## A Biblography for the Satellite Power System (SPS) Concept Development and Evaluation Program

**April 1981** 

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Under Contract No. 31-109-ENG-38

## Prepared for:

**U.S. Department of Energy** 

Office of Energy Research Solar Power Satellite Project Division Washington, D.C. 20585

DOE/NASA
Satellite Power System
Concept Development
and
Evaluation Program

#### FOREWORD

This bibliography is the final publication in the Department of Energy and the National Aeronautics and Space Administration series on the Satellite Power System Concept Development and Evaluation Program. The Satellite Power System Concept was initially developed by Peter Glaser in 1968. Commencing in 1977 and continuing through 1980, a comprehensive assessment of this concept was conducted using a Reference System as a "straw man", and encompassed systems definition and engineering aspects; environmental assessment of microwave health and ecology, risks to space workers and atmospheric effects; a societal assessment covering resource requirements (land and materials), international and institutional issues; and a comparative assessment of the SPS Reference System relative to other advanced energy technologies such as fusion and improved current energy technologies.

The National Aeronautics and Space Administration and its contractors investigated various system design concepts and initiated some preliminary work in critical technological and engineering areas. The Department of Energy, assisted by several national laboratories, other government organizations such as the Environmental Protection Agency and the Institute for Telecommunications Sciences, and independent contractors performed the environmental, societal, and comparative assessments.

This bibliography, prepared by Martin Abromavage, Rosa Calzadilla and Mark Murray, includes the many reports written during the three-year SPS Concept Development and Evaluation Program. A large quantity of professional papers were also written by both contributing and independent investigators in the United States and abroad.

It is hoped that this bibliography will be useful to those who are interested in the concept of collecting energy in space and using it on Earth.

> F. A. Koomanoff, Director Solar Power Satellite Projects Division Office of Energy Research

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#### INTRODUCTION AND USERS' GUIDE

The Satellite Power System Concept Development and Evaluation Program (SPS-CDEP) jointly conducted by the U. S. Department of Energy (DOE) and the National Aeronautics and Space Administration (NASA) was completed in late 1980. A large number of reports were prepared under the auspices of the SPS Project Division, Office of Energy Research, during the three-year program. Many domestic and foreign organizations (industries, governments, and professional and trade groups) also studied the SPS energy concept independently and prepared reports and papers on the subject. Literally hundreds of professional papers on SPS have appeared in engineering and scientific journals, and popular magazines and newspapers have reported extensively on SPS.

The results of the three-year CDEP have been reported by the Department of Energy and NASA. Reports also are being prepared independently by the Congress' Office of Technology Assessment (OTA) and the National Research Council (NRC) of the National Academy of Sciences, but are not yet complete.

All reports prepared under the auspices of DOE and NASA during the CDEP are traceable and available to the public, and are listed here. Some especially important reports prepared by NASA and its contractors prior to 1978 also are included. Citation cards also are included for the OTA and NRC reports expected to be completed by mid - 1981, as is a card for the final comparative assessment report prepared for SPS-CDEP which is expected to be available in the early spring of 1981.

A sampling of professional papers is included to illustrate the wide interest in SPS among scientists and engineers. Those which are cited should not be regarded as more noteworthy than others which may have been prepared but not included here.

Two rules were followed in preparing this bibliography. Each report or paper had to be on file in the SPS Project Division, and each had to be traceable to a source readily available to the public. Reports with restrictions on distribution and copyrighted papers not traceable to a publishing source were therefore excluded.

Finally, a note about cited authors is appropriate. Many investigators who contributed significant work during SPS-CDEP may not be listed. There are several reasons for this. Government regulations concerning acknowledgements have changed from time to time, and in some cases individuals who contributed to reports through subcontracts with national laboratories or prime contractors could not be listed among principal authors. Some organizations issue reports as corporate documents without listing individual authors. Conference and workshop proceedings may include papers by dozens of contributors, but a citation to the entire document usually attributes the work to the editors of the proceedings. Thus the author index should not be regarded as an exclusive list of important contributors to SPS-CDEP.

#### Subject Categories

Reports and articles are categorized in fifteen subject areas. The areas were selected according to major interest in aspects of SPS illustrated during the CDEP. The CDEP, like any assessment process, had to be wide-ranging and well-integrated in order to be successful. For example, investigators concerned with microwave power generation and transmission had to be aware of its environmental implications. Those concerned with societal assessment had to be aware of microwave exposure rules and regulations. Thus the issue of microwave biologic effects may be addressed in reports in all three categories, but with different emphasis on aspects of the issue.

#### CATEGORY

AE - Atmospheric Effects

BE - Biologic Effects

CA - Comparative Analysis

#### **EMPHASIS**

Effects which SPS activities might have on the atmosphere from near the earth's surface to geostationary earth orbit altitudes, including effects due to ionospheric heating.

Potential health and safety effects on humans, animals and plants which might be produced directly by SPS activities or indirectly by support activities (mining, manufacturing, etc.), including effects due to ionizing radiation in space.

Information which is useful for comparing SPS performance, cost and residual effects with other selected current and emerging energy technologies.

#### CATEGORY

#### **EMPHASIS**

EA - Energy Alternatives and Policy

Information which provides a useful perspective of SPS and several other energy technologies vis-a-vis national and international energy concerns.

EC - Electromagnetic Compatibility

Telecommunications interference effects and other systems performance degradations potentially caused by radio wave propagation disturbances or direct energy coupling with SPS microwave energy, except for interference due to ionospheric heating.

EE - Environmental Effects

A wide range of potential environmental effects which might be produced by SPS. Documents generally cover generic environmental issues or more than one particular type of effect.

EF - Economics and Finances

Documents which primarily discuss costs of fully developing an operational SPS and methods for financing operations. Does not include socio-economic effects which might accompany the development and operation of SPS.

PP - Program Plans

Plans and planning concepts for SPS/CDEP and other selected energy alternatives.

PT - Power Generation and Transmission Technical reports and papers which principally address engineering concepts, designs, theoretical and experimental analysis and the engineering economics of generating and transmitting useful energy from space to earth. Does not include terrestrial power transmission and generation.

RM - Resources and Materials

Reports and papers identifying, inventorying and evaluating the need for and potential effects on resources and materials which may be required to fully develop SPS, including land.

SA - Systems Analyses

Documents which present either brief overview analyses or descriptions of SPS, or provide somewhat detailed evaluations of SPS and its broad characteristics. Does not include engineering evaluations of specific SPS components.

#### CATEGORY

SE - Systems Engineering

SI - Social Issues

ST - Space Transportation

SU - Space Utilization

#### **EMPHASIS**

Engineering reports on particular SPS components, characteristics, parameters and technology issues, including rectenna engineering but excluding space transportation.

Reports and articles concerning significant social issues, international concerns and interests, institutional concerns and issues and public concerns and interest in and about SPS.

Technical and scientific information on SPS space transportation requirements, concepts (including earth-to-space and return), operating scenarios and economics, and similar information on other space ventures germane to SPS.

Principally a collection of papers from the technical and scientific space community on the potential, benefits and adverse effects which might accompany society's exploitation of space.

Relationships between Subject Categories

The nature of conceptual programs and evaluation processes makes it virtually impossible to classify documents according to distinct categories. Program work must be integrated and coordinated among participating groups in order to be effective, and it follows that many reports resulting from the work could be classified in a number of different ways. The judgments used for classifying documents included in this bibliography were based mainly on the principal content or intent of a particular document, but some arbitrary classification was occasionally necessary. The chief criterion in these cases was to classify the document in the most definitive category. For example, a document which might include substantial information on microwave biologic effects and was somewhat less definitive on other environmental issues was classified in the Biologic Effects category rather than in the broader Environmental Effects category.

The foregoing suggests the user should not concentrate on only one particular category of documents in using this bibliography. While it would be worthwhile to concentrate initially on a particular category of interest, a

review of related subject categories is encouraged to ensure a comprehensive understanding of SPS/CDEP. Related categories are listed in each section of this bibliography for convenience.

#### Key Words

Key words are listed for each citation. A maximum of six key words is provided for each document. A list of key words is included for each subject category and page numbers are provided for each citation for which the key word applies in each category. A universal system of key words is not used. They were selected to portray specific SPS/CDEP issues and interests, and should not be used to correlate with other bibliographies. It should be recognized that the practical limit of six key words should not lead the user to presume that no other information is included in a particular document. The six key words do highlight the most definitive information in a document, however.

#### Acquisition Number and Sources

Acquisition numbers are included for each citation. Multiple acquisition numbers should be used (where listed) when requesting documents from identified sources.

# ATMOSPHERIC EFFECTS (CATEGORY AE)

Documents in this subject category cover potential atmospheric effects which might be produced by SPS launch and space vehicle exhaust effluents, microwave power transmission and rectenna operations. The effects of the atmosphere on SPS parameters also are included in this category, as are documents which describe atmospheric characteristics and effects of other space activities on the atmosphere.

KEY WORDS:	PAGE NUMBER:
Analysis Methods	5, 6, 10, 13, 14, 15, 16, 17, 18
Astronomy	8
Atmospheric Models	3, 5, 7, 10, 16, 18, 19
Biologic Effects	11
Climate Effects	3, 4, 5, 6, 11, 12, 14, 15, 16
Construction Effects	3
Ecology Impacts	10
Electric Charge	7, 8
Exhaust Emissions	3, 5, 6, 7, 8, 13, 14, 15, 16, 17, 18, 19
Experiments	4, 6, 9, 11, 12, 13, 14, 18, 19
Frequency Scaling	9, 14, 17
Geophysics	7, 8
Heater Facilities	4, 9, 14
Heating Effects	3, 10, 17
Heating Theory	9, 10, 17
Interference Effects	4, 9, 10, 11, 13, 14, 17
Ionosphere Heating	4, 9, 10, 11, 14, 17, 18
Ionosphere Predictions	3, 4, 5, 9, 10, 11, 15, 17, 18, 19
Laser Transmission	5
Launch Effects	6, 10, 13, 14, 16
Lightning	15
Magnetosphere Effects	4, 7, 8, 12, 15
Mesospheric Effects	6
Microwave Heating	3, 4, 8
Microwave Propagation	8, 12
Models	7, 8
Particulate Exhausts	11, 14
Physical Processes	3, 4, 5, 7, 12, 13, 15, 16, 18, 19
Pilot Signal	11
Plasma Effects	4, 5, 7, 9

## (Atmospheric Effects - Category AE continued)

PAGE NUMBER:
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5, 11, 15
7, 11, 14
3, 12
15
8
8
10, 11
6, 11
3, 5, 6, 13, 14, 15, 16, 18, 19
10
5, 15

#### RELATED CATEGORIES:

Electromagnetic Compatibility (EC)

Environmental Effects (EE)

Power Generation and Transmission (PT)

Systems Engineering (SE)

Space Transportation (ST)

SUBJECT: ATMOSPHER	IC EFFECTS	PSPO INDEX NO	AE-4	
AUTHOR(S): Allen, N.	C.			
AUTHOR AFFILIATION:	NASA Johnson Space	Center		
TITLE: A Prelimi Solar Pov	nary Study of Possib er Satellite Rectenn	le Weather Effe	cts due to	
DATE: February 1977	VOLUMES:	PAGES: 37	REFERENCES:	19
ACQUISITION NO: JSC	-12519		SOURCE:	4
KEY WORDS: Climate & Construct Heating	tion Effects Re	crowave Heating ctenna Heating		

SUBJECT: ATMOSPHERIC EFFECTS SPSPO INDEX NO: AE-19				
AUTHOR(S): Ames Resea	arch Center			
AUTHOR AFFILIATION:	National Aeronautics	s and Space Adr	ministration	
TITLE: Environmental Middle Atmosph	Impacts of the Satell	ite Power Syst	em (SPS) on the	
DATE: October 1980	VOLUMES:	PAGES: 36	REFERENCES: 68	
ACQUISITION NO: DOE	/ER/110035-01		SOURCE: 5	
KEY WORDS: Atmospher Climate E Exhaust E	ffects	Physic	here Predictions al Processes ortation Effects	

SUBJECT: ATMOSPHERIC	EFFECTS	s	PSPO INDEX NO:	AE-24
AUTHOR(S): (1) Basu, (2) Johnso	S. (2 on, A. L. (3	() Klobuchar, C B) Rush, C. M.	J. A.	
AUTHOR AFFILIATION:	(1) Emmanuel College (2) U. S. Air Force	(3) U. S	. Department of Co	mmerce
	sults of Scintillation ting and Possible Impl			
DATE: August 1980	VOLUMES:	PAGES: 4	REFERENCES: 25	5
ACQUISITION NO: 0094	4-8276/80/0080L-0880		SOURCE: 36	
KEY WORDS: Experiment Heater Fac Heating E	cilities Ion	terference Effo nosphere Heating crowave Heating	ng	

SUBJECT: ATMOSP	HERIC EFFECTS	SPSPO INDEX NO: AE-17	
AUTHOR(S): Baue	r, E. (Ed.)		
AUTHOR AFFILIAT	ION: La Jolla Institu	te	
TITLE: Proceeding Atmospher	gs of the Workshop on t e by Satellite Power Sy	he Modification of stem (SPS)Propuls	f the Upper ion Effluents
DATE: June 1980	VOLUMES:	PAGES: 136	REFERENCES: 133
ACQUISITION NO:	CONF-7906180	W.	SOURCE: 5
Expe	nate Effects eriments esphere Predictions	Physic	osphere Effects al Processes Effects

SUBJECT: ATMOSPHERIC EFFECTS		PSPO INDEX NO: AE-16	
AUTHOR(S): Bernhardt Price, K. da Rosa,	M.		
AUTHOR AFFILIATION:	Stanford Universi	ity	
TITLE: Ionospheric M	odification by Rock	et Effluents	
DATE: June 1980	VOLUMES:	PAGES: 66	REFERENCES: 23
ACQUISITION NO: ANL	/EES-TM-100		SOURCE: 5
Exhaust E	ic Models missions e Predictions	Plasma	al Processes Effects ortation Effects

SUBJECT: ATMOSPHERIC EFFECTS SPSPO INDEX NO: A			
AUTHOR(S): Beverly, R	. E.		
AUTHOR AFFILIATION:	Rockwell Internat	ional	
TITLE: Satellite Powe Effects on Laser Beam P			
DATE: November 1980	VOLUMES:	PAGES: 141	REFERENCES: 31
and the second of the second o	A CR 3347 8 - 32475		SOURCE: 4
KEY WORDS: Analysis Climate E Laser Tra	ffects	Physical Proce Power Losses Weather Effect	

SUBJECT: ATMOSPHER	IC EFFECTS		SP	SPO	INĎEX	NO:	AE-11
AUTHOR(S): Brubaker,	K. L.						
AUTHOR AFFILIATION:	Argonne Natio	nal Laboratory			•		
	the Workshop on ellite Power Sys		and Me	sosp	heric		
DATE: December 1979	VOLUMES:	PAGES:	112	REF	ERENCE	s:	43
ACQUISITION NO: CO	NF-7809197			sou	RCE:		5
KEY WORDS: Climate Exhaust Exh	Emissions	Mesospher Stratosph Transport	neric	Effe	ects		

SUBJECT: ATMOSPHERIC	EFFECTS	SPSPO INDE	X NO: AE-30	
AUTHOR(S): Chacko, C. Mendillo,				
AUTHOR AFFILIATION:	Boston University			
TITLE: A Search of Arc Modifications	chived Data Sources Fo of the Ionosphere	or Rocket Exha	ust-Induced	
DATE: September 1980	VOLUMES:	PAGES: 49	REFERENC	ES: 23
ACQUISITION NO: ANL,	/EES-TM-122		SOURCE:	5
KEY WORDS: Analysis I Exhaust En Experimen	nissions			

SUBJECT: ATMOSPHERIC EFFECTS			SPSPO INDEX NO: AE-18
Lu	niu, Y. T. uhmann, J. G. chulz, M.		
AUTHOR AFFILI	ATION: The Aerospace	Corporation	
TITLE: Magneto Satell	ospheric Effects of Ion ite Power System	and Atom Injection	s by the
DATE: July 19	80 VOLUMES:	PAGES: 118	REFERENCES: 61
ACQUISITION N	O: ANL/EES-TM-94		SOURCE: 5
E	tmospheric Models xhaust Emissions agnetosphere Effects	Plasm	cal Processes na Effects ellant Characteristics

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<del></del>
5

SUBJECT ATMOSPHERIC E	CT ATMOSPHERIC EFFECTS		
AUTHOR(S): De, B. R. Criswell,	D. R.		
AUTHOR AFFILIATION:	Lunar Science Insti	tute	
TITLE: Intense Loca Terminator Re	lized Photoelectric Cl egion - 1. Developmen	narging in the t of Potentia	e Lunar Sunset ls and Fields
DATE: March 1977	VOLUMES:	PAGES: 6	REFERENCES: 15
ACQUISITION NO: 6A0	SOURCE: 36		
KEY WORDS: Electric Geophysic Models	DEL PRINCE CONTRACTOR		

SUBJECT:	ATMOSPHER	IC EFFECTS			SF	PSPO INDEX	NO: AE-10
AUTHOR(s):	Douglas, LaQuey, R DeForest, Lindsey,	·s.	н.				
AUTHOR AFFI	LIATION:	Maya Developm	ent Cor	poration			
TITLE:	Identific of Space	ation and Preli Power Satellite	minary s with	Discussion the Earth	on of h's Ma	Potential Inte gnetosphere	eraction
DATE: May 1	1977	VOLUMES:		PAGES:	154	REFERENCES	39
ACQUISITION	NO:	77-1-1 NAS7-100 JPL 954663				SOURCE:	4
KEY WORDS:	Astronomy Exhaust E Magnetosp		Refle	wave Pro cted Lig lite Dra	ht	on	

SUBJECT: ATMOSPHER	IC EFFECTS	SPSPO INDEX NO	: AE-1	
AUTHOR(S): Duncan, L Gordon, W				<u>=</u>
AUTHOR AFFILIATION:	Rice University			
TITLE: Ionosphere/Micr	owave Beam Interacti	on Study		
DATE: September 1977	VOLUMES:	PAGES: 117	REFERENCES:	9
ACQUISITION NO:	NAS9-15212 DRL No. T-1349 DRD No. MA-183TA		SOURCE:	4
KEY WORDS: Experimen Frequency Interfere		Heater Fac Ionosphere Ionosphere		

UBJECT: ATMOSPHERIC EFFECTS			PSPO INDEX NO:	AE-5
AUTHOR(S): Duncan, Zinn, J.				
AUTHOR AFFILIATION:	Los Alamos Scient	ific Laboratory		
TITLE: Ionosphe	re-Microwave Interac	tions for Solar	Power Satellite	
DATE: March 1978	VOLUMES:	PAGES: 38	REFERENCES:	19
ACQUISITION NO:	LA-UR-78-758		SOURCE:	5
KEY WORDS: Experime Heating Heating	Effects	Ionosphere H Ionosphere P Plasma Effec	redictions	

SUBJECT: ATMOSPHERIC	SPSPO INDEX NO: AE-25		
AUTHOR(S): (1) Dunca (2) Behnk			
AUTHOR AFFILIATION:	(1) Rice University (2) National Astron	omy and Ionos	pheric Center
TITLE: Observations o	f Self-Focusing Elect	romagnetic Wa	ves in the Ionosphere
DATE: October 1978	VOLUMES:	PAGES: 4	REFERENCES: 10
ACQUISITION NO: Phys	ical Review Letters, 14, pp. 998-1001	Vol. 41,	SOURCE: 36
KEY WORDS: Heating Ef Heating Th Interferen	- 13 : T. (T. (전) 전기	nosphere Heat nosphere Pred	ing

ATMOSPHER	IC EFFECTS		SPSPO INDEX N	O: AE-9
Goldford,	A. I.			
LIATION:	Science Appli	cations, Inc.		
Proceedin Workshop	gs of the Heav	y Lift Launch Vehicl	e Tropospheric E	ffects
er 1979	VOLUMES:	PAGES: 104	REFERENCES: Bibliography	5
NO:	CONF-7809192		SOURCE:	5
Atmospher	ic Models	Launch Effects Space Shuttle Troposphere Effec	ts	
	Goldford, LIATION: Proceedin Workshop  er 1979  NO: Analysis Atmospher	Proceedings of the Heav Workshop er 1979 VOLUMES:	Goldford, A. I.  LIATION: Science Applications, Inc.  Proceedings of the Heavy Lift Launch Vehicle Workshop  er 1979 VOLUMES: PAGES: 104  NO: CONF-7809192  Analysis Methods Launch Effects Space Shuttle	Goldford, A. I.  LIATION: Science Applications, Inc.  Proceedings of the Heavy Lift Launch Vehicle Tropospheric E Workshop  er 1979 VOLUMES: PAGES: 104 REFERENCES: Bibliography  NO: CONF-7809192 SOURCE:  Analysis Methods Atmospheric Models Space Shuttle

SUBJECT:	ATMOSPHERIC EFFECTS			SPSPO IND	EX NO:	AE-2	
AU 111011 (U)	Gordon, W. Duncan, L.		10 10 10 10 10 10 10 10 10 10 10 10 10 1				
AUTHOR AFFI	LIATION:	Rice University					
TITLE: Ionosp	here/Micro	owave Beam Inter	actio	n Study Stat	ement of Wor	`k	
DATE: July 1	1978	VOLUMES:		PAGES: 47	REFEREN	CES:	35
ACQUISITION	NO:	NAS9-15212 DRL No. T-1349 DRD No. MA-183TA			SOURCE:		4
KEY WORDS:	Experimen Interfere Ionospher	nce Effects	Pil	osphere Pred ot Signal er Losses	dictions		

SUBJECT: ATMOSPHER	ERIC EFFECTS		SPSPO INDEX NO	AE-3
AUTHOR(S): Johnson S	pace Center			
AUTHOR AFFILIATION:	National Aerona	utics and Space Ad	ministration	
TITLE: Proceedin Workshop	gs of the Space s on Stratospheric	Shuttle Environmen Effects	tal Assessment	
DATE: September 1976	VOLUMES:	PAGES: 213	REFERENCES:	156
ACQUISITION NO: JSC	-11633		SOURCE:	4
KEY WORDS: Biologic Climate E Particula		Space Shut	Characteristics tle ric Effects	16

SUBJECT:	ATMOSPHER	IC EFFECTS		SPSPC	INDEX NO	: AE-7
AUTHOR(S):	Lee, J. L			V		
AUTHOR AFFIL	IATION:	Argonne National	Laboratory	eronnal - II-		
TITLE:	Proceeding Power Sys Problems	gs of the Worksho tem Rectenna Oper	p on Meteorologi ation and Relate	cal Eff d Micro	ects of Sat wave Transm	ellite ission
DATE: Decemb	er 1979	VOLUMES:	PAGES:	48 REI	ERENCES:	16
ACQUISITION	NO:	CONF-7808114		sou	JRCE:	5
KEY WORDS:		ffects Propagation Processes	Rectenna Heating	L;		

SUBJECT: ATMOSPHERIC E		SPSPO INDEX NO: AE-14	
AUTHOR(S): (1) Markso (2) Muir,	on, R. M.		
AUTHOR AFFILIATION:	(1) Massachusetts II (2) University of Na	nstitute of Tatal (South A	echnology frica)
TITLE: Solar Wind C	ontrol of the Earth's	Electric Fie	1d
DATE: May 1980	VOLUMES:	PAGES: 12	REFERENCES: 90
ACQUISITION NO: 003	SOURCE: 7		
KEY WORDS: Climate E Experimen Physical			

SUBJECT: ATMOSPHERIC	EFFECTS		SPSPO INDEX NO: AE-6
AUTHOR(S): Mendillo, M Hermiter, B Rote, D. M.	. (1) . (1) . (2)		
AUTHOR AFFILIATION:	(1) Boston Uni (2) Argonne Na	versity tional Laboratory	
TITLE: Modification	of the Aerospace	Environment by La	rge Space Vehicles
DATE: January 1979	VOLUMES:	PAGES: 7	REFERENCES: 17
ACQUISITION NO: 79-0391			SOURCE: 2
KEY WORDS: Exhaust Emm Physical Pr Satellite F		Transportat	ion Effects

SUBJECT: ATMOSPHERIC	EFFECTS	ν.	SPSPO INDEX NO: AE-21
AUTHOR(S): Mendillo, Baumgardn	M. (Ed.) er, B. (Ed.)		
AUTHOR AFFILIATION:	Boston Univers	ity	
TITLE: Proceedings of of the Ionospheric Dist Applications to the SPS	urbances Associa	ted with the HEAO-0	
DATE: August 1980	VOLUMES:	PAGES: 258	REFERENCES: 89
ACQUISITION NO: CON	F-7911108		SOURCE: 5
KEY WORDS: Analysis Experimen Interfere		Launch Effects	

SUBJECT: ATMOSPHERIC		SPSPO	INDEX NO:	AE-23			
AUTHOR(S): National Telecommunications and Information Administration							
AUTHOR AFFILIATION: U.S. Department of Commerce							
TITLE: Environmental Assessment for the Satellite Power System - Concept Development and Evaluation Program - Effects of Ionospheric Heating on Telecommunications							
DATE: August 1980	VOLUMES:	PAGES: 94	REF	ERENCES: 4	2		
ACQUISITION NO: DOE/ER/10003-T2				RCE: 5			
KEY WORDS: Analysis Methods Heater Facilit Experiments Interference E Frequency Sealing Ionosphere Hea			ects				

SUBJECT: ATMOSPHERIC	EFFECTS	S	PSPO INDEX NO: AE-12
AUTHOR(S): Radke, L. Eltgroth,		Hegg, D. A. Hobbs, P.V.	
AUTHOR AFFILIATION:	University of Washi	ngton	
TITLE: Measurements of Atlas/Centaur	f the Particles and Rocket	Gases in the Gr	ound Cloud from an
DATE: February, 1979	VOLUMES:	PAGES: 70	REFERENCES: 6
ACQUISITION NO: By	Title.		SOURCE: 5
KEY WORDS: Climate Exhaust Launch Exhaust	Emissions		Exhausts Characteristics ion Effects

SUBJECT: ATMOSPHERIC EFFECTS			SPSPO INDEX NO: AE-28		
AUTHOR(S): Rice Univer	rsity				
AUTHOR AFFILIATION:	Rice University				
TITLE: Electrostatic Protection of the Solar Power Satellite and Rectenna; Part II-Lightning Protection of the Rectenna.					
DATE: November 1980	VOLUMES:	PAGES: 122	REFERENCES: None		
ACQUISITION NO: NAS	SOURCE: 4				
KEY WORDS: Analysis Methods Lightning Physical Processes		Power Losses Rectenna Pro Weather Effe			

SUBJECT: ATMOSPHER	IC EFFECTS		SPSPO	INDEX NO:	AE-8
AUTHOR(S): Rote, D.	M.				
AUTHOR AFFILIATION:	Argonne National Labo	oratory			
TITLE: Proceeding of the Sa	gs of the Workshop on tellite Power Systems	Ionospheric (SPS)	and Mag	netospheric	Effects
DATE: December 1979	VOLUMES:	PAGES:	7 REF	ERENCES:	29
ACQUISITION NO:	CONF-7808115		soul	RCE:	5
KEY WORDS: Climate Effects Exhaust Emissions Ionosphere Predictions Magnetosphere Effects					

SUBJECT: ATMOSPHE	BJECT: ATMOSPHERIC EFFECTS			( NO:	AE-15
AUTHOR(s): Rote, D. Brubaker,	- 5	J. L. ntino, A. R.			
AUTHOR AFFILIATION:	Argonne National La	boratory			
TITLE: An Assessment of the Atmospheric Effects of a Satellite Power System					
DATE: December 1979	VOLUMES:	PAGES: 29	REFERENCE	ES:	36
ACQUISITION NO: By Title (Second Miami International Conference on Alternative Energy Sources)					
KEY WORDS: Atmospher Climate E Exhaust E	ric Models Laur Effects Phys	ch Effects ical Processe sportation Ef			

SUBJECT: ATMOSPHERIC EFFECTS			SPSPO INDEX NO: AE-27
AUTHOR(S): Rote, D. Brubaker, Lee, J. L	K. L.		
AUTHOR AFFILIATION:	Argonne National Lab	oratory	
TITLE: Environmental A Development and	ssessment for the Sat Evaluation Program -		[40 <del>-1</del> ]; [10-10-10-10-10-10-10-10-10-10-10-10-10-1
DATE: November 1980	VOLUMES:	PAGES: 126	REFERENCES: 144
ACQUISITION NO: DOE/	SOURCE: 5		
KEY WORDS: Atmospheric Models Climate Effects Exhaust Emissions		Launch Effec Physical Pro Transportati	cesses

