funding may also be applied for from another funding body. If this leads to further work, this must be associated with SEC. The project must: • Either plan and work to ensure that the researcher or PhD student will work for a limited time on site at one of the industrial partners, • Or plan and work for international exchange. • Touch on and collaborate with expertise from a field other than its main field. Publish reviewed articles in international journals/at international conferences. Fund (parts of) PhD student projects or postdoc projects. The PhD students should participate in the SEC's Doctoral Student Network including the SEC's Doctoral Student Network PhD courses. The applicant must have presented the project proposal at a theme area meeting prior to submitting the application, in order to align with the theme area.
Strong recommendation:	Offer an interdisciplinary research environment. Involved in projects with other centres, research organisations and major international collaboration projects with operations that can be linked to SEC.
Recommendation:	Give an account of the possibility of patent applications. PhD students that are funded in-kind should participate in the project.
Delivery:	A comprehensive final report as per template with results, conclusions, and proposals for continuation. The report must clearly state how the requirements and strong recommendations have been met. Yearly financial and scientific reporting according to SEC instructions.

Process for projects

Initiation of Projects

All SEC projects must contribute to meeting the Centre's overall aim. Only SEC full partners and program partners may be partners in a project. Network partners can participate in reference groups. A project must involve (at least) one industrial partner (full partner or program partner) and (at least) one academic partner. The Theme Leaders can help bring together the right people.

It is recommended that the project concept is agreed with one of the Theme Leaders, therefore all proposed projects should have been presented at a theme area meeting prior to applying for funding. See the contact details on SEC's website.

SEC is funded equally (on third each) by The Swedish Energy Agency, Academia and Industry. Each project must be co-financed with at least the same amount of in-kind funding from the partners as the amount of funding applied for from the SEC.

Project Application

Remember to start working on your application in good time. Application forms and detailed instructions are available on the website during the call.

The project participants are the Project Manager, Researchers/PhD students and any supervisors, plus, representatives from participating industrial partners. Partners, in the form of named individuals, must participate in the reference group (other experts may be co-opted). Observe the rules for third parties according to the SEC Main Agreement. Projects may usefully be arranged in clusters around

the same reference group (to enhance efficiency). Pre-studies do not need to have a reference group but may have one if the parties so wish.

A goal for the Centre is a gender balance of 40/60. This is a challenge as our technology area has a clear male dominance. Describe the project group (those who participate actively in the project) in terms of number of males/females, how the funding is distributed, etc. Please note: It is not expected that each project is gender equal, however, it is an advantage for the application as the Centre as a whole strives for a 40/60 % gender balance. (See Appendix 2 for SEC Gender Equality Strategy)

If you plan to use open source-code it must be stated in the application.

The application must be sent to application@emobilitycentre.se.

Reference Group

A project should have between two and four reference group meetings a year. Shorter projects have fewer meetings. The reference group (steering group) must comprise at least one person from each party involved in the project, including the Project Manager, researchers/PhD students and any supervisors (individuals from other organisations may be co-opted).

The roll of the reference group is to: Work to ensure active exchange of knowledge between Industry and Academia; promote the project and the researcher from academic and industrial points of view; Monitor the progress of the project in relation to the project plan; Ensure that the project gets the input it needs from industry; Define and assess in-kind for the project; Promote the researcher/PhD student by investigating the opportunity to spend around three months at one of the industrial partners; and are responsible for approving the publication of findings, IPR, etc.

Application Review

The submitted application is reviewed by members of the SEC program council and a decision is then made to make recommendations to the Chalmers President (the formal decision). For evaluation criteria, see the Project Application Evaluation. If an application has been approved, the Project Manager must sign a Project Management Agreement with SEC. The agreement contains further practical information, see the Project Management Agreement.

Project Implementation and Activities

All parties must be active and committed to the project. The researchers in the project must participate in the activities and meetings of the theme and the Centre.

Your Project Page & Project Folder in Avima

In the digital tool Avima you find SEC templates and important documents including the SEC Main Agreement between all partners in the Centre as well as the guidelines for projects in the Centre. You also find your project page and folder for project documents with your application and decision document.

Please read the information and contact project@emobilitycentre.se if you have any questions. You are required to upload all scientific publications, dissertations, licentiate thesis and all other reports related to your project to your Project Folder in Avima.

Researcher Agreement

Every researcher from universities who are connected to the project should fill in a "Researcher Agreement" (forskarförbindelse). As project manager, you have the responsibility to make sure that all university researchers in the project have signed the agreement in accordance with the SEC Main Agreement. Researchers at research institutes do not need to fill in the researcher agreement. Make sure that all signed agreements are uploaded to your project folder in Avima and that the signed originals are archived at your university.

One-page Project Slide (PowerPoint)

A slide in Powerpoint (one-pager) describing your project must be created at project start and uploaded to your project page in Avima. Please find the template in Avima.

