

Executive Summary

1. Background and Introduction

- 1.1. History of this issue, both locally and in other regions
 - 1.1.1. Decommissioning experience here and elsewhere
 - 1.1.2. Requirement in federal and state regulations, laws, leases
- 1.2. Setting for current project
 - 1.2.1. Platforms in both state and federal waters (more on overall context in Appendix 1)
 - 1.2.2. Federal law and regulations allow for alternative uses instead of complete removal, including rigs to reefs and alternative energy
 - 1.2.2.1. Partial removal and conversion to artificial reefs
 - 1.2.2.2. Alternative energy uses (wind and wave energy)
 - 1.2.3. Opportune time for examining state policy
 - 1.2.3.1. Some platforms reaching end of useful lifetime
 - 1.2.3.2. Growing interest in offshore alternative energy
 - 1.2.3.3. Potential for rigs to reefs program
 - 1.2.4. Decision context
- 1.3. Organization of following analysis

2. Decision Makers' Goals

- 2.1. Substantive goals
 - 2.1.1. Goals and regulatory authorities
 - 2.1.2. Goals related to environmental justice and equity
 - 2.1.2.1. Environmental justice
 - 2.1.2.2. Concerns about impacts on local communities
 - 2.1.3. The public trust doctrine
 - 2.1.3.1. The scope of public trust
 - 2.1.3.2. Implications for decommissioning
 - 2.1.3.3. Public trust responsibilities of state and local agencies
 - 2.1.3.4. Public trust responsibilities of federal agencies
 - 2.1.4. Goals relating to feasibility, costs, liability, and revenue
- 2.2. Procedural goals

3. Prioritizing Decommissioning Alternatives

- 3.1. Proposed decommissioning alternatives
- 3.2. Criteria for prioritizing alternatives
- 3.3. Alternatives removed from detailed consideration
 - 3.3.1. Brief descriptions of proposed alternatives
 - 3.3.2. Summary of degree to which such uses have been successfully implemented
 - 3.3.3. Rationale for removal
 - 3.3.3.1. Current impediment(s)
 - 3.3.3.2. What would have to change to make option viable
 - 3.3.3.3. Likelihood option will become viable
- 3.4. Alternatives retained for detailed analysis
 - 3.4.1. Complete removal
 - 3.4.1.1. Engineering description through disposal

- 3.4.1.2. Permitting and decision-making pathway, describing roles and distinguishing between lead agencies and those in a strictly advisory or review role; brief description of where past projects have had problems
- 3.4.1.3. Post-decommissioning issues
- 3.4.1.4. Shell mounds
- 3.4.2. Partial platform removal, i.e., reeving (remove deck and top 85 feet, with jacket left standing in place)
 - 3.4.2.1. Engineering description through disposal
 - 3.4.2.2. Permitting and decision-making pathway, describing and distinguishing between lead agencies and those in a strictly advisory role; brief description of where past projects have had problems
 - 3.4.2.3. Post-decommissioning issues

4. Analysis of Decommissioning Alternatives

- 4.1. Overview of analysis approach
- 4.2. Boundary conditions
 - 4.2.1. Exclude aspects that are the same across alternatives (e.g., well abandonment, pipelines, seeps)
 - 4.2.1.1. Well abandonment, pipelines, and shoreside facilities
 - 4.2.1.2. Non-consumptive uses
 - 4.2.1.3. Aesthetics
 - 4.2.2. Exclude aspects that are data poor, difficult to quantify, and/or likely to be relatively small
 - 4.2.2.1. Air emissions
 - 4.2.2.2. Employment and broader socioeconomic impacts
 - 4.2.2.3. Tax consequences
 - 4.2.2.4. Mitigation costs or credits
 - 4.2.2.5. Non-MMS permitting costs
- 4.3. Comparative analysis and evaluation
 - 4.3.1. Water quality
 - 4.3.1.1. Sources of water quality impacts
 - 4.3.1.2. Regulations pertaining to water quality
 - 4.3.2. Air emissions
 - 4.3.2.1. Overview
 - 4.3.2.2. Characterizing air pollution
 - 4.3.2.3. Air pollution regulation
 - 4.3.2.4. Calculating emissions
 - 4.3.2.5. Decommissioning experience to date
 - 4.3.2.6. Estimating emissions from deepwater platform decommissioning
 - 4.3.2.7. Other considerations
 - 4.3.2.8. Estimating decommissioning emissions from other platforms
 - 4.3.3. Marine mammals and birds
 - 4.3.3.1. Birds
 - 4.3.3.2. Marine mammals
 - 4.3.4. Marine resources
 - 4.3.4.1. Habitats and communities
 - 4.3.4.2. Impacts on standing stock and production
 - 4.3.4.3. Larval dispersal patterns and regional connectivity
 - 4.3.4.4. Example scenarios
 - 4.3.5. Decommissioning costs and avoided costs
 - 4.3.5.1. Platform decommissioning cost assumptions

