

ROICE (Repurposing Offshore Infrastructure for Clean Energy)

Objective: *Develop a comprehensive framework for incentivizing decommissioning through clean energy repurposing projects in the Gulf of Mexico (GOM) through two parallel efforts:*

ROICE-TE

Techno-Economic Analysis
of ROICE Installations
in the GOM

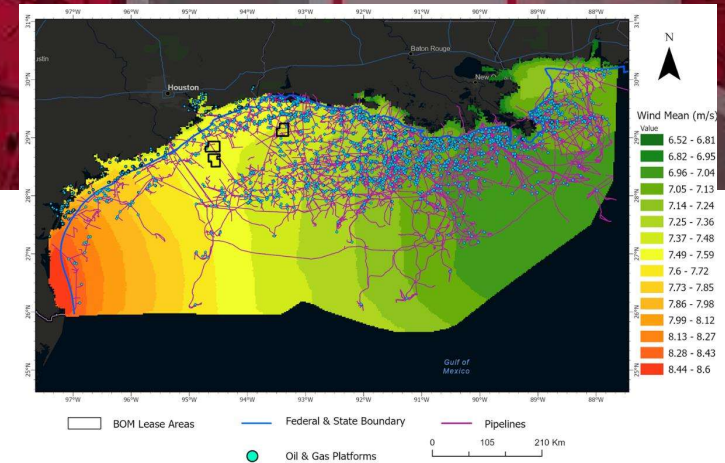
ROICE-PIF

Project Implementation Framework
for ROICE Installations
in the GOM

Vision: *To implement a **ROICE H2 Pilot Project** by 2032 - a wind to H2 project on a repurposed oil & gas facility in the Gulf of Mexico*

The ROICE Concept

- ❑ Incentivizing decommissioning by generating cash flow from clean energy projects that repurpose end-of-life oil and gas infrastructure and leverage clean energy incentive programs
- ❑ Reuse the platform jacket and deck to house new topsides supporting clean energy generation; all other oil & gas equipment and wells decommissioned as per normal practice
- ❑ ROICE concepts being examined in initial phases include wind power generation and hydrogen generation; other ROICE concepts could include CO2 sequestration, geothermal, floating solar etc.
- ❑ Funded by current and future research grants from state and federal agencies and support by industrial clients
- ❑ Advised by experts from industry, academic, research and community organizations who form the ROICE Project Collaborative (RPC)



Asset Infrastructure and Wind Speed Map for the Gulf Of Mexico

ROICE Project Collaborative (RPC) Advisory Group

American Bureau of Shipping	Microsoft
Aker	NEL / Proton Energy
Apache	Neumann-Esser
AquaTerra	Noble Corp
Ayatis / DSIDER	NREL
Baker Hughes	Oil States
Bentley	Power 2 Hydrogen
Blacksmith Group / PPIC	Rodi Systems
BP	Shell
Bureau of Economic Geology	Siemens
Center for Houston's Future	Siemens Energy
Cox Oil	SinnPower
DNV	Smart Pipe
Elena Keen Consulting	Subsea7
Endeavor Mgmt Group	Technip Energies / Genesis
Enterprize Energy	Technip FMC
GE	TSB
GORI	Wood PLC
Grid Advisors	WSP
Gulf Wind	XODUS Group
Hatchoer Water	
Hess	Young America Capital
IMI PLC	



University of Houston ROICE Project

ROICE Phases

- ❑ **Staged Gate Approach**
 - ❑ Milestones and deliverables to be met at each stage before launching next phase; currently preparing to launch Phase 3
- ❑ **Phase 1 – Screening Studies- Completed**
 - ❑ Levelized Cost (LC) Model and LC Heat Maps developed for Wind and Hydrogen ROICE projects in the GOM
 - ❑ Assets shortlisted for detailed study in Phase 2
- ❑ **Phase 2 – Feasibility Studies – Completed by 2Q24**
 - ❑ Refine ROICE process designs and plan placement of power, desalination and electrolyzer modules
 - ❑ Understand project economics and path to profitability of ROICE projects – capex reduction, incentives etc.
 - ❑ Develop ROICE Project Implementation Framework – Regulatory, Technical compliance and approval “play book”
- ❑ **Phase 3 – Demonstration Project Design – Completed by YE25**
 - ❑ TE: Develop project plans – process design, economic models, cash flow predictions – for two demo locations
 - ❑ PIF: Complete ROICE Project Implementation Framework; Exercise framework for demonstration project planning
 - ❑ Engage stakeholders (operators, regulators, clean energy developers, funding agencies, OEM and EPC companies)
 - ❑ Develop scope and project execution plan for demo project
 - ❑ Confirm interest in forming commercial entity to execute demonstration project
- ❑ **Future Phases**
 - ❑ '26 – '29: Detailed design and execution
 - ❑ '30 – '32: Start up Window

FUNDING

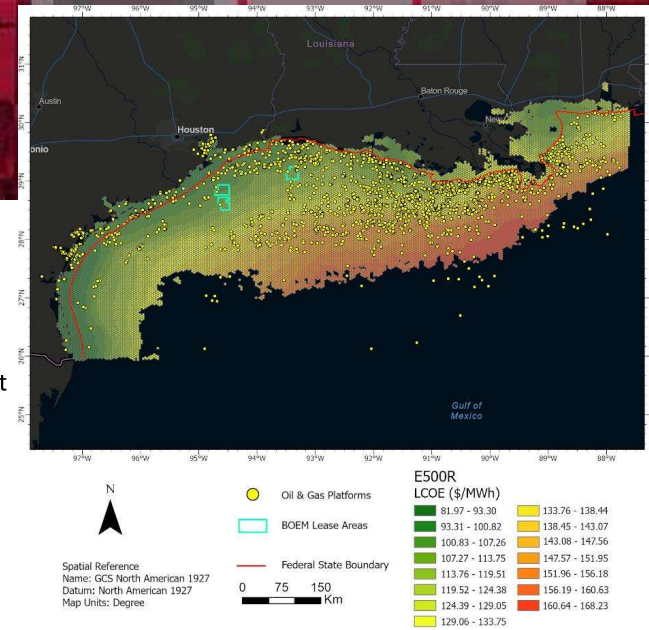
- ❑ Phases 1 and 2 funded by SSI TCEQ program (RESTORE ACT)
- ❑ Phase 3 ROICE- PIF work scope selected for funding by DOE as part of a two-year \$750K grant
- ❑ **Phase 3 ROICE-TE work scope – Additional funding needed; funding proposal prepared**

Typical Module for ROICE Topsides

Proton Exchange Membrane (PEM) Electrolyser



Courtesy Of



Levelized Cost Map for 435 MW ROICE Power Export Project

Typical Asset to be Repurposed

