Dr. Steven Koonin
Under Secretary of Science
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I applaud the DOE, its mission, and the use of a quadrennial review to solicit input from the various stakeholders. Among the many questions posed in the QTR, my response focuses on two of the question/comments:

3 c. How can DOE be more effective at each stage of the innovation chain?
The "valley of death" is a well documented barrier to innovation typically referring to the gap in funding between R&D and commercialization. However, DOE has its own R&D "valley of death" between the Office of Science and that of the applied offices (EERE, Fossil, Nuclear, Electricity Delivery). This is a major institutional impediment in moving results from fundamental science to application/commercialization. ARPA-E was created to help address this, but more work within the offices is necessary to remove the internal programatic lines and thus facilitate innovation.

8. We welcome comment on the selection of these technologies and sources,...
I am sure you are receiving numerous comments about the omission of fuel cells and hydrogen in the QTR. I fully understand the Administration's concern that it will be quite some time before there is a hydrogen infrastructure and the resulting shift in resources to battery technologies. However, the one fuel cell program budget they are zeroing out (SECA program in Fossil Energy) is the one fuel cell technology that does not require a hydrogen infrastructure.

SECA is developing low-cost, fuel-flexible Solid Oxide Fuel Cell (SOFC) technology suitable for a variety of power generation applications. Its fuel flexibility makes it a unique fuel cell technology in that it can run on natural gas, gasoline, diesel, and biofuels, as well as hydrogen. Therefore, its high efficiency (~2-3X that of internal combustion engine) can both reduce dependence on imported oil and green house gas emissions while operating on the fuels we have today as well as the ones we are developing for the future. In fact, DOD has recognized the importance and ability of SOFCs to operate on logistics fuels (diesel) deployed in the battlefield today.

SECA is a successful public-private partnership, supports the ambition to transition the U.S. towards a clean green economy and has met or exceeded all of its performance targets to date. In fact OMB has said of SECA that it "has generated a high level of competition…an impressive array of technical approaches…it is on track to meet its goal for an economically competitive technology." Furthermore the SECA program will create thousands of high-tech, high-skilled jobs here in the U.S., expand our export potential and deliver a significant return on the major investments already made on the program by the Federal Government.

Moreover, SOFCs are probably the only technology that address all of the DOE QTR six strategies. On the stationary side it is one of the most efficient methods to deploy/generate clean electricity, can be used in distributed generation/storage systems to modernize the grid, and can be integrated with advanced CCHP to increase building and industrial efficiency. On the transportation side its fuel flexibility allows for the seamless transition from fossil to bio to

hydrogen fuels, by integrating now as an APU (as is being commercialized by Delphi) and in the near future as a range extender it will progressively electrify the fleet while increasing "well to wheel" vehicle efficiency.

Therefore, I urge you to consider reinstating the SECA budget.

Sincerely,

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