The Energy Biosciences Institute (EBI)

The Energy Biosciences Institute (EBI) will be a joint project between UC Berkeley (UCB), Lawrence Berkeley National Laboratory (LBNL), and the University of Illinois at Urbana-Champaign (UIUC). UCB is the principal motivator, subcontracting out to LBNL and UIUC.

Location:

The main location will be in a to-be-constructed building in the LBNL area; additional space will be in existing buildings at UIUC, and possibly on the UC Berkeley campus itself. (the proposal is vague on this point, see below)

Funding:

- BP will provide $500m over 10 years; how this will be split up is not specified.
- The BP funds will not pay for the new building; this will be paid for by the state of California ($40m), UC bond money ($50m), and private donations ($15m). The space at UIUC has been constructed by the state of Illinois at a cost of $24m.

Direction:

The primary direction of the EBI will be through the Governance Board, consisting of three UCB/LBNL people, two UIUC people, and three BP people. The Governance Board ultimately oversees everything, including allocation of space, direction of research, and funding. Note that this is the ratio in the grant proposal; BP may be currently demanding more representatives.

Research focus and organization:

The EBI will be divided into five (somewhat overlapping) "programs", subdivided into 24 "labs", plus a separate "applications lab" where BP scientists conduct proprietary BP research. The main programs are: feedstock development, biomass depolymerization, biofuels production, fossil fuel bioproduction and carbon sequestration, and socio-economic systems. Of the 24 labs:

- six are devoted to developing, growing, and processing biofuel crops;

- nine are devoted to (broadly speaking) the (bio-)chemical processes to extract fuel from the crops, including engineering new organisms to do the job;
- one will research ways to use microorganisms to "enhance recovery of petroleum from underground reserves" (the "Microbial Enhanced Oil Recovery" lab);
- one will investigate the use of microbes for processing coal into fuel (the "Fossil Fuel Bioprocessing" lab);
- one will research ways to engineer biological processes to store more carbon ("Carbon Sequestration");
- two will study how to make biofuels economically viable (profitable) ("Biofuels Evaluation & Adoption" and "Biofuels Markets & Networks");
- two will study the social and environmental implications of biofuls, including long-term impacts of changes in land use ("Environmental Impact and Sustainability Assessment" and "Next-Generation Assessment");
- one will "consider the design of institutions and policies to mitigate potential negative impacts of the adoption of biofuels" ("Social Interactions and Risks")

The "applications lab" is connected to all of these, waiting to develop potentially profitable technologies arising from the work in the above labs. (see below)

Intellectual property:

There's grey areas arising from interactions with the BP employees on campus (see below); but any publications coming out of the EBI are subject to a several-month "pre-publication review" period, in which time BP "will be able to check that publications... do not include any inadvertently included confidential information belonging to BP and/or to request that UCB, LBNL, and/or UIUC file a patent on certain subject matter prior to its public disclosure".

Also (more significantly), "BP will have an exclusive, time-limited, first right to exercise a pre-defined option to obtain an exclusive license" to any

inventions "made by UCB, LBNL, or UIUC under a project that is fully funded by BP".

Note: similar agreements are apparently in practice already at UCB, for instance, with an agreement between BP and the College of Chemistry, as well as at the Intel-UCB "lablet".

BP employees in the EBI:

The role of BP and the "proprietary reserach" component is very vague, throughout (see, for instance, the wonderful Venn diagram on page 68!) but the general structure is a division into "open" and a "proprietary" sections of the EBI. The "open" sections are described above, and the proprietary section – the "applications lab" will be staffed by (up to 50) BP employees... but there will be "a high degree of 'flow' between personnel in the open and proprietary components". But according to another section, "the proprietary component will be carried out by BP personnel in a central Berkeley campus location... UCB, LBNL, and UIUC research personnel should be excluded entirely from the space in the performance of their university activities." The arrangement for who gets what patents, etc. resulting from the "flow" is summarized: "Although there is no formula... we believe that they can be managed by scrupulous attention to fairness".

The BP employees will also be involved with all aspects of education at UCB, from K-12 outreach to graduate student mentoring. They'll be involved with the EBI's efforts to, e.g. "educate the general public about the benefits of EBI research and technology advances" and no doubt, how great BP is.

Addendum – a good way to start: On page 1, "Vision for the EBI", second paragraph begins "The development of the atomic bomb at Los Alamos [and some other large projects] are striking examples of how large-scale problems were solved by establishing the proper multidisciplinary scientific culture." That problem was solved... by the threat of global annihilation.