SUBJECT: A	JBJECT: ATMOSPHERIC EFFECTS			SPSPO	INDEX	NO:	AE-22	
	iolette,	ch, C. M. Carroll, J. C. Allen, K. C. celand, R. H.					(2)	
AUTHOR AFFIL	LIATION:	U. S. Departmen	nt of	Commerce	ana sa			
TITLE: Impact of SPS Heating on VLF, LF, and MF Telecommunications Systems Ascertained by Experimental Means								
DATE: July 19	980	VOLUMES:		PAGES: 10	REF	ERENCE	S: 1	.5
ACQUISITION	NO: DOE	/ER/10003-T1			soul	RCE: 5		
KEY WORDS:	EY WORDS: Analysis Methods Heating Effect Experiments Interference E Frequency Scaling Ionosphere Hea		fects					

SUBJECT: ATMOSPHERIC	EFFECTS	SPSPO INDEX NO: AE-26	
AUTHOR(s): Showen, R.	L.		
AUTHOR AFFILIATION:	SRI International		
TITLE: Measurements of During Ionosph	of Possible D- and E- neric Heating	Region Telecom	munications Effects
DATE: November 1980	VOLUMES:	PAGES: 38	REFERENCES: None
ACQUISITION NO: Cont	ract NT79RAC96007	781	SOURCE: 13
KEY WORDS: Heating Ef Heating Th Interferen	- 13 (15 (15 (15 (15 (15 (15 (15 (15 (15 (15	osphere Heatin osphere Predic	

SUBJECT: A	TMOSPHERIC	EFFECTS		SPSPO INDEX NO: AE-31
AUTHOR(S): Z	inn, J. utherland,	C. D.		
AUTHOR AFFI	LIATION:	Los Alamos Scientific	c Laboratory	
TITLE: Eff	ects of Ro	cket Exhaust Products	in the Them	mosphere and Ionosphere
DATE: 198	80	VOLUMES:	PAGES: 24	REFERENCES: 20
ACQUISITION	Spac	-9067/80/010109-24 e Solar Power Review, 109-132	Vol. 1,	SOURCE: 33
KEY WORDS:	Atmospher Exhaust E Experimen		Ionosphere Physical P Transporta	

SUBJECT: ATMOSPH	ERIC EFFECTS	SPSPO INDEX NO: AE-13	
AUTHOR(S): Zinn, Suthe	J. rland, C. D.	÷	24 #1 07 XA E4
AUTHOR AFFILIAT	ON: Los Alamos Sc	ientific Laboratory	<u> </u>
TITLE: Effects of and Ionos		ducts in the Thermos	phere
DATE: February 19	VOLUMES:	PAGES: 22	REFERENCES: 20
ACQUISITION NO:	LA-8233-MS		SOURCE: 5
Atmo	sis Methods spheric Models ast Emissions	Ionosphere Predict Launch Effects Transportation Eff	

SUBJECT: ATMOSPHERIC		SPSPO INDEX NO: AE-20			
AUTHOR(S): (1) Zinn, J. (1) Stone, S. N. (2) Behnke, R. A. (1) Sutherland, C. D. (1) Duncan, L. M.					
AUTHOR AFFILIATION: (1) Los Alamos Scientific Laboratory (2) Arecibo Observatory					
TITLE: Ionospheric Effects of Rocket Exhaust Products (HEAO-C, Skylab and SPS-HLLV)					
DATE: October 1980	VOLUMES:	PAGES: 32	REFERENCES: 28		
ACQUISITION NO: DOE	/ER-0082		SOURCE: 5		
KEY WORDS: Atmospheric Models Exhaust Emissions Experiments		Physi	phere Predictions ical Processes portation Effects		

# BIOLOGIC EFFECTS (CATEGORY BE)

Document in this category cover potential biologic effects which might be produced by solar energy or SPS microwave energy in space or on earth, and biologic effects which might be produced by SPS launch and space vehicles, electric transmission lines, or SPS-related industrial and manufacturing processes. Health, safety and other biologic effects (e.g., physiological, behavioral, etc.) on humans, animals and plants are included. Biologic and occupational safety issues related to working in the space ionizing radiation environment are included. They describe and evaluate what is known about the radiation environment in space, its effects on humans and space equipment, and possible ameliorative measures which may be useful in controlling such effects.

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AUTHOR(S): Gary, N. Westerdah	E. 1, B. B.		# E		
AUTHOR AFFILIATION:	University of Califo	rnia			
TITLE: Environmental A of Honey Bees E Energy	ssessment for the Sat exposed to 2.45 GHz Co	ellite Power S ntinuous-Wave	ystem (SPS):Studies Electromagnetic		
DATE: December 1980	ATE: December 1980 VOLUMES: PAGES: 149 REFERENCES: 55				
ACQUISITION NO: DOE/	ER-0095		SOURCE: 5		
KEY WORDS: Behavior E Experiment Growth and	(C. C. C	Insec Micro Resea	wave		

SUBJECT:	BIOLOGIC	EFFECTS			SF	SPO	INDEX NO:	BE-12
AUTHOR(S):	Baranski, Czerski,	S. (1) P. (2)				10		= 1
AUTHOR AFFIL	IATION:	(1) I (2) I	nstitute of nstitute of	Aviation Mother an	Medic d Chi	ine ( ld (Wa	warsaw) irsaw)	erest to the least
TITLE:	Biologica	al Effects	of Microwa	es				
DATE: 1976		VOLUMES		PAGES:	234	REFE	RENCES:	614
ACQUISITION	NO:		y of Congres 0-87933-145			SOUR	CE:	23
KEY WORDS:	Experime Exposure Microwav			pational dards ry	Exposi	re		
22	111	1000 - 000 <u>-</u>						

SPSPO INDEX NO: BE-13 SUBJECT: BIOLOGIC EFFECTS AUTHOR(S): Benedick, M. H. AUTHOR AFFILIATION: IIT Research Institute TITLE: Blood-Brain Barrier Workshop PAGES: 16 REFERENCES: **VOLUMES:** DATE: May 1979 ACQUISITION NO: IITRI SOURCE: 5 - E6456 NMRDC - N00014-79-M-005 KEY WORDS: Blood-Brain Barrier Microwave Data Review Measurement Methods

SPSPO INDEX NO: BE-33 SUBJECT: BIOLOGIC EFFECTS AUTHOR(S): Bridges, J. E. AUTHOR AFFILIATION: IIT Research Institute TITLE: Biological Effects of High Voltage Electric Fields REFERENCES: 92 PAGES: 190 DATE: November 1975 **VOLUMES:** SOURCE: 26 ACQUISITION NO: EPRI 381-1 Occupational Exposure Data Review KEY WORDS: Public Health Dosimetry Research Extremely Low Frequency

SUBJECT: BIOLOGIC	PSPO INDEX NO: BE-1		
AUTHOR(S): Brodeur	, P.		
AUTHOR AFFILIATIO	N: New Yorker Maga	azine	
TITLE: The Zapping	of America		
DATE: 1977	VOLUMES:	PAGES: 343	REFERENCES: 75
ACQUISITION NO:	By Title		SOURCE: 32
KEY WORDS: Data Re Microwa Occupat	(18. N.) (17. N.)	Public Concern Public Health Regulation	

SUBJECT: BIOLOGIC	EFFECTS		SPSPO INDEX NO	BE-7
AUTHOR(S): Cleary,	5. F.			
AUTHOR AFFILIATION:	Virginia Commonw	ealth University		
TITLE: Survey of Mechanism	f Microwave and Ra ns	dio Frequency Bio	logical Effects an	nd
DATE: June 1977	VOLUMES:	PAGES: 33	REFERENCES:	72
ACQUISITION NO: By	Title		SOURCE:	17
KEY WORDS: Data Rev Microwav Theory	i ew e	Thermal Effe	cts	

SPSPO INDEX NO: BE-41 SUBJECT: BIOLOGIC EFFECTS AUTHOR(S): Committee on Commerce, Science and Transportation AUTHOR AFFILIATION: U.S. Senate TITLE: Report on Radiation Health and Safety PAGES: 106 REFERENCES: None **VOLUMES:** DATE: December 1978 SOURCE: 20 ACQUISITION NO: 34-949 Public Health Ionizing Radiation KEY WORDS: Regulation Microwave Research Occupational Exposure

SPSPO INDEX NO: BE-15 SUBJECT: BIOLOGIC EFFECTS AUTHOR(S): Committee on Commerce, Science and Transportation AUTHOR AFFILIATION: United States Senate TITLE: Microwave Irradiation of the U.S. Embassy in Moscow REFERENCES: PAGES: 26 **VOLUMES:** None DATE: April 1979 SOURCE: ACQUISITION NO: 96USC-43-949 20 Occupational Exposure KEY WORDS: Data Review Public Concern Exposure Microwave

SPSPO INDEX NO: BE-43 SUBJECT: BIOLOGIC EFFECTS AUTHOR(S): Committee on Governmental Affairs AUTHOR AFFILIATION: U. S. Senate TITLE: Federal Regulation of Radiation Health and Safety: Organizational Problems and Possible Remedies PAGES: 180 REFERENCES: None **VOLUMES:** DATE: August 1978 SOURCE: 20 ACQUISITION NO: 31-471-0 Occupational Exposure KEY WORDS: Exposure Public Health Ionizing Radiation Regulation Microwave

SPSPO INDEX NO: BE-2 SUBJECT: BIOLOGIC EFFECTS AUTHOR(S): Community and Economic Development Division AUTHOR AFFILIATION: (U.S.) General Accounting Office Efforts by the Environmental Protection Agency to Protec the TITLE: Public from Environmental Nonionizing Radiation Exposure PAGES: REFERENCES: 11 None **VOLUMES:** DATE: March 1978 SOURCE: ACQUISITION NO: B-166506 KEY WORDS: Exposure Research Measurements Standards Regulation

SUBJECT: BI	OLOGIC E	SPSPO INDEX NO: BE-		
AUTHOR(S):	Comptroll	er General of t	he U. S.	
AUTHOR AFFIL	.IATION:	U. S. General	Accounting Office	
TITLE: More	Protection	on from Microwa	ve Radiation Hazard	ls Needed
DATE: Novembe	er 1978	VOLUMES:	PAGES: 80	REFERENCES: Bibliography
ACQUISITION	NO: HRD	-79-7		SOURCE: 9
KEY WORDS:	Microwav Occupati Public H	onal Exposure	Regulation Standards	

SUBJECT: BIOLOGIC EF	CT: BIOLOGIC EFFECTS			
AUTHOR(S): Curtis, S. Schimmerli	B. ng, W.			
AUTHOR AFFILIATION:	Lawrence Berkel	ey Laboratory		
TITLE: Workshop on the	Radiation Envir	onment of the Satel	lite Power System	
DATE: December 1979	VOLUMES:	PAGES: 261	REFERENCES: 134	
ACQUISITION NO: CONF	-7809164		SOURCE: 5	
KEY WORDS: Charged Pa Geophysics	rticles adiation	Radiation Expos Shielding Space Instrume		

SUBJECT: BIOLOGIC EFF	SPSPO INDEX NO: BE-46		
AUTHOR(S): David, L.			
AUTHOR AFFILIATION:	PRC Energy Analy	sis Company	
TITLE: A Study of Fed	eral Microwave St	andards	
DATE: August 1980	VOLUMES:	PAGES: 83	REFERENCES: 117
ACQUISITION NO: DOE	/ER/10041-02		SOURCE: 5
KEY WORDS: Microwave Occupational Exposure Public Health			gulation andards

SUBJECT: BIOLOGIC	EFFECTS		SPSPO INDEX NO	O: BE-1
AUTHOR(S): Dula, A.		**************************************		
AUTHOR AFFILIATION:	Butler Binion Ri	ce Cook and Knapp	)	
TITLE: Microwave	Radiation			
DATE: 1978	VOLUMES:	PAGES: 17	REFERENCES:	41
ACQUISITION NO: Juri	imetrics Journal, 291-307	Summer 1978	SOURCE:	8
KEY WORDS: Exposure Regulation Standards				

SUBJECT: BIOLOGIC EF	ECTS	SPSPO INDEX NO: BE			
AUTHOR(S): Electroma	gnetic Radiation	Management Advisor	y Council		
AUTHOR AFFILIATION:	Office of Telec	communications Poli	су		
TITLE: Program for The Assessment Radiation	Control of Electront of Bilogical H	romagnetic Pollutio Hazards of Nonioniz	n of the Environment: ing Electromagnetic		
DATE: December 1971	VOLUMES:	PAGES: 42	REFERENCES: 9		
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KEY WORDS: Dosimetry Microwave Public Co		Res	olic Health search andards		

SUBJEC	SUBJECT: BIOLOGIC EFFECTS			SP	SPSPO INDEX NO: BE-25				
AUTHOR		Electromac Advisory	gnetic Radiation Mana Council	gement	-		Town		
AUTHOR	AFFIL	IATION:	Office of Telecommun	ications Po	olicy				
TITLE:	The	gram for Assessmentiation	Control of Electromag nt of Biological Haza	netic Pollo	ution ionizi	of t	he Env	ironne nagne	ent: tic
DATE:	March	1973	VOLUMES:	PAGES:	44	REFE	ERENCE	s:	9
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KEY WO	RDS:	Dosimetry Microwave Public Co	8		Publ Rese Stan	arch			

SUBJECT: BIOLOGIC EFFECTS			SPSPO INDEX NO: BE-24
AUTHOR(S): Electroma Advisory	gnetic Radiation Mana Council	gement	
AUTHOR AFFILIATION:	Office of Telecommun	ications Pol	icy
TITLE: Program for Co The Assessment Radiation.	ntrol of Electromagne of Biological Hazard	tic Pollutio Is of Nonioni	n of the Environment: zing Electromagnetic
DATE: May 1974	VOLUMES:	PAGES: 4	5 REFERENCES: 105
ACQUISITION NO: By	Title		SOURCE: 5
KEY WORDS: Dosimetry Microwave Public Co		R	ublic Health esearch tandards

SUBJECT	T: BIOLOGIC EF	FECTS		SPSPO INDEX NO: B	E-23
AUTHOR	(s): Electromagn	netic Radiation Manage	ement Advisory	Council	
AUTHOR	AFFILIATION:	Office of Telecommun	nications Poli	су	
TITLE:	Program for Cor The Assessment Radiation.	ntrol of Electromagnes of Biological Hazards	tic Pollution s of Nonionizi	of the Environment: ng Electromagnetic	
DATE:	April 1975	VOLUMES:	PAGES: 32	REFERENCES: 2	45
ACQUIS	ITION NO: By	Title		SOURCE: 5	
KEY WO	RDS: Dosimetry Microwave Public Cor	Public Hea Research Standards	al th		

SUBJECT: BIOLOGIC EF	FECTS	s	PSPO INDEX NO: BE-29
AUTHOR(S): Electroma	gnetic Radiation Ma	nagement Advisory	Counci 1
AUTHOR AFFILIATION:	Office of Telecom	munications Polic	у
TITLE: Program for The Assessm Radiation	Control of Electro ent of Biological H	magnetic Pollutio Hazards of Nonioni	n of the Environment: zing Electromagnetic
DATE: June 1976	VOLUMES:	PAGES: 213	REFERENCES: Bibliography
ACQUISITION NO: By	Title		SOURCE: 5
KEY WORDS: Data Rev Microwav Public H	re e	Res	ulation search andards

SUBJECT: BIOLOGIC EFF	s	PSPO INDEX NO: BE-32	
AUTHOR(S): Environme	ntal Health Directora	te	
AUTHOR AFFILIATION:	Minister of National Welfare (Canada)	Health and	
TITLE: Health Aspects Part 1.	of Radio Frequency a	nd Microwave R	adiation Exposure
DATE: November 1977	VOLUMES:	PAGES: 80	REFERENCES: 115
ACQUISITION NO: 77-E	HD-13		SOURCE: 16
KEY WORDS: Data Revi Human Abs Measureme		Pub	rowave lic Health ory

SUBJECT: BIOLOGIC EFFECTS			PSPO INDEX NO: BE-27			
AUTHOR(S): Environme	ntal Health Directora	te				
AUTHOR AFFILIATION:	Minister of Nationa (Canada)	1 Health and We	elfare			
TITLE: Health Aspects of Radio Frequency and Microwave Radiation Exposure, Part 2						
DATE: March 1978	VOLUMES:	PAGES: 115	REFERENCES: 313			
ACQUISITION NO: 78-E	HD-22		SOURCE: 16			
KEY WORDS: Behavior Data Revi Microwave	ew Rese	lation earch idards				

SUBJECT: BIOLOGIC EFFE	SPSPO INDEX NO: BE-45		
AUTHOR(S): Envir	onmental Protection A	Agency	
AUTHOR AFFILIATION:	U. S. Environmental	Protection Ag	ency
TITLE: Environmental A Development and Effects	Assessment for the Sat d Evaluation Program	tellite Power - Microwave He	System - Concept alth and Ecological
DATE: November 1980	VOLUMES:	PAGES: 143	REFERENCES: Bibliography
ACQUISITION NO: DOE	/ER/10035-2		SOURCE: 5
KEY WORDS: Data Revie Exposure Microwave	1. 20	ational Exposu c Health ation	ire

SUBJECT:, BIOLOGIC EFFECTS			SPSPO INDEX NO: BE-22
AUTHOR(S): Formanek, Gauger, J Emerle, E	. R.		
AUTHOR AFFILIATION:	IIT Research In	nstitute	
TITLE: Susceptibility			ELF Magnetic Fields
DATE: June 1977	VOLUMES:	PAGES: 34	REFERENCES: 6
ACQUISITION NO: IIT	RI - E6357-TR-5		SOURCE: 5
Extremel	ntal Data / Low Frequency ent Methods	Re	blic Health search ansmission Line

SUBJECT: BIOLOGIC EFFECTS			SPSPO INDEX NO: BE-10
AUTHOR(S): Gandhi, 0.	P.		
AUTHOR AFFILIATION:	University of Utah		
TITLE: 2450 MHz Microv Biochemical Eff	vave Absorption in La fects on Birds and Re	arge and Small	Animals and its
DATE: February 1978	VOLUMES: 1	PAGES: 99	REFERENCES: 22
ACQUISITION NO: NASZ	2-9555 C ND 78-015	70	SOURCE:
KEY WORDS: Avian Spec Behavior I Dosimetry		Reptiles Specific Abso Thermal Effe	
N 25			

SUBJECT: BIOLOGIC EFFECTS			SPSPO INDEX NO: BE-40		
AUTHOR(S):	Gordon, Z	. v.			
AUTHOR AFFIL	IATION:	Israel Progra	m for Scientific Tr	anslations, Ltd.	
	ogical Eff Russian)	ect of Microwa	ves in Occupational	Hygiene (Translated	
DATE: 1970		VOLUMES:	PAGES: 10	2 REFERENCES: Bibliography	
ACQUISITION		0-50087 A TTF-633		SOURCE: 5	
KEY WORDS:	Data Revi Exposure Human Abs		Mammal Studies Microwave Occupational Exp	osure	

SUBJECT: BIOLOGIC EF	FFECTS		SPSPO INDEX NO	BE-21
AUTHOR(S): Gould, J. Kirschvink Deffeyes,	L. , J. L. K. S.			
AUTHOR AFFILIATION:	Princeton Univers	ity		
TITLE: Bees Have Magne	tic Remanence			
DATE: April 1978	VOLUMES:	PAGES: 3	REFERENCES:	20
ACQUISITION NO: 0036	-8075/78/0915-1026		SOURCE: 2	
KEY WORDS: Behavior Experiment Insects		Research Theory		

SUBJECT: BIOLOGIC EFF	r: BIOLOGIC EFFECTS SPSPO INDEX NO: B				
AUTHOR(S): Gould, Jan	nes L.				
AUTHOR AFFILIATION:	Princeton University				
TITLE: The Case for Ma	agnetic Sensitivity in	Birds and Bees	s (Such as It Is)		
DATE: May-June 1980	VOLUMES:	PAGES: 12	REFERENCES: 42		
ACQUISITION NO: ISSN	-0003-0996		SOURCE: 35		
KEY WORDS: Avian Species Behavior Effects Experimental Data		Exposure Research Theory			

SUBJECT: BIOLOGIC E	OGIC EFFECTS SPSPO INDEX NO: BE-4					BE-42	
AUTHOR(S): Guy, A. Webb, M. McDougal	D.						
AUTHOR AFFILIATION:	University o	f Washing	iton			50 <del>55</del> 1	
TITLE: R F Radiation	Absorption Pa	tterns:	Human and An	imal Mo	deling Da	ta	
DATE: September 1977	VOLUMES:		PAGES: 77	REFE	RENCES:	11	
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SUBJECT: BIOLOGIC EFF	ECTS	3	SPSPO INDE	X NO: BE-14
AUTHOR(S): Ham, W. T. Sliney, D.	н.			
AUTHOR AFFILIATION:	Electric Power Rese	arch Institute		
TITLE: Physiological E	ffects of Redirected	Solar Radiati	on	
DATE: August 1978	VOLUMES:	PAGES: 56	REFERENC	ES: 27
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KEY WORDS: Data Revie Exposure Infrared	Public He Solar Eff Ultraviol	ects		

SUBJECT: BIOLOGIC EFFECTS SPSPO INDEX NO:				
AUTHOR(S): Hazzard, [	). G.			
AUTHOR AFFILIATION:	U. S. Public Health	Service		
TITLE: Symposium on Br Microwaves	iological Effects and	Measurement o	f Radio Frequency/	
DATE: February 1977	VOLUMES:	PAGES: 387	REFERENCES: 282	
ACQUISITION NO: FDA-77-8026			SOURCE: 5	
KEY WORDS: Behavior Effects Dosimetry Mammal Studies		Measurement Methods Occupational Exposure Research		

SPSPO INDEX NO: BE-8 SUBJECT: BIOLOGIC EFFECTS AUTHOR(S): International Radiation Protection Association AUTHOR AFFILIATION: International Radiation Protection Association TITLE: Overviews on Non-Ionizing Radiation REFERENCES: 165 PAGES: 75 **VOLUMES:** DATE: April 1977 20 SOURCE: ACQUISITION NO: By Title KEY WORDS: Public Health Data Review Standards Lasers Ultrasonics Microwave

SPSPO INDEX NO: BE-37 SUBJECT: BIOLOGIC EFFECTS AUTHOR(S): Ishimaru, A; (Ed) AUTHOR AFFILIATION: The American Geophysical Union TITLE: Biological Effects of EM Waves November -PAGES: 354 VOLUMES: REFERENCES: 707 DATE: December 1979 SOURCE: 36 ACQUISITION NO: RASCAD 14 (6S) 15-351S (1979) ISSN 0048-6604 Mammal Studies KEY WORDS: Behavior Effects Measurement Methods Blood-Brain Barrier Microwave Extremely Low Frequency

SUBJECT: BIOLOGIC EFF	SPSPO INDEX NO: BE-3		
AUTHOR(S): (1) John (2) Shor	nson, C. C. (Ed.) re, M. L. (Ed.)		
AUTHOR AFFILIATION:	(1) University of (2) Bureau of Radi	Utah ological Healt	h
TITLE: Biological I	Effects of Electromag	netic Waves	947
DATE: October 1975	VOLUMES: 2	PAGES: 955	REFERENCES: 1089
The same of the sa	A-77-8010 (Vol. 1) D-77-8011 (Vol. 2)	=	SOURCE:
KEY WORDS: Behavior Dosimetr Mammal S	- PI - Tall No. 1921 II	Measurement Microwave Research	Methods

SUBJECT: BIOLOGIC EFF	s	PSPO INDEX NO:	BE-48	
AUTHOR(S): Johnson S	pace Center			
AUTHOR AFFILIATION:	National Aeronau	tics and Space Admi	inistration	
TITLE: Assessment of Z	ero Gravity Effec	ts on Space Worker	Health and Safet	у
DATE: November 1980	VOLUMES:	PAGES: 122	REFERENCES:	63
ACQUISITION NO: DOE/ER/10025-TI			SOURCE: 5	29
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SUBJECT: BIOLOGIC E	FFECTS		SPSPO	INDEX	NO:	BE-49
AUTHOR(s): Justesen,	D. R.					
AUTHOR AFFILIATION:	U. S. Veterans Admin	istration				
TITLE: Diathermy Verso A Rose by Anoth	us the Microwaves and ner Name is a Cabbage	Other Radio	Frequenc	y Radia	tions	:
DATE: May-June 1977	VOLUMES:	PAGES: 10	REFE	RENCES	<b>S:</b> 31	1
ACQUISITION NO: By Title, Radio Science, Vol. 12, No. 3, pp. 355-364				RCE:	36	
KEY WORDS: Data Review Human Abs Microwave	orption Resear					

SUBJECT:	BIOLOGIC E	FFECTS		SPSPO	INDEX NO:	BE-9
AUTHOR(S):	Justesen, Ragan, H. Rogers, L Guy, A. W	A. (2) Hind . E. (2) Phil	esen, D. L. (2 s, W. T. (2 lips, R. D. (2	?)		
AUTHOR AFFIL	IATION:	기다. 아이가 하는 그 아이가 하는 그 아이가 하는 것이 없어 하는 것이 없어 없다.	s Administrati Northwest Lab		(3) Univer Wash	sity of ington
TITLE: Compilation and Assessment of Microwave Bioeffects						
DATE: May 19	978	VOLUMES:	PAGES: 90	REF	ERENCES:	129
ACQUISITION NO: PNL-2634 (Rev.)					RCE:	13
KEY WORDS:	Data Revi Microwave Theory					

SUBJECT: BIOLOGIC EFF	SPSPO INDEX NO: BE-54		
AUTHOR(S): Lawrence	Berkeley Laborat	ory	•
AUTHOR AFFILIATION:	Lawrence Berke	ley Laboratory	
TITLE: Ionizing Radiat in Space	ion Risks to Sat	ellite Power System	ns (SPS) Workers
DATE: December 1980	VOLUMES:	PAGES: 58	REFERENCES: 58
ACQUISITION NO: DOE/ER-0094			SOURCE: 5
KEY WORDS: Charged Particles Cosmic Rays Dose Levels		Radi	th Risks ation Exposure lding

SUBJECT: BIOLOGIC EFF	ECTS		SPSPO INDEX NO: BE-19
AUTHOR(S): Mallalieu	, R. C.		•
AUTHOR AFFILIATION:	The Johns Hopkins	University	
TITLE: A Model of the		y Distribution w	ithin the US Embassy
DATE: August 1980	VOLUMES:	PAGES: 81	REFERENCES: 53
ACQUISITION NO: FS.	-80-166		SOURCE: 5
KEY WORDS: Dosimet Exposur Human A	e Occ	rowave upational Exposur lic Health	`e

SPSPO INDEX NO: BE-4 SUBJECT: BIOLOGIC EFFECTS AUTHOR(S): Massey, K. A. AUTHOR AFFILIATION: Natural Resources Defense Council TITLE: The Challenge of Nonionizing Radiation: A Proposal for Legislation PAGES: 85 None REFERENCES: 1979 **VOLUMES:** DATE: 14 Duke Law Journal SOURCE: ACQUISITION NO: Vol. 1979: 105 Data Review Regulation KEY WORDS: Extremely Low Frequency Microwave

SUBJECT: BIOLOGIC EFFECTS BE-35 SPSPO INDEX NO: AUTHOR(S): Michaelson, S. M. AUTHOR AFFILIATION: University of Rochester TITLE: Analysis of Studies Related to Biologic Effects and Health Implications of Exposure to Power Frequencies DATE: 1979 PAGES: 16 REFERENCES: 43 **VOLUMES:** 0191-5398/79/030217-16 ACQUISITION NO: SOURCE: 33 KEY WORDS: Research Data Review Standards Extremely Low Frequency Measurement Methods Theory

SUBJECT: BI	OLOGIC EFFECTS			SPSPO	INDEX NO:	BE-28
AUTHOR(S):	National	Research Council				
AUTHOR AFFIL	IATION:	National Academy	of Sciences			
TITLE: Analy PAVE	sis of the PAWS Rada	e Exposure Levels ar System	and Potential	Biologic	Effects of t	he
DATE: 1979		VOLUMES:	PAGES: 1	.02 REF	ERENCES: 17	0
ACQUISITION	NO: By	Title	€6	sou	RCE: 27	
KEY WORDS: Exposure Human Absorption Microwave		Public Concern Public Health Theory				

