



## **TESTIMONY OF TIM LUST**

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*BEFORE THE*  
**COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY**  
U.S. HOUSE OF REPRESENTATIVES

TUESDAY, MARCH 12, 2024

### **HEARING ON “BRIDGING THE VALLEY OF DEATH: ARPA-E’S ROLE IN DEVELOPING BREAKTHROUGH TECHNOLOGIES**

Good morning Chairman Lucas and Ranking Member Lofgren and Members of the Committee. Thank you for the opportunity to address you today and to highlight ARPA-E. My name is Tim Lust and I have served as the CEO of the National Sorghum Producers (NSP), representing the sorghum industry and 50,000 growers for the last 25 years.

You may be wondering why someone from an ag trade association is in front of this committee. Eleven years ago ARPA-E leadership called me and I asked the same question. DOE focused on sorghum as an energy crop because it quickly produces a large amount of biomass with limited water and fertilizer. Sorghum is an ideal crop for research because of its commercial relevance, genetic characteristics that promote fast insight, and its close relationship to other crops, particularly corn.

My relationship with the DOE expanded significantly when ARPA-E sought our advice to meet their translational mission to do research with real world outcomes. As an industry lead, I have worked closely with ARPA-E and believe it has been very successful in accelerating the development of cutting edge technologies to meet the energy needs of our country.

ARPA-E’s approach to bridging the gap between science and commercial impact is distinct from other federal agencies. ARPA-E’s management approach holds scientists accountable to defined milestones and then either commercializes results or moves on. This “Big Swing, Fail fast” attitude resonates with my members. We have been so impressed with APRA-E’s approach that we directly invested over \$500,000 farmer dollars in several TERRA projects.

Often, government research is focused on basic science for the purpose of research publications. This work is the foundation of further research, and I would like to highlight that industries like agriculture require further federal investment to translate new discoveries into commercial outcomes. Due to successful research in ARPA-E, I can point to five startups, a new seed company and new market access to low carbon fuel markets. This is in addition to significant federal and philanthropic follow-on dollars that further extend the impact of the ARPA-E dollars.

Biofuels are a critical market for sorghum and other grains. ARPA-E worked hard to understand our market, and the agency launched the SMARTFarm program focused on accelerating farmer data inclusion into lifecycle assessment models used in fuel markets. SMARTFarm moved research from 20-foot plots to fields to test best-in-class data technologies.

As you are aware, the USDA recently launched the Partnership for Climate Smart Commodities Program (PCSC) where NSP is participating in a \$65M grant, \$50M of which goes directly to growers, centered on the GREET model. The programs at ARPA-E and the resulting technological developments have paved a path for growers to access this market in a new manner.

I will close by mentioning a truly bleeding-edge program, ROOTS, launched in 2017. ROOTS sought to do something impossible - to see through soils and image plant roots. ARPA-E staff searched across medical, defense, and other sectors to identify potential technologies. I can think of no industry group or other government agency that would undertake this challenge in a focused manner.

Though ROOTS has resulted in fewer commercial outcomes than other ARPA-E programs, its projects persist and I believe commercial adoption is only a matter of time. Novel business models developed for Climate Smart Commodities and growing international markets focused on sustainability will motivate the development of technologies that rely on the ROOTS tools. At that time, we will be glad ARPA-E's transformative research 10 years earlier prepared the tools for a new wave of innovation.

In conclusion, we believe more research should be conducted with translation in mind. Model crops like sorghum and agronomic studies focused on our crop have tangible commercial relevance, and the potential broadly improves row crop agriculture. We remain strong advocates of the ARPA-E program. The ARPA framework and time limited staffing by talented, visionary leaders creates the energy needed to develop the next set of successful (and occasionally failing) cutting edge projects.

Thank you again for the opportunity to share our views on this important topic. I look forward to questions.