



United States Energy Association
CONSENSUS Program Webinar

**Supporting the Next Generation of CCUS Projects:
Highlights of the USDA-DOE Collaboration**

With Speakers



Administrator for Rural Utilities Services
USDA, Rural Development



Special advisor to the Assistant Secretary
USDOE, Office of Fossil Energy

USEA

United States Energy Association

CONSENSUS PROGRAM

IN COOPERATION WITH



U.S. DEPARTMENT OF
ENERGY

Fossil
Energy

The CONSENSUS Program educates the public, policy makers, industry, and stakeholders and builds a consensus on the benefits of, and requirements for Carbon Capture Utilization Sequestration and Clean Coal technologies.

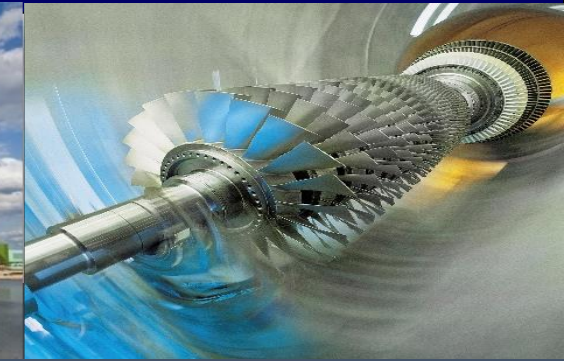
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U.S. DEPARTMENT OF
ENERGY

Office of
Fossil Energy



DOE/USDA Memorandum Of Understanding (MOU):

Relative to Cooperation and Coordination on Improving Energy Development in Rural America

Chuck Zelek PhD
Special Advisor to the Assistant Secretary
DOE Office of Fossil Energy

May 21st, 2020

DOE/USDA MOU: Facilitating Investments in Rural Communities

The image is a screenshot of a web browser displaying a news article from the Department of Energy website. The browser's address bar shows the URL: <https://www.energy.gov/articles/doe-and-usda-joi>. The page features a green header with the 'ENERGY.GOV' logo and navigation links for 'SCIENCE & INNOVATION', 'ENERGY ECONOMY', 'SECURITY & SAFETY', and 'SAVE ENERGY, SAVE MONEY'. The main content area has a dark green background with the title 'DOE and USDA Join Forces to Increase Energy Technology Development and Deployment in Rural America' and the date 'OCTOBER 24, 2019'. A white sidebar on the left contains social media sharing icons for email, Facebook, Twitter, LinkedIn, and Pinterest. The article text begins with 'WASHINGTON, DC - U.S. Under Secretary of Energy Mark W. Menezes and Deputy Under Secretary Donald LaVoy today announced a Memorandum of Understanding (MOU) between the two departments to promote rural energy and the development of technologies that will support and advance rural and agricultural communities and domestic manufacturing.' The text continues with 'The newly-signed MOU, which was required under section 6501 of the 2018 Farm Bill, will enhance collaboration and coordination between the Department of Energy (DOE) and USDA. The areas covered by the MOU include facilitating energy-related investments in America's rural communities; streamlining, leveraging and optimizing program resources; encouraging innovation;'. The Windows taskbar at the bottom shows the time as 8:02 PM on 10/28/2019 and the URL energy.gov/fe.

Department of Energy

DOE and USDA Join Forces to Increase Energy Technology Development and Deployment in Rural America

OCTOBER 24, 2019

Home » DOE and USDA Join Forces to Increase Energy Technology Development and Deployment in Rural America

WASHINGTON, DC - U.S. Under Secretary of Energy Mark W. Menezes and Deputy Under Secretary Donald LaVoy today announced a [Memorandum of Understanding \(MOU\)](#) between the two departments to promote rural energy and the development of technologies that will support and advance rural and agricultural communities and domestic manufacturing.