SUBJECT: BIOLOGIC EFF	ECTS	s	PSPO INDEX NO: BE-30
AUTHOR(S): National 7	Telecommunications and	Information A	Administration
AUTHOR AFFILIATION:	U. S. Department of	Commerce	
TITLE: Fifth Report of Environment: The Assess Radiation.	on Program for Contro sment of Biological Ha	l of Electromag azards of Nonic	gnetic Pollution of the onizing Electromagnetic
DATE: March 1979	VOLUMES:	PAGES: 266	REFERENCES: Bibliography
ACQUISITION NO: NTI	A 79-19		SOURCE: 5
KEY WORDS: Dosimetry Microwave Public Concern		Res	blic Health search andards

SUBJECT: BIOLOGIC EFFECTS				SP	SPO	INDEX	NO:	BE-31
AUTHOR(S): Ozerski, P. Ostrowski, K. Shore, M. L.		Silverman, Suess, M. Waldeskog,	J.					
AUTHOR AFFILIATION: World Health Organization Minister, Health and U. S. Dept. Health, Education and Welfare Social Welfare (Pola			and Poland)					
TITLE: Biologic Effects and Health Hazards of Microwave Radiation								
DATE: Octobe	r 1974	VOLUMES:	PAGES:	350	REF	ERENCE	s:	556
ACQUISITION NO: 05-609-4				sou	RCE:		55	
KEY WORDS: Data Review Exposure Measurement Methods			Pub1	■ 0.00 in	onal Exp ealth	osur	e	

SUBJECT:	BIOLOGIC EFFECTS			SPSPO	INDEX	NO:	BE-53
AUTHOR(s):	Poon, P. Baker, L. Kuo, T. J	R.					¥.
AUTHOR AFFI	LIATION:	Jet Propulsion Lab	oratory		8 WAS NOTES		
TITLE:		ry Examination of Sa nal Health Impacts	tellite Power S	System	(SPS)		
DATE: Octob	er 1978	VOLUMES:	PAGES: 40	REF	RENCE	s:	12
ACQUISITION	NO:	90ú-820 Rev. A.		soul	RCE:		4
KEY WORDS:		sks Radiation Exposure					

SUBJECT: BIOLOGI	BIOLOGIC EFFECTS		SPSPO INDEX NO	BE-6
AUTHOR(S): Radiati	on Protection Bureau			
AUTHOR AFFILIATION	: Canadian Department	of Health and	Welfare	
	nded Installation and S ve Devices	afety Procedur	es for All Open E	Beam
DATE: July 1976	VOLUMES:	PAGES: 21	REFERENCES:	None
ACQUISITION NO: RPB-SC-11 SOURCE: 16			16	
KEY WORDS: Microwave Public Health Mitigating Strategy Standards Occupational Exposure				

SUBJECT: BIOLOGIC EFFECTS			PSPO INDEX NO: BE-47
AUTHOR(S): Repachol	i, M. H.		
AUTHOR AFFILIATIO	N: Department of Hea	1th and Welfare (C	anada)
TITLE: Proposed Exp Radiations i	osure Limits for Mic n Canada	rowave and Radiofr	equency
DATE: 1978	VOLUMES:	PAGES: 13	REFERENCES: 51
ACQUISITION NO: By Title; Journal of Microwave SOURCE: 39 Power, 13 (2)		SOURCE: 39	
KEY WORDS: Data Re Microwa Occupat		Regulation Specific Ab Standards	sorbtion

SPSPO INDEX NO: BE-3 SUBJECT: BIOLOGIC EFFECTS AUTHOR(s): Rish, W. R. Morgan, M. G. AUTHOR AFFILIATION: Carnegie-Mellon University TITLE: Regulating Possible Health Effects from AC Transmission Line Electromagnetic Fields 47 PAGES: 12 October 1979 REFERENCES: **VOLUMES:** DATE: 0018-9219/79/1000-1416 SOURCE: ACQUISITION NO: KEY WORDS: Data Review Mitigating Strategy Exposure Regulation Transmission Line Extremely Low Frequency

SUBJECT: BIOLOGIC EFFECTS			SPSPO INDEX NO: BE-36
AUTHOR(S): (1) Rogers (1) Gilber	, L. E. t, R. O.	(2) Lee, J. M (2) Bracken,	τ. D.
AUTHOR AFFILIATION:	(1) Battelle Pac (2) Bonneville P	ific Northwest La ower Administrati	boratories on
TITLE: BPA 1100 kV Tra	nsmission System	Development-Envir	onment Studies
DATE: February 1979	VOLUMES:	PAGES: 9	REFERENCES: 20
ACQUISITION NO: 1979 IEEE Winter PES			SOURCE: 6
KEY WORDS: Avian Species Experimental Data Extremely Low Frequency		Mammal Studie Transmission Vegetation Ef	Line

SUBJECT: BIOLOGIC	UBJECT: BIOLOGIC EFFECTS SPSPO INDEX NO: BE-1			
AUTHOR(S): Ruderman MacDonald				10 254
AUTHOR AFFILIATION:	SRI International			
TITLE: On the Interac	tion of Non-Ionizing	Radiation with	People	
DATE: February 1980	VOLUMES:	PAGES: 40	REFERENCES:	24
ACQUISITION NO: JSR - 79-14 SOURCE: 5				5
Data Rev	iew Theory	Absorption 1 Effects		

SUBJECT: BIOLOGIC	EFFECTS		SPSPO INDEX NO: B	E-5
AUTHOR(S): Schiefelbe	ein, S.			
AUTHOR AFFILIATION:	Saturday Review I	Magazine		
TITLE: The Invis	ible Threat			
DATE: September 1979	VOLUMES:	PAGES: 5	REFERENCES: N	lone
ACQUISITION NO: Vol.	rday Review 6, No. 18 16-20		SOURCE: 15	
KEY WORDS: Data Revie Exposure Extremely	Low Frequency	Microwave Public Concerr Transmission L		

SUBJECT: BIOLOGIC EFFECTS SPSPO INDEX NO:			SPSPO INDEX NO: BE-18
AUTHOR(s): Steneck, N. Cook, H. J. Vander, A.	•	•	
AUTHOR AFFILIATION:	University of Michig	gan	
TITLE: The Origins	of U. S. Safety Stand	dards for Micro	owave Radiation
DATE: June 13, 1980	VOLUMES:	PAGES: 8	REFERENCES: 54
ACQUISITION NO: Science - Vol. 208. No. No. 4449 SOURCE: 7		SOURCE: 7	
KEY WORDS: Exposure Microwave Occupational Exposure		Pu	blic Concern blic Health gulation

SUBJECT: BIOLOGIC EFFECTS			SPSPO INDEX NO:	BE-26
AUTHOR(S): Valen	tino, A. R.			
AUTHOR AFFILIATION	ON: IIT Research Institu	ute		
TITLE: A Tutorial	: Non-Ionizing Electroma Terminology	agnetic Fiel	ds-Biological Effect	s
DATE: 1979	VOLUMES:	PAGES:	4 REFERENCES:	5
ACQUISITION NO: 0191-5398/79/020155-04			SOURCE: 33	
KEY WORDS: Dosimetry Exposure Extremely Low Frequency			Microwave Regulation Standards	

SUBJECT: BIOLOGIC EFFECTS			SPSPO INDEX NO	BE-51	
	AUTHOR(S): Watts, J. W. Wright, J. J.				
AUTHOR AFFILIATION:	NASA Marshall Space	F11ght Center		5	
TITLE: Charged Particle Radiation Environment for the Spacelab and Other Missions in Low Earth Orbit					
DATE: June 1975	VOLUMES:	PAGES: 68	REFERENCES:	17	
ACQUISITION NO: NASA TM X-64936 SOURCE: 4				4	
KEY WORDS: Cosmic Rays Proton Flux Dose Levels Solar Flares Electron Flux Spacelab					

SUBJECT: BIOLOGIC EFFECTS SPSPO INDEX NO:				: BE-55
AUTHOR(S): White, M.				
AUTHOR AFFILIATION:	Lawrence Berkeley La	boratory		
TITLE: Effects on Bio Power System	ological Systems of Re	flected Light	from the Satelli	te
DATE: March 1981	VOLUMES:	PAGES: 54	REFERENCES:	19
ACQUISITION NO: Not Available		15.	SOURCE: 5	
KEY WORDS: Data Review Eye Hazards Growth and Development		Ref	nal Studies lected Light etation Effects	

SPSPO INDEX NO: BE-11 SUBJECT: BIOLOGIC EFFECTS AUTHOR(s): Yamaura, I. AUTHOR AFFILIATION: Electrotechnical Laboratory (Japan) TITLE: Measurements of 1.8 - 2.6 GHz Microwave Attenuation in the Human Torso August 1977 PAGES: REFERENCES: 8 **VOLUMES:** DATE: 6 SOURCE: MTT-25, No. 8 ACQUISITION NO: Experimental Data Human Absorption Measurement Methods KEY WORDS: Microwave Research

## COMPARATIVE ASSESSMENT (CATEGORY CA)

Documents in this category include information which is useful for comparing various energy options with the SPS concept. Existing energy options are included as are emerging energy technologies. Some documents characterize technologies, while others only provide information on certain aspects of a technology (such as performance or related environmental effects, for example). Methods which have been developed for comparing options also are included.

KEY WORDS:	PAGE NUMBER:
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KEY WORDS:

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## RELATED CATEGORIES:

Energy Alternatives and Policy (EA)

All other categories include information on SPS

SUBJECT: COMPARATIVE	PSPO INDEX NO: CA-29		
AUTHOR(S): Argonne Na	ational Laboratory		
AUTHOR AFFILIATION:	Argonne National La	aboratory	
TITLE: Comparative Head	alth and Safety Asse trical Generation Al	ssment of the Sa ternatives	atellite Power System
DATE: December 1980	VOLUMES:	PAGES: 154	REFERENCES: 133
ACQUISITION NO: DOE	/ER-0091		SOURCE: 5
<b>KEY WORDS:</b> Central S Fossil Sy Health Ef	stems	Safe	ear Systems ty estrial Solar

SUBJECT: COMPARATIVE	SPSPO INDEX NO: CA-31		
AUTHOR(S): Argonne	lational Laborato	ry	
AUTHOR AFFILIATION:	Argonne National	Laboratory	
TITLE: NOT AVAILABLE Energy Technol	- Final Comparat logies expected t	ive Assessment of o be published in	SPS and Six Other March 1981
DATE:	VOLUMES:	PAGES:	REFERENCES:
ACQUISITION NO:	SOURCE: 5		
KEY WORDS:			

SUBJECT: COMPARATIVE ASSESSMENT SF			PSPO INDEX NO:	CA-27
AUTHOR(S): (1) Ayres, (2) Ridker, (3) Watson,	R. U. (4) R. G. (1) W. D.	Arnold, J. Tayi, G.		
AUTHOR AFFILIATION: (2)	1) Carnegie-Mellon Un Resources for the Futu	1시 성격시계 기대에 그 기대 기대	U.S. Geological Variflex Corpora	
TITLE: Alternative Fut	ture Scenarios for the	SPS Comparati	ve Assessment	
DATE: August 1980	VOLUMES:	PAGES: 151	REFERENCES:	58
ACQUISITION NO: ANL	/EES-TM-120		SOURCE: 5	
KEY WORDS: Applicati Economics Methodolo		ls		

SUBJECT: COMPARAT	COMPARATIVE ASSESSMENT		SPSPO INDEX NO	O: CA-5
AUTHOR(S): Bell, C.	. R.	**************************************		
AUTHOR AFFILIATION	l: Jet Propulsion L	aboratory		
TITLE: Assessm Central	ent of a Solar Phot Station Applicatio	ovoltaic Power Con	version System f	for
DATE: June 1975	VOLUMES:	PAGES: 57	REFERENCES:	22
ACQUISITION NO:	900-702 EM 342 294		SOURCE:	4
KEY WORDS: Central Photovo Solar E	ltaic		erformance rial Solar	

SUBJECT: COMPARATIVE ASSESSMENT			SPSPO INDEX NO: CA-22
AUTHOR(S): Caputo, R	. S.		
AUTHOR AFFILIATION:	Jet Propulsion	Laboratory	
TITLE: An Initial Stu Point Focusing	dy of Solar Power	r Plants Using A Di	stributed Network of
DATE: July 1975	VOLUMES:	PAGES: 122	REFERENCES: 14
ACQUISITION NO: JPL EM 3	900-724 842-308	72	SOURCE: 4
KEY WORDS: Central S Economics Solar Per		Terrestrial S	olar

SUBJECT: COMPARATI	OMPARATIVE ASSESSMENT			O: CA-1
AUTHOR(S): Caputo, R.	. S.			
AUTHOR AFFILIATION:	Jet Propulsion L	aboratory		
TITLE: An Initia Central P	l Comparative Asse	ssment of Orbital	and Terrestria	1
DATE: March 1977	VOLUMES:	PAGES: 119	REFERENCES:	60
ACQUISITION NO:	900-780		SOURCE:	4
KEY WORDS: Economic Environm Health E	ental Effects	Methodolo Resources Solar End	3	

SUBJECT: COMPARATE	IVE ASSESSMENT		SPSPO	INDEX NO	CA-12
AUTHOR(S): Cirillo, Cho, B. S Monarch,	š.	rine, E. P.			
AUTHOR AFFILIATION:	Argonne National I	Laboratory			
TITLE: Comparative And Power Systems	nalysis of Net Energy (SPS) and Other Energ	Balance of s gy Systems	Satellit	e	
DATE: April 1980	VOLUMES:	PAGES:	136 REF	ERENCES:	74
ACQUISITION NO: D	0E/ER-0056		sou	RCE:	5
KEY WORDS: Energy Control Fossil State Net Energy			Nuclear Photovol Terrestr		

	ASSESSMENT SPSPO INDEX NO: CA-2			
M. J. P.				
Centre National de 1	a Recherche So	cientifique		
aluation of Ground ar	nd Space Solar	Electricity		
VOLUMES:	PAGES: 19	REFERENCES: 8		
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olar				
	Centre National de l'aluation of Ground ar VOLUMES:	Centre National de la Recherche Solar aluation of Ground and Space Solar VOLUMES:  PAGES: 19  Solar Energy Solar Perform		

SUBJECT: COMPARATIVE	ASSESSMENT		SPSPO INDEX NO:	CA-28
AUTHOR(S): Claverie Dupas, A				
AUTHOR AFFILIATION:	Centre Nation	nal de la Recherc	he Scientifique	1,100
TITLE: Terrestrial Ve	ersus Space Base	load Solar Elect	ricity	
DATE: September 1979	VOLUMES:	PAGES:	22 REFERENCES:	18
ACQUISITION NO: IAF 79-172			SOURCE:	
KEY WORDS: Central Solar Economics Land Use			Photovoltaics Storage Terrestrial Solar	

SUBJECT: COMPARATIV	E ASSESSMENT		SPSPO INDEX NO	: CA-8
AUTHOR(S): Coates, V.	. T.			
AUTHOR AFFILIATION:	George Washington Uni	versity		
TITLE: A Handbook	k of Technology Assess	ment		
DATE: March 1978	VOLUMES:	PAGES: 102	REFERENCES:	25
ACQUISITION NO:	TID-28503		SOURCE:	5
KEY WORDS: Applicat Economic Methodol	:s		Models Solar Energy	

SUBJECT: COM	MPARATIVE ASSESSMENT			SPSPO INDEX NO: CA-1
AUTHOR(S): C	owley, egler,	J. H. E. J.		
AUTHOR AFFILI	ATION:	Argonne Nationa	1 Laboratory	
TITLE: Satell	ite Powe	r Systems (SPS) C	Cost Review	
DATE: May 198	)	VOLUMES:	PAGES: 88	REFERENCES: 26
ACQUISITION N	O: DOE	/TIC-11190		SOURCE: 5
P	conomic: hotovol esource:	taic		

SUBJECT: COMPARATIVE	ASSESSMENT	SPSPO INDEX NO: CA-23	
AUTHOR(S): Doane, J. O'Toole, R	W. . P.		
AUTHOR AFFILIATION:	Jet Propulsion	Laboratory	
TITLE: Baseline Econo Plants	mic Analysis for	Solar and Conventi	onal Central Power
DATE: November 1975	VOLUMES:	PAGES: 28	REFERENCES: 12
ACQUISITION NO: JPL 900-727 EM 342-323			SOURCE: 4
KEY WORDS: Applicati Central S Economics	olar	Methodology Models Terrestrial	Solar

SUBJECT: COMPARATIVE	ASSESSMENT	SPSPO INDEX NO: CA-1			
AUTHOR(S): Drucker, I	1.				
AUTHOR AFFILIATION:	Pacific Northwest	Laboratory			
TITLE: Pacific Northw Assistant Secr	est Laboratory Annua etary for Environmen	Report for 1 t; Part 1, Bid	1979 to omedical	the DOE Sciences	
DATE: February 1980	VOLUMES:	PAGES: 33		ERENCES:	
ACQUISITION NO: PNL-	3300		sour	RCE: 5	
KEY WORDS: Environme Fossil Sy Health Ef		N	uclear S	Systems	

SUBJECT: COMPARATIVE	ASSESSMENT	\$	SPSPO INDEX NO: CA-9
AUTHOR(S): Energy Rese	earch and Develop	ment Administration	
AUTHOR AFFILIATION:	Energy Researc	ch and Development A	Administration
TITLE: Solar Energy	in America's Futu	ıre	
DATE: March 1977	VOLUMES:	PAGES: 127	REFERENCES: Bibliography
ACQUISITION NO: DS	E-115/1		SOURCE: 5
KEY WORDS: Economics Environme Net Energ	ntal Effects	Photovoltaio Resources Terrestrial	

SUBJECT: COMPARATIVE	ASSESSMENT		SPSPO INDEX NO: CA-2
AUTHOR(S): Fraley, D.  McDonald, Carter, N.	C. L		
AUTHOR AFFILIATION:	Pacific Northwe	est Laboratory	
TITLE: A Review of Is:	sues and Applica	tions of Net Energy	Analysis
DATE: May 1978	VOLUMES:	PAGES: 48	REFERENCES: 21
ACQUISITION NO: PNL	-SA-6619		SOURCE: 13
KEY WORDS: Application Economics Methodolo			els Energy ar Energy

SUBJECT: COMPARATIV	E ASSESSMENT	SPSPO INDEX NO: C		
AUTHOR(S): Fujita, T.				
AUTHOR AFFILIATION:	Jet Propulsion L	aboratory		
TITLE: Preliminary St Cost Optimizat	udies of Electrical	al and Hydrogen Pi Transmission Line	peline Distr	ibution and
DATE: March 1976	VOLUMES:	PAGES: 124	REFERENCE	ES: 46
ACQUISITION NO: JPL EM	900-734 342-332		SOURCE:	4
KEY WORDS: Central So Economics Electric D	lar istribution	Methodology Models		

SUBJECT: COMPARATIVE ASSESSMENT			SPSPO INDEX NO	: CA-25
AUTHOR(S): Fujita, T.				
AUTHOR AFFILIATION:	Jet Propulsion Labora	atory		
TITLE: Preliminary Dat Applications	ta on Electrical Energ	y Storage Sys	tems Utility	
DATE: April 1976	VOLUMES:	PAGES: 48	REFERENCES:	9
ACQUISITION NO: JPL EM :	900-738 342-333		SOURCE: 4	
KEY WORDS: Economics Energy Con Storage Sys				

SUBJECT: COMPARATIVE	ASSESSMENT	s	SPSPO INDEX NO: CA-		
AUTHOR(S): Gallagher Carasso,			y, R. rmann, R. G.		
AUTHOR AFFILIATION:	Bechtel Corporation				
TITLE: Direct Require Selected Energy		power, Material	s and Equipment for		
DATE: April 1976	VOLUMES:	PAGES: 131	REFERENCES: None		
ACQUISITION NO: ERD	A Contract E (49-1)-3	794	SOURCE: 13		
KEY WORDS: Methodolo Models Nuclear S		Resou	rces		

SUBJECT:	COMPARATI	VE ASSESSMENT	<u>t</u>	SI	PSPO INDEX NO	): CA-11
AUTHOR(S):	Habegger, Gasper, C	J. R.				
AUTHOR AFF	LIATION:	Argonne Nati	onal Laboratory			*
		fety: Prelimina er System (SPS)				
DATE: Apr	i1 1980	VOLUMES:	PAGES:	123	REFERENCES:	69
ACQUISITION	NO: DO	DE/ER-0053			SOURCE:	5
KEY WORDS:	Central S Fossil Sy Health Ef	stems		Safe	ear Systems ety estrial Solar	

SUBJECT: COMPARATIVE	ASSESSMENT		SPSPO INDEX NO: CA-20
AUTHOR(S): Energy	Analysis, Institu	ite for	
AUTHOR AFFILIATION:	Oak Ridge Assoc	iated Universities	
TITLE: Net Energy And	alysis of Five En	ergy Systems	*
DATE: April 1977	VOLUMES:	PAGES: 55	REFERENCES: 11
ACQUISITION NO: ORA	U/IEA (R)-77-12	······································	SOURCE: 13
KEY WORDS: Economics Fossil S Methodolo	ystems	Net	Energy

SUBJECT: COMPARATIVE	ASSESSMENT		SP	SPO INDEX NO: CA-16
AUTHOR(S): Kellermey	er, D. A.			
AUTHOR AFFILIATION:	Argonne National	Laboratory		
TITLE: Climate and Eng System (SPS) a	ergy: A Comparati nd Alternative Ene	ve Assessment ergy Technolog	of th	e Satellite Power
DATE: January 1980	VOLUMES:	PAGES:	73	REFERENCES: 88
ACQUISITION NO: DOE	/ER-0050			SOURCE: 5
KEY WORDS: Atmospher Climate E Fossil Sy			Photo	ear Systems ovoltaic Heat

SUBJECT: COMPARATIVE	ASSESSMENT		SPSPO INDEX NO: CA-10
AUTHOR(S): Levine, E Senew, M. Cirillo,	J.		
AUTHOR AFFILIATION:	Argonne National Lab	oratory	
	ssessment of Environme 11ite Power System (S		
DATE: April 1980	VOLUMES:	PAGES: 87	REFERENCES: 53
ACQUISITION NO: DOE	/ER-0055		SOURCE: 5
KEY WORDS: Environme Fossil Sy Health Ef	stems	Nuc	thodology clear Systems otovoltaic

SUBJECT: COMPARATI	VE ASSESSMENT		SPSPO INI	DEX NO: CA-1	13
AUTHOR(S): Newsom, Wolsko, T					
AUTHOR AFFILIATION:	Argonne National La	aboratory			
	mparative Assessment ( SPS) and Alternative				
DATE: April 1980	VOLUMES:	PAGES: 22	REFERE	NCES: 17	
ACQUISITION NO: DO	E/ER-0054		SOURCE	<b>3</b> 5	
<b>KEY WORDS:</b> Fossil Sy Land Use Methodolo		. Pł	clear Systemotovoltaic errestrial S		

SUBJECT: CO	MPARATIVE	ASSESSMENT	1	SPSPO INDEX NO:	CA-15
AUTHOR(S):	Samsa, M.	Ε.			
AUTHOR AFFIL	IATION:	Argonne National La	boratory		
TITLE: Selection Satel	tion of A lite Powe	lternative Central-St r System (SPS) Compar	ation Technolo ative Assessme	gies for the ent	
DATE: April	1980	VOLUMES:	PAGES: 15	REFERENCES: No	ne
ACQUISITION	NO: DOE/	ER-0052		SOURCE: 5	
KEY WORDS:	Applicati Economics Environme		Nuc	ssil Systems clear Systems otovoltaic	

SUBJECT:	COMPARATIV	E ASSESSMENT	SPSPO INDEX	PSPO INDEX NO: CA-4					
AUTHOR(S):	Selcuk, M.	Κ.							
AUTHOR AFFI	LIATION:	Jet Propulsion Labor	ratory						
ITLE: Preliminary Assessment of Flat Plate Collector Solar Thermal Power Plants									
DATE: March	1975	VOLUMES:	PAGES:	104 REFERENCE	S: 76				
ACQUISITION	NO:	900-692 EM 342-283		SOURCE:	4				
KEY WORDS: Economics Net Energy Plate Collectors			Solar Energy Terrestrial Solar						

SUBJECT:	COMPARATIVE ASSESSMENT			SPSPO	PSPO INDEX NO: CA-7				
AUTHOR(S):	Selcuk, M.	К.		4					
AUTHOR AFFI	LIATION:	Jet Propulsion	aboratory						
TITLE:	A Preliminary Technical and Economic Assessment of Solar Power Plants Using Line Concentrators								
DATE:	July 1975	VOLUMES:	PAGES:	71 REF	ERENCES:	34			
ACQUISITION	NO:	900-704 EM 342-302		sour	RCE:	4			
KEY WORDS:	Economics Line Collectors Net Energy		So1	Solar Energy Solar Performance Terrestrial Solar					

SUBJECT: COMPARATI	VE ASSESSMENT			SPSPO INDEX NO:		
AUTHOR(S): Selcuk, M	. K.					
AUTHOR AFFILIATION:	Jet Propulsion Labor	ratory				
TITLE: Survey of Design Co	Several Central Reconcepts	eiver Solar T	herm	al Power Plant		
DATE: August 1975	VOLUMES:	PAGES:	82	REFERENCES:	20	
ACQUISITION NO:	900-714 EM 342-311			SOURCE:	4	
KEY WORDS: Economics Energy Co Heliostat	nversion		Sol:	er Tower ar Performance restrial Solar		

SUBJECT: COMPARATIVE	ASSESSMENT	SPSPO INDEX NO: CA-3	
AUTHOR(S): Smith, K. Weyant, J. Holdren, J	C		
AUTHOR AFFILIATION:	Jet Propulsion Labor	atory	
TITLE: Evaluation of C	Conventional Power Sys	tems	
DATE: July 1975	VOLUMES:	PAGES: 187	REFERENCES: 236
ACQUISITION NO: ERG-	-75-5		SOURCE: 4
KEY WORDS: Economic Environm Fossil S	mental Effects	Nuc1e	th Effects ear Systems urces

SUBJECT: COMPARATIVE	PSPO INDEX	NO:	CA-26		
AUTHOR(S): TRW Energy	Systems Planning Div	ision			
AUTHOR AFFILIATION:	TRW, Inc.				
TITLE: Characterization the SPS Compara	on of Alternative Elec ative Assessment	ctric Generatio	on Technologi	es foi	
DATE: August 1980	VOLUMES: 2	PAGES: 282	REFERENCE	<b>s:</b> 8:	1
ACQUISITION NO: ANL. V. 1, Summary, 28 pp	51	ologies, 254 p	SOURCE:		
KEY WORDS: Central S Economics Environme		Nuc1	il Systems ear Systems estrial Solar		

COMPARATI	/E ASSESSMENT	5)	SI	PSPO INDEX NO	: CA-14
Buehring, Cirillo,	W. R. R.	Habegger, L. J. Hub, K. Newsom, D. E.		Samsa, M. E. Stenehjem, E. Whitfield, R.	J.
LIATION:	Argonne Nat	ional Laboratory			
				e Satellite	
ry 1980	VOLUMES:	PAGES:	72	REFERENCES:	63
NO: DO	E/ER-0051		77701	SOURCE:	5
Economics		·····	Poso	urces	
	Wolsko, T Buehring, Cirillo, I Gasper, J LIATION: ethodology er System (	ethodology for the Comparer System (SPS) and Alter	Wolsko, T. D. Habegger, L. J. Buehring, W. Hub, K. Cirillo, R. R. Newsom, D. E. Gasper, J. R.  ILIATION: Argonne National Laboratory ethodology for the Comparative Assessment er System (SPS) and Alternative Technolog ary 1980  VOLUMES: PAGES:	Wolsko, T. D. Habegger, L. J. Buehring, W. Hub, K. Cirillo, R. R. Newsom, D. E. Gasper, J. R.  LLIATION: Argonne National Laboratory ethodology for the Comparative Assessment of the System (SPS) and Alternative Technologies ary 1980  VOLUMES: PAGES: 72	Wolsko, T. D. Habegger, L. J. Samsa, M. E. Buehring, W. Hub, K. Stenehjem, E. Cirillo, R. R. Newsom, D. E. Whitfield, R. Gasper, J. R.  ILIATION: Argonne National Laboratory  ethodology for the Comparative Assessment of the Satellite er System (SPS) and Alternative Technologies  ary 1980 VOLUMES: PAGES: 72 REFERENCES:

SUBJECT: COMPARATIVE	ASSESSMENT	s	PSPO INDEX NO: CA-30
AUTHOR(S): Wolsko, T. Brown, C. D Cirillo, R.	Habegger, L. J	Levine, E Newsom, D Samsa, M.	. E. Van Kuiken, J.
AUTHOR AFFILIATION:	Argonne National Lab	oratory	
	y Assessment of the Sa ergy Technologies	atellite Power	System (SPS) and
DATE: April 1980	VOLUMES:	PAGES: 189	REFERENCES: 145
ACQUISITION NO: AN	IL/AA-20		SOURCE: 5
Economic	ric Effects s ental Effects	Nucle	1 Systems ar Systems Energy

# ENERGY ALTERNATIVES AND POLICY (CATEGORY EA)

This category is a collection of reports and papers that deals with (1) SPS as a future energy alternative, (2) the role of SPS in national and/or international energy policy matters, or (3) other major energy technologies of interest to the development of SPS and their relationships with energy alternatives and policy.

