Manufacturing & Energy Efficiency
Policy Innovations To Advance
Industry 4.0

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This is a work in progress, comments welcome!

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Enhancing Manufacturing Energy Efficiency Is Ubiquitous In Emerging Industry 4.0 Technologies

Emerging Industry 4.0 Technologies

- Artificial Intelligence and Robotics
- Ubiquitous linked Sensors
- Virtual and Augmented Reality
- Additive Manufacturing
- Blockchain and Distributed Ledger
- Advanced Materials and Nanomaterials
- Data-driven energy capture, storage and transmission

Figure Source: World Economic Forum
Federal Manufacturing Program Landscape Is Complex and Categorical

MEP=Manufacturing Extension Partnership; CHP =Combined Heat and Power
Manufacturing Program Recipients Lack On-the-Ground Integration

Source: Carnegie Mellon University Scott Institute for Energy Innovation
Data Sources: DOE Better Plants Program
Clean Energy Smart Manufacturing Innovation Institute (CESMII)
DOE Combined Heat and Power (CHP) Technical Assistance Partnership (TAP)
DOE Industrial Assessment Center (IAC); Manufacturing USA (formerly known as the National Network of Manufacturing Institutes – NNMI)
National Institutes of Standards and Technology (NIST) Manufacturing Extension Partnership (MEP)
West Virginia Department of Commerce

➢ Encompass product enhancements and process productivity improvements
➢ Reduce environmental and climate impact as objectives of this policy.

Adopt a Systems Approach across all Federal, State, and Local Manufacturing Programs.

➢ Highlight energy efficiency opportunities in Industry 4.0 innovations.
➢ Integrate technical assistance, research and development, and workforce activities— with leadership at the regional level.


Expand Innovative Pilot and Demonstration Projects through Public Private Partnerships (P3) to Mitigate Technical, Financial and Business Risks.
Questions? Comments?

This is a work in progress, feel free to share any thoughts you have.

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