Fondation Tuck

The Future of Energy: leading the change

A scientific program in support of a successful energy transition

Call for proposals 2017

Synopsis

This Call for proposals addresses topics in the fields of energy, urban planning, mobility and social sciences related to these topics. It is open to the academic research community as well as to other actors in the domain (consultancies, NGOs, ...). Project duration is expected to be of the order of (several) months and funding requests should not exceed 50.000 Euros.

Deadline for submission – February 17, 2017

1. BACKGROUND – ABOUT THE *FONDATION TUCK*

The *Fondation Tuck* (www.fondation-tuck.fr) is a French public interest foundation dedicated to the promotion of education, research and future studies in the field of energy and sustainable development. Actions in the domain of education are focused on granting student scholarships and research chairs at IFP School, a French public higher education institution offering applied graduate programs open to students from all over the world with the aim of providing highly qualified professionals to industry and society in the fields of energy, oil and its substitutes, gas, petrochemicals and power trains. Actions in the domain of research and future studies are focused on funding projects through competitive calls for proposals, as for example The Future of Energy program.

The actions of the foundation are made possible thanks to non-endowed expendable donations received, in particular, from industry.

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2. Context and Scope of the Program

The multi-year scientific program The Future of Energy is rooted in our profound conviction that the energy sector, including the transportation and building sectors, will undergo very significant changes during the coming decades. However, the pace, form and characteristics of these changes remain highly uncertain. Reducing the uncertainty level is of prime importance for both, public and industrial investors, in order to anticipate future evolutions, support most desirable orientations and avoid sudden disruptions.

From year to year, different topics are proposed to the research community through competitive calls for proposals. These topics and the associated findings will be the building blocks of a global, multi-sector, multi-disciplinary, systemic vision of the future of energy.

The proposals will be subject to an assessment procedure involving a review by experts and the final selection will be made by a dedicated selection committee. The selected projects will be funded by the foundation.

The language of the program is English. More information on the program is available at the program web page.

3. Generic Rules for Proposals and Deliverables

The topics (see section 5 below) are generally formulated in such a way that quite different project proposals can be made. The proponents thus need to clearly motivate and explain their specific choices.

Innovative and systemic approaches (from a technical but also social standpoint) will be favoured and out of the box thinking and solutions are particularly encouraged. Still, the practical feasibility is considered as an important criterion, social and environmental constraints should be appraised, and sustainability and symbiosis with the environment will be taken into account. Thus, for instance, a biomimetic approach can be of specific, although not exclusive, interest. A critical view on well-spread concepts is welcomed, if based upon a rigorous analysis.

A typical work program could include several parts such as:

- Current state of the art (eventually including main historical advents);
- Possible evolution paths or scenarios, based upon available literature and/or personal information;
- Original proposals / solutions
- Future outlook: Expert's view on most likely evolutions, long term benefits and threats.

It is not expected that extensive specific research work will be performed during the project., The priority is clearly given to synthetic analysis and expert's views. The proposals should include clear objectives and a detailed presentation of the strategy and methodology applied to reach them.

The deliverables of the projects will be twofold: one written report, and the participation in a physical meeting close to Paris, France, in order to discuss the findings of the projects with experts and peers. The report will be made freely available on the foundation’s website and the meeting will be open to the public.

4. BUDGET AND FUNDING

It is expected that the overall budget for a given project corresponds several person months and that it includes the necessary travel expenses, including those related to the Paris meeting. It is not expected that significant other costs arise for the projects.

The projects may request funding from the *Fondation Tuck*. The level of funding (percentage of project budget) requested needs to be explained. If other funding sources will be used, they have to be mentioned. The *Fondation Tuck* welcomes projects that are co-funded from one or several funding sources, as long as this does not impact the public nature of the deliverables. Funding requests should not exceed 50.000 Euros.

5. TOPICS FOR CALL 2017

The call 2017 of the The Future of Energy program focuses on three topics, in a mid-term / long term perspective:

- Future of urban transportation systems for goods
- Smart energy management systems: economics and selection criteria
- Energy transition technologies: consumer expectations and citizen attitudes

Topic 1 – Future of urban transportation systems for goods

Many different concepts and scenarios exist or can be developed on how to transport goods from production sites to the final users. All these different concepts are characterized by their specific requirements for technological means and infrastructures, energy, material and labour inputs, and they have differentiated impacts, for example in terms of pollution or space occupation. Proposals referring to this topic should concentrate on transportation of goods in dense urban areas, and should outline and compare different options: types of vehicles/transportation means, energy sources, logistic chains, private or public transport, consumer to goods or goods to consumer, considering different selection criteria such as for example safety, reliability and decarbonisation. Dematerialized transportation of goods (for example local 3D printing, small warehouse assembly, etc.) may also be part of a study. Recommendations on robust options for future urban design and infrastructure developments should be part of the results of the project.