KEY WORDS:	PAGE NUMBER:
Comparative Methods	76
Concepts	71, 73, 75, 77, 78
Economics	72, 73, 75, 76
Energy Options	71, 72, 73, 74, 75, 77, 78
Energy Ratio	72, 74
Environmental Effects	73
Feasibility	71, 77
Fossil Fuels	71, 73, 78
Geotherma1	71
Hydroelectric	71
Inexhaustible Resources	72, 73
International Interest	75
Issues	77
Legislation	77
Net Energy Analysis	72, 74
Nuclear Power	71, 73, 77
Ocean Conversion	76
Policy Analysis	72, 73, 75, 77
Political Process	71
Recommendations	71
Risks	71
Social Issues	72
Solar Conversion	76
Solar Power	71, 73, 75, 76, 77, <b>7</b> 8
Technology Requirements	72, 76, 77, 78
Utility Decisions	76

### (Energy Alternatives and Policy Category EA continued)

KEY WORDS:

PAGE NUMBER:

Wind Conversion

76

RELATED CATEGORIES:

Comparative Analysis (CA)

Social Issues (SI)

All other categories include information on SPS

SUBJECT: ENERGY ALTER	SPSPO INDEX NO: EA-		
AUTHOR(S): American I	nstitute of Aeron	nautics and Astron	autics
AUTHOR AFFILIATION:	American Institu	ute of Aeronautics	and Astronautics
TITLE: Solar Powe	er Satellites		
DATE: January 1979	VOLUMES:	PAGES: 4	REFERENCES: None
ACQUISITION NO: Astr January	ronautics and Aer wary 1979 14-17	onautics	SOURCE: 2
KEY WORDS: Concepts Energy Op Feasibili		Risks	mendations ology Requirements

SUBJECT: E	NERGY ALTERNATIVES AND POLICY			SPSPO I	NDEX NO:	EA-9
AUTHOR(S):	Babcock, Siegel, S Swanson,	. B.				
AUTHOR AFFIL	IATION:	PRC Energy Analys	sis Company			
TITLE:	Energy De	mands, 1972 - 2000				
DATE: April	1979	VOLUMES:	PAGES: 15	50 REFER	RENCES:	21
ACQUISITION	NO:	HCP/R4024-01		SOURC	E:	5.
KEY WORDS:	Energy Op Fossil Fu			lydroelectr luclear Pov		

SUBJECT:	ENERGY	ALTERNATIVES AND P	OLICY	SPSPO INDEX NO: EA-7
AUTHOR(S):	Energy Re	esearch and Develo	pment Administrat	ion
AUTHOR AFFI	LIATION:	Energy Research	and Development A	dministration
TITLE:		ngs of the Public tible Energy Resou		the Status of the
DATE: July	1977	VOLUMES:	PAGES: 52	REFERENCES: None
ACQUISITION	NO: CO	NF-770715		SOURCE: 5
KEY WORDS:		s tible Resources 1 Process		cial Issues echnology Requirements

SUBJECT: ENERGY ALTERNATIVES AND POLICY			SPSPO INDEX NO: EA-12
AUTHOR(s): General A	ccounting Office		35
AUTHOR AFFILIATION:	U. S. General A	Accounting Office	
TITLE: Net Energy An	alysis: Little Pi	rogress and Many Pro	ob1ems
DATE: August 1977	VOLUMES:	PAGES: 15	REFERENCES: None
ACQUISITION NO: EMD	-77-57		SOURCE: 9
KEY WORDS: Energy Op Energy Ra Net Energ	0.10.72.4	Policy Analys	is

SUBJECT: ENERGY ALTE	RNATIVES AND POLI	CY	PSPO INDEX NO:	EA-8
AUTHOR(s): Glaser,	P. E.			
AUTHOR AFFILIATION:	Arthur D. Lit	tle, Inc.		
TITLE: Satelli	te Solar PowerA	n Option for Power	Generation on Ear	th
DATE: June 1977	VOLUMES:	PAGES: 25	REFERENCES:	11
ACQUISITION NO:	By Title (Wor C	ld Electrotechical ongress, Moscow)	SOURCE:	23
KEY WORDS: Concept Economi Energy			nvironmental Eff colar Power	ects

BJECT: ENERGY ALTERNATIVES AND POLICY				
American Insti	tute of Aeronautics	and Astronautics		
he Oil War				
VOLUMES:	PAGES: 37	REFERENCES: 25		
Title, Aeronauti	ics and Astronautic	s SOURCE: 2		
ie1s	Po1	lear Power icy Analysis ar Power		
	American Insti	American Institute of Aeronautics the Oil War  VOLUMES: PAGES: 37  Title, Aeronautics and Astronautics otions uels Nuc		

SUBJECT: ENERGY ALTER	SPSPO INDEX NO: EA-10			
AUTHOR(S): Herendeen	, R. A.			
AUTHOR AFFILIATION:	University of Illino	ois		
TITLE: Two Technologi Satellite Powe	es Near the Net Energy r Station	/ Limit: Gas	ohol and Solar	
DATE: August 1978	VOLUMES:	PAGES: 18	REFERENCES: 20	
ACQUISITION NO: By Title SOURCE: 2				
KEY WORDS: Net Energ	y Analysis			

SUBJECT: ENERGY ALTE	SPSPO INDEX NO: EA-3		
AUTHOR(S): Herendeer Kary, T. Rebitzer,	WCC4		
AUTHOR AFFILIATION:	University of I	Illinois	QL 24-3-277-25
TITLE: Energy Analysi	is of the Solar Po	wer Satellite	
DATE: 3 August 1979	VOLUMES:	PAGES: 4	REFERENCES: 26
	5-8075/79/0803-045 ence, Vol. 205, No		SOURCE: 7
Energy	y Options y Ratio nergy Analysis	1), 2(1 to 1)	

SPSPO INDEX NO: EA-14 SUBJECT: ENERGY ALTERNATIVES AND POLICY AUTHOR(S): Kassing, D. Reinhartz, K. K. European Space Technology and Engineering Center AUTHOR AFFILIATION: Energy for Europe from Space TITLE: 20 PAGES: 9 REFERENCES: **VOLUMES:** DATE: 1978 SOURCE: ACQUISITION NO: By Title, ESA Journal, Vol. 2, pp. 179-187 International Interest KEY WORDS: Concepts Solar Power Economics Energy Options

**ENERGY ALTERNATIVES AND POLICY** SPSPO INDEX NO: EA-5 SUBJECT: AUTHOR(s): Levinson, R. J. AUTHOR AFFILIATION: Polytechnic Institute of New York TITLE: Orbital Power Generation PAGES: REFERENCES: **VOLUMES:** DATE: November 1977 ACQUISITION NO: The Polytechnic Engineer SOURCE: 11 Vol. XVIII, No. 1 pp. 48-52, 56 KEY WORDS: Technology Requirements Concepts **Energy Options** Solar Power

SUBJECT: ENERGY ALTERNATIVES AND POLICY			s	PSPO IND	EX NO:	EA-15	
AUTHOR(S): Leon, H. I. Gorman, R. Dawley, R.							
AUTHOR AFFIL	IATION:	TRW Systems 0	Group				
TITLE:	Solar Ene	ergy Options for	Electric Utilit	ies			
DATE: April	1976	VOLUMES:	PAGES:	3	REFEREN	CES:	4
ACQUISITION	NO:	PB6-231			SOURCE:		13
KEY WORDS:	Comparat Ocean Con Solar Con				Utility E Wind Conv		s

SUBJECT: EN	ENERGY ALTERNATIVES AND POLICY			SPSPO INDEX NO	: EA-6
AUTHOR(S):	achol, R	. E.			
AUTHOR AFFILI	ATION:	Northwestern Univers	ity		
TITLE: So	olar Ene	rgy - A Subjective As	sessment for	NASA	
DATE: March 19	977	VOLUMES:	PAGES: 23	REFERENCES:	None
ACQUISITION N	<b>0:</b> By	Title		SOURCE:	4
S	conomics olar Pow echnolog				

SUBJECT: ENERGY A	SJECT: ENERGY ALTERNATIVES AND POLICY				
AUTHOR(S): Myers,	D. H.				
AUTHOR AFFILIATIO	N: U. S. Departme	nt of Energy			
TITLE: The Energy R	esearch and Develo	pment Program of the	United States		
DATE: December 1978	VOLUMES:	PAGES: 25	REFERENCES: None		
ACQUISITION NO: B on Ener	y Title; Anglo-Ame gy and Aerospace,	State Colored to the Colored	SOURCE: 2		
- 100 mm -	Feasibility Policy				

SUBJECT: ENERGY ALTERNATIVES AND POLICY				
ressional Research Servicery of Congress	ce			
m Space: Satellite Powe	er Statio	ns		
MES: PAGES:	12 RE	FERENCES:	21	
ACQUISITION NO: Issue Brief No. IB 78012			3	
	Polic	y Analysis	enients	
	ressional Research Servicery of Congress om Space: Satellite Power	ressional Research Service ary of Congress om Space: Satellite Power Station MES: PAGES: 12 RE ef No. IB 78012  Legis Polic	ressional Research Service ary of Congress om Space: Satellite Power Stations MES: PAGES: 12 REFERENCES:	

SPSPO INDEX NO: EA-4 SUBJECT: ENERGY ALTERNATIVES AND POLICY AUTHOR(s): Sviedrys, R. AUTHOR AFFILIATION: Polytechnic Institute of New York TITLE: The Changing Nature of the Energy Crisis REFERENCES: 20 November 1977 | VOLUMES: PAGES: DATE: The Polytechnic Engineer SOURCE: ACQUISITION NO: Vol. XVIII, No. 1 11 pp. 18-21, 55 KEY WORDS: Concepts Solar Power Energy Options Technology Requirements Fossil Fuels

# ELECTROMAGNETIC COMPATIBILITY (CATEGORY EC)

This category is concerned with reports and papers which address the possibility that SPS might produce electromagnetic incompatibilities (radio interference) with other electric or electronic systems in any portion of the frequency spectrum, and mitigating practices which might be useful in the event that interference problems were encountered.

KEY WORDS:	PAGE NUMBER:
Aeronamy Antenna Characteristics Astronomy	81, 82 81, 82, 83 82
Energy Distribution Equipment Susceptibility	82, 83, 84 81, 83, 85
Field Enhancement	82
Harmonics	81, 82, 83, 85
Ionosphere Effects	84, 85
Measurements Mitigation	81, 82, 83, 84 81, 82, 84
Noise Interference	84
Rules and Regulations	81, 82, 84
Sidebands Spurious Emissions	83, 84, 85 82, 83, 84
Troposphere Effects	85

#### RELATED CATEGORIES:

Atmospheric Effects (AE)

Environmental Effects (EE)

Power Generation and Transmission (PT)

Systems Engineering (SE)

SUBJECT: ELECTROMAGNE	SPSPO INDEX NO: EC-7		
AUTHOR(S): Anderson, Lovell, B			
AUTHOR AFFILIATION:	University of Manch	nester (England	)
TITLE: Effect of Sol Research	ar Power Satellite Tr	ransmissions on	Radio Astronomical
DATE: December 1978	VOLUMES:	PAGES: 11	REFERENCES: 6
Ene	Title; Anglo-American rgy and Aerospace, Ro iety (London)		SOURCE: 2
T 221 7 2 5 121	Susceptibility Regulations		

SUBJECT: ELECTROMAGNETIC COMPATIBILITY			PSPO INDEX NO: EC-9
AUTHOR(S): Davis, K. A Grant, W. B	Morrison, (2) Juroshek,	E. L. (2) J. R. (2)	
AUTHOR AFFILIATION:	Pacific Northwest La Institute for Telecon		iences (2)
TITLE: Environmental As Development and Compatibility.	sessment for the Sat Evaluation Program-E	ellite Power Sy lectromagnetic	stem Concept Systems
DATE: January 1981	VOLUMES:	PAGES: 91	REFERENCES: 30
ACQUISITION NO: DOE/ER-0096			SOURCE:
40 2 TOTAL (1980 - 1980 HOLE) 1980 -	Characteristics t Sus <b>ce</b> ptibility s	Mitiga	rements ation and Regulations

SUBJECT: ELECTROMAGNET	PSPO INDEX NO: EC-5		
AUTHOR(S): Ekstron, S Stokes, G	P. A. (Ed.) M. (Ed.)		
AUTHOR AFFILIATION:	Pacific Northwest	Laboratory	
TITLE: Workshop on Sat Radio Astronomy	tellite Power System	s (SPS) Effects	on Optical and
DATE: April 1980	VOLUMES:	PAGES: 265	REFERENCES: 132
ACQUISITION NO: CONF-7905143			SOURCE: 5
KEY WORDS: Aeronomy Antenna Characteristics Astronomy			ics and Regulations us Emissions

SUBJECT: ELECTROMAGNECTIC COMPATIBILITY				
J.				
U. S. Department of	Commerce			
	ctures Exposed t	o 2.45 GHz Plane		
VOLUMES:	PAGES: 45	REFERENCES: 25		
IA-80-49		SOURCE: 5		
hancement	Mitigat	ion		
	J. U. S. Department of	J.  U. S. Department of Commerce  Inside Habitable Structures Exposed to  VOLUMES: PAGES: 45  IA-80-49  istribution Mitigate hancement		

SUBJECT:	ELECTROMAGNE	SPSPO INDEX NO: EC-3			
AUTHOR(S)	: National R	esearch Council			
AUTHOR AF	FILIATION:	National Academy	y of Sciences		
TITLE: Rad	diation Inten	sity of the PAVE	PAWS Radar System	1	
DATE:	: 1979 VOLUMES: PAGES: 46 REFERENCES: 5				
ACQUISITION NO: Contract F49620-78-C-0118 SOURCE: 27					
KEY WORDS	: Antenna Ch Energy Dis Harmonics	aracteristics stribution	Measureme Sidebands Spurious		

UBJECT: ELECTROMAGNETIC COMPATIBILITY			PSPO INDEX NO: EC-4
AUTHOR(S): Ott, R. H. Morrison, Grant, W.	E. L.		
AUTHOR AFFILIATION:	U. S. Department	of Commerce	
TITLE: Antenna Patter	ns for the Solar P	ower Satellite	
DATE: January 1979	VOLUMES:	PAGES: 21	REFERENCES: 12
ACQUISITION NO: NTIA-TM-79-5			SOURCE: 5
<b>KEY WORDS:</b> Antenna Ch Energy Dis Equipment	다른 아이들 것이다. 이 아이를 보았다면 그렇게 뭐라요? 그런 그렇게 하나 아이를 보냈다.	Harmonics Sidebands Spurious E	missions

SUBJECT: ELECTROMAGNE	Υ	SPSPO INDEX NO: EC-1	
AUTHOR(S): Pacific N	orthwest Laborat	ory	
AUTHOR AFFILIATION:	Pacific Northwe	est Laboratory	
TITLE: Initial Assess SPS Microwave	mentElectromag Power Transmissi	netic Compatibilit on System (MPTS) C	y Aspects of Proposed perations
DATE: February 1978	VOLUMES:	PAGES: 133	REFERENCES: Bibliography
ACQUISITION NO: PNL	-2482		SOURCE: 13
	stribution e Effects n	S <sup>+</sup>	les and Regulations idebands ourious Emissions

SUBJECT: ELECTROMAGNET		SPSPO INDEX NO: EC-8				
AUTHOR(S): Spaulding,	A. D.					
AUTHOR AFFILIATION:	U. S. Department of C	Commerce				
TITLE: Man-Made Noise: The Problem and Recommended Steps Toward Solution						
DATE: April 1976	VOLUMES:	PAGES: 185	REFERENCES: 166			
ACQUISITION NO: 0T-76-85 SOURCE: 5						
KEY WORDS: Measuremen Mitigation Noise Inte		Rules and R Spurious Em				

SUBJECT: ELECTROMAGNE	S	SPSPO INDEX NO: EC-2	
AUTHOR(S): Telecommo	unications Sciences,	Institute of	
AUTHOR AFFILIATION:	U. S. Department	of Commerce	
TITLE: Electromagnet of SPS MPTS O	ic Compatibility, Tr perations	opospheric and I	onospheric Aspects
DATE: March 1978	VOLUMES:	PAGES: 34	REFERENCES: 22
ACQUISITION NO: PN	L-2616		SOURCE: 13
Harmonic	t Susceptibility s re Effects		debands oposphere Effects

### ENVIRONMENTAL EFFECTS (CATEGORY EE)

Reports, articles and papers in this category cover all environmental concerns about SPS, and generally do not emphasize one particular environmental issue. Multiple issues and inter-relationships between potential effects of SPS on the environment are included in most citations.

KEY WORDS: PAGE NUMBER:				
Air Quality	92, 93, 94, 95, 98, 100			
Atmospheric Effects	89, 90, 91, 92, 94, 96, 99			
Atmospheric Heating	89			
Ecosystem Impacts	90, 92, 93, 97, 98, 100			
Electromagnetic Compatibility	89, 91, 92, 94, 97, 98, 99			
Health Maintenance	93, 95, 97, 98, 100			
Hearing Effects	96			
Ionospheric Effects	89, 90, 91, 92, 94, 99			
Ionospheric Perturbations	89			
Land Use	92, 93, 94, 95, 98			
Laser Effects	89, 90			
Microwave Effects	89, 91, 92, 94, 98, 99			
Noise	94, 95, 96, 97, 100			
Nuclear Effects	97			
Occupational Effects	90, 91, 93, 95, 96, 98, 100			
Operations Effects	90, 94, 95, 96, 97, 98, 99			
Ozone	97			
Photovoltaics	93, 98			
Public Welfare	96, 99			
Reflected Light	90, 96			
Safety Issues Societal Effects Solid Waste Space Effects Space Habitat Space Health	90, 92, 93, 97, 98 91, 92, 98 93, 95, 97 89, 90, 91, 92, 95, 99, 100 95 91, 95			
Terrestrial Effects	89, 91, 92, 94			
Nater Resources	92, 93, 94, 95			
Nildlife Effects	89, 94, 96			

#### (Environmental Effects Category EE Continued)

#### RELATED CATEGORIES:

Atmospheric Effects (AE)

Biologic Effects (BE)

Electromagnetic Compatibility (EC)

Power Generation and Transmission (PT)

Systems Analyses (SA)

Systems Engineering (SE)

Space Transportation (ST)

SPSPO INDEX NO: EE-22 SUBJECT: ENVIRONMENTAL EFFECTS AUTHOR(s): (1) Abromavage, M. M. (2) Valentino, A. R. AUTHOR AFFILIATION: (1) IIT Research Institute (2) Argonne National Laboratory TITLE: Environmental Assessment for the Satellite Power System Concept Development and Evaluation Program REFERENCES: 8 PAGES: 8 **VOLUMES:** DATE: January 1981 SOURCE: ACQUISITION NO: 81-0244 Microwave Effects KEY WORDS: Atmospheric Effects Space Health Electromagnetic Compatibility Terrestrial Effects Ionospheric Effects

SPSPO INDEX NO: EE-3 SUBJECT: ENVIRONMENTAL EFFECTS AUTHOR(S): Beverly, R. E. AUTHOR AFFILIATION: None Satellite Power System (SPS) Laser Environmental Impact Study TITLE: PAGES: 138 REFERENCES: 139 February 1979 **VOLUMES:** DATE: SOURCE: ACQUISITION NO: NAS8-32475 Wildlife Effects KEY WORDS: Atmospheric Heating Ionospheric Perturbations Laser Effects

SUBJECT: ENVIRONMENTA		SPSPO INDEX NO: EE-19	
AUTHOR(S): Beverly, R	. E.		
AUTHOR AFFILIATION:	Rockwell Interna	tional	
TITLE: Satellite Powe Environmental	r Systems (SPS) L Impact Study	aser Studies; Volu	me I: Laser
DATE: November 1980	VOLUMES:	PAGES: 85	REFERENCES: 139
ACQUISITION NO: NAS	A CR 3346 8-32475		SOURCE: 4
KEY WORDS: Atmospheri Ecosystem Ionospheri	Impacts	Laser Effect Operations E Safety Issue	Effects

SUBJECT: ENVIRONMENTA		SPSPO INDEX NO: EE-10	
AUTHOR(S): Boeing Ad	erospace Company		
AUTHOR AFFILIATION:	Boeing Aerospace	Company	
TITLE: Satellite Powe	er System (SPS) Br	ightness Due to Re	eflected Sunlight
DATE: October 1980	VOLUMES:	PAGES: 73	REFERENCES: 8
ACQUISITION NO: DOE,	/ER-0081		SOURCE: 5
KEY WORDS: Operation Reflected Space Eff	202 - U. 10-11-11-2-11-11-11-11-11-11-11-11-11-11-1		

SUBJECT: ENVIRONME	NTAL EFFECTS		SPSPO INDÉX NO	€ EE-7
AUTHOR(S): Dickinson	, R. M.			
AUTHOR AFFILIATION:	Jet Propulsion	Laboratory		
TITLE: Satellite Benefits	Power System (S	PS) Microwave Subs	ystem Impacts and	
DATE: September 1977	VOLUMES:	PAGES: 104	REFERENCES:	37
ACQUISITION NO:	900-800		SOURCE:	4
Ionosph	nagnetic Compatib eric Effects ve Effects	oility	Occupational Eff Space Health Terrestrial Effe	

SUBJECT: ENVIRONM	ENTAL EFFECTS	SPSPO INDEX NO: EE-6	
AUTHOR(s): Energy,	J.S. Department of		
AUTHOR AFFILIATION	U.S. Department of	Energy	
TITLE: Prelimin (SPS)	ary Environmental Asse	essment for the	Satellite Power System
DATE: October 1978	VOLUMES: 2	PAGES: 218	REFERENCES: 122
	E/ER-0021/1; V. 1, Sun E/ER-0021/2; V. 2, Det		SOURCE: 5
Electron	ric Effects agnetic Compatibility ric Effects		Microwave Effects Space Effects Terrestrial Effects

SUBJECT: ENVIRONME	BJECT: ENVIRONMENTAL EFFECTS			
AUTHOR(S): Energy, U	.S. Department of			
AUTHOR AFFILIATION:	U.S. Department of	Energy		
TITLE: Prelimina System (S	ry Environmental Ass PS), Revision 1	essment for th	e Satellite Powe	r
DATE: January 1980	VOLUMES: 2	PAGES: 25	2 REFERENCES	199
ACQUISITION NO: DOE/	ER-0036/1; V. 1, Sum ER-0036/1; V. 2, Det	mary (52 pp) ails(200 pp)	SOURCE:	5
Electroma	ic Effects gnetic Compatibility ic Effects		Microwave Ef Space Effect Terrestrial	s

SUBJECT:	ENVIRONME	NTAL EFFECTS		SPSPO INDE	X NO: EE-11
AUTHOR(S):	Energy	Research and De	velopment Administr	ration	
AUTHOR AFFI	LIATION:	Energy Resear	ch and Development	Administration	n
TITLE: Solar Therm	Program . al Electr	Assessment: En ic	vironmental Factors	for Solar	21
DATE: March	1977	VOLUMES:	PAGES: 73	REFERENC	ES: <sub>24</sub>
ACQUISITION	NO: ERD	A 77-47/4		SOURCE:	20
KEY WORDS:	Air Qual Ecosyster Land Use	ity n Impacts	Safety Issues Societal Effect Water Resources		

SUBJECT:	ENVIRONME	ENTAL EFFECTS			SF	SPSPO INDEX NO: EE-12			
AUTHOR(S):	Energy Re	search and Dev	elopment	Adminis	tratio	on			
AUTHOR AFFI	LIATION:	Energy Resear	ch and [	evelopme	nt Adn	n <b>ini</b> s	tration	n	
TITLE: Solar	r Program /	Assessment: En	vironmer	tal Fact	ors fo	or Ph	otovo1	taics	
DATE: March	1977	VOLUMES:		PAGES:	62	REFI	RENCE	ES: 4	17
ACQUISITION	NO: ER	DA 77-47/3				SOUI	RCE:	20	
KEY WORDS:	Air Qua Health Land Us	Maintenance	Phot	pational covoltaic id Waste		cts			

SUBJECT: ENVIRONME	SPSPO INDEX NO: EE-18		
AUTHOR(S): Energy	Research and Develo	opment Administrat	ion
AUTHOR AFFILIATION	: Energy Research	h and Development /	Administration
TITLE: Solar Progr Total Energ	am Assessment: Env y Systems	vironmental Factors	s for Solar
DATE: March 1977	VOLUMES:	PAGES: 68	REFERENCES: 17
ACQUISITION NO: E	RDA 77-47/5		SOURCE: 20
<b>KEY WORDS:</b> Air Qua Ecosyst Land Us	em Impacts	Safety Issues Solid Waste Water Resour	

SUBJECT: ENV	IRONMENTA	EFFECTS	SPSPC	INDEX N	o: EE-9	
AUTHOR(s):	Environme	ntal Resources	Group	sveikili maan en soonen		
AUTHOR AFFIL	IATION:	Environmental	Resources Group			
Cor	totype En structing tion (GRS	a Satellite Po	essment of the I wer System (SPS)	mpacts of Ground 6	f Siting an Receiving	d
DATE: August	1980	VOLUMES:	PAGES:		FERENCES: ibliography	
ACQUISITION	NO: DOE/	ER-0072		so	URCE: 5	
KEY WORDS:	Air Quali Land Use Noise	Water	strial Effects Resources ife Effects			

SUBJECT:	ENVIRONME	NTAL EFFECTS		SP	SPO INDEX NO	EE-8
AUTHOR(S):	Halversor Rote, D. Rush, C.	5.07 (1, 1, 7, 4)	Davis, White, Cahill	M.		
TITLE: Pre	liminary As	(1) Argonne Nat iences; (3) Pacifi (5) U. S. Environn sessment of the Er er System (SPS)				or nce
DATE: Dece	mber 1978	VOLUMES:	PAGES:	17	REFERENCES:	3
ACQUISITION	Er	Title (Anglo-Amer nergy and Aerospace al Society, Londor	e, Royal Aeron		SOURCE:	2
KEY WORDS:	Electrom	ric Effects agnetic Compatibil ric Effects	ity	0per	owave Effects ations Effects estrial Effects	

SUBJECT: ENVIRONMENTA	L EFFECTS	PSPO INDEX	NO:	EE-1	
AUTHOR(S): Kornberg, Chapman, Glaser, P	P. K.			West Arrestation	
AUTHOR AFFILIATION:	A. D. Little, Incor	porated			
	ance and Health Surve ce Construction Commu		erations		
DATE: November 1978	VOLUMES:	PAGES: 12	REFERENCE	S: 5	
ACQUISITION NO: AAS 78-176			SOURCE:	30	
KEY WORDS: Health Maintenance Occupational Effects Operations Effects		Spa	ce Effects ce Habitat ce Health		

SUBJECT: ENVIRONM	ENTAL EFFECTS	SPSPO INDEX NO	: EE-4	
AUTHOR(S): Livingston	, F. R.			
AUTHOR AFFILIATION:	Jet Propulsion Labo	ratory		
TITLE: Satellite Assessment	Power System (SPS) En	vironmental I	mpacts Preliminary	y
DATE: May 1978	VOLUMES:	PAGES: 23	REFERENCES:	10
ACQUISITION NO:	JPL-900-822, Rev. A		SOURCE:	4
KEY WORDS: Air Qualit Land Use Noise		d Waste r Resources		

UBJECT: ENVIRONMENTAL EFFECTS				SPO INDEX NO	: EE-2
AUTHOR(\$): Livingston	1, L. E.				
AUTHOR AFFILIATION:	NASA Johnson St	oace Center			
TITLE: Visibility	of Solar Power	Satellites from	the	Earth	
DATE: February 1979	VOLUMES:	PAGES:	15	REFERENCES:	None
ACQUISITION NO: JSC	SOURCE:	4			
KEY WORDS: Operation Reflected					

