# The Energy2B project: stimulating environmental entrepreneurship and building an energy infrastructure through institutional entrepreneurship

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# The Energy2B Project: Stimulating Environmental Entrepreneurship and Building an Energy Infrastructure through Institutional Entrepreneurship

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## Abstract

The Energy2B Project is an EU funded innovation stimulating initiative that targets university students at five universities across Europe and encourages them to practice environmental entrepreneurship and turn energy innovation ideas into new business start-ups. The project is administered by a European consortium of commercial and academic co-ordinators through an online web platform. The web-platform is used to develop an energy infrastructure that connects diverse stakeholders (including industrial actors, energy bodies and field experts) through the administration of local idea challenges and energy innovation competitions at a local and European level. In this paper, we discuss how the project contributes to the practice of environmental entrepreneurship and explain the projects theoretical significance as a case of institutional entrepreneurship. We also outline the academic deliverables of the project in terms of individual case studies and a survey that measures the project's effectiveness in accelerating the practice of environmental entrepreneurship. First results are available in the second quarter of 2011.

**Keywords:** environmental entrepreneurship; sustainable entrepreneurship; institutional entrepreneurship.

## Introduction

European and national $CO_2$ emission targets have been set in order to meet sustainability goals for the coming decades. For example, the 1997 Kyoto Protocol and The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) has prompted the European Union (EU) to set a target for reducing $CO_2$ emissions to 20% below 1990 levels by 2020. Innovations in the field of energy efficiency and renewable energy are essential to meet these targets. However, the level of environmental entrepreneurship is still relatively low in Europe. This lack of entrepreneurial capacity is partly due the tendency towards technology push in R&D funding, which over-emphasizes technological development and under-emphasizes business development and market/opportunity pull. The imperatives of climate change and the complexities of practising environmental entrepreneurship have further compounded this problem. In response, EU policy-makers (Intelligent Energy Europe

Programme) have supported the Energy2B Project as a way of intervening in the energy innovation market, facilitating energy innovation start-ups and creating an energy infrastructure that will accelerate the practice of environmental entrepreneurship. In this paper, we explain how the Energy2B Project meets this challenge in terms of design, structure and duration, and we outline some of the academic deliverables that support the project. We also explain the significance of the project for our understanding of entrepreneurial action. We argue that the project is not just an educational programme, but a case of innovation by an institutional body, or "institutional entrepreneurship". We discuss the nature of this type of institutional creativity and the unique relationship between institutional entrepreneurship and environmental entrepreneurship.

In the first part of the paper we discuss the challenge that environmental entrepreneurship presents for the environmentally aware policy-maker. In the second part, we examine how the innovative infrastructure of the Energy2B Project contributes to solving the policy-level problem of environmental entrepreneurship. In the third section, we discuss the nature of the Energy2B Project as a case of institutional entrepreneurship. In the final section, we outline some of the academic deliverables of the project.

## The Policy Challenge of Environmental Entrepreneurship

The distinctiveness of environmental entrepreneurship (EE) concerns the incorporation of environmental goals and criteria in the process of venture creation (Schraper, 2002). This multi-contextual relationship between entrepreneurship and environmental awareness can present a barrier to the development of EE practices. Potential environmental entrepreneurs might be business aware but not environmentally aware, while others might be environmentally aware but not business aware. Potential environmental entrepreneurs can, therefore, face a more complex learning challenge than potential business entrepreneurs.