The newly-signed MOU, which was required under section 6501 of the 2018 Farm Bill, will enhance collaboration and coordination between the Department of Energy (DOE) and USDA. The areas covered by the MOU include facilitating energy-related investments in America's rural communities; streamlining, leveraging and optimizing program resources; encouraging innovation;

energy.gov/fe

The MOU was established in response to:

- The Presidents Executive Order on Rural Prosperity (April 25th, 2017)
- The Presidents Executive Order on Energy Infrastructure and Economic Growth (April 10th, 2019)
- As mandated in Section 6501 of the Agriculture Improvement Act of 2018



The MOU establishes new, and formalizes existing, USDA-DOE collaboration, and has five primary objectives:

- Develop and expand energy- and manufacturing-related businesses, industries, and technologies in rural America;
- Encourage investments in new or improved rural energy infrastructure;
- Enhance capital access for energy-related businesses and industries in rural America;
- Support rural community investments that anticipate growth associated with rural energy investment and development; and
- Encourage, support, and invest in cybersecurity initiatives and grid improvements.



Current Status/Actions to Date

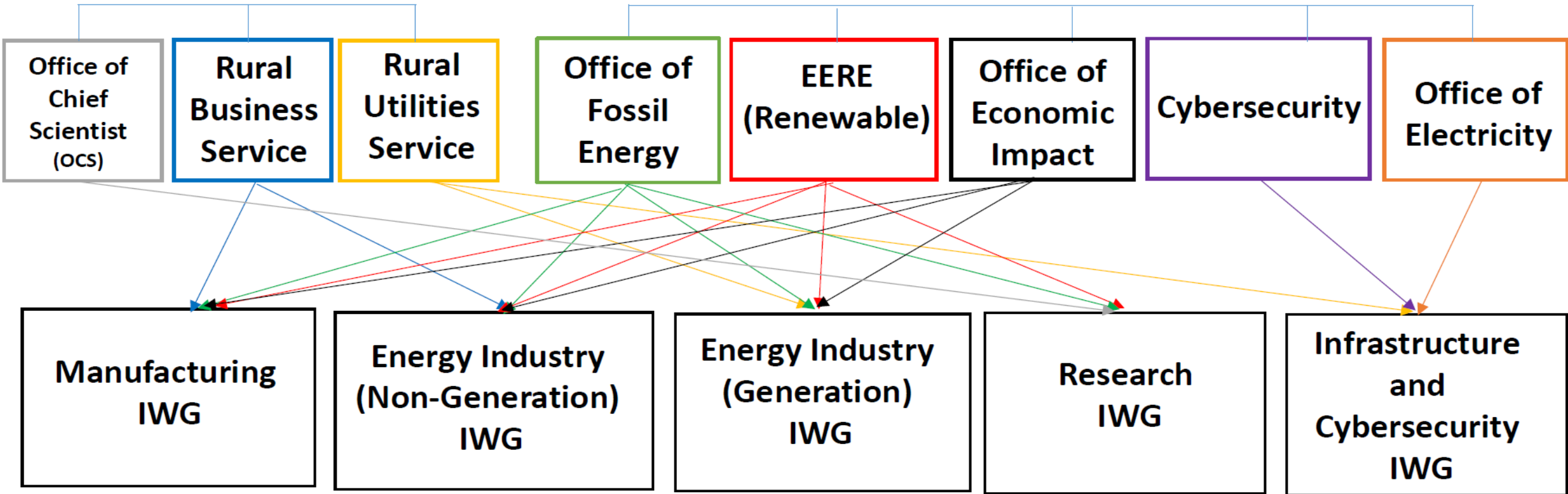
- **Key personnel have been identified from across both departments, an interdepartmental workgroup (IWG) formed, and an administrative structure established to implement the MOU**
- **Five interdepartmental teams within the workgroup have been formed**
 - Energy Industry – Electric Generation
 - Energy Industry – Non Electric Generation
 - Manufacturing
 - Critical Infrastructure and Cybersecurity
 - Research
- **Sixteen initial projects have been identified and aligned under the appropriate teams, project leads have been designated, and efforts are underway**