SUBJECT: ENVIRONMENTA	PSPO INDEX NO: EE-2		
AUTHOR(S): Pearsons, White, P. Wilby, J.	Н.		*
AUTHOR AFFILIATION:	Bolt, Berenek	and Newman, Inc.	
TITLE: An Evaluation	of the Noise Impa	PAGES: 126	wer System.  REFERENCES: 35
DATE: December 1980	1	PAGES: 120	
KEY WORDS: Atmospheri	c Effects	Occupational	
Hearing Effects Noise		Public Welfa Wildlife Eff	Secretary and the secretary an

SUBJECT: ENVIRONMENT	TAL EFFECTS		SPSPO INDEX NO: EE-17
AUTHOR(S): Poch, L. Wolsko,			
AUTHOR AFFILIATION:	Argonne Nation	al Laboratory	
TITLE: A Review of	the Nuclear Waste	Disposal Problem	
DATE: October 1979	VOLUMES:	PAGES: 17	REFERENCES: 12
ACQUISITION NO: ANL/EES-TM-68			SOURCE: 5
KEY WORDS: Nuclear Effects Operations Effects Safety Issues		So	lid Waste

SUBJECT: ENVIRONMENTAL EFFECTS			SPSPO INDEX NO: EE-14	
AUTHOR(S):	Scott-Wal Clark, K. Holt, B.	M. K	ones, D. C. aplan S. D. rebs, J. S.	Polson, P. Shepherd, R. A. Young, J. R.
AUTHOR AFFI	LIATION:	SRI Internation	a1	W RECEIPTION - LA COMPA
Befo		York State Publi		ission Lines: Views sion, Cases 26529 and
	9 <u>202044</u> 0	VOLUMES	PAGES: 125	REFERENCES:
DATE: Novemb	er 1979	VOLUMES:	1	Bibliography
DATE: Novemb		/EV-0056	3	* C

SUBJECT: ENV	IRONMENTAL EFFECTS	PSPO INDEX NO: EE-15	
Gat	th, P.L. zke, A.E. reary, S.T.		
AUTHOR AFFILIAT	ION: Lawrence Berke	ley Laboratory	
TITLE: Land Use a Energy Use	nd Environmental Impac	ts of Decentralize	d Solar
DATE: January 198	30 VOLUMES:	PAGES: 307	REFERENCES: 125
ACQUISITION NO:	DOE/EV-0067		SOURCE: 5
Hea	Quality 1th Maintenance d Use	Photovoltaics Safety Issues Societal Effect	S

SUBJECT: ENV	IRONMENTAL E	FFECTS	SPSPO INDEX NO: EE-13	
AUTHOR(S):	SRI Internat	ional		
AUTHOR AFFILI	ATION: SF	RI Internationa		
		al Impact State tis Air Force B		of the PAVE PAWS
DATE: May 197	9 <b>VO</b> L	.UMES: 2	PAGES:853	REFERENCES: Bibliography
ACQUISITION N		9200 (Vol. 1) 9201 (Vol. 2)		SOURCE:
E	cosystem Imp lectromagnet ealth Mainte	tic Compatibili	Microwave ity Occupation Operations	al Effects

SUBJECT: ENVIRONMEN	ENVIRONMENTAL EFFECTS		
AUTHOR(S): Valentino	, A. R.		
AUTHOR AFFILIATION:	Argonne National La	boratory	
	Assessment for the S Development and Eval		
DATE: August 1980	VOLUMES:	PAGES: 127	REFERENCES: 81
ACQUISITION NO:	D0E/ER-0069		SOURCE: 5
Electro	eric Effects magnetic Compatibilit eric Effects	y Operat	ave Effects ions Effects Health

SUBJECT: ENVIRONMENTAL EFFECTS S			PSPO INDEX NO: EE-21		
AUTHOR(S): (1) Valent (2) Abroma	ino, A. R. wage, M. M.	91 22 23			
AUTHOR AFFILIATION:	(1) Argonne National (2) IIT Research Inst	Laboratory titute	170		
TITLE: Environmental Power Transmis	Assessment of the Sat sion System	tellite Power S	ystem Microwave		
DATE: December 1980	VOLUMES:	PAGES: 4	REFERENCES:	4	
The second secon	Title; National Teleco Ference (Houston)	ommunications	SOURCE: 6		
Electro	neric Heating omagnetic Compatibilit neric Effects	ty Occu	owave Effects pational Effects ic Welfare		

SUBJECT: ENVIRONMENT	AL EFFECTS	5	SPSPO INDEX NO: EE-23
AUTHOR(S): White, M.	R.		
AUTHOR AFFILIATION:	Lawrence Berkel	ey Laboratory	
	d Evaluation Prog	e Satellite Power S ram - Nonmicrowave	
DATE: November 1980	VOLUMES:	PAGES: 86	REFERENCES: 51
ACQUISITION NO: DOE/ER-0089			SOURCE: 5
KEY WORDS: Air Quality Ecosystem Impacts Heath Maintenance			e pational Effects e Effects

### ECONOMICS AND FINANCES (CATEGORY EF)

This category of documents includes reports and papers which deal with the costs and economics involved in the development of SPS, and possible ways in which the development program might be financed in the future. Market potential, production costs and economic risks are included.

KEY WORDS:	PAGE	NUMBE	R:		
Consumption Patterns Cost Model Cost Uncertainty	103 104, 104,		106,	107,	108
Demand Rates Disposal Costs	103, 103	105			
Emerging Technologies Energy Costs Energy Policy	Control of the second	105, 106,			
Financial Requirements	106,	107,	108		
Maintenance Cost Market Potential	104, 103	105,	108		
Operations Costs	104,	105,	106,	107	
Production Cost	104,	105,	106,	107,	108
Returns Risks Rewards	106, 104, 106	107 105,	106,	107	
Satellite Salvage	103				
Uncertainties	105,	108			

#### RELATED CATEGORIES:

Comparative Analyses (CA)

Energy Alternatives and Policy (EA)

Resources and Materials (RM)

Systems Analyses (SA)

Social Issues (SI)

SUBJECT: ECONOMICS	AND FINANCES		SPSPO INDEX N	O: EF-1
AUTHOR(S): ECON, Inc.				
AUTHOR AFFILIATION:	ECON, Inc			
TITLE: A Study of Implementa	Some Economic Faction of a Satellit	tors Relating to e Power System	the Development	and
DATE: January 1978	VOLUMES:	PAGES: 74	REFERENCES:	None
ACQUISITION NO:	NAS8-32698 77-146-1		SOURCE:	4
Demand R	ion Patterns ates Technologies		Policy Potential	

SUBJECT: ECONOMICS	AND FINANCES		SPSPO INDEX NO: EF-10				
AUTHOR(S): ECON, Inc.							
AUTHOR AFFILIATION:	ECON, Inc.						
TITLE: Satellite Power	r System Salvage and	Disposal Alter	natives				
DATE: November 1980	VOLUMES:	PAGES: 90	REFERENCES: 8				
ACQUISITION NO: NASA CR 3349 NAS 8 - 33783			SOURCE: 4				
KEY WORDS: Disposal C Satellite							

SUBJECT: ECONOMICS	CT: ECONOMICS AND FINANCES			INDEX NO:	EF-2
AUTHOR(S): Hazelrigg	, G. A.				
AUTHOR AFFILIATION:	ECON, Incorpora	ted		THE STATE OF THE S	
TITLE: Space-Bas	ed Solar Power C	onversion and De	elivery Sys	stems Study	
DATE: June 1976	VOLUMES: 2	PAGES:	160 REFE	RENCES:	15
ACQUISITION NO: NAS8-31308 76-145-2 Vol. 1 - Summary (32 pp.) Vol. 2 - Economic Analysis (128 pp.)			SOUF	RCE:	4
KEY WORDS: Cost Mode Cost Unce Maintenar	el ertainty	0p	erations Coduction C		

SUBJECT: EC	ONOMICS A	ND FINANCES	S	PSP0	INDEX	NO:	EF-7
AUTHOR(S):	Hazelrigg	, G. A.					
AUTHOR AFFIL	IATION:	ECON, Incorporated			••••		
	Economic em Concep	Viability of Pursuing t	a Space Power			•	
DATE: March-A	p <b>ril 19</b> 77	VOLUMES:	PAGES: 9	REFE	RENCES	s: <sup>3</sup>	3
ACQUISITION	NO: By T	itle, AIAA Journal of	Enerąy	SOUF	RCE: 2		
ner nonser	Cost Mode Cost Unce Maintenan	rtainty	Operations Cos Production Cos Risks				

UBJECT: ECONOMICS AND FINANCES			PSPO INDEX NO: EF-5
AUTHOR(S): Hazelrigg,	G. A.	• • • • • • • • • • • • • • • • • • •	
AUTHOR AFFILIATION:	ECON, Inc.		
TITLE: Costing the Sa	tellite Power System	m	
DATE: November 1978	VOLUMES:	PAGES: 21	REFERENCES: 6
ACQUISITION NO: AAS	78–166		SOURCE: 30
KEY WORDS: Cost Uncer Emerging Operations	Technologies	Ri	oduction Cost sks certainties

SUBJECT: ECONOMICS AND	FINANCES	s	PSPO INDEX NO: E	F-8
AUTHOR(s): (1) Hub, (1) Conley (2) Buehr		owland, B. tephenson, M.	21	
AUTHOR AFFILIATION:	(1) Argonne National (2) University of Wi	Laboratory sconsin		
TITLE: Social Cost Stud Reliability Ana	dies Program - Electr lysis Code, SYSREL	ical Utility Ge	nerating System	
DATE: September 1975	VOLUMES:	PAGES: 151	REFERENCES: 5	
ACQUISITION NO: ANL/AA-4				
ACQUISITION NO: ANL	/AA-4		SOURCE: 5	50.500

SPSPO INDEX NO: EF-3 SUBJECT: ECONOMICS AND FINANCES AUTHOR(S): Kierolff, H. E. AUTHOR AFFILIATION: PRC Energy Analysis Company Satellite Power System (SPS) Financial/Management Scenarios TITLE: REFERENCES: 27 PAGES: 62 **VOLUMES:** DATE: October 1978 SOURCE: HCP/R-4024-13 ACQUISITION NO: KEY WORDS: Uncertainties Risks Returns Rewards

SPSPO INDEX NO: EF-9 SUBJECT: **ECONOMICS AND FINANCES** AUTHOR(S): Nansen, R. H. Johnson, O. E. Boeing Aerospace Corporation AUTHOR AFFILIATION: Economic Aspects of Energy From Space TITLE: None 26 **VOLUMES:** PAGES: REFERENCES: DATE: October 1979 SOURCE: ACQUISITION NO: 79-236 Financial Requirements KEY WORDS: Cost Uncertainty Operations Cost Emerging Technologies Production Cost **Energy Costs** 

ECONOMICS AND FINANCES SPSPO INDEX NO: EF-6 SUBJECT: AUTHOR(S): Rossin, A. D. Rieck, T. A. AUTHOR AFFILIATION: Commonwealth Edison Company TITLE: Economics of Nuclear Power REFERENCES: PAGES: 8 **VOLUMES:** 24 DATE: August 1978 SOURCE: 7 ACQUISITION NO: 0036-8075/78/0818-0582501 Production Cost Cost Uncertainty KEY WORDS: Returns Financial Requirements Risks Operations Costs

SUBJECT: SPSPO INDEX NO: EF-4 **ECONOMICS AND FINANCES** AUTHOR(S): Vajk, J. P. AUTHOR AFFILIATION: Science Applications, Inc. TITLE: Satellite Power System (SPS) Financial/Management Scenarios **VOLUMES:** REFERENCES: DATE: PAGES: 73 October 1978 16 ACQUISITION NO: SOURCE: HCP/R-4024-03 5 KEY WORDS: Financial Requirements

SPSPO INDEX NO: EF-11 SUBJECT: ECONOMICS AND FINANCES AUTHOR(S): Woodcock, G. R. AUTHOR AFFILIATION: Boeing Aerospace Company TITLE: SPS Cost Considerations REFERENCES: DATE: July-August 1978 VOLUMES: PAGES: 7 None ACQUISITION NO: By Title; Journal of Energy, Vol. 2, No. 4, pp. 196-202 SOURCE: 2 Maintenance Cost KEY WORDS: Cost Uncertainty **Production Cost** Energy Costs Financial Requirements Uncertainties

# PROGRAM PLANS (CATEGORY PP)

Program plans developed for the overall SPS Concept Development and Evaluation Program and its various elements are included in this category. Not all plans were implemented, and some future planning is included. Plans for some other energy technologies are listed, as they are pertinent to assessing the SPS energy concept.

KEY WORDS:	PAGE	NUMBER:
Assessment Concept Atmospheric Effects	111 114,	116
Biomass	113	
Comparative Assessment Concept Definition Concept Selection Cost Analysis	112, 112 111 111	113, 114, 115
Decision Process	115	
Ecology Environmental Assessment Environmental Integration Environmental Objectives	111	114, 115, 116 112, 113, 117
Health Effects	116,	117
Key Issues	111,	112, 113
Lessons Learned	115	
Microwave Effects	116	
Ocean Thermal	113	
Photovoltaics Program Objectives	112, 115	113
Reference System Resources	111, 117	114
Safety Effects Societal Assessment Socio-Economics Solar Thermal Space Technology. Space Transportation	114,	115, 117 113

#### (Program Plans - Category PP continued)

-KEY WORDS:	PAGE	NUMBER:	
System Operations Systems Definition	116, 112,	117 114, 115	
Technology Requirements	116		
Wind Energy	113		

#### RELATED CATEGORIES:

Atmospheric Effects (AE)

Biologic Effects (BE)

Comparative Analyses (CA)

Electromagnetic Compatibility (EC)

Environmental Effects (EE)

Systems Analyses (SA)

Systems Engineering (SE)

Social Issues (SI)

Space Transportation (ST)

SUBJECT: I	PROGRAM PL	ANS		SP	SPO INDEX NO	PP-1
AUTHOR(\$):	Aerospace	Corporation		<del></del>		
AUTHOR AFFI	_IATION:	Aerospace Corpo	oration			
(1. P. ) - (1. P. ) - (1. P. ) - (1. P. )	Systems De Program	efinition Plan fo	or the ERDA Sate	llite	Power Station	
DATE: Februa	ry 1977	VOLUMES:	PAGES:	50	REFERENCES:	8
ACQUISITION	NO:	ERDA-E-Y-76-C-03	-1101		SOURCE:	13
	Concept So Cost Anal Reference	ysis	Space Transpor	ration		

SUBJECT: PROGRAM	PLANS		SP	SPO INDE	x NO:	PP-2
AUTHOR(S): Bloomquis Philipsor	st, C. E. 1, L. L.		. 1910 - 25 <b>4</b>			
AUTHOR AFFILIATION	PRC Systems Science	es Company	*			
TITLE: SPS Envir	onmental Assessment Pl	an (SEAP)				
DATE: November 1976	VOLUMES:	PAGES:	53	REFERENC	ES:	2
ACQUISITION NO:	ERDA-EG-77-X-10-0794 PRC R-1847			SOURCE:		13
Cost Anal	t Concept ysis ntal Integration		viron y Issi	mental Obje ues	ectives	S

SUBJECT: PROGRAM	PLANS		SPSPO INDEX NO	: PP-5
AUTHOR(S): Energy, l National	J.S. Department of Aeronautics and Space	ce Administratio	on	
AUTHOR AFFILIATION:	U.S. Department of National Aeronauti	Energy cs and Space Adr	ninistration	0
TITLE: Satellite Program	Power System (SPS) Plan (July 1977 - Au	Concept Develor gust 1980)	oment and Evaluat	ion
DATE: February 1978	VOLUMES:	PAGES: 55	REFERENCES:	16
ACQUISITION NO: DO	E/ET-0034		SOURCE:	5
Concept	ive Assessment Definition ental Assessment	Socio-Ec Systems	onomics Definition	

SUBJECT: PROGRAM PLA	ANS	S	PSPO INDEX NO: PP-13
AUTHOR(S): Energy, (	J.S. Department of I	Energy	
AUTHOR AFFILIATION:	U.S. Department of	f Energy	
TITLE: Environmental	Development Plan (E	DP) for Solar The	rmal Power Systems
DATE: March 1978	VOLUMES:	PAGES: 60	REFERENCES: Bibliography
ACQUISITION NO:	DOE/EDP-0004		SOURCE:
	ental Assessment ental Objectives es	Photovoltaid Safety Effect Solar Therma	ts

SPSPO INDEX NO: PP-12 SUBJECT: PROGRAM PLANS AUTHOR(S): Energy, U.S. Department of AUTHOR AFFILIATION: U.S. Department of Energy Environmental Development Plan (EDP) for Photovoltaics TITLE: REFERENCES: PAGES: 51 **VOLUMES:** DATE: March 1978 Bibliography SOURCE: 5 ACQUISITION NO: DOE/EDP-0003 KEY WORDS: Environmental Assessment Photovoltaics Safety Effects Environmental Objectives Solar Thermal Key Issues

PROGRAM PLANS SPSPO INDEX NO: PP-3 SUBJECT: AUTHOR(S): Energy, U.S. Department of AUTHOR AFFILIATION: U.S. Department of Energy TITLE: Guide to Solar Energy Programs REFERENCES: None PAGES: 66 **VOLUMES:** DATE: March 1978 SOURCE: ACQUISITION NO: DOE/ET-0036 13 KEY WORDS: Solar Thermal **Biomass** Wind Energy Ocean Thermal Photovoltaics

SUBJECT: PROGRAM	PLANS		SPSPO INDEX NO	: PP-6
AUTHOR(S): Energy, U	.S. Department of			
AUTHOR AFFILIATION:	U.S. Department o	of Energy		
TITLE: Satellite	Power System (SPS)	Program Summar	у	
DATE: December 1978	VOLUMES:	PAGES: 110	REFERENCES:	10
ACQUISITION NO: DO	E/ER-0022		SOURCE:	5
Environme	ve Assessment ntal Assessment Assessment	Syst	tems Definition	

SUBJECT: PROGRAM PL	ANS	s	PSPO INDEX NO: PP-9
AUTHOR(s): Energy, U.	S. Department of		
AUTHOR AFFILIATION:	U.S. Department of	Energy	
TITLE: Satellite	Power System (SPS) FY	79 Program Su	mmary
DATE: January 1980	VOLUMES:	PAGES: 208	REFERENCES: None
ACQUISITION NO:	DOE/ER-0037		SOURCE: 5
Comparativ	c Effects re Assessment ntal Assessment	Soc	ference System cietal Assessment stems Definition

SUBJECT:	PROGRAM F	PROGRAM PLANS			PP-10
AUTHOR(s):	Energy Re National	search and Develop Aeronautics and Sp	oment Administrat Dace Administrati	ion	
AUTHOR AFF	ILIATION:	Energy Research National Aerona	h and Development autics and Space	t Administration Administration	
TITLE:	SPS Conce	ept Development an	d Evaluation Pro	gram Plan	
DATE: May 1	977	VOLUMES: 2	PAGES: 209	REFERENCES:	28
ACQUISITIO	N NO:	NMI 1052.200		SOURCE:	4
KEY WORDS: Comparative Assessment Environmental Assessment Program Objectives			Socio-Economic Space Technology Systems Definition		

SUBJECT: PROGRAM PLANS			PSPO INDEX NO: PP-8
AUTHOR(S): Logsdon,	J. M.		
AUTHOR AFFILIATION:	George Washington U	niversity	
TITLE: The Apollo Dec	ision and Its Lessons	for Policy-Ma	kers
DATE: January 1970	VOLUMES:	PAGES: 36	REFERENCES: 43
ACQUISITION NO: Gra	nt 09-010-030		SOURCE: 4
KEY WORDS: Decision Lessons L Space Tra			

SUBJECT: PROGRAM	PLANS		SPSPO INDEX N	IO: PP-11
AUTHOR(s): Newsom,	B. D.			
AUTHOR AFFILIATION	Bernard D. Newson	m and Associates		
TITLE: Research Solar Po	Plan for Study of ower Satellite Trans	Biological and E mission System	cological Effect	ts of the
DATE: August 1978	VOLUMES:	PAGES: 254	REFERENCES	74
ACQUISITION NO:	NASA-CR-3044 NAS2-9655		SOURCE:	4
	mental Assessment ve Effects			

SUBJECT:	PROGRAM P	LANS	12. <del>*</del>	SPSPO	INDEX NO	): PP-7
AUTHOR(S):	Universit	ies Space Research	Association			
AUTHOR AFFI	LIATION:	Universities Spac	e Research Asso	ciation		30-20-00 H285 ( H2-
TITLE:	Report of	the Solar-Power S	atellite Task G	iroup		
DATE: March	1978	VOLUMES:	PAGES: 25	REF	RENCES:	None
ACQUISITION	NO: By	Title		sour	RCE:	19
KEY WORDS:	741773 N.N. 118	ic Effects ntal Assessment fects	Sy	ystem Ope	ssessment rations Requireme	ents

SUBJECT: PROGRAM PL	ANS	\$	PSPO INDEX NO	PP-4
AUTHOR(s): Wei, M. S.				
AUTHOR AFFILIATION:	PRC Energy Analysis	Company		
TITLE: Interim En	vironmental Guidelines ept Development and Ev	Update for Sa valuation	tellite Power Sys	tem
DATE: December 1978	VOLUMES:	PAGES: 59	REFERENCES:	89
ACQUISITION NO:	PRC EG-77-C-01-4024		SOURCE:	5
KEY WORDS: Environm Health E Resource		Sc	fety Effects ocio-Economics ostem Operations	

## POWER GENERATION AND TRANSMISSION (CATEGORY PT)

Research, development, experimentation and evaluation of engineering concepts and preliminary design of SPS power generation and transmission equipment is included in this category. All aspects of the transmitting system are included, such as the electrical characteristics of the space transmitting antenna, but the receiving system (rectenna) is excluded as a principal topic. Environmental effects are described in some documents.

KEY WORDS:	PAGE NUMBER:
Antenna Atmospheric Effects	123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136 123, 133, 134, 136, 138
Broadcast	131
Cathode Life Computer Prediction	127 132
Design	123, 124, 125, 126, 127, 128, 129, 130, 131, 133, 135, 136
Economics Efficiency	121, 122, 125, 127, 137 121, 123, 124, 125, 126, 127, 128, 131, 133, 136, 138
Experiments	124, 125, 128, 129, 130, 131, 132
Frequency Selection	125, 131, 138
Gain Degradation	132
Hardware Harmonics High Voltage	126, 134, 136 128, 129 130, 132
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Laser Alternatives Laser Costs Laser Power Laser Safety	123, 133, 135, 136, 138 133, 138 121, 122, 123, 130, 133, 135, 136, 138 133
Magnetron Performance Mechanical System Microwave	127, 128 123, 126, 134 123, 124, 126, 127, 131, 132, 135, 137
Noise Characteristics	127, 128

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KEY WORDS:	PAGE NUMBER:
Phase Control Phase Error Photoklystron Photovoltaics	124, 125, 127, 128, 129, 134, 137 128, 137 122, 130, 131 122
Pointing Error	128, 137
Power Amplifier Power Conversion Power Density	123, 125, 127, 129, 130, 132, 134, 136 124, 133, 135, 138 129, 132, 137
Propagation	121, 126, 131, 132, 135, 136
Radiation Statistics Receiver System Reliability Retrodirective Array	129, 130, 132, 137 123, 125 125 127, 128
Solar Conversion Solid State Space Reflector	121, 122, 130, 134, 135, 137, 138 123, 132, 134, 136 122
Technology	121, 122, 124, 125, 126, 130, 131, 132, 134,
Thermal Systems	136, 137 122, 138
Waste Heat	121, 136

#### RELATED CATEGORIES:

Atmospheric Effects (AE)

Electromagnetic Compatibility (EC)

Environmental Effects (EE)

Photovoltaics (PV)

Systems Analyses (SA)

Systems Engineering (SE)

Space Utilization (SU)

SUBJECT: POWER GENE	RATION AND TRANSMISSI	ON	SP	SPO	INDEX	NO:	PT-18
AUTHOR(S): Bain, C. N	I.		the flavores				
AUTHOR AFFILIATION:	PRC Energy Analysis (	Company					
TITLE: Potential	of Laser for SPS Powe	er Transmi	ssion				
DATE: October 1978	VOLUMES:	PAGES:	97	REF	ERENCE	s:	80
ACQUISITION NO:	HCP/R-4024-07			sou	RCE:		5
KEY WORDS: Economics Efficienc Laser Pow	У		Propa Solar Techr	Co	nversion	1	

SUBJECT: POWER G	ENERATION AND TRANS	SMISSION	SP	SPO INDEX NO:	PT-6
AUTHOR(S): Bain,	C. N.	2)			
AUTHOR AFFILIATION	: PRC Energy Ana	lysis Company			
TITLE: Power from S	pace by Laser				
DATE: March 1979	VOLUMES:	PAGES:	13	REFERENCES: Bibliograph	47 1y
V	stronautics and Aerol. 17, No. 3 p. 28-40	ronautics		SOURCE:	2
KEY WORDS: Econom Effici Laser	ency			ology Heat	

SUBJECT: POWER GEN	ERATION AND TRANSM	ISSION	SPSPO INDEX NO:	PT-5
AUTHOR(S): Billman	, K. W.			
AUTHOR AFFILIATION	NASA Ames Reseau	rch Center		
TITLE: Radiation Ene	rgy Conversion in S	Space		
DATE: March 1979	VOLUMES:	PAGES: 9	REFERENCES:	4
ACQUISITION NO:	Astronautics and Vol. 17, No. 3 pp. 18-26	d Aeronautics	SOURCE:	2
10 H (2012) 10 To	ower onversion eflectors	The	rmal Systems	

SUBJECT: POWER GENER	ATION AND TRANSMISS	ION	SPSPO INDEX NO	PT-7
AUTHOR(S): Boeing Ae	rospace Company			
AUTHOR AFFILIATION:	Boeing Aerospace Co	ompany		
TITLE: Systems Definit	ion Space Based Powe	er Conversion S	ystems	
DATE: March 1977	VOLUMES: 2	PAGES: 117	REFERENCES:	None
ACQUISITION NO: DPD D 18	-31628 Item MA-04 0-20309-1(Summary), 0-20309-2(Technical	27 pp. Report), 90 pp	SOURCE:	4
KEY WORDS: Economic Photovol Solar Co			Technology Thermal Systems	

SUBJECT: POWER GE	ENERATION AND TRANS	MISSION	SPSPO INDEX NO: PT-29
AUTHOR(S): Boeing	Aerospace Company		980
AUTHOR AFFILIATION			CDC Application
TITLE: Solar Power	Satellite System De	efinition Study, La	aser SPS Analysis
DATE: June 1980	VOLUMES:	PAGES: 96	REFERENCES: 9
ACQUISITION NO: D	180-25969-3 AS 9-15636		SOURCE: 4
KEY WORDS: Atmosphe Efficien Laser Al		Laser Power Propagation Receiver Sys	stem

SUBJECT: POWER GEN	ERATION AND TRANS	SMISSION	SPSPO INDEX NO: PT-30
AUTHOR(S): Boeing Aer	ospace Company		
AUTHOR AFFILIATION:	Boeing Aerospace	e Company	
TITLE: Solar Power Sa Analysis	tellite System D	efinition Study, So	lid State SPS
DATE: June 1980	VOLUMES:	PAGES: 76	REFERENCES: None
[2] (B.) (B.) (B.) (B.) (B.) (B.) (B.) (B.)	0-25969+4 9-15636		SOURCE:
KEY WORDS: Antenna Design Mechanical	System	Microwave Power Amplia Solid State	fier

SUBJECT: P	OWER GENE	RATION AND TRANS	MISSION	SPS	SPO INDEX NO:	PT-14
AUTHOR(S):	Brown, W.	<b>C.</b>				
AUTHOR AFFIL	IATION:	Raytheon Comp	any			
TITLE:	The Techr by Microv	ology and Applic	ation of Free-Sp	ace F	ower Transmiss	ion
DATE: January	1974	VOLUMES:	PAGES:	15	REFERENCES:	30
ACQUISITION	NO:	Proc. IEEE; V pp. 11-25	ol. 62, No. 1,		SOURCE:	6
KEY WORDS:	Antenna Design Efficiend	су	Po	icrow ower echno	Conversion	

