

Indiana University – Purdue University Fort Wayne
Opus: Research & Creativity at IPFW

Computer and Electrical Engineering Technology &
Information Systems and Technology Senior Design
Projects

School of Engineering, Technology and Computer
Science Design Projects

12-9-1985

Alternate Energy System - Generation of Hydrogen Through Electrolysis of Water

Barry J. Coe

Indiana University - Purdue University Fort Wayne

Follow this and additional works at: http://opus.ipfw.edu/etcs_seniorproj



Part of the [Computer Sciences Commons](#), and the [Engineering Commons](#)

Opus Citation

Barry J. Coe (1985). Alternate Energy System - Generation of Hydrogen Through Electrolysis of Water.
http://opus.ipfw.edu/etcs_seniorproj/578

This Senior Design Project is brought to you for free and open access by the School of Engineering, Technology and Computer Science Design Projects at Opus: Research & Creativity at IPFW. It has been accepted for inclusion in Computer and Electrical Engineering Technology & Information Systems and Technology Senior Design Projects by an authorized administrator of Opus: Research & Creativity at IPFW. For more information, please contact admin@lib.ipfw.edu.

ALTERNATE ENERGY SYSTEM - GENERATION OF
HYDROGEN THROUGH ELECTROLYSIS OF WATER

A

SENIOR DESIGN PRESENTATION

Prepared for

Prof. Harry W. Gates
and
Prof. O. Richard Detraz

Electrical Engineering Technology
Purdue University, Fort Wayne, IN

by

Barry J. Coe

December 9, 1985

TABLE OF CONTENTS

	Page
LETTER OF TRANSMITTAL	ii
ABSTRACT	iv
INTRODUCTION	1
Statement of Problem	1
Purpose of Report	1
Information Sources	2
Methods	2
Plan of Procedure	2
HYDROGEN ELECTROLYSIS SYSTEM	3
Electrolysis Cell	3
Voltage Regulator	6
Storage Batteries	6
Photovoltaic Panels	7
Experimental Procedure	9
Experimental Data	11
CONCLUSION	16
Summary of Findings	16
Interpretation of Findings	16
Recommendations	17
BIBLIOGRAPHY	18
GLOSSARY	20
ELECTROLYSIS PRINCIPLES APPENDIX	22
EQUIPMENT APPENDIX	26
GAS LAWS APPENDIX	41
PHOTOELECTRIC EFFECT APPENDIX	43
PROPOSAL APPENDIX	46

Abstract
of
ALTERNATE ENERGY SYSTEM
GENERATION OF HYDROGEN THROUGH ELECTROLYSIS OF WATER
for
Prof. Harry W. Gates and Prof. O. Richard Detraz
by
Barry J. Coe

The energy sources traditionally used, and in use today, are rapidly being depleted. We can see that this will lead to energy shortages in the future. Thus alternate energy sources must be available in years to come.

The following report conveys my findings and recommendations on an alternate energy system that is based on electrolysis of water. The system was designed primarily for research, but was fabricated around design principles arrived at after intensive study of the subject. The system was then put into operation and experimental data was gathered to test my design, and to find methods of improving the system.