IWG/Teams Crosscut Multiple Agencies/Program Offices

USDA Agencies*

DOE Program Offices



Example IWG Projects

USDA/DOE/SBA Capital Access Forum Series

Manufacturing Facility Energy Efficiency Audits

Natural Gas and Coal Based Products Manufacturing

CO2 Pipeline Network Routing

Energy-Agriculture-Water Nexus Drought Mitigation Effort

Biofuels Infrastructure Enhancement

LNG Energy related projects

Carbon Capture Utilization and Storage Task Force

Existing Coal Plant Efficiency Improvements

Wind Innovation for Rural Economic Development

Hydro for Rural Economic Development

NRECA and APPA Cybersecurity Training for Utilities

Reduction of Fires from Vegetation and Electric Grid Contact

Electric Grid Outage and Impact Sharing

Legend

- Manufacturing IWG
- Energy industry – Non-Generation IWG
- Energy Industry Generation IWG
- Critical Infrastructure and Cybersecurity IWG



Progress to Date

- **Actively communicating USDA programmatic resources to DOE stakeholders**
- **Conducted two successful Appalachian Access to Capital events jointly with DOE, USDA and SBA**
- **Engaged with NRECA and rural cooperatives on cybersecurity and threat information sharing**
- **Facilitated USDA involvement in 45Q process**
- **USDA now involved in federal CCUS interagency workgroup**



Progress to Date (Cont'd)

- **Engaged USDA Forest Service in discussions on electric transmission and distribution critical infrastructure**
- **Integrating DOE thermal power generation data into USDA NRCS CART program ranking tool for drought mitigation**
- **Collaborating on Executive Order 13920 and the Task Force on Federal Energy Infrastructure Procurement Policies Related to National Security designed to protect the US bulk power system**
- **Established an MOU administrative infrastructure and accountability system across both departments**



For Further Information Contact:

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Rural Utilities Service

January 28, 2020



Rural Development

Infrastructure Financing

RUS is the successor to the Rural Electrification Administration (REA + FmHA W&S = RUS)

\$62 Billion Loan Portfolio: \$46 Billion Electric; \$13 Billion Water; \$3 Billion Telecom

Electric Program includes financing for coal fired power plants

RUS Electric loan Program has a negative subsidy in the federal budget- no delinquencies

Other than S&E, loan levels do not require budget authority

Appropriators approve an annual Program Level (PL) – over \$5 Billion

RUS also makes loans and grants for rural

Water and Sewer - \$1.4 Billion annually

Broadband, Distance Learning & Telemedicine Projects -- over \$700 million first round

ReConnect

New round of funding -- \$1.1 Billion in Budget Authority

Electric and Beyond!

RUS can provide low cost financing to virtually any element of electric infrastructure serving rural America.

Distribution

Transmission

Generation

Smart Grid

Energy Efficiency

Cyber/Grid Security

Renewables

CCUS

Focused on hard asset lending.

Projects must be eligible, feasible and secured.

Incentive Lender Open to All Electric Utilities Serving Rural Areas

Incentive Lender

Not Lender of Last Resort

Infrastructure lending

System & Project Loans

First Lien or Shared First Lien on assets (pledge of revenues possible for tribal/muni)