SUBJECT: PO	OWER GENERATION AND TRANSMISSION		SI	SPSPO INDEX NO: PT-1		
AUTHOR(\$):	Brown, W. Maynard,					
AUTHOR AFFIL	IATION:	Raytheon Company		W		
TITLE:	The Adapt	ation of Free Space ept	Power Transi	miss	ion Technology t	o the
DATE: April	1975	VOLUMES:	PAGES:	11	REFERENCES:	10
ACQUISITION	NO:	AIAA-75-642			SOURCE:	2
KEY WORDS:	Efficienc Experiment Microwave	its		Powe	se Control er Conversion nnology	

SUBJECT: POWER GENE	POWER GENERATION AND TRANSMISSION SPSPO INDEX NO: PT-			
AUTHOR(S): Brown, W.	<b>C.</b>			
AUTHOR AFFILIATION:	Raytheon Company			
TITLE: Technolog Beam	y Forecast for Free-S	pace Power T	ransmission by Microwave	
DATE: June 1976	VOLUMES:	PAGES: 41	REFERENCES: None	
ACQUISITION NO:	PT-4808(21-4)		SOURCE: 6	
KEY WORDS: Economics Efficiency Frequency Selection		Re	nase Control eliability echnology	

SUBJECT: POWER GENE	RATION AND TRANSMISSIO	ON S	SPSPO INDEX NO	: PT-35
AUTHOR(s): Brown, W.	С.			
AUTHOR AFFILIATION:	Raytheon Company	**************************************		
TITLE: Transmission o	of Power from Space to	Earth		
DATE: August 1977	VOLUMES:	PAGES: 11	REFERENCES:	24
ACQUISITION NO: By	Title; New Options in chnology (San Francisc		SOURCE:	
KEY WORDS: Antenna Design Efficienc	Power	iments Amplifier ver System		
ETTICIENC	у кесет	ver system		

SUBJECT: POWER GEN	ERATION AND TRANSMIS	SION	PSPO INDEX N	O: PT-17
AUTHOR(S): Brown, W	. C.			
AUTHOR AFFILIATION	Raytheon Company			
TITLE: Electron Free-Spa	ic and Mechanical Im ce Microwave Power T	provment of the F ransmission Syste	Receiving Termi	nal of a
DATE: August 1977	VOLUMES: 1	PAGES: 148	REFERENCES:	31
ACQUISITION NO:	NASA CR-135194 PT-4964		SOURCE:	4
KEY WORDS: Antenna Design Efficie	ncy	Med	rdware chanical System chnology	1

UBJECT: POWER GENERATION AND TRANSMISSION			SPSPO INDEX NO:	PT-3
AUTHOR(s): Brown, N	v. C.			
AUTHOR AFFILIATION:	Raytheon Compar	ıy		
TITLE: A Profile of	Power Transmission	n by Microwaves		-5.
DATE: May 1979	VOLUMES:	PAGES: 6	REFERENCES:	9
ACQUISITION NO:	Astronautics an Vol. 17, No. 5		SOURCE:	2
KEY WORDS: Antenna Efficie Hardwar	ncy		owave agation	200000000000000000000000000000000000000

SUBJECT: POWER GENE	POWER GENERATION AND TRANSMISSION		SPSPO INDEX NO: PT-12		
AUTHOR(S): Brown, W.	C.			24 50 A GROW A	
AUTHOR AFFILIATION:	Raytheon Company		- 100 to 11 to 11		
TITLE: Solar Pow	er Satellites: Micro	waves Deliver	the Power		
DATE: June 1979	VOLUMES:	PAGES: 5	REFERENCES:	None	
ACQUISITION NO: 001	.8-9235/79/0600-0036		SOURCE:	6	
KEY WORDS: Antenna Economics Efficiency		Powe	e Control r Amplifier odirective Arra	y	

SUBJECT: POWER GENERATION AND TRANSMISSION					INDEX NO: PT-25
AUTHOR(S): Brown, W. (		50			
AUTHOR AFFILIATION:	Raytheon Company			av Um mars	
TITLE: Microwave Beams	ed Power Technology	/ Im	provement		
DATE: May 1980	VOLUMES:		PAGES: 135	REF	ERENCES: None
JPL	5613 Contract 955104 7-100			sou	RCE: 4
KEY WORDS: Cathode La Design Efficiency		Mi	gnetron Perf crowave ice Characte		

SUBJECT: POWER GE	NERATION AND TRANSP	MISSION	SPSPO INDEX NO: PT-31
AUTHOR(S): Brown, W	. C.		
AUTHOR AFFILIATION	: Raytheon Compan	у	
TITLE: Satellite Po	wer System (SPS) M	lagnetron Tube Asses	sment Study
DATE: July 1980	VOLUMES:	PAGES: 195	REFERENCES: 23
	T-5653 IAS 8-33157		SOURCE: 4
KEY WORDS: Design Efficien Experime		Harmonics Magnetron Po Noise Chara	erformance cteristics

	SUBJECT: POWER GENERATION AND TRANSMISSION		
Propulsion Labor	ratory		
lirective Arrays	for Space App	lications	
JMES:	PAGES: 53	REFERENCES: 14	
) 20		SOURCE:	
		Error ective Array	
	Propulsion Labor directive Arrays	Propulsion Laboratory  directive Arrays for Space App  JMES: PAGES: 53  Pointing	

SUBJECT: POWER GENER	RATION AND TRANSM	ISSION	SPSPO INDEX NO	): PT-20
AUTHOR(S): Dickinson	n, R. M.			
AUTHOR AFFILIATION:	Jet Propulsion	Laboratory		
TITLE: Microwave Summary		ing Phased Array	Antenna Research	Project
DATE: December 1978	VOLUMES:	PAGES: 74	REFERENCES:	9
ACQUISITION NO:	JPL-78-28		SOURCE:	4
KEY WORDS: Antenna Design Experiments			Phase Control Power Amplifier Power Density	

SUBJECT: POWER GENER	ISSION	SPSPO INDEX NO: PT-2			
AUTHOR(S): Dickinson,	R. M.				
AUTHOR AFFILIATION:	Jet Propulsion	Laboratory			
TITLE: Beamed Microwa Characteristic	ve Power Transmi	tting and Receivin	g Subsystems Radiation		
DATE: June 1980	VOLUMES:	PAGES: 83	REFERENCES: 30		
ACQUISITION NO: JPL	. 80-11		SOURCE: 4		
KEY WORDS: Antenna Design Harmonics		Power Ampli Power Densi Radiation S	ty		

SPSPO INDEX NO: PT-26 SUBJECT: POWER GENERATION AND TRANSMISSION AUTHOR(S): Fitzsimmons, G. W. Nalos, E. J. AUTHOR AFFILIATION: Boeing Aerospace Company TITLE: SPS Solid-State Antenna Power Combiner REFERENCES: 1 PAGES: 99 VOLUMES: DATE: February 1980 SOURCE: ACQUISITION NO: D 180-25895-1 NAS 9-15636A Power Amplifier KEY WORDS: Antenna Radiation Statistics Design **Technology** Efficiency

SUBJECT: POWER GE	NERATION AND TRANSM	IISSION	SPSPO INDEX NO	): PT-2
AUTHOR(S): Freeman Colson, Simons,	W. B.			
AUTHOR AFFILIATION	N: Rice Universit	у		
TITLE: New Meth and Lase		ion of Solar Ene	ergy to Radio Frequ	ency
DATE: May 1979	VOLUMES:	PAGES:	6 REFERENCES:	8
ACQUISITION NO: 7	9-1416	10 79 311	SOURCE:	2
KEY WORDS: Experiments High Voltage Laser Power			notoklystron ower Amplifier	

SUBJECT: POWER GENE	RATION AND TRANS	MISSION	SPSPO INDEX NO: PT-36
AUTHOR(S): Freeman, Simons, S Colson, N	•	Brotzen,√F. R. Hester, J.	
AUTHOR AFFILIATION	Rice Universit	у	
TITLE: The Photoklys	ron		
DATE: 1980	VOLUMES:	PAGES: 10	REFERENCES: 10
ACQUISITION NO: 01 Sp	91-9067/80/010145 ace Solar Power R . 145-154	-10 Review, Vol. 1,	SOURCE: 33
KEY WORDS: Design Experime Frequence	nts y Selection	Microwave Photoklystron Technology	

SUBJECT: POWER GENE	RATION AND TRANSMISS	ION	SPSPO INDEX NO:	PT-4
AUTHOR(S): Fordyce, Brown, W	S. W.(1) . C. (2)		72	
AUTHOR AFFILIATION:	(1) National Aerona (2) Raytheon Compan	utics and Space	e Administration	
TITLE: Applicațions o	f Free-Space Microwa	ve Power Transi	nission	
DATE: September 1979	VOLUMES:	PAGES: 6	REFERENCES:	8
ACOUTOTTION NO. AST	ronautics and Aerona	utics		2
ACGUISITION NO: Vol	. 17, No. 9 54-61	u 0 1 0 0	SOURCE:	72 <b>-</b>

SUBJECT: POWER GEN	ERATION AND TRANS	MISSION	SPSPO INDEX NO	: PT-1
AUTHOR(S): Gibson, Pollacse Strijk,	k, M.			
AUTHOR AFFILIATION	European Space	Agency		
TITLE: Further Invest Transistors un	igation of RF Gai der Multicarrier	n Degradation in H Operation	igh Power Microwa	ive
DATE: 1978	VOLUMES:	PAGES: 7	REFERENCES:	1.
ACQUISITION NO: ESA	A Journal 78/3, Vo 207-213	01. 2	SOURCE:	1
KEY WORDS: Computer Experime Gain Deg			gh Voltage wer Amplifier	

SUBJECT: POWER GENE	RATION AND TRANSMISSION		SPSPO INDEX	( NO:	): PT-34
AUTHOR(S): Kozakoff, Schuchardt					
AUTHOR AFFILIATION:	Georgia Institut	e of Technology		Di-	ALEXANDER OF
TITLE: High Accuracy	Radiation Efficie	ncy Measurement T	echniques		
DATE: January 1981	VOLUMES:	PAGES: 82	REFERENCE	<b>s:</b> 17	
	SA CR 3372 S 8-33605		SOURCE:	4	
KEY WORDS: Antenna Microwave Power De	e Rad	pagation iation Statistics hnology			

SPSPO INDEX NO: PT-19 SUBJECT: POWER GENERATION AND TRANSMISSION AUTHOR(S): Lockheed Missiles and Space Company AUTHOR AFFILIATION: Lockheed Missiles and Space Company Laser Power Conversion System Analysis TITLE: PAGES: 205 REFERENCES: 56 **VOLUMES:** DATE: September 1978 SOURCE: 4 ACQUISITION NO: NASA-CR-159523 KEY WORDS: Antenna Laser Power Atmospheric Effects Laser Safety Laser Cost Power Conversion

SPSPO INDEX NO: PT-27 SUBJECT: POWER GENERATION AND TRANSMISSION AUTHOR(S): Mathematical Sciences Northwest, Inc. AUTHOR AFFILIATION: Mathematical Sciences Northwest, Inc. TITLE: Study, Optimization, and Design of a Laser Heat Engine PAGES: 158 REFERENCES: 74 January 1978 **VOLUMES:** DATE: SOURCE: 4 ACQUISITION NO: MSNW 78 - 1082 - 1 Laser Power KEY WORDS: Design Efficiency Laser Alternatives

SUBJECT: POWER GENERATION AND TRANSMISSION		SPSPO INDEX NO: PT-11
AUTHOR(S): Maynard, O. E. (1) Mel Brown, W. C. (1) Hal Edwards, A. (1) How	tz, G. (1 ey, J. T. (1 ell, J. M. (1	) Nathan, A. (2)
AUTHOR AFFILIATION: (1) Raytheon Company (2) Grumman Aerospac	e Corporation	
TITLE: Microwave Power Transmission System	Studies	
DATE: December 1975 VOLUMES: 4	PAGES: 771	REFERENCES: 42
ACQUISITION NO: Vol. 2 - Analysis (261 proposed NASA CR-134886 Vol. 3 - Mechanical Systems FR 74-4368 Vol. 4 - Antennas (274 proposed NASA CR-134886 Vol. 4 - Antennas CR-1348886 Vol. 4 - Antennas CR-134886 Vol. 4 - Antennas CR-1348886 Vol. 4 - Antennas CR-134886 Vol. 4 - Antennas CR-134886 Vol. 4 - An	ems (233 pp.)	SOURCE:
KEY WORDS: Antenna Mechanical System Phase Control	477.57 T. S.	ar Conversion hnology

SUBJECT: POWER GENE	RATION AND TRANSMI	SSION	SPSPO INDEX NO: PT-33
AUTHOR(S): Maynard, (	). E.		
AUTHOR AFFILIATION:	Raytheon Company		
TITLE: Solid State SF	S Microwave Genera	ation and Transmis	sion Study
DATE: November 1980	VOLUMES: 2	PAGES: 343	REFERENCES: 20
ACQUISITION NO: NAS	A CR 3338 and 3339 8-33157 , Final Report, 23 2, Appendix, 113 p	30 pp.	SOURCE: 4
KEY WORDS: Antenna Atmospher Design	ic Effects	Hardware Power Amplifie Solid State	er

SUBJECT: POWER GENE	RATION AND TRANSMISSI	ON	SPSPO INDEX NO: PT-22
AUTHOR(S): Nalos, E.	J.		
AUTHOR AFFILIATION:	Boeing Aerospace Con	npany	*
TITLE: New Developme	ents in Electromagneti	ic Energy Beam	ing
DATE: March 1978	VOLUMES:	PAGES: 14	REFERENCES: 20
ACQUISITION NO: 00	18-9219/78/0300-0276		SOURCE: 6
KEY WORDS: Antenna Design Laser Po	ver	Microwave Phase Contro Power Amplia	

SUBJECT: POWER GENER	RATION AND TRANSMISSION		SPSPO INDEX NO: PT-23
AUTHOR(S): Rather, J. Gerry, E. Zeiders, G	Т.		
AUTHOR AFFILIATION:	W. J.Schafer Associ	ates, Inc.	
TITLE: Investigation Lasers in Spa	of Possibilities fo	or Solar Powere	ed High Energy
DATE: May 1977	VOLUMES:	PAGES: 47	REFERENCES: 15
ACQUISITION NO: 77SR-VA-U3 NASW-3048			SOURCE:
KEY WORDS: Laser Alte Laser Power Power Conv	er	Propagation Solar Convers	sion

SUBJECT: POWER GENERA	BJECT: POWER GENERATION AND TRANSMISSION			PT-16
AUTHOR(S): Reilly, C	). P.			
AUTHOR AFFILIATION:	W. J. Schaffer Asso	ciates, Inc.		
TITLE: High Power Lase	ers			
DATE: June-July 1978	VOLUMES:	PAGES: 6	REFERENCES: 6	
ACQUISITION NO: By	Title, Technology Revi	ew, pp 58-63	SOURCE: 29	
KEY WORDS: Atmospher Laser Por Propagat			Technology Waste Heat	

SUBJECT: POWER GENE	RATION AND TRANSMISSI	ON	SPSPO INDEX NO: PT-32
AUTHOR(S): Rockwell I	nternational		
AUTHOR AFFILIATION:	Rockwell Internation	nal	
TITLE: Satellite Powe Amplifier Inve	r System (SPS) Concer stigation	ot Definition S	tudy, Solid State
DATE: August 1980	VOLUMES:	PAGES: 106	REFERENCES: None
NAS	80-0120 DR MA-0 8-32475 567	07	SOURCE: 4
KEY WORDS: Antenna Design Efficiency		Hardware Power Ampli Solid State	fier

SUBJECT: POWER GE	NERATION AND TRANSM	IISSION	SPSPO INDEX NO	PT-8
AUTHOR(s): Stevens, Leininge	G, H. (1) r, G. (2)			(3)
AUTHOR AFFILIATION	(1) NASA Lewis R (2) University o	esearch Center f Toledo		
TITLE: Statistics of Transfer Syste		of a Space-to-Ear	th Microwave Powe	r
DATE: None	YOLUMES:	PAGES: 36	REFERENCES:	23
ACQUISITION NO:	NASA TM X-73684 E-9217		SOURCE:	4
KEY WORDS: Microwa Phase E Pointing	rror		Power Density Radiation Statis	tics

SUBJECT: POWER GENER	ATION AND TRANSMISSIC	ON	SP	SPO INDEX NO:	PT-9
AUTHOR(s) Stevens, G. Schuh, R.	н.				
AUTHOR AFFILIATION:	NASA Lewis Research	Center	3//20/		
TITLE: Space-to-E	arth Power Transmiss	ion System	ì		
DATE: None	VOLUMES:	PAGES:	139	REFERENCES:	30
	TM V 70400				
ACQUISITION NO: NASA E-888				SOURCE:	4

SUBJECT: POWER GENER	ATION AND TRANSMISSIO	N	SPSPO INDEX NO: PT-21
AUTHOR(s): Taussig, Bruzzone, Quimbly, Nelson, L	C. Neice. Cassac	ly, P.	14
AUTHOR AFFILIATION:	Mathematical Science	es Northwest,	Inc.
TITLE: Design In	vestigation of Solar N	owered Laser	s for Space Applications
DATE: May 1979	VOLUMES:	PAGES: 175	REFERENCES: 82
ACQUISITION NO:	MSNW-79-1087/1090-1		SOURCE: 4
KEY WORDS: Laser Alt Laser Cos Laser Pow	ts		Power Conversion Solar Conversion Thermal Systems
SUBJECT: POWER GENER AUTHOR(S): Walbridge,	RATION AND TRANSMISSIO	ON .	SPSPO INDEX NO: PT-
Administrace,	L. M.		
AUTHOR AFFILIATION:	Argonne National La	boratory	
TITLE: Laser Satellite	Power Systems		
DATE: January 1980	VOLUMES:	PAGES: 77	REFERENCES: 39
ACQUISITION NO: ANL	/ES-92		SOURCE: 5
Efficienc	ic Effects y Selection	Laser Alter Laser Power	Control Contro

### RESOURCES AND MATERIALS (CATEGORY RM)

Resources and materials which would be required to fully develop SPS, their source throughout the world and knowledge about current production and likely needs by other ventures are described in documents in this category. Processes for evaluating resource and material needs also are included.

KEY WORDS:	PAGE NUMBER:
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Cell Design Commercial Market	142 142
Design Characterizations	143
Economics Efficiency Energy Payback Energy Use	142, 144, 146 142 144 142
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Manpower Mapping Materials Constraints Materials Extraction Materials Processing Materials Requirements	144 141, 145 143, 146 144, 145 144, 145
Photovoltaics Problem Identification Process Conversions Production	142 143 143 141, 145, 146
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Sea Survey Selection Methods	142 141, 142, 143, 145, 146
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RELATED CATEGORIES:

Energy Alternatives and Policy (EA)

Environmental Effects (EE)

Economics and Finances (EF)

Systems Analyses (SA)

Systems Engineering (SE)

Social Issues (SI)

SUBJECT:	RESOURCES	RESOURCES AND MATERIALS		SPSPO	INDEX NO	): RM-8
AUTHOR(S):	Blackburn Bavinger,	UTAN MINISTER PROJECT				
AUTHOR AFFI	LIATION:	PRC Energy Analys	sis Company			
TITLE:	Satellite Rectenna	Power System (SPS) Sites	Mapping of Ex	clusion	Areas for	23
DATE: Octobe	r 1978	VOLUMES:	PAGES: 1	12 REF	ERENCES:	24
ACQUISITION	NO:	HCP/R-4024-10		sou	RCE:	5
KEY WORDS:	Inventory Land Surv Mapping			Rectenna Selection	a Sites on Methods	

SUBJECT: RESOURCES	BJECT: RESOURCES AND MATERIALS			o: RM-1
AUTHOR(S): Culver, D Teeter, R Jamieson,	. R.			
AUTHOR AFFILIATION:	Battelle Columbu	s Laboratories		
TITLE: A Methodology f	or Assessing Syst	ems Materials Requ	irements	
DATE: January 1980	VOLUMES:	PAGES: 40	REFERENCES:	27
ACQUISITION NO:	DOE/ER-0040		SOURCE:	5
KEY WORDS: Assessment Inventory Production				

SUBJECT: RESOURCES AND MATERIALS			SPSPO	INDEX N	O: RM-2
AUTHOR(S): Eberhardt	, A. W.				
AUTHOR AFFILIATION:	NASA Marshall Sp	pace Flight Cente	er		
TITLE: Candidate Lo	cations for SPS Rec	ctifying Antennas			
DATE: November 1977	VOLUMES:	PAGES: 83	REF	ERENCES:	15
ACQUISITION NO:	NASA TM-78146		sou	RCE:	4
KEY WORDS: Land Surve Rectenna Sea Surve	Sites	Selec	tion Me	thods	

SUBJECT: RESOURCES AND MATERIALS			SPSPO INDEX NO	): RM-12
AUTHOR(S): Ehrenreid Martin, J				
AUTHOR AFFILIATION:	Harvard Univer	sity	25 Alexander 1	
TITLE: Solar Photovol	taic Energy			
DATE: September 1979	VOLUMES:	PAGES: 8	REFERENCES:	2
ACQUISITION NO: By	Title, Physics T	oday, pp. 25-32	SOURCE: 36	
KEY WORDS: Cell Des Commercia Economics	aĭ Market	Efficiency Federal Programs Photovoltaics		

SUBJECT:	RESOURCES	AND MATERIALS		SF	SPO IN	DEX NO:	RM-9
AUTHOR(S):	Kotin, A.	D.					
AUTHOR AFFI	LIATION:	Allan D. Kotin Ed	conomic Cons	ul tant	s		
TITLE:	Satellite Materials	Power System (SPS) , Energy and Land)	Resource Rec	qui rem	ents (C	ritical	
DATE: Octobe	r 1978	VOLUMES:	PAGES:	128	REFERE	ENCES:	87
ACQUISITION	NO:	HCP/R-4024-02			SOURCE	≣;	5
KEY WORDS:	CONTRACTOR OF THE SECOND CONTRACTOR OF THE SEC			[T]	Constrai Requireme		

SUBJECT:	RESOURCES /	AND MATERIALS	8	SPSPO INDEX NO	RM-3
AUTHOR(S):	Litchfiel Watts, R. Gurwell,	L. Bloomster	J. N. , C. H.		
AUTHOR AFFI	LIATION:	Pacific Northwest L	aboratory		
TITLE:	A Methodo of Solar	logy for Identifying Energy Technologies	Materials Cons	traints to Implem	mentation
DATE: July	1978	VOLUMES:	PAGES: 84	REFERENCES:	36
ACQUISITION	NO:	PNL-2711		SOURCE:	13
KEY WORDS:	Inventory	aracterizations dentification		Process Convers Production Selection Metho	

SUBJEÇT: RESOURCES AND MATERIALS			SI	PSPO INDEX NO:	RM-4
AUTHOR(S): B	ivingston, F. R. aker, L.R. oon, P. T. Y. uo, T. J.				
AUTHOR AFFILI.	ATION: Jet Prop	sion Laboratory			
TITLE:	atellite Power Syst	n (SPS) Preliminar	y Res	ource Assessment	
DATE: August 19	78 VOLUMES:	PAGES:	81	REFERENCES:	22
ACQUISITION N	o: 900-805	Rev. A)		SOURCE:	4
INC. NORDO	nergy Payback uels and			Manpower Rectenna Sites Water	

SUBJECT: RESOURCES	AND MATERIALS	s	PSPO INDEX NO	RM-5
AUTHOR(S): Reeber, R	R. R.			
AUTHOR AFFILIATION:	U.S. Departme	nt of Energy		
TITLE: An Overvi	iew: The Materia	ls/Energy Tradeoff		
DATE: June 1978	VOLUMES:	PAGES: 9	REFERENCES:	35
ACQUISITION NO:		ional Symposium on Strategic Materials	SOURCE:	25
KEY WORDS: Assessment Economics Energy Pa			aterials Extracti aterials Processi	20
Economics	S		하다 하나 하나 하나 하나 하나 하나 하나 하는 생각이 하는 것이 없었다.	20

SPSPO INDEX NO: RM-11 SUBJECT: RESOURCES AND MATERIALS AUTHOR(S): Rice University AUTHOR AFFILIATION: Rice University Satellite Power System (SPS) Rectenna Siting: Availability and TITLE: Distribution of Nominally Eligible Sites REFERENCES: 36 PAGES: 280 **VOLUMES:** DATE: November 1980 SOURCE: 5 ACQUISITION NO: DOE/ER/10041-T10 Mapping KEY WORDS: Assessment Methods Rectenna Sites Inventory Selection Methods Land Survey

SUBJECT: RESOURCES AND MATERIALS SPSPO INDEX NO: RM-10 AUTHOR(S): Rosi, F. D. AUTHOR AFFILIATION: University of Virginia TITLE: A Survey of the Market, Supply and Availability of Gallium PAGES: 20 REFERENCES: 17 July 1980 **VOLUMES:** DATE: SOURCE: 5 ACQUISITION NO: DOE/ER-0063 KEY WORDS: Inventory Production Materials Processing Materials Requirements

SUBJECT: RESOUR	CES AND MATERIALS		SPSF	SPSPO INDEX NO: RM-7		
	r, R. R. son, W. M.					
AUTHOR AFFILIATION	ON: Battelle Columbi	us Laboratories				
TITLE: Prelin	ninary Materials Ass	essment for the	Satelli	te Power System (SPS)		
DATE: January 1980	VOLUMES:	PAGES:	120 RE	FERENCES: 26		
ACQUISITION NO:	DOE/ER-0038		so	OURCE: 5		
KEY WORDS: Assessment Methods Economics Inventory			Produc	als Constraints tion ion Methods		

SUBJECT: RESOURCES AND MATERIALS			PSPO INDEX NO: RM-6		
AUTHOR(S): Watts, R. Gurwell, W Bloomster,	I. E.	Smith, S. A. Nelson, T. A. Paulewicz, W. W.			
AUTHOR AFFILIATION:	Pacific Northwest La	boratory			
TITLE: Some Potential Photovoltaic So	Material Supply Const lar Electric Systems	raints in the	Deployment of		
DATE: September 1978	VOLUMES:	PAGES: 231	REFERENCES: 52		
ACQUISITION NO: P	NL-2971	•/-	SOURCE: 5		
KEY WORDS: Assessment Methods Design Characterizations Materials Constraints		Materials Requirements Photovoltaics			

## SYSTEMS ANALYSES (CATEGORY SA)

This category of documents includes reports and papers dealing with SPS and other energy technologies in a broad sense. Most documents address more than one key issue or concern relating to one or more technologies rather than concentrating on individual issues. As a result, the shorter reports provide summaries rather than in-depth analyses of energy technologies, and the longer reports cover a wide range of topics.