Kick-off

All projects should have a kick-off meeting at the project start, where also the Centre should be presented. Invite by email the Director for the Centre to the kick-off. The Director will attend if possible. Also, send information regarding the date of kick-off to project@emobilitycentre.se.

PhD students & Doctoral Student Network

The Centre runs a Doctoral Student Network. Inform your PhD students about our network and encourage them to sign up via our Webpage. Please note that the network is open for all PhD students in Sweden, so we encourage you to share the information.

You have the responsibility to make sure that all PhD Students who are involved in your project fill in the "SEC Collaboration – registration of PhD student" form and send the signed document to project@emobilitycentre.se.

Theme Activities

The Centre and the Theme Areas run both broad and specific workshops, seminars, conferences, and other networking activities. As one of the project leaders in the Centre's project portfolio we expect you to take part in these activities.

Presentations & Dissemination

When you present your project, we expect you to say a few words about the Centre and that the project is financed by SEC and the Swedish Energy Agency (Energimyndigheten). The SEC logotype must be included in the presentation. Please use the prepared templates in Avima. In Avima you can also find logotypes for the Centre, for example for posters etc.

Legal Agreement & IPR

The terms and conditions of collaboration are described in the SEC Main Agreement. These include the Project Manager's responsibilities for IPR, confidentiality and publication. The Project Manager is responsible for ensuring that all project participants and the members of the reference group are well informed about the content of the Agreement.

Reporting & Deadlines

All projects should report whenever the Centre and/or the Swedish Energy Agency ask to. You will be asked to update the recent results and all publications and conference contributions yearly to the Centre, report financial outcome yearly (cash and in-kind) and write a final report in the end of the project. The project leader is expected to hand in annual reports and final report before deadlines. The final report of the project should be handed in latest the end date of the project. If the project leader does not follow the deadlines, funding will be withheld with at least 25 % of the total budget until final report has been approved. Requisition of the funds is made after the yearly financial reporting.

Note! The reporting must be done for each calendar year in which the project has had any activity, even if only for a smaller part of that year.

Project Conclusion

A final report must be submitted by the end date of the project. Please find the template in Avima. Final presentation of the project must be held at a Program Council meeting. The project is concluded when the final report and the financial report have been approved and the final presentation have been held for the Program Council. When the project has been concluded, the remaining 25 % of the amount granted is paid from SEC. Any delay in submitting the final report may result in funds being withheld.

If the project is not implemented as per the decision, does not disseminate information, holds no reference group meetings, and does not submit reports in good time, the funding for the project may be revoked.

Appendix 1 – Success Criteria and Objectives

All SEC projects must contribute to meeting the Centre's overall aim. Projects may differ in character and focus on different aspects. The table below summarises the success criteria and associated objectives:

Success criteria	Objective
To create interdisciplinary projects that have researchers or PhD students that work for a limited period of time at industrial partners, collaborate internationally or collaborate across subject areas.	80 % of all projects that last for two or more years and are funded by SEC must meet at least one of the criteria below: 1. The project must plan and work to ensure that the researcher or PhD student will work for a limited time on site at one of the industrial partners. 2. The project must plan and work for international exchange. 3. The project must touch on and collaborate with expertise from a field other than its main field.
To offer researchers, PhD students and those working on degree projects in industry an interdisciplinary research environment and the opportunity to participate in SEC Doctoral Network's PhD courses.	SEC must offer researchers, PhD students and those working on degree projects from industry an interdisciplinary research environment. The industrial parties must also have the opportunity to participate in SEC Doctoral Network's PhD courses.
To carry out projects that must be scientifically competitive internationally.	SEC's projects must be scientifically competitive internationally. SEC must, on average over the period of the stage, publish at least thirty reviewed articles in international journals and/or at conferences every year.
To disseminate knowledge and research findings by inviting people to meetings in the theme groups and offering joint activities that concern all theme areas every year.	The theme groups must convene theme group workshops, and SEC must arrange activities that concerns all theme areas every year.
To collaborate with other centres, research organisations or international collaboration projects on at least two projects in SEC's field.	SEC must be involved in at least two projects with other centres or research organisations or major international collaboration projects with operations that can be linked to SEC.
To enhance the supply of new talent in the field by educating PhD students with key expertise for electric and hybrid vehicles and ensuring that PhD students in related fields receive good knowledge about electric and hybrid vehicles via the planned SEC Doctoral Network.	Half of SEC-funded research projects that last for two years or more must be PhD student projects. The PhD students should be involved in SEC Doctoral Network and SEC Doctoral Network's PhD courses.

** SEC does not provide financial support for those working on master's or bachelor's degree projects. Nor does it compensate supervisors for supervision time. If the degree project work is in industry, the individual in question may be funded in-kind. The link between degree projects and SEC is that SEC's projects represent a source of good ideas for degree projects.*

Appendix 2 – SEC Gender Equality Strategy

Objective

The goal for *Swedish Electromobility Centre (SEC)* is a gender balance of 40/60. This is a challenge as our technology area has a clear male dominance.