While Coops are RUS' largest customer base, program open to

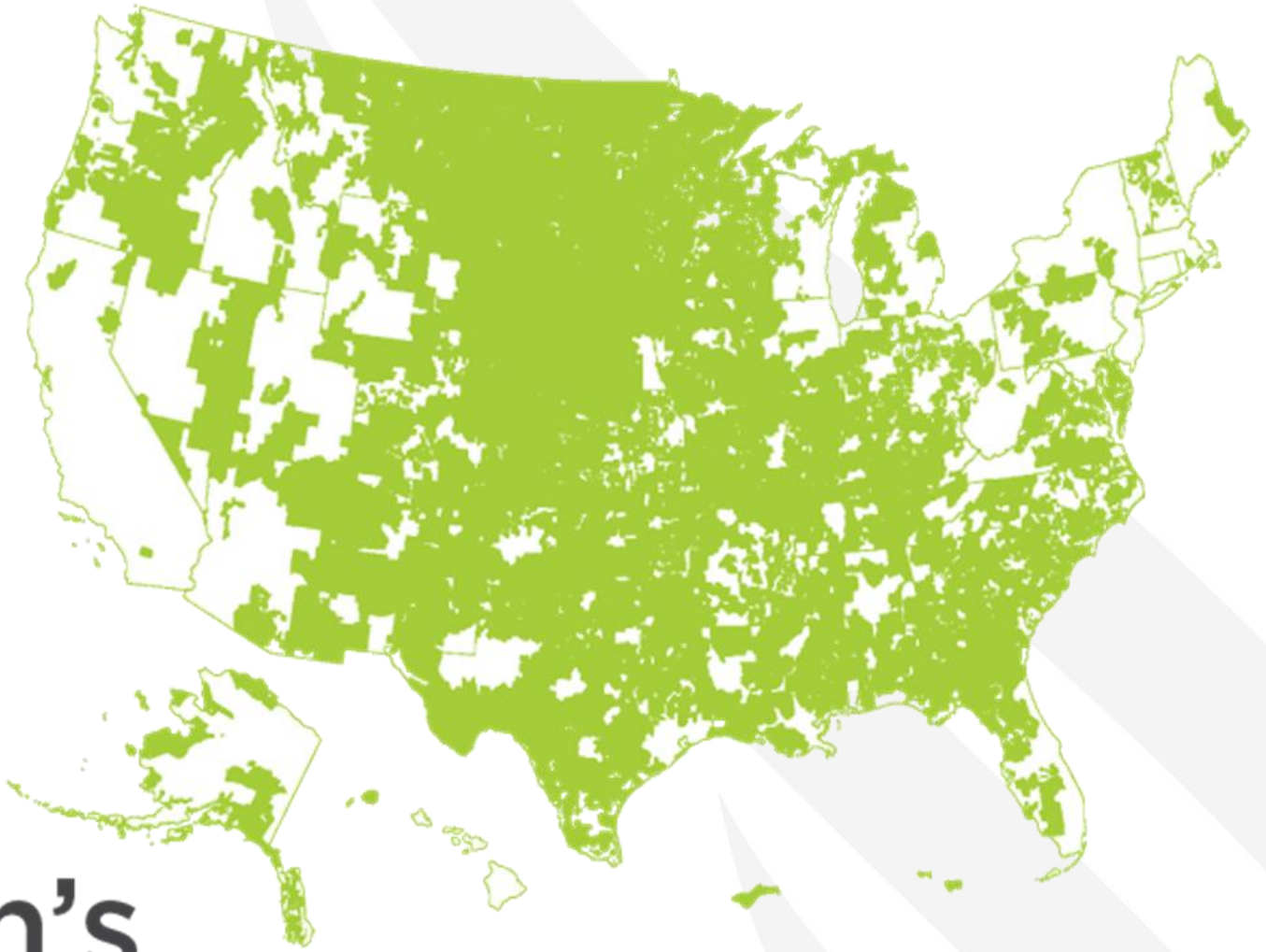
- IOU
- Municipal
- Tribal

833 distribution
and 62 generation
& transmission
cooperatives

Power

56%

**of the nation's
landmass.**



Source: NRECA

RUS Electric Programs Fiscal Year 2019 Program Performance

The Electric Program obligated \$5.77 billion in loans and grants in FY 19:

Electric Infrastructure Loan Program

- 104 loans were obligated for a total of \$4,996,130,472
- Approximately 7.6 million rural residents will receive new/improved electric facilities
- Dollars Leveraged, \$1.77 billion

313A Loan Guarantee Program

- 2 loans were obligated for a total of \$750,000,000

Rural Energy Savings Program (RESP)

- 6 loans were obligated for a total of \$34,200,000
- Serving 94,228 rural residents

High Energy Cost Grant (HECG) Program

- 6 grants were obligated for a total of \$11,668,431; \$3.9 million non-federal match: \$3.5million Denali and \$400 thousand other)

Money Sale!