KEY WORDS:	PAGE NUMBER:	
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KEY WORDS:

Technology Requirements

Transmission System

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149, 150, 152, 154, 155, 157, 158, 159, 160, 163, 164, 165, 166, 169, 170

RELATED CATEGORIES:

All Other Categories

SPSPO INDEX NO: SA-20 SUBJECT: SYSTEMS ANALYSES AUTHOR(S): Alabama, University of AUTHOR AFFILIATION: University of Alabama (Huntsville) TITLE: The Final Proceedings of the Solar Power Satellite Program Review REFERENCES: None PAGES: 700 **VOLUMES:** DATE: July 1980 ACQUISITION NO: CONF-800491 SOURCE: KEY WORDS: Satellite Structures Comparative Assessment Social Impacts Concept Review Transmission System Environment

SPSPO INDEX NO: SA-44 SUBJECT: SYSTEMS ANALYSES AUTHOR(S): Argonne National Laboratory AUTHOR AFFILIATION: Argonne National Laboratory Survey and Documentation of Emerging Technologies for the Satellite TITLE: Power System (SPS) PAGES: 130 REFERENCES: 115 **VOLUMES:** DATE: January 1981 SOURCE: ACQUISITION NO: 5 DOE/ER-0097 Space Transportation KEY WORDS: Concept Review Technology Requirements Economics Transmission System **Energy Conversion** 

SA-29 SPSPO INDEX NO: SUBJECT: SYSTEMS ANALYSES AUTHOR(S): Billman, K. W. (Ed.) AUTHOR AFFILIATION: Ames Research Center TITLE: Radiation Energy Conversion in Space REFERENCES: 791 PAGES: 688 **VOLUMES:** 1978 DATE: SOURCE: 2 ISBN 0-915928-26-4 ACQUISITION NO: Progress in Astronautics and Aeronautics, Volume 61 Space Transportation KEY WORDS: **Energy Conversion** Transmission System Laser Power Microwave Transmission

SPSPO INDEX NO: SA-36 SUBJECT: SYSTEMS ANALYSES AUTHOR(S): Billman, K. W. Gilbreath, W. P. Bowen, S. W. NASA Ames Research Center AUTHOR AFFILIATION: TITLE: Space Reflector Technology and Its System Implications February 1979 VOLUMES: 18 PAGES: 17 REFERENCES: DATE: SOURCE: ACQUISITION NO: 79-0545 Satellite Structures KEY WORDS: Costs Space Reflector **Energy Conversion** Space Transportation Environment

SUBJECT: SYSTEMS ANALYSES			SPSPO	INDEX	NO:	SA-14
AUTHOR(S): Bloomquist	, C. E.					
AUTHOR AFFILIATION:	PRC Systems Sciences	Company				
TITLE: A Survey of Sat	tellite Power Stations					
DATE: September 1976	VOLUMES:	PAGES: 334	REF	ERENCE	S: 78	
ACQUISITION NO: DSI	E 2071-1		soul	RCE: 5		
KEY WORDS: Concept Re Economics Energy Ba		Environm Key Issu Technolo	es	uiremen	ts	

SUBJECT: SYSTEMS A	NALYSES		SPSPO INDEX NO: SA-30	
AUTHOR(S): Boeing	Aerospace Company			
AUTHOR AFFILIATION	: Boeing Aerospa	ce Company		
TITLE: Solar Power Executive S		Definition Study, I	Phase III	
DATE: June 1980	VOLUMES:	PAGES: 67	REFERENCES: None	
함께 (T.C.P.) (2014년 1일 전 2014년 1일 전 2014년 12 (2014년 12 14 년 - 일본, 17일 (2014년 12 년 - 일본, 17일 (2014년 12 년 년 년 년	D180-25969-1 NAS 9-15636		SOURCE: 4	
KEY WORDS: Concept Definition Energy Conversion Laser Power		Orbital Operations Microwave Transmission Satellite Structures		

SUBJECT: SYSTEMS AN	MS ANALYSES			O INDEX NO:	SA-11
AUTHOR(s): Brown, W.	С.				
AUTHOR AFFILIATION:	Raytheon Compa	iny			
TITLE: Satellit	e Power Stations:	A New Source o	f Ener	gy?	
DATE: March 1973	VOLUMES:	PAGES:	10 RE	EFERENCES:	30
ACQUISITION NO: Spectrum; Vol. 10, No. 3, pp. 38-47		s	OURCE:	6	
KEY WORDS: Concept Economic Energy C		1. <del>1. 1. 1.</del> 1.	nvironn ransmis	ment ssion System	

SUBJECT:	SYSTEMS A	SYSTEMS ANALYSES			: SA-3
AUTHOR(S)	: Cantafio Chobotov Wolfe, M.	, V. A.			
AUTHOR AF	FILIATION	:	Aerospace Corporat	ion	
TITLE:		taic, Gravitationa ation (GSS <sup>4</sup> PS)	ally-Stabilized Soli	d-State Satellite	Solar
2011					
DATE: Marc	ch 1977	VOLUMES:	PAGES: 15	REFERENCES:	32
DATE: Marc		VOLUMES: AIAA-77-511	PAGES: 15	REFERENCES:	32 2

SUBJECT: SYSTEM	S ANALYSES		SPS	PO	INDEX	NO:	SA-17
AUTHOR(S): Energy	, U.S. Department of						
AUTHOR AFFILIATIO	N: U.S. Department	of Energy	······································	a			
TITLE: Satell Progra	ite Power Systems (S m Preliminary Assess	PS) Concept Dev	elopme	nt a	nd Eva	ulati	on
DATE: September 197	9 VOLUMES:	PAGES:	14 F	EFE	RENCE	S:	22
ACQUISITION NO: D	0E/ER-0041		8	OUF	RCE:		5
	ative Assessment t Review nment		Key Is Socia Techno	Im		ireme	nts

SUBJECT: SYSTEMS ANA	SPSPO INDEX NO: SA-24		
AUTHOR(S): Energy, U	. S. Department of		
AUTHOR AFFILIATION:	U. S. Department of	f Energy	
TITLE: Program Assess	ment Report Statement	of Findings	
DATE: November 1980	VOLUMES:	PAGES: 76	REFERENCES: 50
ACQUISITION NO: DOE	/ER-0085		SOURCE: 5
KEY WORDS: Comparati Concept R Environme		Key Issues Social Impa Space Trans	KIN ANDROY

SUBJECT: SYSTEMS AN	SYSTEMS ANALYSES			: SA-2
AUTHOR(S): Energy Re	search and Develop	ment Administratio	on	
AUTHOR AFFILIATION:	Energy Research a	nd Development Adr	ninistration	
TITLE: Final Rep	ort of the ERDA Ta	sk Group on Satel	lite Power Statio	ns
DATE: November 1976	VOLUMES:	PAGES: 29	REFERENCES:	None
ACQUISITION NO:	ERDA-76/148		SOURCE:	13
KEY WORDS: Concept R Economics Environme	,		Key Issues	

SUBJECT: SYSTEMS ANAL	s	PSPO INDEX NO: SA-33	
AUTHOR(S): Glaser, P.	Ε.		
AUTHOR AFFILIATION:	Arthur D. Little, In	c.	
TITLE: Power From The	Sun: Its Future		
DATE: November 1968	VOLUMES:	PAGES: 5	REFERENCES: 15
ACQUISITION NO: By 1	itle, Vol. 162, No. 3	856	SOURCE: 7
KEY WORDS: Concept Re Ground Red Satellite	ceiver Techno	Transportation logy Requirements	nts

SUBJECT: SYSTEMS ANALYSES			SPSPO INDEX NO: SA-15		
AUTHOR(S): Glaser, P Maynard, Mackovcia	. E. (1) 0. E. (2) k, J. (3)	Ralph,	E. L. (4)		
AUTHOR AFFILIATION:	(1) A. D. Little, In (2) Raytheon Co.	c. (3) Gr (4) Te	umman Aerospace Corp. xtron Inc.		
TITLE: Feasibility S	tudy of Satellite Sol	ar Power Stat	ion		
DATE: February 1974	VOLUMES:	PAGES: 199	REFERENCES: 72		
ACQUISITION NO: NASA	CR-2357		SOURCE: 4		
KEY WORDS: Concept Definition Economics Environment		Key Issues Satellite Structures Technology Requirements			

SUBJECT: SYSTEMS ANAL	SPSPO INDEX NO: SA-28		
AUTHOR(S): Glaser, P.	Ε.		
AUTHOR AFFILIATION:	A. D. Little,	Inc.	
TITLE: Perspectives	on Satellite So	lar Power	
DATE: January 1977	VOLUMES:	PAGES: 12	REFERENCES: 31
ACQUISITION NO: By	Title; AIAA 13tl (Washingto	h Annual Meeting on, D. C.)	SOURCE:
KEY WORDS: Concept Definition Energy Conversion Power Distribution		Space Transportation Technology Requirements Transmission System	

SPSPO INDEX NO: SA-34 SUBJECT: SYSTEMS ANALYSES AUTHOR(S): Glaser, P. E. AUTHOR AFFILIATION: Arthur D. Little, Inc. TITLE: Solar Power From Satellites REFERENCES: 15 PAGES: 7 **VOLUMES:** February 1977 DATE: SOURCE: 36 ACQUISITION NO: By Title; Physics Today Satellite Structures KEY WORDS: Concept Review Space Assembly Energy Conversion Space Transportation Microwave Transmission

SPSPO INDEX NO: SA-41 SUBJECT: SYSTEMS ANALYSES AUTHOR(S): Glaser, P. E. AUTHOR AFFILIATION: Arthur D. Little, Inc. TITLE: The Development of Solar Power Satellites PAGES: 48 REFERENCES: 49 **VOLUMES:** DATE: 1979 ACQUISITION NO: ISBN-0-12-014902-8 SOURCE: 40 KEY WORDS: Concept Review Resource Analysis Social Impacts **Economics** Technology Requirements Environment

SUBJECT:	SYSTEMS A	NALYSES			SPSPO	INDEX NO	: SA-5
AUTHOR(S):	Glaser, P Hanley, G Nansen, R Kline, R.	. М. (2) . Н. (3)					
AUTHOR AFFI	LIATION:	(1) Arthur (2) Rockwel			Boeing A Grumman	erospace ( Aerospace	Company Company
TITLE:	First Ste	ps to the S	olar Power	Satellite		å- å-	
				DACTOL 7	l <sub>nee</sub>	TDENCES!	None
DATE: May 1	.979	VOLUMES:	3075	PAGES: 7	REF	ERENCES:	None
DATE: May 1		<b>VOLUMES:</b> .8-9235/0500	-0052	PAGES: 7		ERENCES:	None 6

SUBJECT: SYSTEMS ANALYSES			SPSPO INDEX NO: SA-38	
AUTHOR(S): Gla	ser, P. E.			
AUTHOR AFFILIATI	ON: Arthur D. Littl	e, Inc.		
TITLE: The Earth	Benefits of Solar Po	wer Satellites		
DATE: 1980	VOLUMES:	PAGES: 30	REFERENCES: 36	
ACQUISITION NO:	QUISITION NO: 0191-9067/80/010009-30 Space Solar Power Review, Vol. 1, pp. 9-38			
KEY WORDS: Concept Review Economics Environment		Laser Power Microwave Transmission Social Impacts		

SUBJECT: SYSTEMS ANA	LYSES	S	SPSPO INDEX NO: SA-40
AUTHOR(S): Hanley, G	. M.	3	
AUTHOR AFFILIATION:	Rockwell Internation	nal	
TITLE: Rockwell Satel	lite Power System (SP:	S) Concept Def	inition Studies
DATE: 1980	VOLUMES:	PAGES: 17	REFERENCES: 2
Spa	1-9067/80/010079-17 ce Solar Power Review 79-95	, Vol. 1,	SOURCE: 33
KEY WORDS: Concept R Energy Co Power Dis	nversion	Satellite Stru Space Assembly Space Transpor	

SUBJECT:	SYSTEMS A	NALYSES			SPS	PO IND	EX NO:	SA-10
AUTHOR(S):								
AUTHOR AFFI	LIATION:	(1) ECON, Inc (2) Grumman A	:. Nerospace	(3) Corp.(4)	Raythed A. D. L	n Compa ittle,	ny Inc.	
TITLE:	Space-Ba	sed Solar Pow	ver Conve	rsion and	Deliver	y Syste	ems Stud	y
DATE: March	1977	VOLUMES:	5	PAGES:	812 R	EFEREN	ICES:	72
ACQUISITION NAS8-31308 77-145-1	NO: V.2-0 V.3-P	ummary(40 pp. rbit Analysis ower System(1 nergy Convers	s(257 pp. 185 pp.)	20	omics 2 pp.)S	OURCE:		4
KEY WORDS:		s Conversion Operations			Techno	ssembly ogy Rec	quiremen	ts

SUBJECT: SYSTEMS ANALYSES				SPSPO INDEX NO: SA			
AUTHOR(S): Johnson S	pace Center		THE STATE OF THE S				
AUTHOR AFFILIATION:	National Aeronautics	and Space A	Administra	tion			
	Technical, Environmen	tal and Ecor	nomic Eval	uation of	Space		
DATE: August 1976	VOLUMES: 2	PAGES:	986 REFE	RENCES:	72		
ACQUISITION NOT V.	-11568 - Summary (119 pp.) - Analysis(867 pp.)		SOUR	CE:	4		
KEY WORDS: Economics Energy Co Environme	onversion	S	rbital Ope pace Trans ransmissio	sportation			

SUBJECT:	YSTEMS ANALYSES SPSPO INDEX NO: SA				SA-4
AUTHOR(s):	Johnson S	pace Center			
AUTHOR AFFI	IATION:	National Aeronaut	ics and Space Adm	inistration	•
TITLE:	Prelimina Space Sol	ry Assessment of T ar Power	Technology Advance	ment Requirement	for
DATE: March	1977	VOLUMES:	PAGES: 200	REFERENCES:	None
ACQUISITION	NO: JSC	-12702		SOURCE:	4
KEY WORDS:		nversion Stability Structures		ace Assembly ransmission Syste	m

SUBJECT: SYSTEMS A	NALYSES		SPSPO INDEX NO	o: SA-9
AUTHOR(S): Johnson S	pace Center			
AUTHOR AFFILIATION:	National Aeronauti	ics and Space A	dministration	
TITLE: Solar Pov	er Satellite Concept	t Evaluation Ac	tivities Report	
DATE: July 1977	VOLUMES: 2	PAGES: 127	4 REFERENCES:	125
ACQUISITION NO:	JSC-12973		SOURCE:	4
KEY WORDS: Economics Energy Co Environme	onversion	Space	Assembly Transportation mission System	

SUBJECT:	SYSTEMS A	NALYSES		SPSPO INDEX	NO: SA-1
AUTHOR(S):	Jones, W. Hunter, M	S. I. W.			
AUTHOR AFFIL	IATION:	Lockheed Missiles an	d Space Comp	any.	
TITLE: Solar	Power Sat	ellites: The Laser C	ption		
DATE: March	1979	VOLUMES:	PAGES: 2	REFERENCE	S: None
ACQUISITION	NO: Vol	ronautics and Aeronaut 17, No. 3 59, 67	ics	SOURCE:	2
KEY WORDS:	Concept I Laser Pou Space Re				

SUBJECT: SYST	EMS ANA	LYSES		SPSPO	INDEX NO:	SA-21
AUTHOR(S): Koo	manoff,	F. A.				
AUTHOR AFFILI	ATION:	U. S. Departme	ent of Energy			
	of the tion Pro		System (SPS) Conc	ept Deve	lopment and	
DATE: December	1978	VOLUMES:	PAGES: 1	7 REFE	RENCES:	lone
ACQUISITION N on Energy and A		Title; Anglo-Ame e (London)	rican Workshop	SOUR	RCE: 2	
	Concept nvironm (ey Issu	ent	Resource Satellite Social Imp	Structure	es	

SUBJECT: SYSTEMS AN	ALYSES	SF	PSPO INDEX NO: SA-	22
AUTHOR(S): Koomanoff, Sandahl, C	F. A. (1) . A. (2)			
AUTHOR AFFILIATION:	(1) U. S. Departmen (2) Argonne Nationa			
TITLE: Status of Satel Evaluation Prog	lite Power System Cor gram	ncept Developmen	nt and	
DATE: September 1979	VOLUMES:	PAGES: 17	REFERENCES: 22	
Int	Title (30th Congress ternational Astronauti nich, FRG)		SOURCE: 42	
	ve Assessment efinition nt	Key Issues Satellite S Social Impa		

SUBJECT: SYSTE	MS ANALYSES	s	PSPO INDEX N	O: SA-27
AUTHOR(S): Kooma Sanda	noff, F. A. (1) hl, C. A. (2)			
AUTHOR AFFILIAT		tment of Energy tional Laboratory		
TITLE: Status of Evaluation	the Satellite Power Sys Program	tem Concept Devel	opment and	
DATE: 1980	VOLUMES:	PAGES: 11	REFERENCES:	22
ACQUISITION NO:	0191-9067/80/010067, Power Review	Space Solar	SOURCE:	33
Conce	rative Assessment pt Review onment	Key Issues Social Impa Technology	cts Requirements	

SUBJECT: SYSTEMS ANA	LYSES	S	PSPO INDEX N	O: SA-23
AUTHOR(S): Koomanoff,	F. A.			
AUTHOR AFFILIATION:	U. S. Department	of Energy		
TITLE: Satellite Power	r System Concept De	velopment and Eva	luation Progra	m
DATE: September 1980	VOLUMES:	PAGES: 33	REFERENCES:	11
In	Title; 31st Congrece cernational Astronau okyo)	ss of the tical Federation	SOURCE:	42
KEY WORDS: Concept Economics Environment	<b>.</b>	Key Issues Social Impact Space Transpo		

UBJECT: SYSTEMS ANALYSES			SPSPO INDEX N	O: SA-16
AUTHOR(S): Kraft, C. C.				
AUTHOR AFFILIATION:	National Aeronau	tics and Space Ad	ministration	
TITLE: The Solar Powe Next Decade	r Satellite Conce	pt - The Past De	cade and the	
DATE: February 1979	VOLUMES:	PAGES: 17	REFERENCES:	24
ACQUISITION NO: 79-	0534		SOURCE: 2	
KEY WORDS: Concept F Energy Co Space Ass	nversion		ce Transportation	1

SUBJECT: SYSTEMS AN	ALYSES	SF	PSPO INDEX NO: SA-39
AUTHOR(S): Kraft, C. Piland, R	c. . 0.		
AUTHOR AFFILIATION:	National Aeronautic	s and Space Adm	ninistration
TITLE: The Solar Powe	r Satellite Concept -	The Past Decade	and the Next Decade
DATE: 1980	VOLUMES:	PAGES: 27	REFERENCES: 20
Sp	91-9067/80/010039-27 ace Solar Power Review . 39-65	, Vol. 1,	SOURCE: 33
KEY WORDS: Concept Costs Microway	Space	lite Structures Assembly Transportation	

SUBJECT: SYSTEMS A	NALYSES		SPSPO INDEX NO	: SA-18
AUTHOR(S): Marshall	Space Flight Center			
AUTHOR AFFILIATION:	National Aeronautics	and Space Ad	ministration	
TITLE: Satellite	Power System Enginee	ring and Econ	omic Analysis	
DATE: November 1976	VOLUMES:	PAGES: 280	REFERENCES:	26
ACQUISITION NO:	NASA-TM-X-73344		SOURCE:	4
KEY WORDS: Concept Economic Ground R		Resour	Distribution ce Analysis nission System	

SUBJECT: SYSTEMS ANAL	YSES	sı	PSPO INDEX NO	): SA-12
AUTHOR(S): McRae, W.	٧.			
AUTHOR AFFILIATION:	Rockwell Internation	al		
TITLE: Satellite Powe	r System (SPS) Feasib	ility Study Fin	al Report	
DATE: December 1976	VOLUMES: 2	PAGES: 237	REFERENCES:	None
ACQUISITION NO: V.1	- Summary; SD76-SA-02 - Analysis; SD76-SA-0	39-1 (27 pp.) 239-2 (210 pp.)	SOURCE: 4	
KEY WORDS: Concept D Economics Energy Co		Space	ite Structures Assembly Transportation	

SPSPO INDEX NO: SA-35 SUBJECT: SYSTEMS ANALYSES AUTHOR(S): Moses, H. U. S. Department of Energy AUTHOR AFFILIATION: Impacts of Satellite Power System Technology TITLE: 15 REFERENCES: PAGES: 11 **VOLUMES:** DATE: 1979 SOURCE: 33 ACQUISITION NO: By Title; Energy, Vol. 4, pp. 799-809 Social Impacts KEY WORDS: Concept Review Environment Key Issues

SYSTEMS ANALYSES SPSPO INDEX NO: SA-43 SUBJECT: AUTHOR(S): National Aeronautics and Space Administration AUTHOR AFFILIATION: National Aeronautics and Space Administration TITLE: Satellite Power System Concept Development and Evaluation Program Technical Assessment Report PAGES: 113 REFERENCES: 79 **VOLUMES:** DATE: December 1980 SOURCE: ACQUISITION NO: DOE/ER/10035-03 5 Satellite Structures KEY WORDS: Concept Definition Space Transportation Energy Conversion Ground Receiver Transmission System

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to be published
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REFERENCES:
SOURCE: 27

SUBJECT: SYSTEMS ANAI	LYSES		SPSPO	INDEX	NO:	SA-13
AUTHOR(S): Rice Unive	ersity					
AUTHOR AFFILIATION:	Rice University					
TITLE: Space Solar Po	wer Research Program					
DATE: December 1977	VOLUMES:	PAGES: 63	REFE	RENCES	S: N	lone
ACQUISITION NO: By	Title		SOUF	RCE: 1	9	
KEY WORDS: Economics Environme Social Im	ent		ace Envir		m	

SPSPO INDEX NO: SA-31 SUBJECT: SYSTEMS ANALYSES AUTHOR(S): Rockwell International AUTHOR AFFILIATION: Rockwell International Satellite Power Systems (SPS) Concept Definition Study TITLE: Final Report REFERENCES: 135 VOLUMES: 4 PAGES: 724 DATE: August 1980 SSD 80-0108-1,2,4,7 SOURCE: ACQUISITION NO: NAS 8-32475 V.1, Summary, 51 pp. V.3, Operations, 67 pp. V.2, Analyses, 340 pp. V.7, Requirements, 266 pp. KEY WORDS: Concept Definition Satellite Structures Orbital Operations Microwave Transmission Space Assembly Technology Requirements

SUBJECT: SYSTEMS ANALYSES			PSPO INDEX NO: SA-32
AUTHOR(S): Rockwell	International		
AUTHOR AFFILIATION:	Rockwell Internatio	nal	
TITLE: Satellite Pow	er Systems (SPS) Conc	ept Definition	Study Final Report
DATE: October 1980	VOLUMES: 4	PAGES: 792	REFERENCES: 2
			SOURCE:
	efinition	Space Trans	portation Requirements

SUBJECT: SYSTEMS ANA	ALYSES		SPSPO	INDEX	NO:	SA-37
AUTHOR(S): Schwenk,	F. C.					W. Ten
AUTHOR AFFILIATION:	National Aeronautic	s and Space	Adminis	tration		
TITLE: The SPS Conce	pt-An Overview of Stat	us and Outl	ook			
DATE: August 1980	VOLUMES:	PAGES: 7	REF	ERENCE	s:	10
ACQUISITION NO: 80	9267		sou	RCE:	2	
KEY WORDS: Comparat Concept Environm		5	Key Issue Social Im Space Tra	pacts	tion	

SUBJECT: SYSTEMS ANAI	LYSES		SPSPO INDEX	NO: SA-45
AUTHOR(S): Technolog	gy Assessment, Of	fice of		
AUTHOR AFFILIATION:	U. S. Congress			
TITLE: NOT AVAILABLE	- Report on SPS Spring, 1981	expected to be p	ublished in	
DATE:	VOLUMES:	PAGES:	REFERENCE	s:
ACQUISITION NO:			SOURCE:	20

SUBJECT: SYSTEMS ANAL	YSES		SPSPO INDEX N	O: SA-42
AUTHOR(S): Vanke, V. Lopukhin, Savvin, V	V. M.			
AUTHOR AFFILIATION:	M. W. Lomonosov St	ate University	(Moscow)	
TITLE: Satellite Solar	r Power Stations			
DATE: December 1977	VOLUMES:	PAGES: 13	REFERENCES:	91
ACQUISITION NO: ISS	N:0038-5670		SOURCE:	41
KEY WORDS: Concept R Economics Energy Co		Microwave Tran	smission	

SUBJECT: SYSTEM	IS ANALYSES	s	PSPO INDEX NO:	SA-6
AUTHOR(S): Wolfe,	M.G.	• • • • • • • • • • • • • • • • • • •		
AUTHOR AFFILIATIO	N: Aerospace Corpora	tion		1.500.5
	ation of Stationkept n Design	Array Concepts to	Satellite Solar Po	ower
DATE: November 197	6 VOLUMES: 2	PAGES: 199	REFERENCES:	8
ACQUISITION NO: NATION	8-31842 R-76(7575)-1 1. 1 - Summary (32 pp 1. 2 - Analysis (167	pp.)	SOURCE:	4
Sate11	Distribution ite Stability ite Structures	Tech	ce Assembly nology Requiremen nsmission System	ts

JBJECT: SYSTEMS ANALYSES		SPSPO INDEX NO: SA-7	
AUTHOR(S): Woodcock,	G. R.		
AUTHOR AFFILIATION:	Boeing Aerospace	e Company	
TITLE: Satellite Power	r Systems for Larg	ge-Scale Power Gen	eration
DATE: October 1976	VOLUMES:	PAGES: 11	REFERENCES: 8
Int	Title; 27th Congre ernational Astrona eration (Anaheim)		SOURCE: 42
KEY WORDS: Concept Re Energy Con Power Dis	nversion	Space T	te Structures ransportation ssion System

UBJECT: SYSTEMS ANALYSES		SPSPO INDEX NO: SA-25
AUTHOR(S): Woodcock, G. R.		
AUTHOR AFFILIATION: Boeing Aerospace Co	mpany	
TITLE: Solar Satellites-Space Key to Our P	ower Future	
DATE: July-August 1977 VOLUMES:	PAGES: 15	REFERENCES: None
ACQUISITION NO: By Title; Astronautics an	d Aeronautics	SOURCE: 2
KEY WORDS: Concept Review Energy Conversion Orbital Operations	Satellite St Space Assemb Space Transp	oly .

SPSPO INDEX NO: SA-19 SUBJECT: SYSTEMS ANALYSES AUTHOR(S): Woodcock, G. R. AUTHOR AFFILIATION: Boeing Aerospace Company Large-Scale Space Operations for Solar Power Satellites TITLE: REFERENCES: PAGES: 15 9 VOLUMES: DATE: August 1977 2 By Title (New Options in Energy SOURCE: ACQUISITION NO: Technology, San Francisco, 1977) Space Transportation Concept Review KEY WORDS: Satellite Structures Space Assembly

SPSPO INDEX NO: SUBJECT: SA-26 SYSTEMS ANALYSES AUTHOR(S): Woodcock, G. AUTHOR AFFILIATION: Boeing Aerospace Company TITLE: Solar Power Satellite Systems Definition PAGES: 47 REFERENCES: December 1978 VOLUMES: None DATE: SOURCE: ACQUISITION NO: By Title (AIAA-RAS Conference on Energy and Aerospace, London) KEY WORDS: Satellite Structures Concept Definition Space Assembly **Energy Conversion** Technology Requirements Ground Receiver

## SYSTEMS ENGINEERING (CATEGORY SE)

Documents in this category deal with the engineering aspects of the satellite structure which would be assembled in space and the receiving antenna complex which would be built on earth as a part of SPS. Other issues, such as the space-to-earth transmission path, are discussed only to the extent that they may be important factors in engineering principles and design. Note also that reports and papers concentrating on power generation and transmission are listed in a separate category.