From the Program Description:

"Gender equality for those how work at SEC is an issue we work actively with, and a reasonable balance is something we strive for. The issue of gender equality has a high priority for the Centre's operational management and the Program Council and the goal is 40/60 distribution on accordance with the program description"

In addition to the goal of gender equality, SEC considers it important to combat all forms of discrimination and promote equal rights and opportunities for all individuals regardless of transgender identity or expression, ethnicity, religion or other belief, sexual orientation or age in accordance with the Discrimination Act.

Action plan based on the different parts of the Centre

Program Council

The ordinary board members in the program council consist of 6 men and 8 women. Thus, meet the Centre's objectives.

The Centre's Management Team including Theme Leaders

At present, the management team has 23 % women and 77 % men, due to the dominance of men among the theme leaders. The theme leaders are 10% women and 90% men. Here, future work is needed to identify suitable female candidates at each university. For the coming stages, the goal must be to increase the number of women further. During Stage III, out of four theme leaders, 100% were men. In Stage IV and the ongoing Stage V it has been one woman out of ten theme leaders. The fact that we have not succeeded in finding more women reflects the male majority in our field of technology. The work to improve the gender balance continues in stage V.

Theme Researcher

Gender equality, together with other aspects such as merit and a suitable background, should be considered when we appoint theme researchers.

Project Activity

The gender equality aspect was already considered in the application for a project. The project information shows that "gender equality" is one of the indicators that SEC monitors. The goal is to reach 40/60. The distribution of men and women in the project group, as well as the distribution of funding between men and women, must be stated in each project application. We do not expect every project group to be equal between men and women, however, this information is essential for the center as a whole. We will compile and follow up this information to keep track of what it looks like. When project applications are evaluated, "gender" is one of the points included in our evaluation template. In the project's final report, the participants must state in their project information how many women and men have been included in the project, and how the project funds have been distributed between each gender.

Evaluation of Applications

It is the program council that will evaluate the project applications that come in. In the program council the gender balance is even. There is a majority of men in the field of electrical engineering, which is reflected in which applications reach SEC and in what the gender distribution looks like within the projects. The goal of 40/60 can therefore be difficult to achieve when it comes to funding distribution, but by being aware of this, we can follow up on what the distribution looks like in reality each year. We want to increase equality as much as possible. In this work, it is important that the SEC ensures that the program council has relevant knowledge about gender equality. This means, for example, that they are informed prior to the evaluations of the applications regarding gender equality. We use material from "Gender equality aspects of research applications" (from the gender equality coordinator at Chalmers):

1. What is **gender distribution** among participants?
2. What is the gender distribution if you look at the different participants' positions regarding responsibility?
3. What development opportunities are there for participating men/women, for whom participation is meritorious and which have non-meritorious positions?
4. How is money and other **resources** distributed in the application: who/who receives money, who receives heavy administrative tasks and who represents at conferences?
5. What **knowledge-enhancing** initiatives are planned within the framework of the application; for example, workshop on gender mainstreaming, to bring in a gender expert to get help to analyze gender equality perspectives on research, etc.?
6. Is it possible to see gender equality aspects that are about **benefit/enforcement** in the extension of the application?
7. What is the gender distribution of intended **users** of a possible product, whose working life /everyday life can be affected? (Based on the fact that the Swedish labor market is gender segregated, men and women have different transport patterns and take different part in the unpaid home and care work.)

Our responsibility

We consist of many partners from both academia, industry and government. SEC is not an employer, so it is the responsibility of each partner's employer to ensure that the workplace is equal and free from discrimination. What we as a center can do is to distribute the resources in an equal way, and to strive to achieve equality for the users of the technical solutions generated through the center. Transparent recruitment to important functions within the center is also important. We can promote gender equality by, for example, inviting lecturers to our events.

If any form of harassment comes to our knowledge, we must act by contacting the employer. Again, SEC is not an employer, however as a financier, we have an obligation to ensure that the funds are handled responsibly.

Another part of increasing gender equality is to schedule meetings within SEC at times that make it possible to combine professional life with toddler life. Therefore, we strive to provide online opportunities for our meetings when it's possible. We must also actively work to reduce the risk of stress.

Links

<https://www.do.se/arbetsgivare-ska-forebygga-diskriminering/forebygga-sexuella-trakasserier-och-trakasserier>

<https://www.do.se/kunskap-stod-och-vagledning/stodmaterial-forebygga-diskriminering/arbetslivet/sexuella-trakasserier-och-trakasserier-pa-jobbet>

www.chalmers.se/sv/om-chalmers/miljo-och-hallbar-utveckling/satsningar-pa-jamstalldhet/jamstalldhet-for-excellens/Sidor/default.aspx