Topic 2 – Smart energy management systems: economics and selection criteria

The introduction of renewable energy systems and new options such as energy autonomy (for example micro-grids with islanding option) go hand in hand with the development of smart energy management systems, that can be operated at different scales: household, building, neighbourhood or city level. Significant energy efficiency gains are expected to be obtained through data acquisition, information management and automated decision schemes which themselves require materials and energy to be built, installed and operated. Therefore, the benefits of smart energy management systems in terms of energy consumption and carbon footprint should be assessed in a holistic and systemic way. Proposals referring to this topic could consider different degrees of "smartness" as well as different deployment perimeters (from household to city level), concentrating upon economics, life-cycle analysis and other selection criteria. Questions concerning governance/ownership of smart systems (and associated data) could also be part of a proposals, as well as indicators measuring the attractiveness of smart systems beyond pure economics, for example in terms of environment preservation, flexibility, reliability and comfort for the user. The future evolution of electricity and investment costs and the future

development of new appliances or new electricity usages (e.g. personal mobility and household aid systems) could also be considered.

Topic 3 – Energy transition technologies: consumer expectations and citizen attitudes

We use the term "Energy transition technologies" for all the technologies used for generating energy from renewable sources (windmills, solar panels, biogas, hydroelectricity,…), for energy transportation and storage (high voltage power lines, pipelines, energy storage systems, …) and for its efficient management ("smart" home, "smart" city, sharing economy e.g. for cars). Having as a common goal the gradual replacement of carbon-based energies by carbon-free energy and the overall reduction of energy consumption through efficiency gains, they may all have some drawbacks. Some may have an impact on landscapes (e.g. windmills) or urban environments (e.g. solar panels), others may have impacts on natural habits (e.g. hydroelectricity), while still others may raise a concern of confidentiality due to personal data acquisition (e.g. smart home, car sharing), just to mention some of the many possible impacts. Widespread deployment of these technologies will largely depend on the attitudes of consumers and citizens: Are they enthusiastic or reluctant? For what reasons? Under what circumstances? What are their worries, their hopes? What are the roles of local and regional/national policies and politics? Are there community-typical attitudes? What are the roles of friends and family? Is common good valued against individual comfort? Etc etc. Proposals referring to this topic should propose a methodology for structuring these societal issues. Providing concrete answers is also expected; while it is likely that this will require focusing on specific technologies and specific application areas, it is expected that some more general conclusions and recommendations can be drawn from the analysis.

6. PROJECT SUBMISSION AND TIMELINE

Project proposals based on the template presented in Appendix A are to be submitted in PDF format by e-mail to contact@fondation-tuck.fr. Proposals must not contain any confidential information.

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The evaluation procedure will in particular involve a review of proposals by experts mandated by the program and the selection will be done by a dedicated selection committee.

The *Fondation Tuck* may contact the proposing party in order to obtain additional information or revisions of the proposal. The funding decisions will be taken within one months after the deadline and projects are expected to start soon thereafter.

The funding contracts will be established between the *Fondation Tuck* and the organisations of the selected projects. Selected projects are expected to contribute to communication and dissemination activities of the *Fondation* and the The Future of Energy program.

For additional information, please contact contact@fondation-tuck.fr.

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APPENDIX A – Project proposal

This project proposal must not contain any confidential information. It will be evaluated by the program's scientific committee and possibly by external evaluators.

Identification

Call topic addressed:	
Project title:	
Name of organisation	
First name, Name of Principal Investigator	
Current position	
Contact details (address, e-mail, phone, mobile)	

Project description

Describe methodology used, programme of work, timeline, contributors, collaborations, ... (2 to 5 pages),

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Qualification

Explain why you or your group / organisation are qualified for this work, provide bibliographic references (1 to 2 pages)

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Project budget and funding request

Explain project budget (breakdown personal cost, overhead cost, other costs), funding request, co-funding organisations, ... (1 to 2 pages)

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Additional information

Optional : Provide additional information that you consider relevant for your proposal (limited to 5 pages)

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