Do you really understand…

The DOE Phase I Topic

Jenny C. Servo, Ph.D.
Dawnbreaker

AGENDA

- Why is this important?
- DOE's mission and extramural budget
- Why this topic? C56-10
- Program Area Overview, Topic and Subtopic
- What should you assume?
- Developing a curated list of terms
- Reach out to the Topic Author

Why is this important?

- A responsive proposal has synergy between DOE's needs and your capabilities
- It is TOO easy to focus only on your needs and that is mistake!
- Start by listening to what DOE is saying …..
  - Most applicants will think they are doing that
- How do you check to make sure you hear what DOE is saying?
  - That's what we will discuss today
- This is my perspective – which has worked well for me and the companies we assist
- Understanding what DOE is asking will minimize getting a non-responsive LOI letter

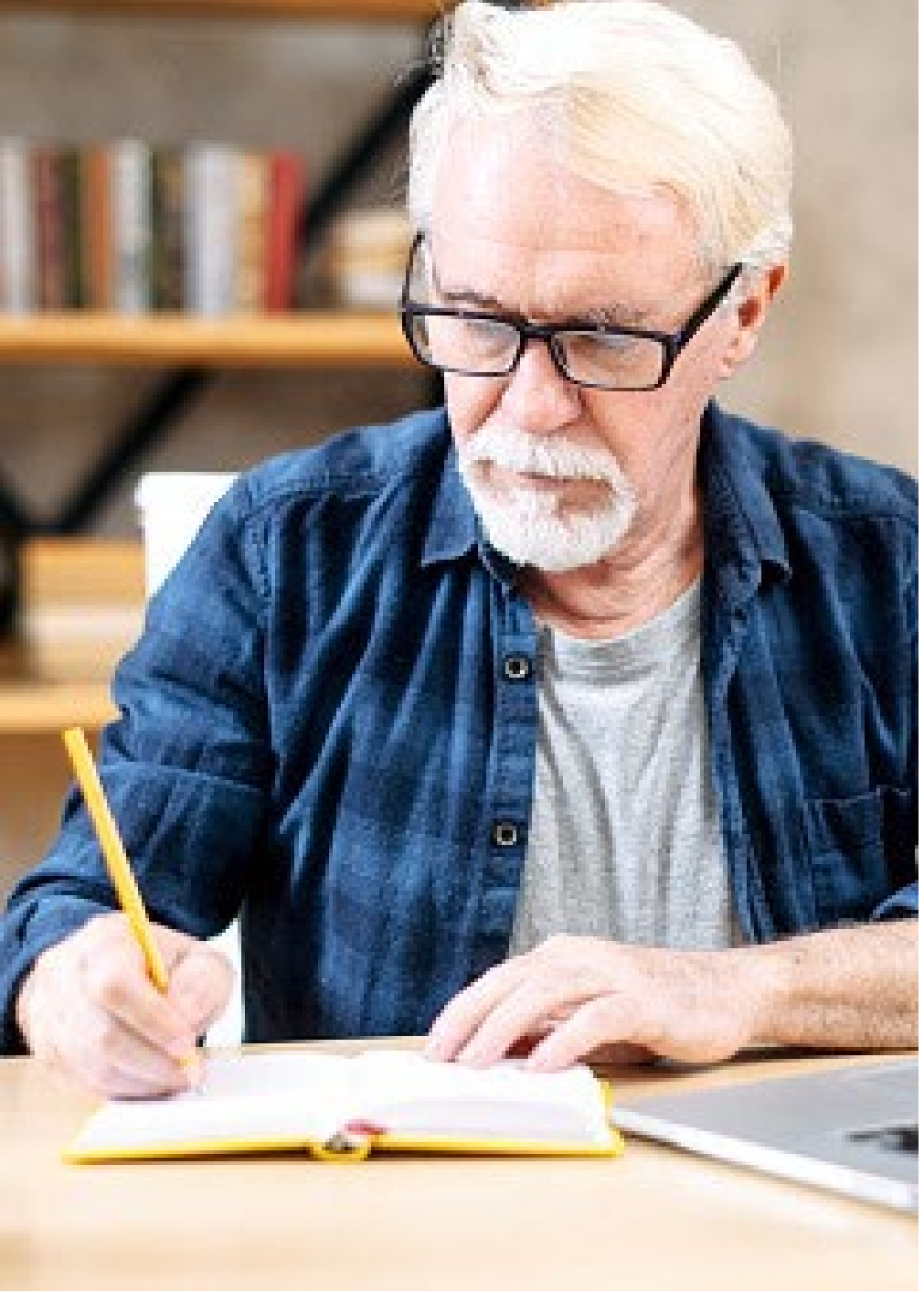
Topics relate to DOEs mission

The Department of Energy's mission is **to ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions**.

- Implementation of DOE's mission is shaped by the current Administration
- The government provides extramural R&D funds to large business, academia, not for profits and small business
- Let's look at a sample topic from the current FOA

Topic C56 -10: EERE JOINT TOPIC

Community – Driven Solutions for a Just and Equitable Energy Transition



Why this topic?

- It has many unusual features
- It has tremendous breadth
- Be sure to review the:
  - Program Area Overview
  - Topic Description
  - Subtopics
- Don’t assume you know what the terms mean
- Develop a curated list of references while you explore
- Apply the method that I will discuss with your topic/subtopics of interest

Important Concepts in Program Area Overview

Back to Table of Contents

PROGRAM AREA OVERVIEW: OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY

The Office of Energy Efficiency and Renewable Energy (EERE) accelerates the research, development, demonstration, and deployment of technologies and solutions to equitably transition America to net-zero greenhouse gas emissions economy-wide by no later than 2050, creating good paying jobs, and ensuring the clean energy economy benefits all Americans, especially workers and communities impacted by the energy transition and those historically underserved by the energy system and overburdened by pollution.

Achieving this goal in an equitable manner will require leveraging the expertise and talents of small businesses. EERE's FY 2022 Phase I SBIR/STTR topics are focused on five investment areas that are central pillars of the U.S. greenhouse gas (GHG) profile:

- *Decarbonizing the electricity sector.* To initiate a path to achieve a carbon pollution-free electricity sector no later than 2035, EERE's focus is to support technologies that will allow us to generate all electricity from clean, renewable sources. To transition to a carbon-free power sector, advancements are needed to continue to make major strides to integrate more renewable energy generation onto the grid, while ensuring it is reliable, secure, and resilient, even as it evolves.
- *Decarbonizing transportation across all modes: air, sea, rail, and road.* The transportation sector has historically relied heavily on petroleum, which supports over 90 percent of the sector's energy needs today; as a result, the sector has surpassed electricity generation to become the largest source of CO_2 emissions in the country. This investment area aims to develop and enable new zero emission light-duty vehicle sales; address the Nation's sustainable aviation fuel demands; and increase the commercial viability of hydrogen fuel cells for long-haul heavy-duty trucks.
- *Decarbonizing energy-intensive industries.* Industrial processes currently contribute as much as 20 percent of the Nation's carbon emissions. To phase out emissions, EERE will support approaches that rely on renewable energy and fuels such as hydrogen to power industrial processes, capture and use carbon emissions, and vastly improve efficiency.
- *Reducing the carbon footprint of buildings.* EERE supports efforts to reduce the carbon footprint of the U.S. building stock by 50% by 2035. Such advances will be made while maintaining or improving affordability, comfort, and performance.
- *Decarbonizing the agriculture sector, specifically focused on the nexus between energy and water.* Agriculture represents nearly 10 percent of the Nation's carbon emissions, and EERE looks to make investments that drive a cleaner agriculture sector.

Please note that each topic and subtopics may have unique requirements for responsive application submissions; review the requirements for each topic and subtopic carefully to ensure you are responsive to requirements where applicable.

