

Before the Federal Energy Regulatory Commission, Application for License for Major Project, Susitna Hydroelectric Project : Volume 2B

This electronic file contains the first pages of the document (cover, preliminary pages, and table of contents) in order to retain a documentary history of the alternative issuance of this report, APA 1795 (also numbered SUS 195).

All volumes in the 20-volume set *Before the Federal Energy Regulatory Commission, Application for License for Major Project, Susitna Hydroelectric Project* were issued with an illustrated cover. Reports APA 1795 and 1796 were also re-issued with a plain blue cover with slightly different preliminary paging.

The following pages are:

- the blue cover bearing the Harza-Ebasco label with the Alaska Power Authority Document number (this sheet is being retained in this PDF file in order to document the assigned APA number and to document the appearance of the Harza-Ebasco series statement on some copies);
- a white page resembling the cover;
- a secondary blue cover-like page;
- a white page resembling that cover-like page;
- the blue title page;
- table of contents.

The text starting with the table of contents is identical to the issuance distributed with the whole set. The remaining text of the report is available in the other electronic file for this document.

HARZA-EBASCO

Susitna Joint Venture
Document Number

1795

Please Return To
DOCUMENT CONTROL

BEFORE THE

LIBRARY
ALASKA DEPT OF FISH & GAME
333 Raspberry Rd.
Anchorage, Alaska 99518-1509



FEDERAL ENERGY REGULATORY COMMISSION
APPLICATION FOR LICENSE FOR MAJOR PROJECT
SUSITNA HYDROELECTRIC PROJECT

VOLUME 2B

MAN-IN-THE-ARCTIC PROGRAM (MAP)
TECHNICAL DOCUMENTATION REPORT

JULY 1983

ALASKA POWER AUTHORITY

TK
1425
.58
F471
no.
1795

BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION
APPLICATION FOR LICENSE FOR MAJOR PROJECT

SUSITNA HYDROELECTRIC PROJECT

VOLUME 2B

**MAN-IN-THE-ARCTIC PROGRAM (MAP)
TECHNICAL DOCUMENTATION REPORT**

ARLIS

Alaska Resources
Library & Information Services
Anchorage, Alaska

JULY 1983

ALASKA POWER AUTHORITY

**SUSITNA HYDROELECTRIC PROJECT
MAN-IN-THE-ARCTIC PROGRAM (MAP)
TECHNICAL DOCUMENTATION REPORT**

PREPARED BY

OLIVER SCOTT GOLDSMITH
INSTITUTE OF SOCIAL AND
ECONOMIC RESEARCH
UNIVERSITY OF ALASKA

PREPARED FOR

HARZA-EBASCO SUSITNA JOINT VENTURE
ANCHORAGE, ALASKA

JULY 1983

ALASKA POWER AUTHORITY

3 3755 000 36724 3

SUSITNA HYDROELECTRIC PROJECT
MAN-IN-THE-ARCTIC PROGRAM (MAP)
TECHNICAL DOCUMENTATION REPORT

PREPARED BY

OLIVER SCOTT GOLDSMITH
INSTITUTE OF SOCIAL AND
ECONOMIC RESEARCH
UNIVERSITY OF ALASKA

PREPARED FOR

HARZA-EBASCO SUSITNA JOINT VENTURE
ANCHORAGE, ALASKA

JULY 1983

ALASKA POWER AUTHORITY

MAN-IN-THE-ARCTIC PROGRAM (MAP)
ECONOMIC MODELING SYSTEM
TECHNICAL DOCUMENTATION REPORT

Prepared for
Harza-Ebasco Susitna Joint Venture

Prepared by
Oliver Scott Goldsmith, P.I.

