



Energy and Environment

Team Leader – R. Kommalapati



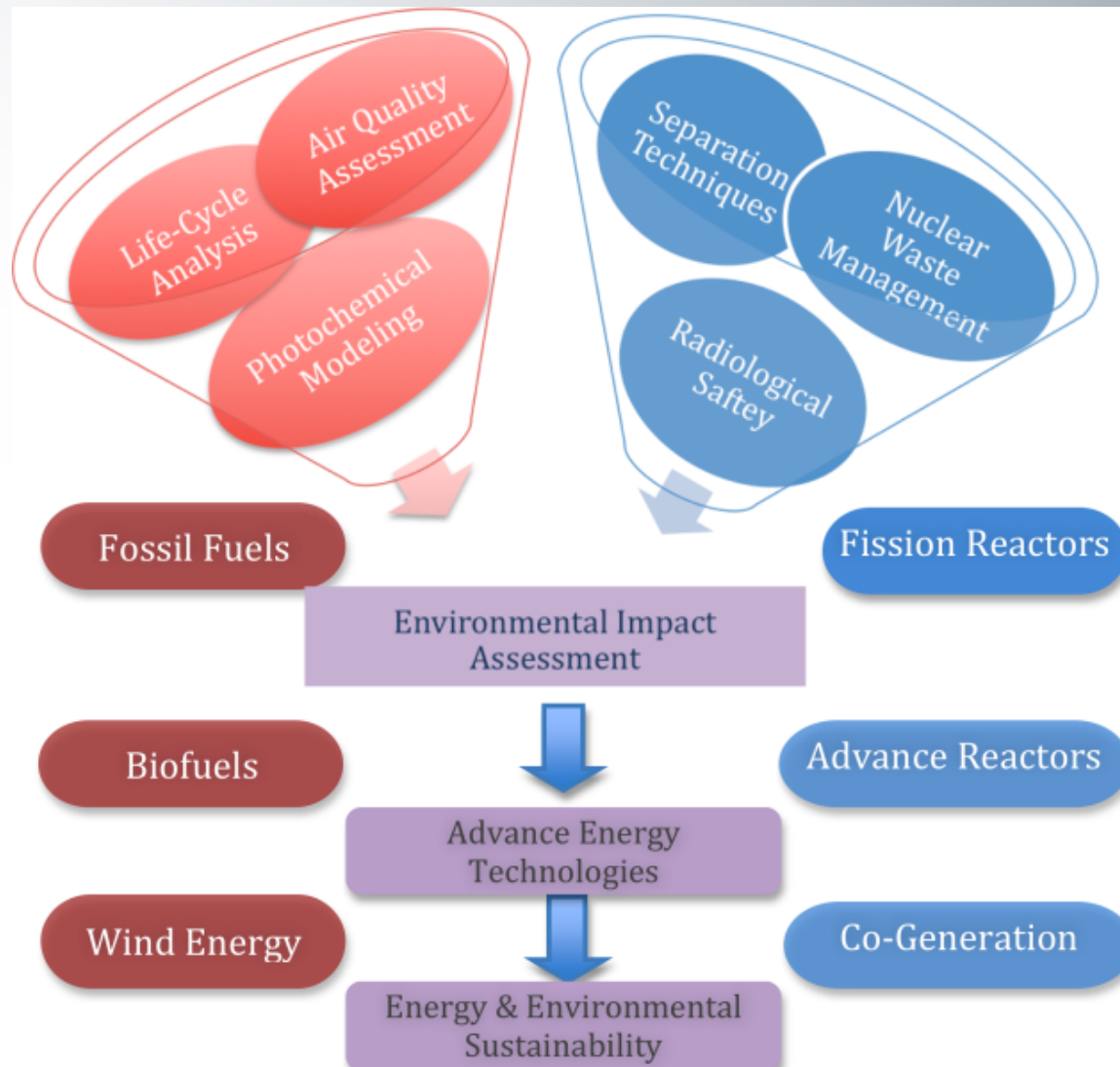
➤ Primary Focus Areas and Research goals

- **Sustainable Nuclear Energy (SNE)** through radiological safety, spent fuel management and advanced reactors
 - Identify back-end fuel cycle management strategies for safe operation of nuclear power plants and waste management
- **Photochemical Modeling (PCM) of Emissions Control Scenarios** to investigate effects on air quality of the various energy technologies under study by CEES
 - Assess the regional effects of various emission control strategies
- **Life Cycle Analysis (LCA) of Greenhouse Gas Emissions** from conventional (fossil fuels), nuclear, and renewable (biofuels, wind) energy technologies.
 - Determine the environmental impact of existing and advanced energy source utilization





E& E Project Frame work





Energy and Environment

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- Energy and Environment one of the three sub areas
 - Lead by Drs. Kommalapati and Aghara
 - Other Personnel: Dr. Vasudevan
- Collaborators - Nuclear Radiation safety
 - Drs. Pavel Tsvetkov & Karen Vierow - Texas A&M University
- Collaborators - Photochemical Modeling and Life Cycle Analysis
 - Dr. David Allen - The University of Texas, Austin,
 - Dr. Kalliat Valsaraj - Louisiana State University
 - Dr. Venkatesh Udamaneni - Texas A&M University, Kingsville.



Sustainable Nuclear Energy (SNE)

Aghara and Vasudevan



➤ Status:

- Laboratory setup is underway
 - Leverage funds to get things started
- In the process of defining potential student projects that lead to our subproject goals
 - Will utilize these projects to recruit students into our research groups
- Developing specific plans for our collaborative research with identified collaborators in the proposal including:
 - TAMU-NE, ORNL, STP and NPI
- Putting together a description of the post doc needed who would be ideal for sharing with the other projects within the subgroup and Center to demonstrate integrated research effort



CEES



Photochemical Modeling (PCM) of Emissions Control Scenarios - Kommalapati



Proposed Tasks for this year

Task 1: Study the CAMx model

- install the model, apply the model for simple scenarios and establish data needs and gather sources for Data

Task 2: Develop Emissions Inventory

- review literature to identify sources and databases to develop emissions inventory
- Identified a student to start looking at the CAMx model



Life Cycle Analysis of Greenhouse Gas Emissions - Kommalapati



- Proposed tasks for the next 1 year
 - Collection and Analysis of Fossil Fuel Emissions Data followed by other GHG emissions through the life cycle
 - Continue on to collection and analysis of emissions data for biofuels and other life cycle emissions
 - Identified grad student to work
- Future Needs – Post-Doc to complete the modeling and LCA