Technical and Business Assistance (TABA) Program and the American-Made Network

Applicants are encouraged to take advantage of the Technical and Business Assistance (TABA) Program, which provides funding for commercialization activities in addition to SBIR/STTR research funding. Please read all sections of this FOA with more information about this program and how to apply for this additional funding opportunity. The American-Made Network is an excellent resource for finding commercialization-assistance providers and vendors with specific expertise across EERE's technology sectors. The Network helps accelerate innovations through a diverse and powerful group of entities that includes National Laboratories, energy incubators, investors, prototyping and testing facilities, and other industry partners from across the United States who engage, connect, mentor, and amplify the efforts of small businesses. The Network can help companies solve pressing technology challenges, forge connections, and advance potentially game-changing ideas and innovations.

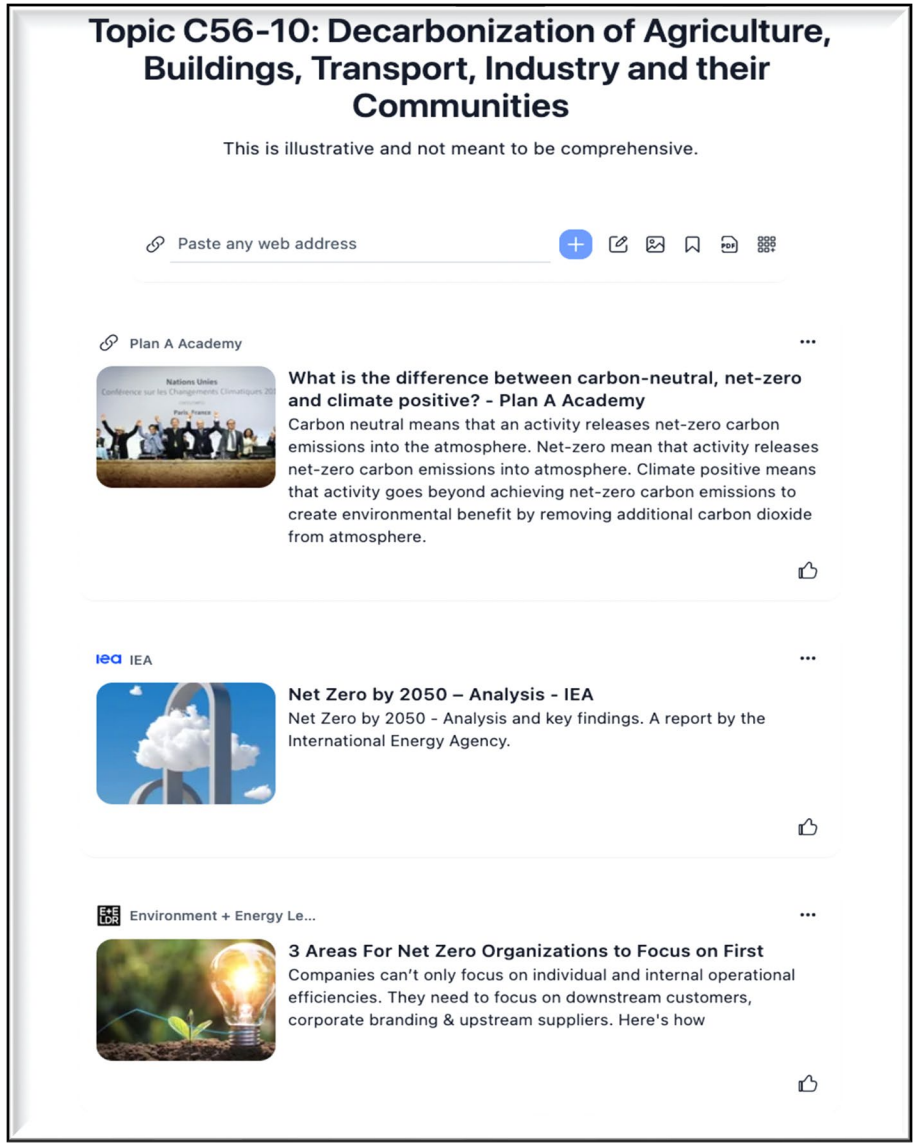
Be sure you consider:

- The opening sentence in the Program Overview
  - Ensuring the clean energy economy benefits all Americans, especially workers and communities **impacted by the energy transition** and those historically underserved by the energy system and overburdened by pollution.

  - Think about the impact on the livelihood of individuals who can no longer make their living in the coal, natural gas and petroleum industries

Create a curated list as you search and learn

Download from https://wakelet.com/wake/wvAxWO1jbUJitvJS7CID9



Spend about 3 hours exploring the concepts associated with the Program Office Overview

Next Review the Topic Section (2 pages)

Back to Table of Contents

C56-10. JOINT TOPIC: DECARBONIZATION OF AGRICULTURE, BUILDINGS, TRANSPORT, INDUSTRY AND THEIR COMMUNITIES

Maximum Phase I Award Amount: $200,000	Maximum Phase II Award Amount: $1,100,000
Accepting SBIR Phase I Applications: YES	Accepting STTR Phase I Applications: YES
Accepting SBIR Fast-Track Applications: NO	Accepting STTR Fast-Track Applications: NO

The objectives of this topic on decarbonization of Agriculture, Buildings, Transport, and Industry are to enable major reductions in carbon emissions in these sectors to help meet the Biden Administration greenhouse gas (GHG) reduction objectives—50 percent reduction by 2030 and net-zero carbon economy by 2050.[4]

This joint topic is a collaboration among U.S. Department of Energy's Advanced Materials & Manufacturing Technologies (AMMTO), Building Technologies (BTO), Bioenergy Technologies (BETO), Industrial Efficiency and Decarbonization (IEDO), Vehicle Technologies (VTO), and Water Power Technologies (WPTO) Offices.[5] This topic is not intended to comprehensively cover all aspects of decarbonization, rather, this joint topic generally supplements individual office topics with those aspects of decarbonization R&D best suited to joint efforts.