APPROXIMATE FFB QUARTERLY RATES

3-mo	6-mo	1-yr	2-yr	3-yr	5-yr	7-yr	10-yr	20-yr	30-yr
1.52	1.55	1.54	1.53	1.54	1.60	1.70	1.78	2.02	2.09

Plus 1/8%

1/6/2020 rates (rates set daily)

RUS Loan Portfolio (as of January 2020)

Principal Balance as of 09/30/2019	313A PBO	FFB PBO	RESP PBO	RET PBO	COC	PBO less COC
RUS Electric Borrowers w/Coal Plant Assets		\$16,136,189,365.60		\$15,767,354.07	\$1,455,900.69	\$16,150,500,818.98
RUS Electric Total Portfolio	\$5,637,155,489. 73	\$41,695,830,469.33	\$1,388,787.41	\$1,938,016,329.03	\$5,207,787,215.41	\$44,064,603,860.09

RUS Borrowers with Coal Assets

count	RUSBorrowerId	PlantName	Plant location State	Fuel	borrower
1	AK0006	Healy	Alaska	Coal	yes
2	AL0042	Lowman	Alabama	Coal	yes
3	AR0032	GRDA	Oklahoma	Coal	yes
4	AR0034	Turk	Arkansas	Coal	yes
5	AZ0028	Apache	Arizona	Coal	yes
6	CO0034	Comanche #3	Colorado	Coal	yes
7	FL0041	Seminole	Florida	Coal	yes
8	GA0109	Wansley	Georgia	Coal	yes
9	IA0083	Walter Scott	Iowa	Coal	yes
10	IA0084	Neal	Iowa	Coal	yes
11	IL0050	Marion	Illinois	Coal	yes
12	IN0106	Merom Generating Station	Indiana	Coal	yes
13	KS0053	Holcomb	Kansas	Coal	yes
14	KS0054	Iatan 2	Missouri	Coal	yes
15	KY0059	Cooper	Kentucky	Coal	yes
16	KY0062	Wilson	Kentucky	Coal	yes
17	MO0071	Chamois	Missouri	Coal	yes
18	MO0073	Thomas Hill	Missouri	Coal	yes
19	MS0053	R. D. Morrow, Sr.	Mississippi	Coal	yes
20	ND0020	Milton R. Young 1	North Dakota	Coal	yes
21	ND0048	Milton R. Young 2	North Dakota	Coal	yes
22	OH0099	Cardinal Station 1,2 and 3	Ohio	Coal	yes
23	OK0032	Hugo	Oklahoma	Coal	yes
24	TX0154	Nelson	Louisiana	Coal	yes
25	TX0158	Dolet Hills	Louisiana	Coal	yes
26	TX0161	Turk	Arkansas	Coal	yes
27	WI0064	Genoa #3	Wisconsin	Coal	yes

RUS borrowers who own all or part of a coal fired power plant

When to Fund CCUS Projects?

- RUS remains optimistic but will invest prudently.
- Technological & Financial Risks must be minimized to protect rural consumers & U.S. tax payers.
- Staff will perform Engineering & Financial analyses & due diligence. Recall...
 - **Proven Technology** - Commercially Available.
 - **Loan Feasibility** – Reasonable assurance loan will be repaid in full as scheduled.
 - **Loan Security** – Reasonable adequate security.



Electric Program Opportunities & Challenges

Future opportunities & challenges:

- Continued Investments needed to address aging plants and electrical facilities
- Smart Grid essential to modernize the electric infrastructure, secure grid, enhance recovery and promote efficiency
- New Natural Gas Combined Cycle plants with advanced Combustion Turbine technology & new reciprocating engines
- More solar PV facilities and other renewables
- Energy Efficiency and Demand Response interest rising
- Grid Resiliency needed to address natural disasters, cyber, EMP and human threats
- Microgrids Energy Storage, Enhanced Control Systems
- Carbon Capture, Usage & Sequestration
- Fiber investment for Smart Grid synergetic with broadband goals

Thank You!

- Follow-up opportunities:

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