

# Contents

	<i>Page</i>
OVERVIEW . . . . .	1
Some Options for the Federal Government . . . . .	2
PART ONE: FUEL CELL TECHNOLOGY: DESCRIPTION AND STATUS . . . . .	4
Introduction . . . . .	4
Description of Phosphoric Acid Fuel Cell Systems. . . . .	4
Other Types of Fuel Cells . . . . .	8
Advantages and Disadvantages of Fuel Cells . . . . .	10
Fuel Cell Development Programs: Current and Future Emphasis . . . . .	12
Cost Considerations . . . . .	17
PART TWO: MARINE USES OF FUEL CELLS . . . . .	20
Introduction . . . . .	20
Required Characteristics. . . . .	20
Potential Applications. . . . .	24
Other Transportation Applications . . . . .	29
Some Options for the Federal Government . . . . .	30
GLOSSARY . . . . .	32

## List of Tables

<i>Table No.</i>	<i>Page</i>
1. Cost and Performance Comparisons for Land-Based Electrical Powerplants That Use Technologies Similar to Marine Propulsion Units . . . . .	18
2. Potential Fuels for Use in Marine Fuel Cells . . . . .	19
3. Possible Marine Powerplants . . . . .	21
4. Push-Tow Boat Powerplant Comparisons . . . . .	26

## List of Figures

<i>Figure No.</i>	<i>Page</i>
1. Diagram of Major Components of a Fuel Cell . . . . .	5
2. Schematic Representation of How a Fuel Cell Works . . . . .	6
3. National Fuel Cell Coordinating Group . . . . .	13
4. Participants in DOE's Fuel Cell Program . . . . .	14