- 4.3.5.2. Engineering and planning
- 4.3.5.3. Permitting and regulatory compliance
- 4.3.5.4. Platform preparation and marine growth removal
- 4.3.5.5. Well plugging and abandonment
- 4.3.5.6. Conductor removal
- 4.3.5.7. Mobilization and demobilization
- 4.3.5.8. Platform and structural removal
- 4.3.5.9. Pipeline and power cables
- 4.3.5.10. Transportation and disposal
- 4.3.5.11. Site clearance
- 4.3.5.12. Shell mound and drill cutting pile removal
- 4.3.5.13. Reef enhancement
- 4.3.5.14. Contingency factor
- 4.3.5.15. Other modeling notations
- 4.3.5.16. Future cost estimating recommendations
- 4.3.5.17. Avoided costs
- 4.3.5.18. Example scenarios
- 4.3.5.19. Other costs (taxes, mitigation, compensation)
- 4.3.6. Ocean access
 - 4.3.6.1. Impacts on ocean access
 - 4.3.6.2. Impacts on trawling
 - 4.3.6.3. Example scenarios
- 4.3.7. Broader socioeconomic impacts
 - 4.3.7.1. Fisheries related impacts
 - 4.3.7.2. Ecosystem value
- 4.3.8. Indirect longer-term costs
- 4.4. Model integration
 - 4.4.1. Description of PLATFORM model
 - 4.4.2. Multiattribute analysis
 - 4.4.2.1. Multiattribute approach
 - 4.4.2.2. Example scenarios
- 4.5. Summary and synthesis of findings and conclusions
- 4.6. Data gaps

5. Institutional Challenges, Constraints, and Opportunities

- 5.1. Mechanisms for transfer of ownership
 - 5.1.1. Directly to state
 - 5.1.1.1. Existing enabling legislation and regulations
 - 5.1.1.2. Past efforts to pass enabling legislation in CA
 - 5.1.1.3. Requirements for State enabling legislation
 - 5.1.2. Transfer to other entity
 - 5.1.2.1. Transfer to nonprofit or local government
 - 5.1.2.2. Transfer to a federal rigs-to-reefs program
- 5.2. Addressing liability concerns
 - 5.2.1. Background
 - 5.2.2. Current federal and state provisions defining responsibility
 - 5.2.2.1. Liability on State lands
 - 5.2.2.2. Liability on OCS lands
 - 5.2.2.3. Liability associated with a rigs-to-reefs program
 - 5.2.3. Liability sources of concern and existing provisions for addressing them

- 5.2.3.1. Pollution from abandoned wells
- 5.2.3.2. Pollution from shell mounds
- 5.2.3.3. Fatalities and injuries to divers
- 5.2.3.4. Loss of or damage to commercial fishing gear
- 5.2.3.5. Ship strikes
- 5.2.3.6. Litigation costs for state agencies
- 5.2.4. Mechanisms for achieving broader protection
 - 5.2.4.1. Operators continue to share liability with the State
 - 5.2.4.2. Continuation of operator's bonds
 - 5.2.4.3. Other surety models applied by MMS
 - 5.2.4.4. Industry-funded insurance trust fund
 - 5.2.4.5. State-purchased insurance
 - 5.2.4.6. Catastrophe bonds
- 5.2.5. Transfer or acceptance of ownership
- 5.3. Mechanisms for transfer, allocation, and management of funds from avoided costs
 - 5.3.1. Formula for sharing avoided costs (incorporated into model)
 - 5.3.2. Mechanisms for allocating and managing funds
 - 5.3.2.1. State trust fund
 - 5.3.2.2. Federal donation accounts
 - 5.3.2.3. Compensation and mitigation funds
- 5.4. California's artificial reef program

6. Answers to Stakeholders' Questions

Appendix 1

Overall context, with descriptions of major state and federal online sources of map-based information, representative maps of platform locations, key resources, administrative boundaries

Appendix 2

SB 1, NFEA, state legislation from Gulf of Mexico, Deeds of Donation from Gulf states

Appendix 3

PLATFORM model users' guide and documentation