

## The Ecosymbiotics of “Green” within the Biotech World

Martin Dudziak, PhD <sup>1</sup>

We live in a time of convergences and criticalities, at the heart of which biotechnology and its industrial implementations are central for solutions to “impasse” problems and the creation of sustainable pathways for our society’s future. It is clear that what has been developed and continues in historically biomedical domains (e.g., genomics, proteomics, advanced analytical organic chemistry) now has immense value for the discovery and refinement of new biofuels, environmental cleanup and recovery, pandemic defense and countermeasures, and reduction of carbon footprints by both major industries as well as individual consumers. However we face a challenge in sustaining the biotech initiatives especially in today’s economic times. We need to coordinate and synchronize effectively the technology resources – from brainpower to known products and tools – and to do it with speed and with economy.

Arguments have been made for more public and private sector investment into green technologies and particularly bio-related methods for energy and fuel management. There is a place for a concerted and concrete international program, one with direct G7 or G20 sponsorship, a “Manhattan Project” or “Bletchley Park” for industrial and cross-sector biotechnology. What we do not need is fragmentation, nor a suffocating bureaucracy, nor just years of talk and proposals, because our planet and our society does not have years to wait.

Above and beyond the recognized needs in terms of responding to energy depletion and global climate change alone, there is the glaring economic factor. Recession and economic slowdowns, especially spread over a global landscape, put hard limits upon conventional investment and business development models, and that includes research in fields that are traditionally intensive as far as the needs for experienced staff, expensive facilities, and time to do the experimentation and refinement.

There are brilliant alternatives that can be pursued and these are sound from an economic perspective. First and foremost is the use of our information and knowledge resources to create deliberate match-ups between technologies, products, and people. We need to employ something akin to “Open Source” approaches that were the driving force in moving computer software and the internet into not only widespread use but to levels of maturity and sophistication that could never have been attained as they have been over the past decades if everything were done in isolation and behind “closed doors.” We need to break free of many strangleholds upon the sharing of intellectual property and the re-use of technologies and the first step is some extremely public brainstorming. The tools for this are in our hands – the ability to have remote teleconferences and to collaborate together on not only the same documents but even the same experiments and also methodical joint-venture product development.

One of the immediate action plans that crosses technical and organizational borders is to establish a biotech version of SourceForge. This will enable open sharing and “symbiotic” re-application and collaborative redesign of techniques, instrumentation, models, and processes that can serve particularly energy and clean environment uses for homes and small buildings. This will speed up the tech transfer and innovation process, reduce costs, sustain competition but infused with more collaboration it will engender more affordable solutions for small businesses and consumers who together comprise the majority of contributors to our eco-energy problems as well as the majority of the solution to the same.

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<sup>1</sup> Chief Scientist, TETRAD Innovation, Inc.; Adjunct Prof, VCU; Member of the board, Institute for sustainable Economy and Community. Contact: [martin@fortepplan.com](mailto:martin@fortepplan.com) or [martin.dudziak@gmail.com](mailto:martin.dudziak@gmail.com) +1 (202) 415-7295