The nature of EE has been discussed under various terminological labels, including ecopreneurship (Schaper, 2002) and sustainable entrepreneurship (Chick, 2009; Hall et al, 2010). We use the label EE to include both ecopreneurship and sustainable entrepreneurship. Ecopreneurship signifies entrepreneurial activity that regards environmental opportunities as a source of competitive advantage (Schaltegger, 2002). The core motivation is, therefore, economic, and environmental goals are integrated as part of the economic logic of the business. The notion of sustainable entrepreneurship is somewhat wider in the sense that is concerns the contribution of entrepreneurial activities (profit and non-profit) to the sustainable development, not just of the business/organization, but also of markets, social groups and environmental systems. Opportunities in the field of sustainability are also present due to new government legislation and sustainability targets (i.e.2020 targets for the EU and its member states). The rationale for sustainable entrepreneurship, therefore, involves more than the coincidence of business interests and environmentally related innovations. It concerns the co-ordination of, and negotiation between, multi-contextual and inter-generational interests involving economic, social and environmental discourse. This also means that the practice of EE is more complex than business entrepreneurship in terms of the potential diversity of criteria involved in strategic decision-making. EE decisions are evaluated not just in terms of their economic rationality but in terms of their significance for social and environmental contexts both now and in the future. From this perspective, environmental entrepreneurship concerns connections between the futures of multiple stakeholders in business, organizational, governmental, social and environmental contexts.

At a practice-level, the need for multi-contextual skills/practices, in order to solve situated energy problems, inhibits the pace of energy innovation and the development of EE practices, infrastructures and networks. Institutional bodies, however, occupy a strategic position in which multi-contextual connections between environmental and entrepreneurship issues can be readily made. At the policy-level, the fluidity of political, economic and environmental discourses renders the discontinuity between the rate of energy innovation in the market place and rate of climate change an urgent policy problem. While environmental opportunities at a market level go unnoticed, the policy-level opportunity for institutional bodies to intervene in the market and accelerate the process of environmental innovation is transparent. In the next section we describe the Energy2B Project as an innovative response to the policy challenge of environmental entrepreneurship.

## The Energy2B Project

Academic students are an important target group for the expansion of innovation and entrepreneurial activities in the field of sustainability, energy conservation and renewable energy. Currently, the

entrepreneurial capacity of European students especially in the field of science and technology students is limited. Entrepreneurship education with a specific focus on sustainability, energy conservation and renewable energy is one mechanism that can be used to stimulate (future) entrepreneurial behaviour in energy-related “green” sectors. However, current courses are not always available or adequately embedded in a practical context.

The Energy2B project (co-funded by the European Commission - Intelligent Energy Europe; http://www.Energy2B.eu) is an innovation stimulating initiative that targets university students and encourages them to turn energy innovation ideas into new business start-ups. The design, scale, structure and duration of the initiative are all geared to making long-term effects in the field of energy awareness, energy education and energy innovations. In other words, the initiative is more than an educational programme - it is a strategic contribution aimed at accelerating the practice of EE and creating an infrastructure of energy actor networks.