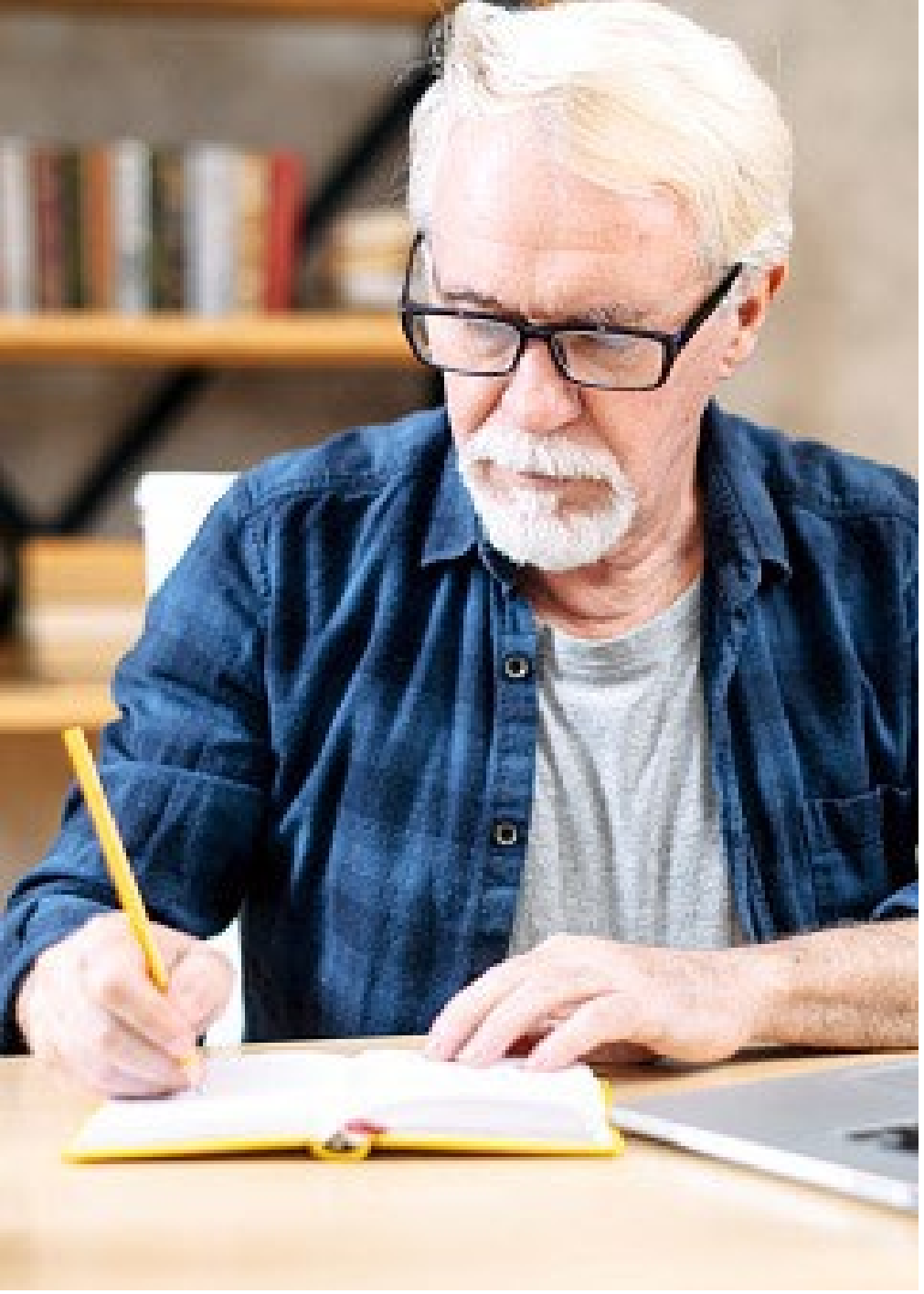
All applications to this topic must:

- Clearly indicate the subtopic and area of interest;
- Explicitly and thoroughly differentiate the proposed innovation with respect to existing commercially available products or solutions-- Justify all performance claims with theoretical predictions and/or relevant experimental data.
- Propose a tightly structured program which includes clearly defined, relevant materials and manufacturing RD&D metrics (including energy savings where applicable). The program should include quantitative technical milestones, timelines, and expected deliverables that demonstrate aggressive but achievable progress;
- Provide evidence that the proposer has relevant materials and or manufacturing experience and capability; and
- Explain applications of project output and potential for future commercialization including projections for cost and/or performance improvements that are tied to a clearly defined baseline.

In addition to reducing carbon emissions to net zero in all sectors by 2050, the Biden-Harris Administration seeks a more immediate equitable economic recovery that requires the expertise and talents of small businesses. While increasing equity is a concern for the topic in general, one way to advance equity as well as accelerate carbon reduction is to develop equitable and inclusive innovative technology solutions through a

[4] Under Executive Order 14008, "Tackling the Climate Crisis at Home and Abroad," (Executive Office of the President. (2021). Executive Order 14008, https://www.federalregister.gov/documents/2021/02/01/2021-02177/tackling-the-climate-crisis-at-home-and-abroad) the President set a national goal of reducing greenhouse gas emissions to net-zero by 2050. Under the Paris Agreement, the United States set a Nationally Determined Contribution of reducing GHGs 50-52 percent by 2030, and confirmed the goal to reach net-zero GHG emissions by 2050 (U.S. (2021). USA NDA at https://unfccc.int/sites/default/files/NDC/2022-06/United%20States%20NDC%20April%2021%202021%20Final.pdf). Executive Order 13990 declared that the federal government must be guided by the best science to improve public health, protect our environment, reduce GHG

- Remember your application must be responsive to topic/subtopic pair
- The bracketed section in red clarifies what ALL applicants to this topic must do, irrespective of the subtopic selected
- The section highlighted in green are documents that are important to review



Just and Equitable Energy Transition

Native Women Leaders and Advocates Promoting Energy Justice - Womens Earth Alliance

Womens Earth Alliance

In 2010, WEA and a team of advocacy delegates traveled to the Southwestern United States to meet grassroots Native American women environmental justice campaign leaders, as part of an Advocacy Exchange to Promote Energy Justice in the Navajo Nation. In 2010, WEA and a team of advocacy delegates traveled to the Southwestern United States to...

Support Green Energy for Puerto Rico

Earthjustice

FEMA's funds must go towards the renewable future Puerto Rico is demanding.

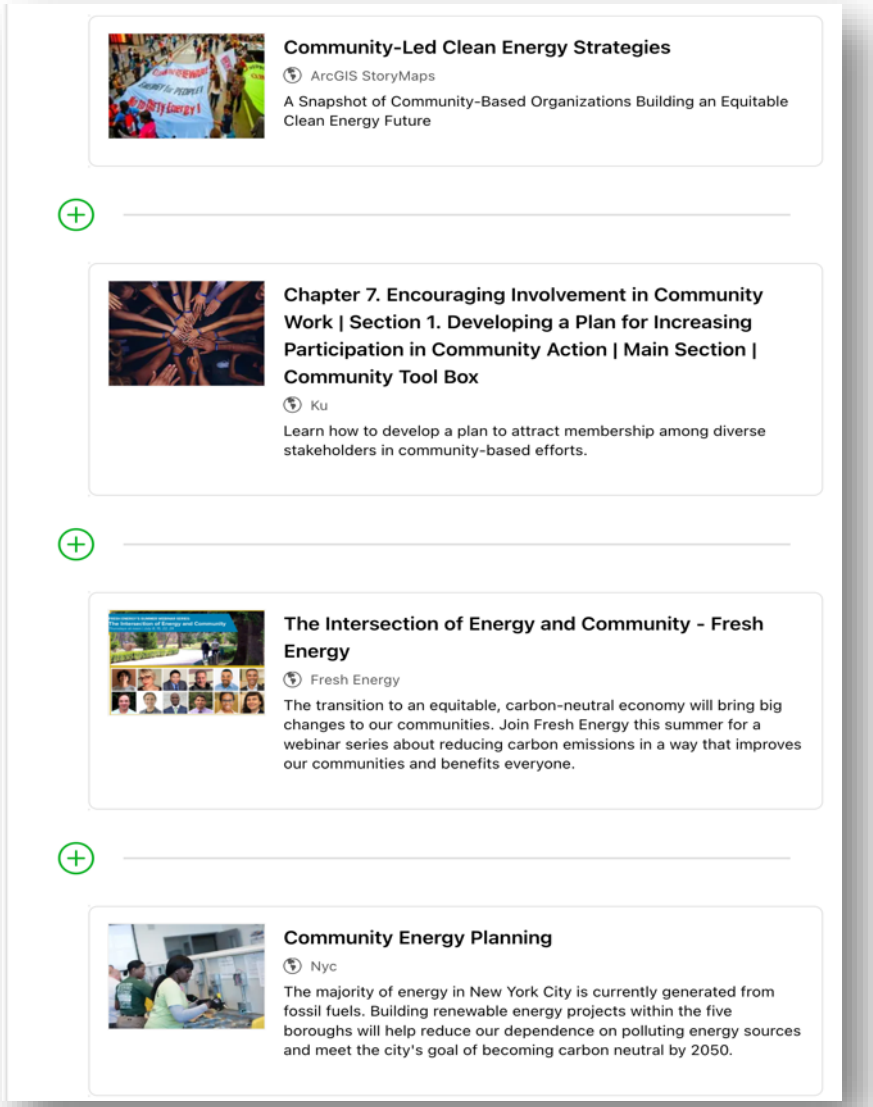
Coal Community Investment Bill Seeks to Drive a Just Transition to Clean Energy | Article | EESI

Eesi

Rapid nationwide decarbonization is essential to meet emission reduction goals, but communities with coal-dependent economies are already suffering from the energy and economic transition. These communities face a workforce crisis exacerbated by the COVID-19 pandemic: U.S. coal mining employment dropped by over 53 percent in less than a decade, declining from 90,000 jobs in 2012 to just 42,000 by the end of 2020.

