

Water-Energy-Food Nexus Initiative (WEFNI)



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The interconnection of water, energy and food resources is highly complex and the availability of these resources is increasingly stressed by climatic, social, political, economic, demographic, technologic and other pressures. Sustainably addressing these challenges requires a better understanding of the nexus formed by the interconnections between the resources and will lead to a more equitable allocation and improved management of them.

The Texas A&M University Water-Energy-Food Nexus Initiative is composed of Texas A&M University scientists who are committed to finding solutions to the nexus grand challenges. These scientists and educators will make up multidisciplinary teams that share their skills, knowledge and scientific abilities to produce the necessary analytics, grounded in state-of-the-art science, and able to provide a platform to facilitate inclusive stakeholder dialogues at local, regional and global levels.

This informed dialogue will enable a better understanding of the full life-cycle footprints of food, water and energy resources, their products and services. This dialogue will enable improved, science-based, management of these critical resources and will assist policy makers in planning effectively to address the anticipated shortfalls in these primary resources in a changing world.

Goals

- Facilitate science-based policy
- Raise awareness among academe, society, government and industry for holistic approaches to address grand challenges and sustainable development goals
- Identify and respond to national and global opportunities in research, education, outreach and policy implementation
- Assist in the effective management of primary resources
- Establish a Nexus Community of Science and Practice

Activities

San Antonio Case Studies: Coordinated by members of the WEFNI leadership team, Mohtar, McCarl, Portney, Rosen, and Baluauf, and supporting the science for planning the Water-Energy-Food Resources Nexus in San Antonio and surrounding regions as climate and urban growth alter water supplies. Focus topics for these case studies include Data & Modeling (McCarl, Miller), Energy for Water (Pistikopoulos, Ma, Li, El-Halwagi, Elwany, Sengupta, Chellam), Governance & Finance (Portney, Berke, Mohtar), Tradeoffs & Decision Support Tools (Mohtar, McCarl), Water for Food (Munster, Wagner, Fares, Jantrania, Ale), and Water for Energy (Holtzapfel, Pistikopoulos, Bhatia). Seven graduate students are also supported in these activities.

NSF FEW Nexus Workshop on Integrated Science, Engineering, and Policy: A Multistakeholder Dialogue

Building partnerships and creating a road map to establish a national Food-Energy-Water (FEW) Nexus Community of Science and a platform from which to address the key research, education, engineering and policy challenges



Competitive Grants submitted by members of the Texas A&M WEFNI Community in 2017 include: NSF-NRT; NSF-INFEWS (16 proposals as collaborating scientists or principal scientists); NSF Symposium; Belmont Forum; and more.

Texas A&M WEF Nexus Initiative Leadership Team

- **Rabi H. Mohtar**, Texas A&M Engineering Experiment Station (TEES) Research Professor, Biological and Agricultural Engineering, Zachry Department of Civil Engineering, College of Engineering, and College of Agriculture and Life Sciences
- **Jack Baldauf**, Executive Associate Dean, Associate Dean for Research, Professor, College of Geosciences
- **David Baltensperger**, Professor and Head, Department of Soil and Crop Sciences, College of Agriculture and Life Sciences
- **Bruce McCarl**, University Distinguished Professor, Department of Agricultural Economics, College of Agriculture and Life Sciences
- **Elsa Murano**, Director, Norman Borlaug Institute for International Agriculture and Professor, Department of Nutrition and Food Science, College of Agriculture and Life Sciences
- **Efstathios Pistikopoulos**, Interim Co-Director, Texas A&M Energy Institute and TEES Distinguished Professor, Artie McFerrin Department of Chemical Engineering, College of Engineering
- **Kent E. Portney**, Professor and Director, Institute for Science, Technology & Public Policy, Bush School of Government and Public Service
- **John Tracy**, Director, Texas Water Resources Institute, Professor, Zachry Department of Civil Engineering, College of Engineering
- **Arnold Vedlitz**, Professor and Bob Bullock Chair in Government and Public Policy; Director Emeritus and Distinguished Research Scholar in the Institute for Science, Technology, and Public Policy, Bush School of Government and Public Service, and Division Head for the Science, Technology and Public Policy Division, Texas A&M Engineering Experiment Station

Sponsoring Partners of the Texas A&M WEF Nexus Initiative (WEFNI)

- College of Agriculture and Life Sciences
- College of Geosciences
- George Bush School of Government and Public Service
- Texas A&M Engineering Experiment Station
- Texas A&M AgriLife Research
- Texas A&M University System

Join our Community of Practice: Share your research, sponsor a project.

Learn more:

Texas A&M WEF Nexus Initiative
306 Scoates Hall, College Station, TX • Tel. 979.458.9886 • Fax. 979.862.3442
wefnexusinitiative.tamu.edu • wefnexus@tamu.edu



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