



San Antonio Case Studies – WEF Nexus Initiative (SACS-WEFNI)

Project Coordinators: Rabi H. Mohtar, Bruce McCarl, Kent E. Portney, Efstratios N. Pistikopoulos, Rudolph A. Rosen, Jack Baldauf, and David Baltensperger.

Project Goal: to support the science for planning the Water-Energy-Food Resources Nexus in San Antonio and surrounding regions as climate and urban growth alter water supplies.

Background: San Antonio demonstrates a complex resource hotspot within Texas with promising potential. The case studies will attempt to identify a vision for growth that considers the tightly interconnected resources of water, energy, and food by addressing the trade-offs between these resource systems. Home to a rapidly growing population, the Eagle Ford shale play, and with major agricultural activity in its environs, this hotspot has many competing demands. Stakeholders need the tools to address future resource challenges. This WEFNI project will attempt to address those needs through six distinct, but interrelated, case studies for which objectives, outcomes, and data collection needs will be identified by the team leads; each team is supported with graduate students.

Data and Modeling: Bruce McCarl, Ag Econ and Gretchen Miller, Civil Engr.; supported by Yingqian Yang, PhD student, Ag Econ.

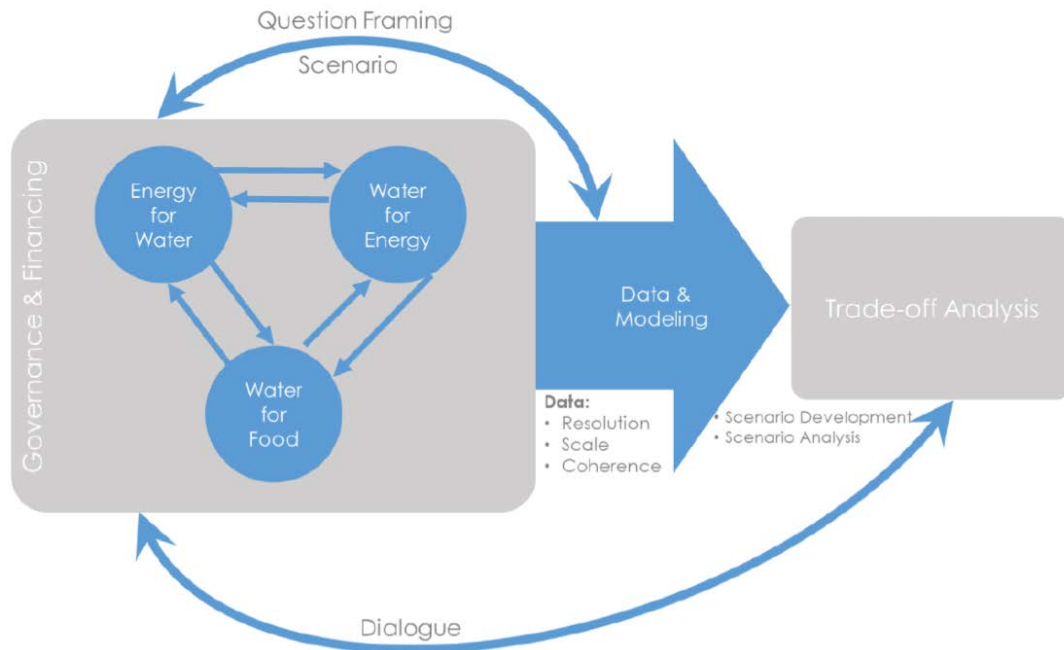
Energy for Water: Efstratios Pistikopoulos, Energy Institute; Samuel Ma, Civil Engr.; Ying Li, Mechanical Engr.; Mahmoud El-Halwagi, Fuels Research Center; Alaa Elwany, Industrial & Systems Engr.; Debalina Sengupta, Gas and Fuels Research Center; Shankar Chellam, Civil Engr.; supported by Wei Dong, PhD student, Mechanical Engr. and Chi Zhang and Kevin Topolski, PhD students, Chemical Engr.

Governance and Financing: Kent Portney, Bush School; Rabi Mohtar, Civil and Bio. & Agr. Engr; Phil Berke and Garrett Sansom, Sustainable Coastal Communities Institute; supported by Lindsey Aldaco-Manner, MSc student, Water Management & Hydrological Sciences.

Trade-off Analysis: Rabi Mohtar, Civil and Bio. & Agr. Engr; Bruce McCarl, Ag Econ, Burak Gunerlap, Geography; supported by Bassel Daher, PhD student Water Management & Hydrological Sciences and Sydney Becker, MSc student, Geography.

Water for Food: Clyde Munster, Bio. & Agr. Engr.; Ali Fares, Prairie View; Anish Jantrania, AgriLife Extension; Srinivasulu Ale, AgriLife Extension, supported by Sonja Loy and Jeffrey Tahtouh, MSc students, Bio. & Agr. Engr.

Water for Energy: Mark Holtzapple, Chemical Engr.; Efstratios Pistikopoulos, Energy Inst., Mukul Bhatia, Geology; David Burnett, Global Petroleum Institute; supported by students Ahmed Mroue and Jordan Muell, MSc in Energy and Bio and Agri respectively.



Milestones:

- **Special Issue** with “Science of the Total Environment” constituting of 15 peer reviewed research papers to be submitted by December 2017.
- **WEF Nexus San Antonio Case Studies – Town Hall 2: April 13, 2017**
- **WEF Nexus San Antonio Case Studies – Town Hall 1:** Following work in the respective sub-groups, Town Hall 1 took place **November 14, 2016**, with the goals of: sharing project research questions and data; discussing synergies; developing a nexus interlinkages map (road map). An additional primary goal of the Town Hall was to align and identify the interlinkages between the sub-projects in order to be ready to respond to upcoming calls for WEF nexus proposals, including NSF’s INFEWS, DoE, NIFA (TAMU led or participated in 18 proposals submitted to NSF-INFEWS in February, 2017). These are envisioned to become major milestones building toward the submission of ERC/STC or Belmont forum proposals in the coming 2 years

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<https://wefnexusinitiative.tamu.edu/san-antonio-case-studies/>