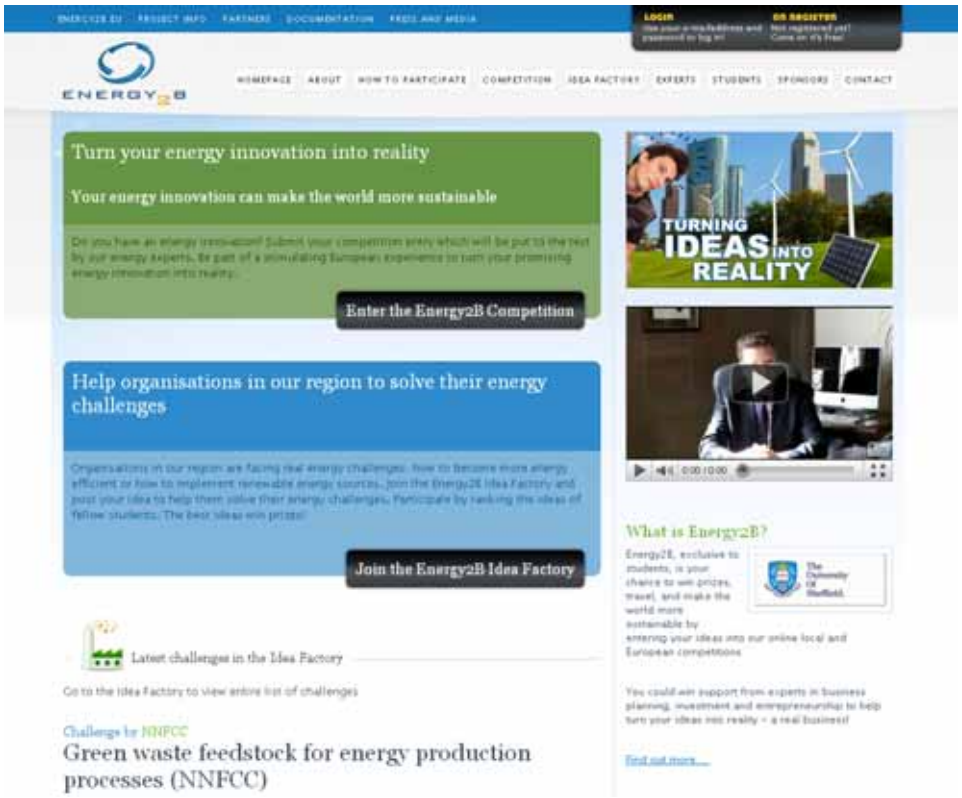


Figure 1: screenshot of Energy2B web-platform

The project’s infrastructure will be facilitated by an online web platform, which includes a local "idea factory", and local/European competitions, boot camps and follow-up services. The idea factory concept enables connections between localised energy problems and student creativity. It presents local actors (e.g. industrial actors) with the opportunity to post energy challenges that are then addressed by student solutions. At the same time, 10 local competitions and two European competitions for energy innovation ideas are offered on the Energy2B platform in 5 European countries (UK, PT, PL, SI and BG). The best “green” energy ideas are selected for dedicated boot camp and follow up services given by energy, business planning and investment experts. Twenty-five of the best energy innovations will be showcased at local exhibitions in each of these countries. From these, the best ten will be selected for presentation at a final European showcase event and efforts will be made to transform these ideas into actual start-up ventures. The duration of the project is 36 months, which will contribute to maximizing the effects of the project. The short-term objectives of the project are the acceleration of energy innovation start-ups and the enhancement of the mindset and skills of involved students in relation to the practice of environmental entrepreneurship. Longer-term objectives concern the development of an energy infrastructure through the maintenance and expansion of elements of the project. These objectives include, continued promotion of the projects' infrastructure by education institutions beyond the 36-month duration, expanding the portfolio of Energy2B services, expanding the funding of the project through public-private sources, and the ambition that educational institutions should embed "entrepreneurship and energy innovations" as theme in educational policy and programmes.

In the next section, we characterise the Energy2B project as a case of institutional entrepreneurship and discuss its significance for our understanding of entrepreneurial action.

## A Case of Institutional Entrepreneurship

The term institutional entrepreneurship refers to the "activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones" (Maguire, Hardy and Lawrence, 2004: 657). This label incorporates the concept of entrepreneurship to complement the focus of institutional theory on how social action is constrained and enabled by the reproductive rules, structures and practices of institutions (DiMaggio, 1988). Entrepreneurs by definition are agents who change habitalized ways on doing things through their pursuit of particular interests. Institutional entrepreneurship is therefore specifically concerned with how institutional/organizational bodies transform existing social/business practices, especially by altering the institutional context, such as regulations, technological standards, management guidelines, etc. Child et al (2007), for example, examine the role of the state as an institutional entrepreneur involved in the "top-down" development of China's environmental protection systems. Similarly, Wijen and Ansari (2007) examine how global climate policy requires co-operation from dispersed actors with divergent interests to overcome collective action. Also, Perkmann and Spicer (2007) examine the political, cultural and technical institution-building projects behind the propagation of the "Euroregion" as a new organizational form. In these examples, the power and capabilities of institutional bodies are deployed to contextualize existing social/business practices. In other words, institutions actively create institutional frameworks that mediate and transform the development of new or existing institutions.

