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29 March 2007

Chairman Bart Gordon
House Science and Technology Committee
2320 Rayburn House Office Building
Washington, DC 20515-6301
Attention: Stacy Steep

Dear Chairman Gordon,

This letter responds to your request for comments and recommendations on HR 364, legislation to establish an Advanced Research Projects Agency for Energy (ARPA-E). We appreciate your inviting the Climate Policy Center to offer comments on this legislation as part of your outreach effort.

We strongly support your legislation and believe that the creation of an ARPA-E is an essential component to the development of transformational energy technologies. The National Academy of Sciences report, Rising Above the Gathering Storm, makes clear that the creation of such an entity, modeled after the highly successful Defense Advanced Research Projects Agency (DARPA), provides the optimal organizational structure, unfettered by the organizational and cultural constraints of traditional government research and development, to tackle the difficult problems of energy and national security, national competitiveness and climate change.

It is important that ARPA-E be given the flexibility and freedom to develop technology wherever that might lead. It should be chartered to explore high pay-off, high risk, transformational technologies. It should not be encumbered by Congressional designations of favorite technologies. Such designation would only duplicate existing, yet essential, basic research and development already being done within other parts of the Department of Energy and elsewhere in the government. Technology moves quickly and statutes are rigid; your legislation fosters technological development by not naming technologies.

We have spent some time looking at other advanced research institutions, and would urge your committee to do the same. Experience has shown that the establishment of an ARPA within an existing institution, such as a federal department, is by no means an assured pathway to success in generating breakthrough ideas. But we do know that in the case of DARPA, it has brought forth remarkable technologies benefiting both the military and the general public.

It is paramount that the Congress understand the difference between the DARPA model and the other ARPA's and factor that into the legislation.

We would like to offer the following specific comments on the current draft of HR 364.

- 1) The bill sets a basic goal for the results of ARPA-E's research in terms of a 10-year time frame. We believe ARPA-E should be oriented towards a considerably longer time frame appropriate to the development of the next generation of energy technologies. Ten years is an appropriate horizon for more conventional research and development, but not for the development of transformational technologies or the promotion of long-term research.
- 2) While the goal of reducing our nation's reliance on foreign energy sources by 20% in the next 10 years is both desirable and admirable, a central objective must be the development of low and no greenhouse gas emitting transformational energy sources and technologies. If we develop those technologies, it is a given that this nation will have reduced its dependence on foreign energy sources by 20%, perhaps not in the next ten years. We would urge that you make the development of low and no-emitting greenhouse gas emitting energy sources the goal, or in the alternative, designate it as an additional goal to the 20% reduction in the dependence on foreign energy sources. Technology is the long-term solution to climate change and ARPA-E, if successful, will provide both new domestic energy sources and low and no-greenhouse gas emitting technologies.
- 3) The bill includes a recoupment provision that allows the Department of Energy to recoup funds it invested in a firm to develop a technology any time within twenty years after that investment if the firm profited from the investment. This provision would be appropriate for a more near-term research, development, and commercialization strategy, but is not as appropriate for a transformational research effort such as contemplated for ARPA-E. At its core, ARPA-E is about the way research is done. It must be nimble and flexible, neither incremental nor stove piped, quickly moving beyond technologies that don't work. In our view, your bill shouldn't result in entrepreneurs doing business plans, but rather in putting entrepreneurs in garages and laboratories tinkering with breakthrough technology concepts.
- 4) Without recommending where in the federal government ARPA-E should be located, we suggest that your committee consider whether it ought to be an independent agency, such as the National Science Foundation, or whether it should be in the Department of Energy. There is a concern that were the ARPA-E in the Department of Energy, it would be culturally absorbed by DOE and would struggle for resources within DOE. Moreover, any ARPA, whether DARPA or ARPA-E, can only be successful if supported by the

Secretary of the department within which it is housed, which is not the case today. That said, DARPA is housed in DOD and has been successful.

We appreciate the opportunity to provide your committee these comments and look forward to working with you to enact this vital legislation.

Sincerely,

Rafe Pomerance
President

cc: Ralph Hall, Ranking minority member