Company name*

Association for Innovative Development

Presenter's name*

Georgi Gushlekov

One line business description*

Complex innovation process and serial entrepreneurship

Company description(max.1000 characters)*

Project name*

The Association for Innovative Development is founded to answer to the most vibrant needs of innovative economy. **It** is experienced to fill all the missed "empty" places and activities in the whole process from performing R&D of innovative ideas toward custom satisfaction. Products that are able to change the market can be created in this way. The most important creative resources of **The Association** are dynamic: knowledge, experience, fantasy, good organization, motivation, and excellent creative environment. **Its** structure and management are horizontal. **The Association** staff raises different kind of specialists – from the very experienced and high educated professors and technologists to the young perspective and dynamic students (www.innovative.bg). They covered various scientific fields. This ensures complex approach to the innovative process. **Its** philosophy, organization and activity make it the right supplement to the venture capital.

BIOREACTOR UTILIZING SOLAR ENERGY

One line description of project*

BIOREACTOR FOR UTILIZING SOLAR ENERGY AND ABSORBING BIG QUANTITY CO_2

Technology/Product Advantage (max. 1000 characters)*

The main goals of the new proposed bioreactor are to produce useful biomass absorbing CO_2 and utilizing solar energy (from concentrating system).

- There are several methods for concentrating solar rays. We propose the most suitable for our needs (described in the http://www.wipo.int/pctdb/en/wo.jsp?WO=2004029521). It ensures uniform distributed longitudinal concentrated solar energy, which can relatively easily be processed, transported and radiated by the delivering device to the final area.
- There are a lot of glass or plastic fibers, waveguides and light pipes, but they are too expensive to be used for that purpose. Instead we use cheaper sheets in our bioreactor. They are bunched and combined with sheets with different refractive index. Between concentrated and delivering devices an accepting part is inserted. It consists of a slim longitudinal glass slice and flexible part, which allow solar tracking.
- The bioreactor provides optimal living conditions for algae.

Business Opportunity & Market Potential (max. 1000 characters)*

There are several very expensive approaches for carbon capturing and sequestration. Underground capturing and storage costs between €60 and €90 per ton CO_2.

Algae abilities for carbon capturing are known for more than 30 years, but up to now there are no real industrial implementations. At the same time laboratory tests show enormous potential. This means that new approach must be implemented. In this project we offer several technical and technological decisions, which can resolve all the existing bottlenecks. Using high-tech decisions quantity and quality of the harvested biomass (and the absorbing CO_2) will increase several times. Proposed expenses for R&D will lower the price of needed industrial equipment, maintenance and production expenditure. In

this way the unique properties of algae will provide economically effective capturing of CO_2 producing biomass, rich of fat and proteins. In this way the process of CO_2 capturing will be profitable and fossil-fuel power plants clean!

Business Model/Go to market strategy (max. 1000 characters)*

Several stages must be created and tested independently and combined step by step to assemble the whole construction.

First iteration: Combining several sophisticated technologies

Some additional R&D must be executed to find the most suitable materials and devices.

Second iteration: Prototype

When all of the problems are well tuned and with stable results the prototype can be manufactured. The purpose is to test the whole product and refine the common work of all stages and practical coordination of all processes from the common control system. Very often there are practical problems with tuning the technologies. Some tools and molds could be produced.

Third iteration: Industrial demonstration

Manufacturing and installation of the big scale demonstration devices in the output of the fossil-fuel power plants for working in the real conditions and to prove effective absorption of CO_2 and economical production of high quality biomass, suitable for producing biodiesel, other biofuel or food.

Financing/Partnering Needs*

First stage

1. Experimental bioreactor €350.000;
2. Linear modular concentrating system €950.000;
3. Delivering system €800.000;
4. Feeding system €150.000;
5. Control system & software €200.000
6. Unexpected expenditures €200.000;
7. Management (?)

Second stage
€2.500.000

Management team (2-3 lines of biography)

www.innovative.bg

Key Customers

Fossil-fuel power plants

Key Partners

Key Competitors

Companies implementing underground carbon capturing and storage

Achievements and Milestones

Uniform distributed longitudinal concentrated solar energy system
Optical system for transporting and distributing of solar energy to the final area, providing optimal light density for algae.

Opportunities for further development in the field of utilizing the unused solar spectrum for photosynthesis. Bioreactor ensuring optimal living conditions for algae.
Patents/IP Protection
The new developed methods and devices will be patented.