What groups are impacted of have been left out in the past?

How to Foster Community Involvement?



There’s a lot of community activity to tap into….

Second page of Topic Description

Back to Table of Contents

community partnership approach. The requirements below, however, are only for the specific community areas of interest under each subtopic:

Crosscutting Community-Driven Decarbonization Areas of Interest

The offices are, under each of the subtopics, soliciting in a specific area of interest for applications from small businesses that are focused on community partnerships. Such partnerships are critical to achieving the national goal of net-zero carbon emissions as technology deployment depends on communities exercising agency in the integration of innovative technologies. These areas of interest under each subtopic support technology integration into communities through informed decision-making, community-centered research, and engagement at the local, state, and/or regional levels. They are specifically intended to assist new technologies that face cultural, economic, and societal hurdles to responsible and accelerated deployment. Trusted and community-driven research is fundamental to multiple stakeholders including rule makers, environmental regulators, clean energy industry developers, technology researchers and developers, and, most importantly, communities. These areas of interest encourage small business technology developers to incorporate community needs and inputs to the extent possible into their decarbonization R&D.

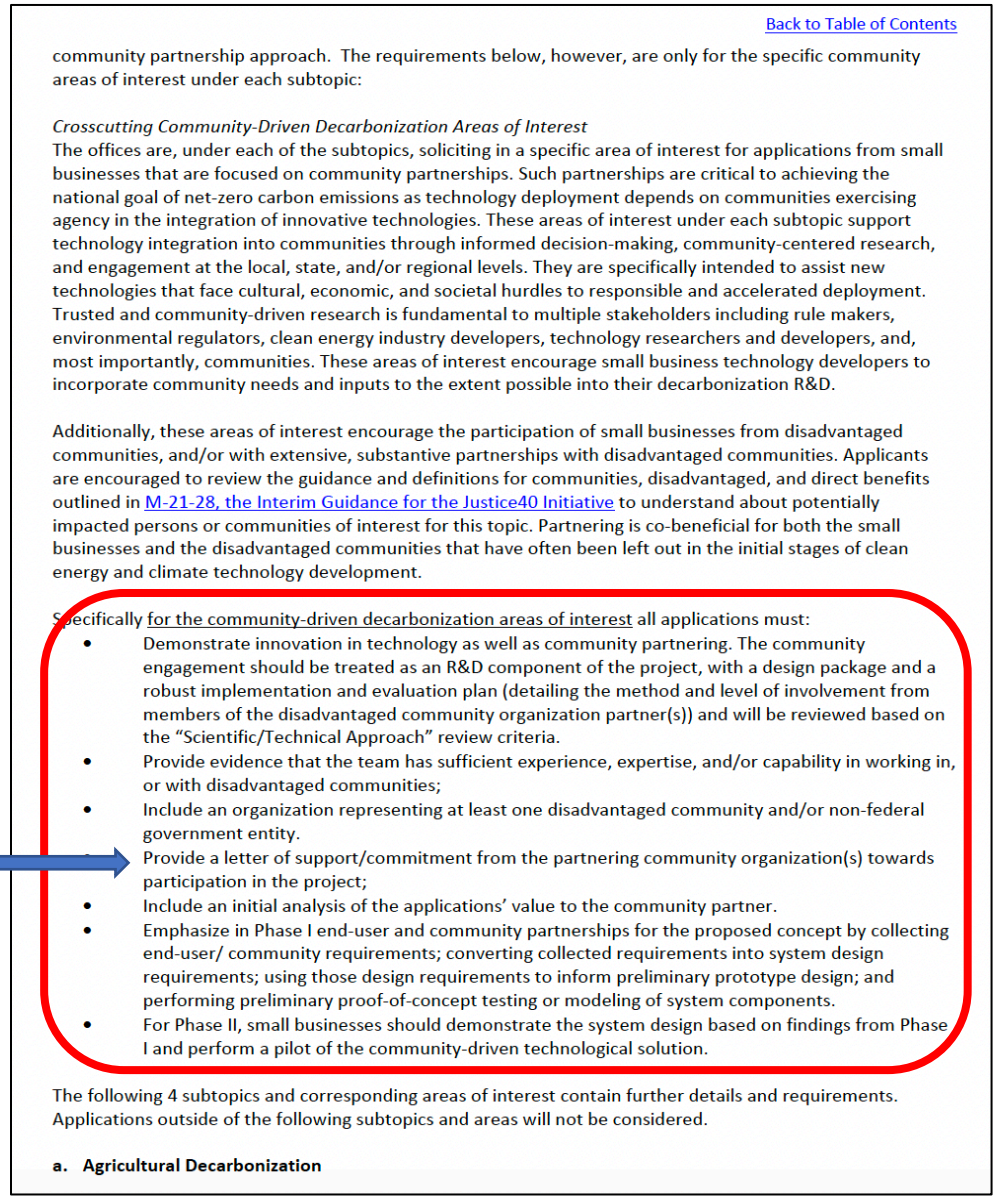
Additionally, these areas of interest encourage the participation of small businesses from disadvantaged communities, and/or with extensive, substantive partnerships with disadvantaged communities. Applicants are encouraged to review the guidance and definitions for communities, disadvantaged, and direct benefits outlined in M-21-28, the Interim Guidance for the Justice40 Initiative to understand about potentially impacted persons or communities of interest for this topic. Partnering is co-beneficial for both the small businesses and the disadvantaged communities that have often been left out in the initial stages of clean energy and climate technology development.

Specifically for the community-driven decarbonization areas of interest all applications must:

- Demonstrate innovation in technology as well as community partnering. The community engagement should be treated as an R&D component of the project, with a design package and a robust implementation and evaluation plan (detailing the method and level of involvement from members of the disadvantaged community organization partner(s)) and will be reviewed based on the "Scientific/Technical Approach" review criteria.
- Provide evidence that the team has sufficient experience, expertise, and/or capability in working in, or with disadvantaged communities;
- Include an organization representing at least one disadvantaged community and/or non-federal government entity.
- Provide a letter of support/commitment from the partnering community organization(s) towards participation in the project;
- Include an initial analysis of the applications' value to the community partner.
- Emphasize in Phase I end-user and community partnerships for the proposed concept by collecting end-user/ community requirements; converting collected requirements into system design requirements; using those design requirements to inform preliminary prototype design; and performing preliminary proof-of-concept testing or modeling of system components.
- For Phase II, small businesses should demonstrate the system design based on findings from Phase I and perform a pilot of the community-driven technological solution.

The following 4 subtopics and corresponding areas of interest contain further details and requirements. Applications outside of the following subtopics and areas will not be considered.

Read the second page carefully



Back to Table of Contents

community partnership approach. The requirements below, however, are only for the specific community areas of interest under each subtopic:

Crosscutting Community-Driven Decarbonization Areas of Interest
The offices are, under each of the subtopics, soliciting in a specific area of interest for applications from small businesses that are focused on community partnerships. Such partnerships are critical to achieving the national goal of net-zero carbon emissions as technology deployment depends on communities exercising agency in the integration of innovative technologies. These areas of interest under each subtopic support technology integration into communities through informed decision-making, community-centered research, and engagement at the local, state, and/or regional levels. They are specifically intended to assist new technologies that face cultural, economic, and societal hurdles to responsible and accelerated deployment. Trusted and community-driven research is fundamental to multiple stakeholders including rule makers, environmental regulators, clean energy industry developers, technology researchers and developers, and, most importantly, communities. These areas of interest encourage small business technology developers to incorporate community needs and inputs to the extent possible into their decarbonization R&D.