Teresa Hull
Lee Huskey
Gunnar Knapp
Brian Reeder
Karen White

Institute of Social and Economic Research
University of Alaska

June 1983

MAN-IN-THE-ARCTIC PROGRAM (MAP)
ECONOMIC MODELING SYSTEM
TECHNICAL DOCUMENTATION REPORT

TABLE OF CONTENTS

Introduction

Documentation Guide	1
Creation of the Projections	7
Historical Overview of the Alaska Economy	8

Appendix A. ISER MAP Economic Modeling System:
Scenario Generator Model

A.1 Organization	A- 3
A.2 Use	A- 9
A.3 Program Description	A-19

Appendix B. ISER MAP Alaska Economic Model: Economic
and Fiscal Modules

B.1 Introduction	B-1
B.2 Economic Module Description	B-5
B.3 Fiscal Module Description	B-31
B.4 Input Variables	B-63
B.5 Variable and Parameter Name Conventions	B-68
B.6 Parameter Values	B-73
B.7 Validation and Properties	B-79
B.8 Input Data Sources	B-95
B.9 Programs for Operations	B-105
B.10 Adjustments for Simulation	B-107
B.11 Key to Regressions	B-111

Appendix C. ISER MAP Alaska Economic Model:
Population Module

C.1 Description	C-1
C.2 Flow Diagram	C-4
C.3 Variable Names	C-5
C.4 Symbol Dictionary	C-8
C.5 Parameter Definitions	C-9
C.6 Coefficients	C-11
C.7 Input Definitions	C-12
C.8 Input Data Sources	C-13
C.9 Structural Description	C-14
C.10 Regression Coefficients	C-17
C.11 Parameter Values	C-18
C.12 Validation	C-27

Appendix D. ISER MAP Alaska Economic Model:
Household Formation Module

D.1	Description	D-1
D.2	Parameter Assumptions	D-4
D.3	Projections Alaskan Households in the Future	D-8

Appendix E. ISER MAP Economic Modeling System:
Regionalization Model

E.1	Model Description	E-1
E.2	Flow Diagram	E-5
E.3	Inputs	E-7
E.4	Variable and Parameter Names	E-9
E.5	Parameter Values	E-13
E.6	Model Validation	E-25
E.7	Programs for Model Use	E-29

Appendix F. ISER MAP Alaska Economic Model:
Variable and Parameter Dictionary

Appendix G. ISER MAP Alaska Economic Model:
Listing - Including Parameters

Appendix H. ISER MAP Economic Model: Stochastic Equations

Appendix I. ISER MAP Regionalization Model:
Listing - Including Parameters

Appendix J. Sensitivity Analysis Using Alaska Economic Model

Appendix K. Scenario Documentation

K.1	Summary of Base Case Assumptions	K-1
K.2	Aggregate Output of Scenario Generator	K-11
K.3	Case Files Used to Create Base Case Scenario	K-17

Appendix L. ISER MAP Alaska Economic Model: Input Variables

L.1	Exogenous Variables	L-1
L.2	Startup Variables	L-19

Appendix M. ISER MAP Regionalization Model: Input Variables

M.1	Exogenous Variables	M-1
M.2	Startup Variables	M-11

4/1/83
J. J. J. J. J.
J. J. J. J. J.
J. J. J. J. J.

Appendix N. ISER MAP Model Output for Harza Ebasco
Susitna Joint Venture

N.1	2% Annual Decline in Oil Price	N-3
N.2	1% Annual Decline in Oil Price	N-9
N.3	Constant Oil Price	N-15
N.4	2 % Annual Increase in Oil Price	N-21
N.5	Sherman Clark Associates--No Supply Disruption Case .	N-27
N.6.	Sherman Clark Associates--Base Case	N-33
N.7.	Alaska Department of Revenue--Average Price	N-37
N.8	Alaska Department of Revenue--50th Percentile	N-45
N.9	Alaska Department of Revenue--30th Percentile	N-51
N.10	Data Resources Institute--June Oil Price Forecast . .	N-57
N.11	Selected Historical Data Series	N-63

Appendix O. Previous ISER Studies of Railbelt
Electricity Requirements

Appendix P. Bibliography