



The Swedish Foundation for Strategic Research (SSF) announces a research programme within Energy-Related Materials

Applications are invited for four-year framework grants for research on Energy-Related Materials within a maximum framework of SEK 80 million. Applications can be oriented towards areas defined under the heading "Orientation" below.

The projects must meet SSF's fundamental requirements for grants, i.e. high scientific quality and strategic relevance, and be judged to have high energy relevance. Strategic relevance means that it must be possible to exploit the research results in Swedish industry and society within 5–15 years of the end of the project. Energy relevance means that the projects must strengthen the development of the energy system, contribute to improved energy efficiency and show a potential for large-scale use.

The size of the grants is intended to be in the range SEK 4–5 million per year, and they should fund goal-oriented projects. Each application must have one main applicant who coordinates the planned project. Both the main applicant and co-applicants may only be represented on one application in this call for proposals. The grants will normally be awarded for a four-year period.

Orientation

Due to the budget limitation, it is unrealistic to have a completely open call for proposals considering how many disciplines are covered by the initiative area. SSF has decided on the following breakdown in order to get a reasonable balance between need, budget and application pressure and to allow for the fact that the call for proposals covers areas at different stages of development.

1. Materials for future energy systems
 - a. Insulating materials and other materials for high voltages
 - b. Materials for power electronics
2. Materials for new energy conversion and storage
 - a. Materials for applied battery development
 - b. Materials for light sources
 - c. Materials for thermoelectric energy conversion

Sweden has both strong research and strong enterprises in area 1 above. In area 2 there are several strong research groups, but the enterprises are mainly SMEs, many of which are in an early phase of development.

Theory, modelling and experimentation should be integrated in all proposed projects. The project proposals must adopt a system perspective, i.e. the materials research must be related to the function of a component and/or system, for example how does the electrode material contribute to the function and performance of the battery. The project proposals must take into account the prospects for industrialisation and provide a clear description of the customer benefit in envisioned applications. The projects must satisfy both SSF's fundamental requirements for grants, i.e. high scientific quality and strategic relevance, and energy relevance.

Reasons

The current greening of the energy system will require changes and reinvestments in the electricity system. An important area is power electronics, which can contribute to new ways to control and regulate power flows in electricity networks and to get cost-effective connection of electricity production plants based on renewable energy. Insulating materials are a cornerstone of electricity systems, and development can contribute to improved performance of most devices as well as increased reliability and availability. The development of insulating materials for electricity transmission systems is of importance since there is a need to transmit high power over long distances and to get cost-effective connection of electricity production plants based on, for example, offshore wind turbines.

Favourable development of batteries is of great importance for meeting climate policy goals in the transport sector by paving the way for hybrid electric vehicles and all-electric vehicles. Battery development is also of great importance for energy storage in the electricity system, and this need is expected to increase as intermittent power generation increases.

Incandescent light bulbs are not energy-efficient. Only about 10% of the input energy is converted to visible light, and light sources account for a large share of electricity use in residential and commercial premises. The EU has therefore decided to phase out incandescent light bulbs from the market, and the energy efficiency requirements on compact fluorescent lamps and LED lighting will be increased in 2013. There is therefore a great need to develop new, inexpensive, energy-efficient light sources with a spectrum that coincides with the consumers' colour preferences.

Today's industrial processes give rise to large quantities of "waste heat" whose energy content is not always utilised. Utilisation of this energy content by, for example, conversion of waste heat to electricity would permit considerable energy efficiency improvements. The energy efficiency improvement potential of waste heat recovery is not limited to industry but also exists in homes and in vehicles with internal combustion engines.

Applications

Applications must be submitted by a main applicant, who must be a senior researcher associated with a college/university or research institute. If the main applicant is active at a research institute, at least one of the co-applicants must work at a college or university. The number of co-applicants must be in reasonable proportion to the applied-for amount. No more than 25% of a grant may be used to pay the salaries of the main applicant and co-applicants and may cover no more than 25% of each individual applicant's or co-applicant's salary. Both the main applicant and co-applicants may only be represented on one application in this call for proposals.

An application consists of a complete project description and a description of the relevant qualifications of the applicants, the research environment and the resources that are available. Applications can be submitted via the Foundation's portal at <http://apply.stratresearch.se>. For a complete picture of what is required for a full proposal it is necessary to log into the portal. Please log in in plenty of time before the deadline.

Evaluation process

The applications will be judged by a selection committee. A first selection will be done where the applications are primarily judged with respect to relevance and whether they conform to the orientation (see above). The selected applications will then be judged by a panel of international scientific experts with respect to their scientific quality. The results of the scientific evaluation and the strategic value of the applications will then be weighed together by the selection committee to obtain a final proposal for assessment by the SSF Governing Board.

The following criteria will serve as a basis for awarding grants:

- assessment of goals, choice of problem and methodology based on the orientation presented in the call for proposals (above),
- the project's scientific quality, news value and feasibility,
- the qualifications of the applicants,
- strategic relevance and energy relevance.

Active involvement by industry is positive, but no industrial parties may be funded by the grant. SSF make no formal requirements on co-funding. Other synergies with other related projects or initiatives for national or international collaboration between research groups are positive boundary conditions.

Timetable

The deadline for applications is 2:00 pm, 9 June 2011
Decisions are expected by: January 2012
Earliest project start is estimated at: January 2012

Note that all Foundation records are open to public access. For this reason, do not send material that may not be made public at the present time, for example because it might jeopardise patenting.

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