Additionally, these areas of interest encourage the participation of small businesses from disadvantaged communities, and/or with extensive, substantive partnerships with disadvantaged communities. Applicants are encouraged to review the guidance and definitions for communities, disadvantaged, and direct benefits outlined in M-21-28, the Interim Guidance for the Justice40 Initiative to understand about potentially impacted persons or communities of interest for this topic. Partnering is co-beneficial for both the small businesses and the disadvantaged communities that have often been left out in the initial stages of clean energy and climate technology development.

Specifically for the community-driven decarbonization areas of interest all applications must:

- Demonstrate innovation in technology as well as community partnering. The community engagement should be treated as an R&D component of the project, with a design package and a robust implementation and evaluation plan (detailing the method and level of involvement from members of the disadvantaged community organization partner(s)) and will be reviewed based on the "Scientific/Technical Approach" review criteria.
- Provide evidence that the team has sufficient experience, expertise, and/or capability in working in, or with disadvantaged communities;
- Include an organization representing at least one disadvantaged community and/or non-federal government entity.
- Provide a letter of support/commitment from the partnering community organization(s) towards participation in the project;
- Include an initial analysis of the applications' value to the community partner.
- Emphasize in Phase I end-user and community partnerships for the proposed concept by collecting end-user/ community requirements; converting collected requirements into system design requirements; using those design requirements to inform preliminary prototype design; and performing preliminary proof-of-concept testing or modeling of system components.
- For Phase II, small businesses should demonstrate the system design based on findings from Phase I and perform a pilot of the community-driven technological solution.

The following 4 subtopics and corresponding areas of interest contain further details and requirements. Applications outside of the following subtopics and areas will not be considered.

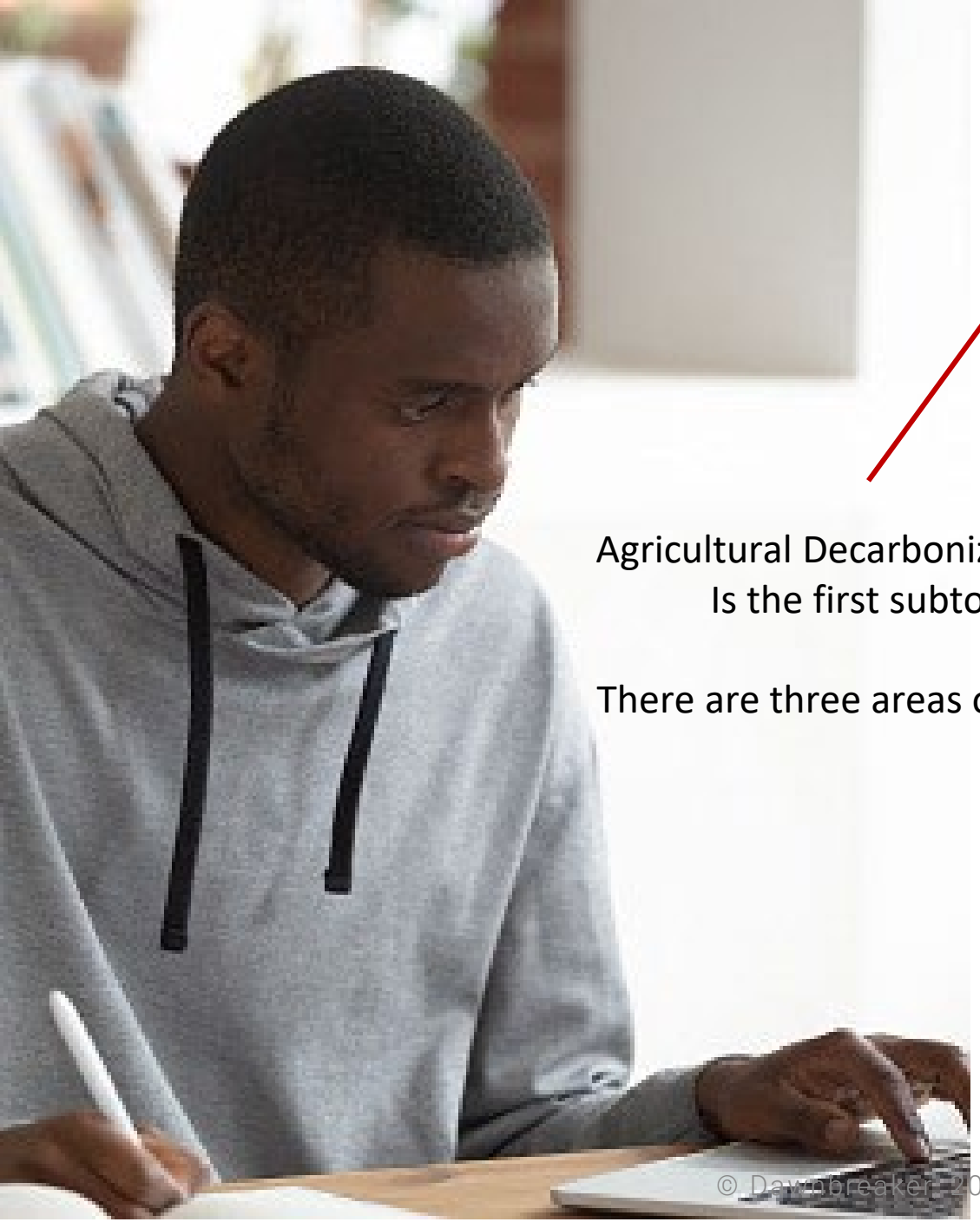
a. Agricultural Decarbonization

- Make sure that you understand the section that is highlighted
  - "applicants should demonstrate innovation in technology **as well as** community partnering. The community engagement should be treated as an R&D component of the project, with a robust implementation and evaluation plan and will therefore be reviewed based on Scientific/Technical Approach" review criteria."
- Note the emphasis on what is to be accomplished in Phase I and in Phase II
- Be sure to review the definitions in M-21-28
- You need to include a Letter of support from community organization with application

There are four subtopics for C56-10

- a. Agricultural Decarbonization
- b. Building Decarbonization
- c. Transportation Decarbonization
- d. Industrial Decarbonization

Remember: you respond to a topic/subtopic pair



Agricultural Decarbonization
Is the first subtopic

There are three areas of interest

a. **Agricultural Decarbonization**

Back to Table of Contents

This subtopic is focused on decarbonizing the agriculture sector, specifically focused on the nexus between energy and water. Agriculture represents nearly 10 percent of the Nation's carbon emissions, and EERE looks to make investments that drive a cleaner agriculture sector. This subtopic is being led by the Bioenergy Technologies Office (BETO) with contribution from other offices. BETO advances technologies that convert domestic biomass and other waste resources into cost effective, low-carbon biofuels and bioproducts. These technologies hold the promise of enabling a transition to a clean energy economy, creating high-quality jobs, supporting rural economies, and spurring innovation in renewable energy and chemicals production as part of the bioeconomy. This subtopic solicits innovative research and development (R&D) applications for decarbonization of Agriculture in the following three areas of interest:

1. Agricultural Decarbonization through Alternate Proteins and Amino Acids to Reduce Livestock-Associated Emissions
   The EPA has previously estimated that 37% of methane emissions from human activity are the direct result of our livestock and agricultural practices [1]. One of the largest GHG contributors associated with livestock production comes from methane associated with enteric fermentation which accounted for 175.2 MMT CO_2eq, or about 30% of all US agricultural emissions in 2020. Enteric fermentation results in methane emissions as a byproduct of livestock digestion processes (particularly cattle and other ruminants). Beef cattle accounted for 72% of methane emissions in the US in 2020 associated with enteric fermentation [2].

   BETO is seeking applications aimed at the production of novel alternative proteins and/or precursor amino acids from biomass that can be used as plant-based substitutes for animal-based food products. Target technologies should demonstrate the potential to reduce GHG emissions and other environmental impacts associated with livestock.