The capacity for institutional entrepreneurship concerns the multi-contextual perspective of an institutional body, unified by shared cultural beliefs and policy-maker exposure to different discourses (Loundsbury and Crumley, 2007). For example, China's development of an environmental protection system (Child et al, 2007) can be explained by the multi-discourse experience of state policy-makers in international relations. An institutional position enables the institutional actor to discern multi-contextual problems within political and social discourses that are not at issue or actionable at the practical field level. An institutional entrepreneur can then deploy institutional devices to make multi-contextual connections and networks in the field.

In the case of the Energy2B project, the multi-contextual and multi-discourse awareness of EU policy makers enabled them to identify the EE problem and innovate an institutional device that contributes to solving this problem by accelerating EE practices in the field. This opportunity is an entrepreneurial opportunity at an institutional level that transforms entrepreneurial opportunities at a market level. While EE opportunities at a market level concern disequilibrium in the supply and demand of energy innovative commodities, EE opportunities at an institutional level concern disequilibrium in the societal/political demand for energy innovation and the market supply of energy innovations. The Energy2B innovation is, therefore, a unique institutional innovation because it is entrepreneurial at two levels. First, it is entrepreneurial in the sense that it sets up a new institutional framework to mediate the institutional practice of EE. Second, it is entrepreneurial in the sense that the market intervention required to meet the opportunity involves facilitating entrepreneurial connections and innovations at a market level. The Energy2B Project performs both of these entrepreneurial functions through different elements of the project. As an innovative institutional framework, the project involves establishing a lasting energy infrastructure of connections between diverse energy stakeholders sustained by a long-term strategy involving web-platform, services and educational policy. In terms of the direct facilitation of energy innovation, the project accelerates the process EE at different stages in the entrepreneurial process: opportunity identification, solution, evaluation and implementation. The idea factory concept involves a mechanism for connecting industry energy problems (opportunity identification) with the creativity capacity of a student population (opportunity solution). As a complement to this mechanism, the competition process involves tapping the student population as a source of potential energy innovations (opportunity identification and solution) and then using energy experts to facilitate the process of opportunity evaluation and implementation.

## Research design

One of outcomes of the project is an assessment of its impact on accelerating the capacity of involved students to practice EE. This impact assessment is made by using a survey methodology to measure and compare self-perceptions at different stages in the competition process. The competition process

involves the following stages: Registration, Round 1, Round 2, Bootcamp Round, and European Round. A closed questionnaire is administered via the web-platform at three points in the competition process: Registration, Round 1 and Bootcamp Round. The distribution of these measurements balances comparability with the size of sample population at different stages. The survey will be undertaken simultaneously in each of the five participating universities. This will yield comparative data on the entrepreneurial alertness and intentions of students in terms of energy entrepreneurship.

At each measurement the same questions are asked in order to ensure comparability over time and reduce bias. The questions are divided into two sections. The first section measures "entrepreneurial/environmental orientation" and the second section measures "environmental/entrepreneurial capacity". Each question in the first section has an environmental and entrepreneurship-oriented variant and is themed in terms of the participant's self-perception of entrepreneurial/environmental "awareness", "action" and "motivation". The second section measures the participant's capacity to be involved in an environmentally innovative business, in terms of the self-perception of “confidence”, “risk”, “general skills” and “specific skills”. The impact assessment is then made by comparing the average percentage change in the different elements of entrepreneurial/environmental orientation and capacity. From these results it will be possible to generalise the impact of the project in terms of these elements within the sample population and across cultures. First results are available in the second quarter of 2011.

Furthermore, individual case studies of energy innovation journeys (involving students and links with energy experts) will be used to assess the situated and contextualized impact of the project. These case studies will involve detailed context-specific accounts of the relationship between the mechanisms of institutional entrepreneurship and the practice of EE.

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