

# FOCAPO-CPC 2023

## CONTRIBUTED POSTER SESSION B

### Energy & Sustainability

Wednesday, January 11, 2023

8:00 p.m. to 10:00 p.m.

---

THE FUTURE OF THE CHEMICAL INDUSTRY SHAPED BY GLOBAL CONFLICTS:  
IMPACT OF MAJOR LNG EXPORTS ON THE U.S. CHEMICAL INDUSTRY  
Alkiviadis Skouteris, Ioannis Giannikopoulos, David T. Allen, Michael Baldea and Mark A. Stadtherr  
(Paper ID #4)

OPTIMAL DESIGN OF SUPPLY CHAIN FOR PLASTIC UPCYCLING CONSIDERING  
ECONOMIC AND ENVIRONMENTAL INDICATORS  
Oluwadare Badejo, Borja Hernandez and Marianthi Ierapetritou  
(Paper ID #19)

ENVIRONMENTAL AND ECONOMIC ANALYSIS OF THE POLYETHYLENE  
TEREPHTHALATE PRODUCTION FROM BIOMASS-BASED P-XYLENE  
Yuan Liu, Yuqing Luo, Aikaterini Anastasopoulou and Marianthi Ierapetritou  
(Paper ID #21)

HEURISTIC DYNAMIC RAMPING CONSTRAINTS FOR DEMAND RESPONSE OF  
PROCESSES WITH INTERNAL DYNAMICS  
Florian Joseph Baader, André Bardow and Manuel Dahmen  
(Paper ID #23)

PRICING AND REMUNERATING LOAD SHIFTING FLEXIBILITY IN ELECTRICITY  
MARKETS  
Weiqi Zhang and Victor Zavala  
(Paper ID #26)

MUNICIPAL SOLID WASTE MANAGEMENT USING A COORDINATED MARKET  
FRAMEWORK  
Aurora Munguia-Lopez, Victor Zavala and Jose Maria Ponce-Ortega  
(Paper ID #32)

TECHNO-ECONOMIC EVALUATION OF INFRASTRUCTURES FOR  
THERMOCHEMICAL UPCYCLING OF PLASTIC WASTE  
Jiaze Ma, Philip Tominac and Victor Zavala  
(Paper ID #33)

LIFE CYCLE OPTIMIZATION OF POWER GENERATION AND TRANSMISSION  
EXPANSION PLANNING

Iasonas Ioannou, Ignacio Grossmann and Gonzalo Guillén-Gosálbez  
(Paper ID #48)

DISTRIBUTED MANUFACTURING FOR ELECTRIFIED CHEMICAL PROCESSES IN A  
MICROGRID

Asha Ramanujam and Can Li  
(Paper ID #50)

INTEGRATING CO<sub>2</sub> MINERALIZATION IN INDUSTRIAL CLUSTERS: THE BENEFITS  
OF MATERIAL AND HEAT INTEGRATION

Rafael Castro-Amoedo, Mouhannad Abou Daher, Julia Granacher and Francois Marechal  
(Paper ID #54)

A SHORTCUT MODEL FOR MULTICOMPONENT HOMOGENEOUS AZEOTROPIC  
DISTILLATION

Zheyu Jiang  
(Paper ID #55)

APPLICATION OF DISCRETIZED NON-LINEAR PROGRAMMING TO MINIMIZE  
MIXED OIL FORMATION IN FLUSHING OPERATIONS OF LUBRICANT PIPELINES

Swapana Jerpoth, Robert Hesketh, Stewart Slater, Robert McClerman, Mariano Savelski and  
Kirti Yenkie  
(Paper ID #57)

ARTIFICIAL INTELLIGENCE FOR IMPROVING PROCESS CONTROL IN ENERGY  
EFFICIENCY PERSPECTIVE: A REVIEW

Mohamed El Koujok and Mouloud Amazouz  
(Paper ID #65)

SYSTEMATIC DESIGN AND ANALYSIS OF SOLVENT ASSISTED PLASTIC  
RECYCLING PROCESSES

Austin L. Lehr, Matthew Conway, Kayla L. Heider, Emmanuel A. Aboagye, John D. Chea, Jake  
P. Stengel, Pahola Thathiana Benavides and Kirti M. Yenkie  
(Paper ID #66)

PROCESS ALTERNATIVES TO STABILIZE SMALL-SCALE AMMONIA PRODUCTION

George Bollas and Laron Burrows  
(Paper ID #67)

XAI-ASSISTED MULTI-AGENT DEEP REINFORCEMENT LEARNING FOR A  
GUARANTEED AUTONOMOUS CONTROL SYSTEM OF SEQUENCING BATCH  
REACTOR FOR SUSTAINABLE WASTEWATER MANAGEMENT

SungKu Heo, TaeYong Woo, SangYoun Kim and ChangKyoo Yoo  
(Paper ID #77)

A FRAMEWORK FOR THE EVALUATION OF THE CIRCULARITY OF PLASTIC WASTE  
MANAGEMENT SYSTEMS: A CASE STUDY ON MECHANICAL RECYCLING OF HDPE  
Elizabeth Chialdikas, Aurora del C. Munguia-Lopez, Horacio Aguirre-Villegas and Styliani

Avraamidou  
(Paper ID #81)

DEMAND BIDDING MODELS FOR CHEMICAL PROCESSES: CONCEPTUAL  
FRAMEWORK AND A CHLOR-ALKALI OPTIMAL POWER FLOW EXAMPLE

Xin Tang, Elaine Hale, Richard O'Neill, Ross Baldick and Michael Baldea  
(Paper ID #86)

EMBEDDING ADVANCED WASTEWATER TREATMENT TECHNOLOGY MODELS  
INTO P-GRAPH FRAMEWORK

Emmanuel Aboagye, Jean Pimentel, Akos Orosz, Mihaly Markot, Heriberto Cabezas, Ferenc  
Friedler and Kirti Yenkie  
(Paper ID #103)

ADVANCED OPTIMIZATION OF MULTI-SINK CO<sub>2</sub>-EOR OPERATIONS IN THE  
CONTEXT OF LONG-TERM CCUS SUPPLY CHAIN DESIGN

Agustin Francisco Montagna, Javier D. Angarita, Alexa E. Duarte, Ariel Uribe, Juan Pablo  
Osorio, C. Gounaris and Ignacio Grossmann  
(Paper ID #111)

A FRAMEWORK FOR RELIABILITY-EMBEDDED DESIGN OF MULTI-SCALE ENERGY  
SYSTEMS

Rahul Kakodkar, Natasha J. Chrisandina, Mahmoud M. El-Halwagi and Efstratios N.  
Pistikopoulos  
(Paper ID #112)