   Applications specifically focused on currently commercial commodity proteins are not of interest. Preference will be given to technologies with the lowest overall carbon intensity scores.

2. Agricultural Power Decarbonization
   This area of interest aims to support small businesses that advance technologies in agricultural opportunities related to irrigation modernization and other alternative opportunities in hydropower in agricultural communities. By harvesting power from the flow of water through irrigation canals and pipes, irrigation water suppliers and users can self-supply clean energy while reducing or eliminating the need for diesel pumps. Modernization also allows for the adoption of precision agriculture and other practices that support decarbonization, such as crop changes and reduced use of fertilizer. Areas of interest include hardware and/or software tools to enable harvesting water power from irrigation canals and pipes and/or otherwise modernize agricultural systems through water power technologies [3].

3. Community-Driven Agricultural Decarbonization for a Just and Equitable Energy Transition
   This area of interest aims to support small businesses that advance agricultural decarbonization technology by integrating opportunities for advancing equity. Specific areas of interest include:
   - Emission-reducing technologies/strategies for agricultural operations.
   - A conversion process transforming local sources of agricultural biomass (including waste biomass) to net negative emissions fuels and fuel intermediates (e.g., Sustainable Aviation Fuels, alternative marine/rail fuels) or net negative emission bioproducts and chemicals.
   - Opportunities for use of the resulting product(s) within or for the benefit of the agricultural communities.

Back to Table of Contents

- Soil carbon storage technologies/strategies that can be implemented and/or monitored at the community scale.
- Advanced waste reduction and utilization technologies and processes (e.g., on-farm waste utilization to reduce need for inputs, such as fertilizer, diesel, etc.)
- Bioenergy production strategies and/or technologies that innovatively maximize participation of and/or benefit to communities directly.

Questions – Contact: Andrea Bailey, Bioenergy Technologies Office, Andrea.Bailey@ee.doe.gov and Elizabeth Burrows, Bioenergy Technologies Office, Elizabeth.Burrows@ee.doe.gov

Review interest area 1, Topic a

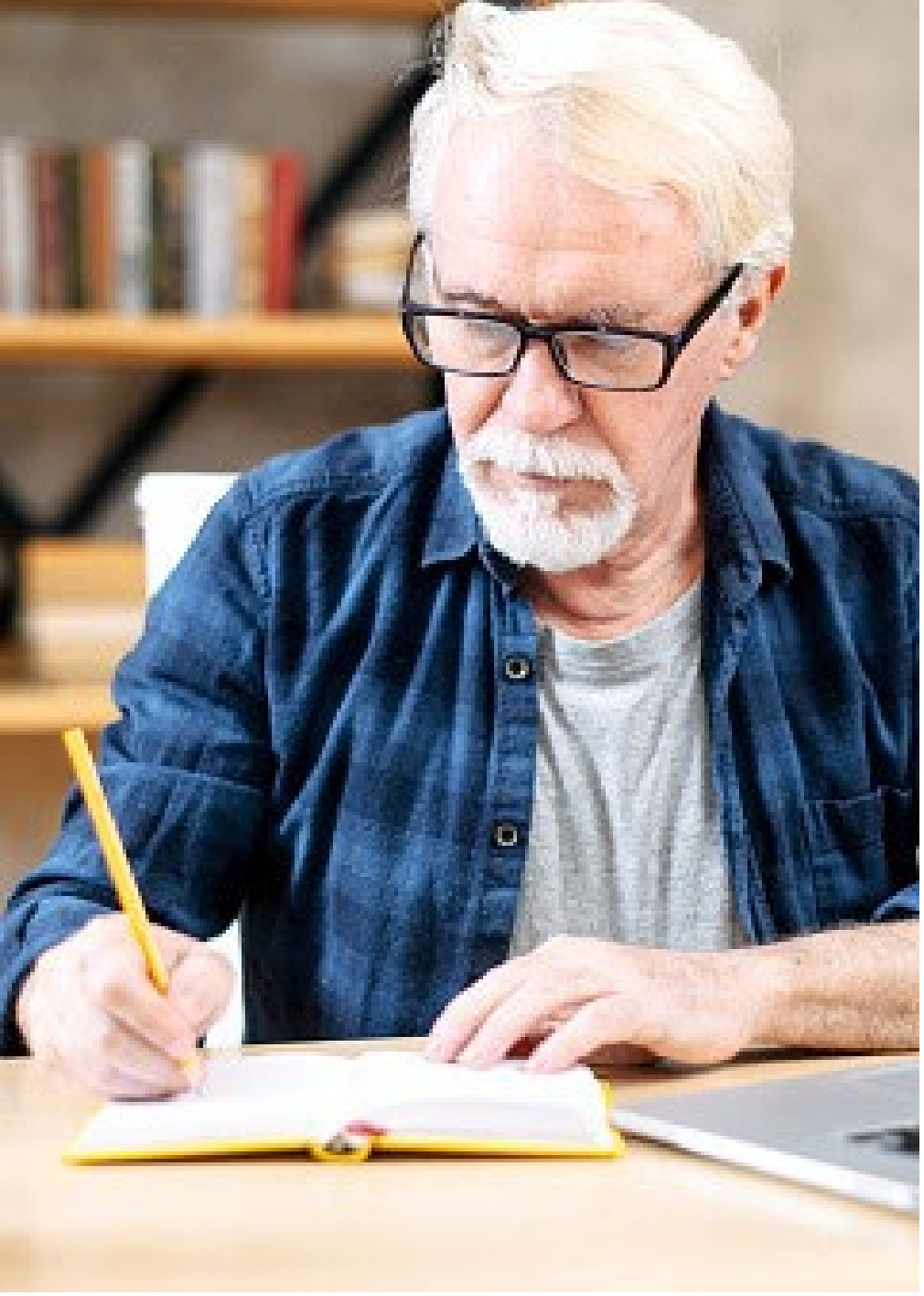
1. Agricultural Decarbonization through Alternate Proteins and Amino Acids to Reduce Livestock-Associated Emissions

   The EPA has previously estimated that 37% of methane emissions from human activity are the direct result of our livestock and agricultural practices [1]. One of the largest GHG contributors associated with livestock production comes from methane associated with enteric fermentation which accounted for 175.2 MMT CO2eq, or about 30% of all US agricultural emissions in 2020. Enteric fermentation results in methane emissions as a byproduct of livestock digestion processes (particularly cattle and other ruminants). Beef cattle accounted for 72% of methane emissions in the US in 2020 associated with enteric fermentation [2].

   BETO is seeking applications aimed at the production of novel alternative proteins and/or precursor amino acids from biomass that can be used as plant-based substitutes for animal-based food products. Target technologies should demonstrate the potential to reduce GHG emissions and other environmental impacts associated with livestock.

   Applications specifically focused on currently commercial commodity proteins are not of interest. Preference will be given to technologies with the lowest overall carbon intensity scores.

- Add references to your curated list using key words such as cows and methane and alternate proteins
- Look at statement regarding what is NOT of interest
- Make sure you understand how carbon intensity is measured



Some Alternate Protein references

totalenergies.com

Measuring the carbon intensity of our energy products

In its ambition to reduce CO2 emissions, TotalEnergies has a carbon intensity indicator to measure its progress in decarbonizing the energy mix.

earth.com

Study reveals features of cattle with high methane emissions

Study reveals features of cattle with high methane emissions • Earth.com

cbsnews.com

One farmer's seaweed discovery could help slow methane emissions — and change the world

Researchers found that feeding seaweed to cattle would dramatically reduce greenhouse gases, says farmer Joe Dorgan.

agproud.com

Nutrition strategies to improve the environment and profitability

Dairy cows have an important role in providing food security for humankind by converting human-inedible food, such as forage and byproducts, to human-edible, high-quality protein, micronutrients and essential fatty acids. However, the importance of dairy cattle to human life is being challenged beca...

Review interest area 2, Topic a

2. Agricultural Power Decarbonization

This area of interest aims to support small businesses that advance technologies in agricultural opportunities related to irrigation modernization and other alternative opportunities in hydropower in agricultural communities. By harvesting power from the flow of water through irrigation canals and pipes, irrigation water suppliers and users can self-supply clean energy while reducing or eliminating the need for diesel pumps. Modernization also allows for the adoption of precision agriculture and other practices that support decarbonization, such as crop changes and reduced use of fertilizer. Areas of interest include hardware and/or software tools to enable harvesting water power from irrigation canals and pipes and/or otherwise modernize agricultural systems through water power technologies [3].

- Add references to your curated list using key words such as "Irrigation modernization and hydropower and agriculture"
- Look at statement regarding areas of interest (highlighted in blue)

Ideas regarding Irrigation Modernization from Hydropower

usda.gov

Final Plans Approved for Arnold Irrigation District Infrastructure Modernization Project | Natural Resources...

The USDA Natural Resources Conservation Service (NRCS) in Oregon has released a Final Watershed Plan-Environmental Assessment (EA) and a Finding of No Significant Impact for the Arnold Irrigation District Infrastructure Modernization Project.

fcasolutions.org

Irrigation Modernization - Farmers Conservation Alliance

We believe irrigation modernization is one of the greatest agriculture, conservation, and economic development opportunities of our time....Read More

energytrust.org

Renewable Energy: Irrigation Modernization - Energy Trust of Oregon

Energy Trust supports irrigation modernization because it puts energy savings and renewable energy in the hands...

energy.gov

New Tool Advances Irrigation Modernization With Hydropower

To support irrigation districts in upgrading outdated systems, national laboratory researchers developed a tool that provides system designs for districts to understand the benefits of hydropower to decarbonize agriculture.

Review interest area 3, Topic a

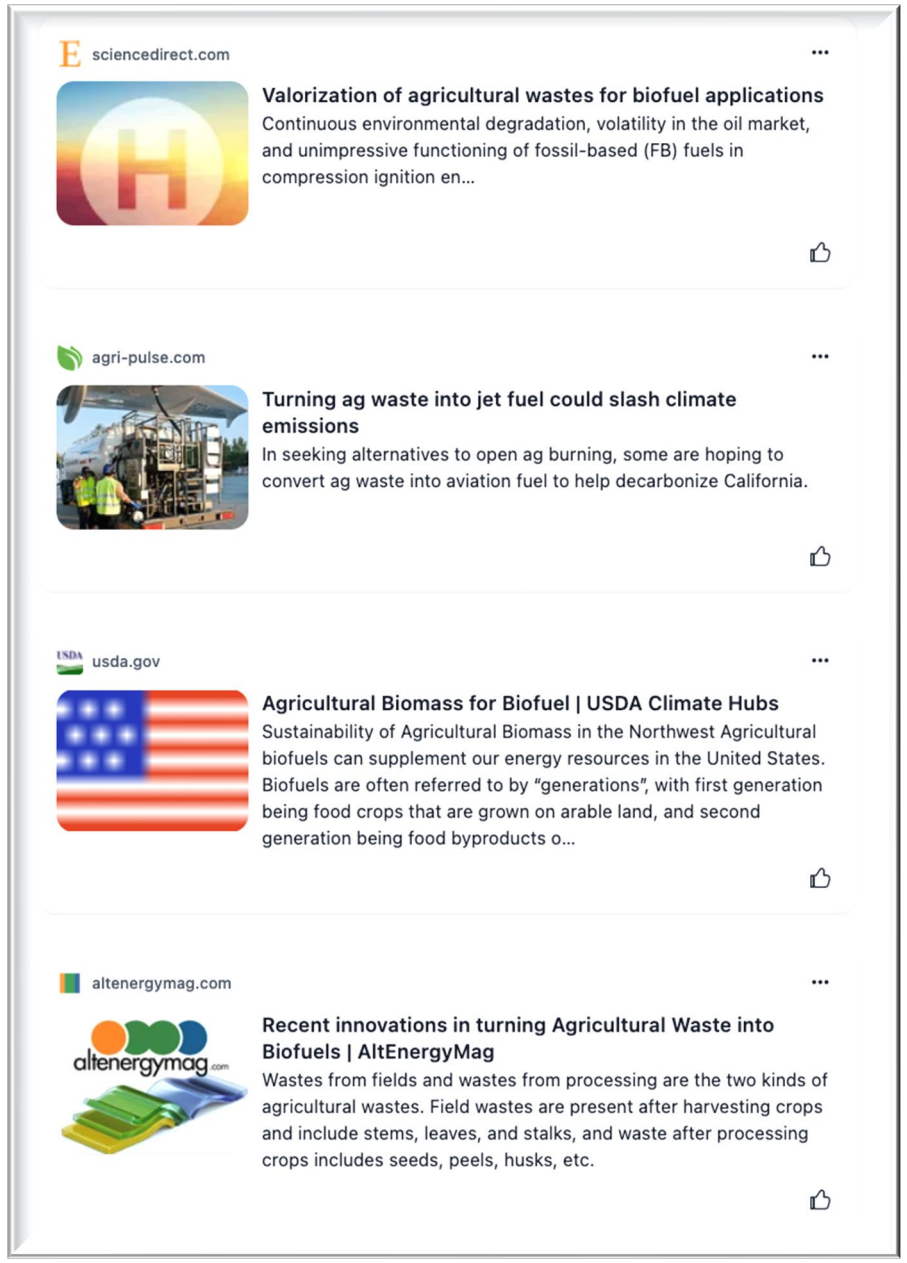
3. Community-Driven Agricultural Decarbonization for a Just and Equitable Energy Transition
This area of interest aims to support small businesses that advance agricultural decarbonization technology by integrating opportunities for advancing equity. Specific areas of interest include:
   - Emission-reducing technologies/strategies for agricultural operations.
   - A conversion process transforming local sources of agricultural biomass (including waste biomass) to net negative emissions fuels and fuel intermediates (e.g., Sustainable Aviation Fuels, alternative marine/rail fuels) or net negative emission bioproducts and chemicals.
   - Opportunities for use of the resulting product(s) within or for the benefit of the agricultural communities.

Back to Table of Contents

   - Soil carbon storage technologies/strategies that can be implemented and/or monitored at the community scale.
   - Advanced waste reduction and utilization technologies and processes (e.g., on-farm waste utilization to reduce need for inputs, such as fertilizer, diesel, etc.)
   - Bioenergy production strategies and/or technologies that innovatively maximize participation of and/or benefit to communities directly.

- Add references to your curated list using key words such as "turning waste biomass into fuel"
- Many areas of interest expressed (highlighted in green)

Become excited about what you learn – then begin to formulate ideas!



Be sure to review relevant references (After all 4 subtopics)

References: Subtopic a:

1. United States Environmental Protection Agency. *Agriculture and Aquaculture: Food for Thought*. 2020. Accessible at: https://www.epa.gov/snep/agriculture-and-aquaculture-food-thought

Back to Table of Contents

2. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020, Chapter 5: Agriculture. United States Environmental Protection Agency. 2022. Accessible at: https://www.epa.gov/system/files/documents/2022-04/us-ghg-inventory-2022-chapter-5-agriculture.pdf
3. "National Labs Lend Expertise to Overhaul Circulatory System of the American West." *INL*, https://inl.gov/article/circulatory-systems-of-the-ameri

https://www.epa.gov/system/files/docum
ghg-inventory-2022-chapter-5-agriculture

References: Subtopic b:

1. IEA (2018), The Future of Cooling, IEA, Paris https://www.iea.org/reports/the-future-of-cooling
2. *Energy Savings Potential and RD&D Opportunities for Commercial Building HVAC Systems Month Year.* 2017. Energy Savings Potential and RD&D Opportunities for Commercial Building HVAC Systems

References: Subtopic c:

1. "Annual Merit Review Presentations." *Energy.gov*, https://www.energy.gov/eere/vehicles/annual-merit-review-presentations
2. *Energy Efficient Mobility Systems 2021 Annual Progress Report Vehicle Technologies Office*. https://www.energy.gov/sites/default/files/2022-10/VTO_2021_APR_EEMS_REPORT_FINAL_compliant.pdf

References: Subtopic d:

1. "DOE Industrial Decarbonization Roadmap." *Energy.gov*, www.energy.gov/eere/doe-industrial-decarbonization-roadmap. https://www.energy.gov/eere/doe-industrial-decarbonization-roadmap
2. Occo, R., Somers, K., Speelman, E., and Witteveen, M. "Plugging in: What Electrification Can Do for Industry, McKinsey and Company." 2020. www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/plugging-in-what-electrification-can-do-for-industry
3. Cao, M., Xiong, D.B. "Ultrahigh Electrical Conductivity of Graphene Embedded in Metals, Adv. Funct. Mater." 2019, 29, 1806792 DOI: 10.1002/adfm.201806792, Ultrahigh Electrical Conductivity of Graphene Embedded in Metals | Request PDF (researchgate.net) https://www.researchgate.net/publication/331403006_Ultrahigh_Electrical_Conductivity_of_Graphene_Embedded_in_Metals
4. Kappagantula, K., et al, 2020, "Better" Copper Means Higher-Efficiency Electric Motors, Pacific Northwest National Laboratory, https://www.pnnl.gov/news-media/better-copper-means-higher-efficiency-electric-motors
5. Subramanian C., et al, 2013, One-Hundred-Fold Increase in Current Carrying Capacity in a Carbon Nanotube–Copper Composite, Nature Communications, 4 2202 [DOI: 10.1038/ncomms3202 |www.nature.com/naturecommunications]. Jul 23, 2013 https://www.nature.com/articles/ncomms3202

Who are they?

- Questions – Contact: Andrea Bailey, Bioenergy Technologies Office, Andrea.Bailey@ee.doe.gov
- and Elizabeth Burrows, Bioenergy Technologies Office, Elizabeth.Burrows@ee.doe.gov
- Don’t be afraid to reach out. It is a busy time of year so if you do not hear back – don’t get perturbed
- Reaching out after Thanksgiving vacation is the best time – assume 2 week window

- Before you start working on your solution, you need to understand what DOE's interests are.
  - Every paragraph is chock-full with information
  - Dig below the surface….explore
  - Don't be afraid of the richness that you find
  - Does any area resonate with you?
    - If not – move on
    - If yes, start thinking about partners
    - Look for partners among the information surfaced
  - Do you have questions?
    - …may include, but not limited to." Talk to the Topic Manager
    - Best time – the two weeks after this webinar
  - Remember to listen to recordings of Topic and subtopic guidance
    - Of particular importance, what is accomplished in Phase I vs Phase II

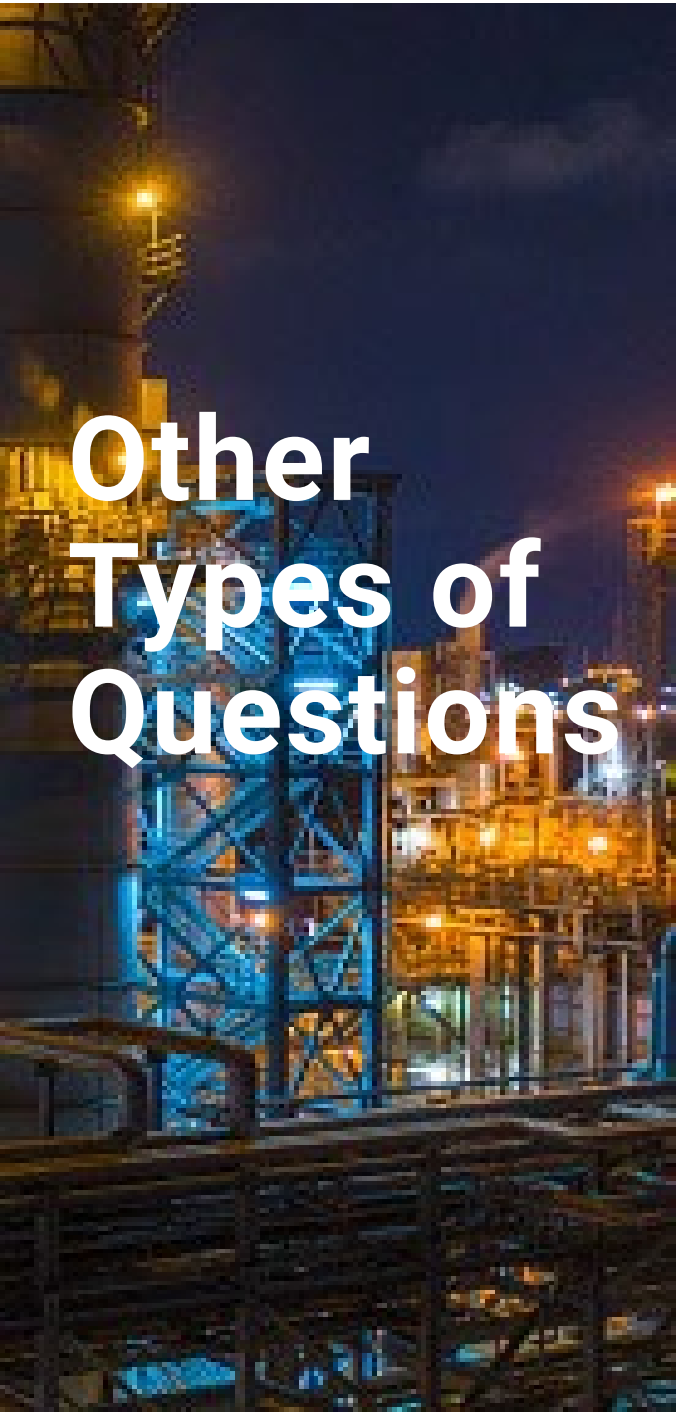
Sample e-mail to Topic Manager

Dear **[Insert Topic Manager Name]**

By way of introduction my name is **[insert name]** and I am **[describe affiliation].** I have reviewed the current Funding Opportunity Announcement [FOA] and am interested in Topic#, Subtopic Y. After reviewing the topic and subtopic carefully, as well as the links and references, I have a few lingering questions that I would like to discuss with you. Would you have time in the next couple of days for a brief, 10-15 minutes phone call? A brief conversation with you will help me determine if I can submit a responsive proposal. Are you available at [insert time] for a brief conversation?

My questions relate to: [insert 1 or 2 of your key questions – the following is an example -*technology approaches - are there certain approaches which are of no interest to DOE? what are the performance expectations in Phase I as opposed to Phase II?*]

Thanks for your consideration of my request.



Other Types of Questions

- Reach out to Carl Hebron with these types of questions

- Program Coordinator
  Carl Hebron
  Phone: 301-903-1414
  Email: carl.hebron@science.doe.gov

- Carl coordinates the day to day operations of the SBIR/STTR programs. If administrative issues arise related to letter of intent, applications, or grants, please direct your questions to Carl. Please note that technical questions relating to topics should be directed to the DOE program managers listed in our Topics document.

Please take a moment to complete our short survey!

https://forms.office.com/r/6YrR222VUW

Thank-you for Joining us today!

Jenny C. Servo, Ph.D.

Wakelet link to curated list
https://wakelet.com/wake/wvAxWO1jbUJitvJS7CID9

Using Wakelet for Professional Development

Be sure to follow us on Twitter!

https://twitter.com/dawnbreaker