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All Other Categories

SPSPO INDEX NO: SE-26 SUBJECT: SYSTEMS ENGINEERING AUTHOR(S): Alabama, University of AUTHOR AFFILIATION: University of Alabama The Final Report of the SPS Energy Conversion and Power Management TITLE: Workshop REFERENCES: None PAGES: 102 **VOLUMES:** DATE: June 1980 SOURCE: 4 ACQUISITION NO: By Title, NAS 8-33132 Power Distribution KEY WORDS: Energy Collection Solar Collector Energy Conversion Photovoltaic

SPSPO INDEX NO: SE-33 SUBJECT: SYSTEMS ENGINEERING Andryczyk, R. AUTHOR(s): Foldes, P. Chestek, J. Kaupang, B. M. AUTHOR AFFILIATION: General Electric Company TITLE: Solar Power Satellite Ground Stations PAGES: REFERENCES: **VOLUMES:** 5 DATE: None July 1979 SOURCE: ACQUISITION NO: 6 0018-9235/79/0700-0051 KEY WORDS: Converter Station Power Conversion Dipole Assembly Rectenna Power Blocks

SUBJECT: SYSTEMS EN	NGINEERING	8	SPSPO INDEX NO: SE-31
AUTHOR(S): Argonne Na	tional Laboratory		
AUTHOR AFFILIATION:	Argonne National La	boratory	
TITLE: Design Require	ements for Orbit Main	tenance of SPS	Elements
DATE: November 1980	VOLUMES:	PAGES: 68	REFERENCES: 6
ACQUISITION NO: DOE,	/ER-0087		SOURCE: 5
KEY WORDS: Failure An Orbit Mai Satellite	ntenance	Space Transpo	rtation

UBJECT: SYSTEMS ENGINEERING		SPSPO	INDEX NO:	SE-36	
AUTHOR(S): Bekey, Blocker	I. , W.				
AUTHOR AFFILIATION	: Aerospace (	orporation			
TITLE: High Efficie	ncy Low Cost Sc	lar Cell Power			
DATE: November 1978	VOLUMES:	PAGES: 7	REFE	RENCES:	12
	y Title; Astroneronautics, pp		SOUR	CE:	
KEY WORDS: Array D Cell De Concent	sign	Efficiency Performance			

SUBJECT: SYSTEMS	ENGINEERING	SPSPO INDEX NO: SE-15		
AUTHOR(S): Boeing	Aerospace Company			
AUTHOR AFFILIATIO	N: Boeing Aerospace	Company		
TITLE: Satell	ite Power System Syst	em Definition Stu	dy, Parts I and II	
DATE: December 197	7 VOLUMES: 7	PAGES: 1317	REFERENCES:None	
ACQUISITION NO: NA	180228-1,2,3,4,5,6,8 AS9-15196 RL T-1346 RD MA-664T		SOURCE: 4	
KEY WORDS: Satellite Structure Space Construction Space Transportation		System Uncertainties Systems Definition Transmission System		

SUBJECT: SYSTEMS E	SPSPO INDEX NO:	SE-3		
AUTHOR(S): Boeing A	erospace Company			
AUTHOR AFFILIATION:	Boeing Aerospace Co	mpany	· · · · · · · · · · · · · · · · · · ·	
TITLE: Solar Power Sa	tellite System Defini	tion Study Ph	ase I Final Report	
DATE: February-April	VOLUMES: 4	PAGES: 10	01 REFERENCES:	4
ACQUISITION NO: D18	0-25037-1 (Summary), 0-25037-2(Analyses/Tr 0-25037-3(System Desc 0-25037-4(Solar Cell	adeoffs),537 ription), 348	pp.	4
	nealing e Control e Structure	FS	Space Construction Space Transportation System Definition	n

SUBJECT: S	YSTEMS EN	SPSPO INDEX NO: SE-4				
AUTHOR(S):	Boeing Ae	rospace Company				
AUTHOR AFFIL	IATION:	Boeing Aerospace Comp	any			
	Power Sate red Conce	ellite System Definiti pt	on Study, Pa	rt III,	6.00 Jan	
DATE: March	1978	VOLUMES:	PAGES: 357	REFERENCES:	None	
ACQUISITION	NO:	NAS9-15196 DRL T-1346 DRD MA-664T D 180-24071-1		SOURCE:	4	
KEY WORDS:	Energy Co Energy Co Ground St	nversion		Power Distributi Satellite Struct Transmission Sys	ure	

T: SYSTEMS ENGINEERING SP					SPO	INDEX	NO:	SE-24
oeing Aer	ospace Compa	iny			(5)			
IATION:	Boeing Aero	space Com	pany					
Power Sa	tellite Syst	em Defini	tion Study	, Phas	e II			
er 1979	VOLUMES:	4	PAGES:	1272	REF	ERENCE	s:	32
mary, 37	pp.	Vol.III,		599 p		RCE:	4	
Energy Co	nversion		Space Cons	tructi	on			· · · · · · · · · · · · · · · · · · ·
	IATION: Power Samary, 37 scription, Energy Co	IATION: Boeing Aero Power Satellite System Of 1979  VOLUMES:	NO: D180-25461-1,2,3,4, mary, 37 pp. Scription, 340 pp. Volumes: Energy Collection Energy Conversion	LIATION: Boeing Aerospace Company  Power Satellite System Definition Study  VOLUMES: 4  PAGES:  NO: D180-25461-1,2,3,4,  mary, 37 pp. Vol.III, Synthesis, scription, 340 pp. Vol.IV, Analysis, 29  Energy Collection Satellite Energy Conversion Satellite Space Cons	Coeing Aerospace Company  LIATION: Boeing Aerospace Company  Power Satellite System Definition Study, Phase  Par 1979  VOLUMES: 4  PAGES: 1272  NO: D180-25461-1,2,3,4, Imary, 37 pp. Vol.III, Synthesis,599 proceedings, 340 pp. Vol.IV, Analysis, 296 pp.  Energy Collection Satellite Struct Space Construction	LIATION: Boeing Aerospace Company  Power Satellite System Definition Study, Phase II  Property 1979  VOLUMES: 4  PAGES: 1272  REFINATION: D180-25461-1,2,3,4, Immary, 37 pp. Vol.III, Synthesis,599 pp. Scription, 340 pp. Vol.IV, Analysis, 296 pp.  Energy Collection Satellite Structure Space Construction	LIATION: Boeing Aerospace Company  Power Satellite System Definition Study, Phase II  Prover Satellite System Definition Study, Phase II  PAGES: 1272  REFERENCE  NO: D180-25461-1,2,3,4,  mary, 37 pp. Vol.III, Synthesis,599 pp. Scription, 340 pp. Vol.IV, Analysis, 296 pp.  Energy Collection Satellite Structure Space Construction	Acceptable Company  LIATION: Boeing Aerospace Company  Power Satellite System Definition Study, Phase II  PAGES: 1272 REFERENCES:  NO: D180-25461-1,2,3,4, Imary, 37 pp. Vol.III, Synthesis,599 pp.  Scription, 340 pp. Vol.IV, Analysis, 296 pp.  Energy Collection Satellite Structure Space Construction

SUBJECT: SYSTEMS ENG	PSPO INDEX NO:	SE-30		
AUTHOR(S): Bresters,	A. R.			
AUTHOR AFFILIATION:	Hydronamic B. V.			
TITLE: Study on Infra Receiving Sta Europe)	astructure Considerat tions (SPS - Offshore	ions for Microw Rectenna Sitir	ave Energy Ground ng Study in West-	
DATE: November 1980	VOLUMES: 2	PAGES: 136	REFERENCES:	3
ACQUISITION NO: EST V. 1, Summary, 25 pp.	EC 4382/80/NL/PP (SC) V.2, Final	Report, 111 pp	SOURCE: 1	
<b>KEY WORDS:</b> Antenna Energy Co Ground St	11ection Recte	ore Rectenna nna Alternativo nna Design	es	

SUBJECT: SYSTEMS ENG	INEERING		SPSPO INDEX NO: SE-23
AUTHOR(S): Brown and	Root Development, Ir	ıc.	
AUTHOR AFFILIATION:	Brown and Root Deve	elopment, Inc.	
TITLE: Offshore Space	Center		
DATE: October 1979	VOLUMES:	PAGES: 43	REFERENCES: None
ACQUISITION NO: EF-0	082		SOURCE: 4
[기가 [하기 ]	lternatives constructability costs	Rectenna Desi Rectenna Mair Rectenna Mate	ntainability

SUBJECT: SYSTEMS ENGI	NEERING	s	PSPO INDEX NO:	SE-27
AUTHOR(S): Chan, C. H	•			
AUTHOR AFFILIATION:	Marshall Space Flig	ht Center		
TITLE: Pilot Signals	for Large Active Ret	ro-Directive Ar	rays	
DATE: August 1980	VOLUMES:	PAGES: 18	REFERENCES: 7	
ACQUISITION NO: NASA	N-TM-78310		SOURCE: 5	
KEY WORDS: Array Con Command S Frequency	ignals Point	Beam ing Control mission Path		

SUBJECT: SYSTEMS ENGI	NEERING		SPSPO INDEX NO: SE-25
AUTHOR(S): Chie, C. M Lindsey, W Scholtz, R	. C.	, A. V.	
AUTHOR AFFILIATION:	LinCom Corporation		
TITLE: SPS Reference Phase III	Phase Control System	- Final Repor	t for
DATE: January 1980	VOLUMES: 4	PAGES: 308	REFERENCES: 28
ACQUISITION NO: TR O Vol. I, Summary, 49 pp. Vol.II, Analysis, 106 p	하다 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그	lation, 89 pp	•
KEY WORDS: Antenna Er Array Cont Command Si	rol Pilot	Station Beam ng Control	

SUBJECT: SYSTEMS ENGI	SPSPO	INDEX	NO:	SE-32		
AUTHOR(S): Collins, I	P. Q.					2
AUTHOR AFFILIATION:	Imperial College of	Science and	Technol	ogy (Lo	ndon)	
TITLE: Feasibility of	Siting SPS Rectennas	Over the Sea				
DATE: 1980	VOLUMES:	PAGES: 12	REF	ERENCE	S: 26	5
100000000000000000000000000000000000000	l-9067/80/010133-12 ce Solar Power Review, 133-144	Vol. 1,	soul	RCE:	33	3
KEY WORDS: Ground Sta Offshore I Rectenna		Red	tenna Co tenna Do tenna M	esign		

NGINEERING		SPSPO INDEX	NO: SE-34
P. J. J. L.			
Harza Engineer	ing Company		
Interface Require	ments for a Solar P	ower System	
VOLUMES:	PAGES: 57	REFERENCES	; 8
DOE/ER-0032		SOURCE:	5
imates ocks	S	tability	
	P. J. J. L.  Harza Engineer  Interface Require  VOLUMES:  DOE/ER-0032  imates ocks	P. J. J. L.  Harza Engineering Company  Interface Requirements for a Solar P  VOLUMES: PAGES: 57  DOE/ER-0032  imates ocks	P. J. J. L.  Harza Engineering Company  Interface Requirements for a Solar Power System  VOLUMES: PAGES: 57 REFERENCES  DOE/ER-0032 SOURCE:  Cimates ocks Reliability Stability

SUBJECT: SYSTEMS EN	SPSPO INDEX NO: SE-1		
AUTHOR(S): Dunn, B. Collins,			
AUTHOR AFFILIATION	European Space Agency	/	
TITLE: Materials	Investigation for a Fai	led Spacecra	ft Antenna
DATE: 1978	VOLUMES:	PAGES: 13	REFERENCES: 5
ACQUISITION NO:	ESA Journal 78/3, Vol pp. 223-235	2.	SOURCE: 1
KEY WORDS: Anten Debon Failu			Fatigue Vibration Test

SYSTEMS EN	NGINEERING		SPS	SPO	INDEX	NO:	SE-11
Energy, U. National	S. Department of Aeronautics and Spac	e Administra	tion				
ILIATION:			e Admi	nis	tration		
		t Developmen	t and	Eva	luation	Prog	ram
er 1978	VOLUMES:	PAGES:					
N NO:	DOE/ER-0023			SOU	RCE:		5
Satellite	Control		Sys	tem	Defini	tion	
	Energy, U. National / ILIATION: Satellite Reference Power Dis Satellite	Satellite Power System Concept Reference System Report  YOLUMES:  N NO:  DOE/ER-0023	Energy, U.S. Department of National Aeronautics and Space Administra  ILIATION: U.S. Department of Energy National Aeronautics and Space  Satellite Power System Concept Development Reference System Report  PAGES:  NO:  DOE/ER-0023  Power Distribution Satellite Control	Energy, U.S. Department of National Aeronautics and Space Administration  ILIATION: U.S. Department of Energy National Aeronautics and Space Admi  Satellite Power System Concept Development and Reference System Report  PAGES: 310  Power Distribution Satellite Control  Spa	Energy, U.S. Department of National Aeronautics and Space Administration  ILIATION: U.S. Department of Energy National Aeronautics and Space Administration  Satellite Power System Concept Development and Evaluation Reference System Report  PAGES: 310 REFIBIBLE  N NO: DOE/ER-0023  Space System Satellite Control Space System	Energy, U.S. Department of National Aeronautics and Space Administration  ILIATION: U.S. Department of Energy National Aeronautics and Space Administration  Satellite Power System Concept Development and Evaluation Reference System Report  PAGES: 310 REFERENCE Bibliography  N NO: DOE/ER-0023  Power Distribution Space Transport Satellite Control System Definition	Energy, U.S. Department of National Aeronautics and Space Administration  ILIATION: U.S. Department of Energy National Aeronautics and Space Administration  Satellite Power System Concept Development and Evaluation Prog Reference System Report  PAGES: 310 REFERENCES: Bibliography  NO: DOE/ER-0023  Power Distribution Satellite Control  Space Transportation System Definition

SUBJECT: SYSTEMS	ENGINEERING		SPSPO INDEX NO: S	E-7
AUTHOR(S): Glaser,	P. E.			
AUTHOR AFFILIATION:	Arthur D. Lit	tle, Inc.		
TITLE: Method an	d Apparatus for	Converting Solar	Radiation to Electrica	1
DATE: December 1973	VOLUMES:	PAGES:	REFERENCES:	7
ACQUISITION NO:	U.S. Patent 3	3,781,647	SOURCE:	22
KEY WORDS: Antenna Energy Ground	Collection Station	* ************************************	Satellite Structur Transmission Path Transmission Syste	

SUBJECT:	SYSTEMS I	ENGINEERING			SPSPO INDEX NO: SE-		
AUTHOR(S):	Glaser, Almgren, Csigi, K Gaudet,	D. W.	W.				
AUTHOR AFFIL	IATION:	Arthur D. Little	, Inc.				
TITLE:		on of Solar Cells and e Applications	nd Arrays fo	r Pote	ntial Solar Pow	er	
DATE: March	1970	VOLUMES:	PAGES:	75	REFERENCES:	42	
ACQUISITION	NO:	NASA 9-15294			SOURCE:	4	
KEY WORDS:	Array De Cell Des Economic	ign		Indust	1 Programs rial Capacity cturing Process		

SUBJECT:	SYSTEMS EI	NGINEERING		SPSPO	INDEX NO	: SE-13
AUTHOR(S):	Gorman, D. Grant, C. Kyrias, G.	Rombach, J.	Skidmore, Thomas, R			
AUTHOR AFF	LIATION:	Martin Marietta Co	rporation		N2-048	
TITLE:	Orbital As	sembly and Maintenar	nce Study			
DATE: August	1975	VOLUMES:	PAGES: 25	REF	ERENCES:	None
ACQUISITIO	NO:	MCR-75-319 NAS9-14319		sou	RCE:	4
KEY WORDS:	Antenna Satellite Space Cons	Maintainability struction		Tran	smission S	ystem.

SUBJECT: SYSTEMS	PSPO INDEX NO: SE-10		
AUTHOR(S): Grum	nan Aerospace Corporati	on	
AUTHOR AFFILIATI	ON: Grumman Aerospace	Corporation	
TITLE: Orbital C	onstruction Demonstrati	on Study	
DATE: June 1977	VOLUMES: 3	PAGES: 551	REFERENCES: 104
ACQUISITION NO:	NSS-OC-RPO-12 V.1 - Summary (61 pp.) V.2 - Technical (339 p V.3 - Requirements (91	p.)	SOURCE: 4
	nna 11ite Control 11ite Structure		ace Automation ace Construction

SUBJECT:	SYSTEMS E	NGINEERING	SPSPO INDE	X NO: SE-17	
AUTHOR(S):	Guttman,	R. J. (Editor)			
AUTHOR AFF	LIATION:	Rensselaer Polyt	echnic Institut	e	
TITLE:	Solar Pow and Conve	er Satellites Desi	gn Consideratio Phase Control a	ns for Solar ( nd Rectenna Su	Collection ubsystems
DATE: June	1978	VOLUMES: 1	PAGES: 14	5 REFERENC	ES: 50
ACQUISITION	NO:	NAS9-15453		SOURCE:	4
KEY WORDS:		ollection		Pilot Beam Rectenna De Transmissio	

		ation tribution Alternatives		Rectenna Costs Rectenna Design	1	
ACQUISITION	NO:	NAS9-15453		SOURCE:	4	
DATE: Decembe	er 1978	VOLUMES:	PAGES: 116	REFERENCES:	21	
		er Satellite Recte and Parallel-Serie			eiving	
AUTHOR AFFIL	IATION:	Rensselaer Polyt	echnic Institute			
	uttmann, Borrego,					
SUBJEÇT: SYS	YSTEMS ENGINEERING S			SPSPO INDEX NO: SE-1		

UBJECT: SYSTEMS ENGINEERING			SPSPO INDEX NO: SE-14
AUTHOR(S): Hanley,	G, M.		
AUTHOR AFFILIATION:	Rockwell Internatio	nal	
TITLE: Satellit Identifi	e Power System (SPS) C cation and Assessment	oncept Definit	ion Study Key Issue
DATE: August 1977	VOLUMES:	PAGES: 34	REFERENCES: None
ACQUISITION NO:	SD 77-AP-0103-2		SOURCE: 4
Ground S	conversion Station Se Maintainability		Space Construction Space Transportation Transmission System

SUBJECT: SYSTEMS ENGINEERING		SPSPO INDEX NO:			SE-8		
AUTHOR(S):	Hanley,	G. M.					
AUTHOR AFFIL	IATION:	Rockwell Internati	ona 1				
TITLE:	Satellit	e Power Systems (SPS)	Concept Def	inition	Study F	inal	Report
DATE: April	1978	VOLUMES: 7	PAGES: 1	323 <b>REF</b>	ERENCES	3:	None
V.1-Summary(77	NO: V.3- pp.)V.4-	Requirements(86 pp) V Evolution(289 pp.) Design(188 pp.) V Operations(168 pp.)	.6-Technolog (129 p .7-Economics (299 p	p.) SOU	RCE:		4
KEY WORDS:	Ground S	onversion tation stribution	148	Space T	te Struc ranspor ssion S	tati	on

SUBJECT: SY	SYSTEMS ENGINEERING			SPSPO INDEX NO: SE-9		
AUTHOR(S):	Hanley,	G. M.				
AUTHOR AFFIL	IATION:	Rockwell Inter	national			
TITLE: Sate1 Desig	lite Powe n Definit	r Systems (SPS) ( ion Update	Concept Definition	Study - Point		
DATE: July 1	978	VOLUMES:	PAGES: 107	REFERENCES: None		
ACQUISITION	CQUISITION NO: SD78-AP-0113 NAS8-32475 DPD 558			SOURCE:		
KEY WORDS: Ground Station Power Distribution Satellite Control		Satellite Materials Satellite Structure Transmission System				

SUBJECT: SYSTEMS ENGINEERING			SPSPO INDEX NO: SE-16			
AUTHOR(S):	Hanley, G	. м.				
AUTHOR AFFIL	IATION:	Rockwell In	ternatio	nal		
TITLE:	Satellite	Power System	ns (SPS)	Concept Defin	ition Study Fin	al Report
DATE: March	1979	VOLUMES:	9	PAGES: 1336	REFERENCES	: 3
ACQUISITION	, NA	D 79-0010-1 t S8-32475 D558 MA-04	through -	7	SOURCE:	4
KEY WORDS:		ation Structure struction			Space Transpor Systems Defini Transmission S	tion

SUBJECT: SYSTEMS ENG		SPSPO INDEX NO: SE-22	
AUTHOR(S): Huie, H. I	1.		
AUTHOR AFFILIATION:	Marshall Space Flig	ght Center	
TITLE: Test of Conce	ntrator Solar Array I	Model for SEPS	
DATE: May 1979	VOLUMES:	PAGES: 78	REFERENCES: None
ACQUISITION NO: NASA	TM-78230		SOURCE: 4
KEY WORDS: Concentra Energy Co Energy Co	llection	Photovoltaics	

SUBJECT: SYSTEMS EN	SINEERING		SPSPO INDEX NO: SE-18
AUTHOR(s): Hung, J. Peebles,			
AUTHOR AFFILIATION:	University of Tenne	ssee	
TITLE: Accuracy Satellite	Analysis of Pointing	Control Syste	em of Solar Power
DATE: December 1978	VOLUMES:	PAGES: 67	REFERENCES: None
ACQUISITION NO:	NAS8-33065		SOURCE: 4
KEY WORDS: Antenna Array Co Command	ntrol		Beam ing Control lite Structure

SUBJECT: SYSTEMS ENGINEERING S			SPSPO INDEX NO: SE-6
AUTHOR(S): Jet Propu	1sion Laboratory		
AUTHOR AFFILIATION:	National Aeronautic	s and Space Ad	ministration
TITLE: Machine Intell	igence and Robotics:	Report of the	NASA Study Group
DATE: September 1979	VOLUMES:	PAGES: 19	REFERENCES: None
ACQUISITION NO: JPL	-730-51		SOURCE: 4
	Intelligence e Control tomation	Sp	ace Construction

SUBJECT: SYSTEMS ENGINEERING			SPSPO INDEX NO: SE-		
AUTHOR(s): Johnson,	R. W.			F.	
AUTHOR AFFILIATION:	Grumman Aerospace Co	rporation			
TITLE: Solar Pow	er Satellite: Putting	g It Together		ž.	
DATE: September 1979	VOLUMES:	PAGES: 4	REFERENCES:	None	
ACQUISITION NO: 001	8-9235/79/0900-0037		SOURCE:	6	
	sition e Materials e Structure		Construction Transportation		

SUBJECT: SYSTEMS ENGINEERING			SPSPO INDEX NO: S			
AUTHOR(S): Lindsay, Nalos, E.	T. A. J.					
AUTHOR AFFILIATION	Boeing Aerospa	ce Company				
TITLE: SPS Fiber Opt	ic Link Assessmer	nt				
DATE: January 1980	VOLUMES:	PAGES: 94	REFERENCES:	16		
[[[ [ 이 시간] 어디에 가는 [[ 아이 시간] 이 시간] 이 시간	180-25888-1 S 9-15636A		SOURCE:	4		
KEY WORDS: Array Con Command S Fiber Op	Signals	Pointing Contr	·o1			

SUBJECT: SYSTEMS ENGINEERING			PSPO INDEX NO: SE-		
AUTHOR(S): Raytheon	Company				
AUTHOR AFFILIATION:	Raytheon Company				
TITLE: Solar Pow Subsystem	er Satellite (SPS) Investigation Rep	Pilot Beam an ortPhase I	nd Cor	mmunication Link	
DATE: January 1979	VOLUMES:	PAGES:	76	REFERENCES:	10
(T) (100 C)	79-4032 tract NAS8-33157 1-8-PP-00800			SOURCE:	4
KEY WORDS: Frequency Offset Interference Effects Pilot Beam			- 27	atellite Control ransmission Path	

SUBJECT: SYSTEMS EN	GINEERING		SPSPO INDEX NO:	SE-20
AUTHOR(S): Reiff, P. Freeman, Cooke, D	J. W.			
AUTHOR AFFILIATION	: Rice University			
TITLE: Environment	al Protection of the	Solar Power Sate	llite	
DATE: 1979	VOLUMES:	PAGES: 23	REFERENCES: 2	5
ACQUISITION NO: By	Title, Progress in d Aeronautics, Vol.	Astronautics 71	SOURCE: 2	(6)
Sate11	ostatic Protecion ite Materials ite Structure			

UBJECT: SYSTEMS ENGINEERING			SPSPO INDEX NO:	SE-28
AUTHOR(S): Rice Unive	rsity			
AUTHOR AFFILIATION:	Rice University			
TITLE: Solar Power Sa	tellite Offshore Re	ctenna Study		
DATE: November 1980	VOLUMES:	PAGES: 257	REFERENCES: 6	
	CR 3348 8-33023		SOURCE:	
<b>KEY WORDS:</b> Antenna Energy Co Ground St	llection Rect	hore Rectenna enna Costs enna Design	*	

SUBJECT: SYSTEMS ENGINEERING			SPSPO INDEX NO: SE	E-37	
AUTHOR(S):	Rice Univ	ersity.			
AUTHOR AFFIL	IATION:	Rice University			
TITLE: Elec	trostatic I: Prot	Protection of th ection of the Sol	e Solar Power Sa ar Power Satelli	tellite and Rectenna; te	
DATE: November	1980	VOLUMES:	PAGES: 34	REFERENCES: 26	
ACQUISITION		A CR 3344 8 - 33023		SOURCE: 4	
KEY WORDS:	Charged F Electric Geophysic	Charge	Mitigatio Models Shielding		

SUBJECT: SYSTEMS ENG	JECT: SYSTEMS ENGINEERING SI		
AUTHOR(s): Taylor, R.	В.		
AUTHOR AFFILIATION:	Bovay Engineers, In	с.	
TITLE: Feasibilit Arrangemen	ty Study for Various A nt of the Ground Recte	pproaches to the pro	he Structural Design and oposed Satellite
DATE: May 1977	VOLUMES:	PAGES: 72	REFERENCES: None
ACQUISITION NO:	Contract NAS9-15280		SOURCE: 4
KEY WORDS: Rectenna ( Rectenna ( Rectenna		Re	ctenna Heat ectenna Maintainability ectenna Materials

SUBJECT: SYSTEMS ENG	INEERING		SPSPO INDEX NO: SE-29
AUTHOR(S): Tennessee,	University of		
AUTHOR AFFILIATION:	University of T	Tennessee	
TITLE: Satellite Powe	er System (SPS) A	Antenna Pointing Co	ntrol
DATE: November 1980	VOLUMES:	PAGES: 84	REFERENCES: 11
ACQUISITION NO: NASA NAS	CR 3350 8- 33604		SOURCE:
KEY WORDS: Antenna Antenna En Array Cont		Pointing Cont Satellite Con Satellite Str	trol

# SOCIAL ISSUES (CATEGORY SI)

Reports and other documents in this category cover a wide range of social issues and questions about the SPS concept, and describe the elements of the SPS Social Assessment CDEP and its results. The social implications of all key issues are described.

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### RELATED CATEGORIES:

Biologic Effects (BE)

Energy Alternatives and Policy (EA)

Environmental Effects (EE)

Economics and Finances (EF)

Power Generation and Transmission (PT)

Resources and Materials (RM)

Systems Engineering (SE)

SUBJECT: SOCIAL ISS	UES		SPSPO INDEX NO	: SI-34
AUTHOR(s): Arthur D.	Little, Inc.			
AUTHOR AFFILIATION	: Arthur D. Litt	1e, Inc.		
TITLE: Impacts a	and Benefits of a Industry	Satellite Power Sys	stem on the Elect	ric
DATE: July 1977	VOLUMES:	PAGES: 128	REFERENCES:	None
ACQUISITION NO:	C-80020 JPL 954639		SOURCE:	4
KEY WORDS: Liability Ownershi Pricing			Reliability Stability	

SUBJECT: SOCIAL IS	SUES	s	PSPO INDEX NO	): SI-35
AUTHOR(S): Asbury, J Mueller,				
AUTHOR AFFILIATION:	Argonne National La	boratory		1
TITLE: Solar Energy a	nd Electric Utilities	: Should They	Be Interfaced?	
DATE: February 1977	VOLUMES:	PAGES: 6	REFERENCES:	16
ACQUISITION NO: By	Title; Science, Vol.	195, pp.445-450	SOURCE: 7	
KEY WORDS: Economics Ownership Power Con	THE STATE OF THE	ng m Capacity m Storage		

UBJECT: SOCIAL ISSUES			SPSPO INDEX NO: ST-2
AUTHOR(S): Bachrach,	Α.		
AUTHOR AFFILIATION:	Environmental/R	esources Group	
TITLE: Satellite	Power System (SPS	) Public Acceptan	ce
DATE: October 1978	VOLUMES:	PAGES: 78	REFERENCES: 186
ACQUISITION NO:	HCP/R-4024-04		SOURCE: 5
	ental Concerns onal Concerns		Public Acceptance Public Outreach

SUBJECT: SOCIAL ISS	SUES	s	PSPO INDEX NO	: SI-11
AUTHOR(S): Bain, C. N	<b>1.</b>			
AUTHOR AFFILIATION:	PRC Energy Analysis	Company		
TITLE: Satellite	Power System (SPS) Mi	litary Implica	tions	
DATE: October 1978	VOLUMES:	PAGES: 44	REFERENCES:	19
ACQUISITION NO:	HCP/R-4024-11		SOURCE:	5
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SOCIAL IS	SUES		SPSPO INDEX NO:	SI-4
Hill, L. Santini,	G. D. J.			
LIATION:	PRC Energy Analys	is Company		
			Deployment of the	
er 1978	VOLUMES:	PAGES: 69	REFERENCES:	
NO:	ANL/EES-TM-23		SOURCE:	5
		Pop	ulation	
	Baldwin, Hill, L. Santini, Stenehjem LIATION:  Economic Satellite  NO:  Demograph Economics	Economic and Demographic Iss Satellite Power System (SPS er 1978 VOLUMES: NO: ANL/EES-TM-23 Demographics Economics	Baldwin, T. E. Hill, L. G. Santini, D. J. Stenehjem, E. J.  LIATION: PRC Energy Analysis Company  Economic and Demographic Issues Related to Satellite Power System (SPS)  er 1978 VOLUMES: PAGES: 69  NO: ANL/EES-TM-23  Demographics Language Poper System (SPS)	Baldwin, T. E. Hill, L. G. Santini, D. J. Stenehjem, E. J.  LIATION: PRC Energy Analysis Company  Economic and Demographic Issues Related to Deployment of the Satellite Power System (SPS)  er 1978 VOLUMES: PAGES: 69 REFERENCES: Bibliography  NO: ANL/EES-TM-23 SOURCE:

SUBJECT:	SOCIAL IS	SUES		SP	SPO INDEX NO: SI-14
AUTHOR(S):	Bloomquis Daurio, A Shotland,	. P.			
AUTHOR AFFI	LIATION:	PRC Energy Analysis	Company		
TITLE:	Satellite	Power System (SPS) P	reliminary	Socie	tal Assessment
			DACEC.	60	REFERENCES: 12
DATE: May 1	979	VOLUMES:	PAGES:	00	REFERENCES: 12
ACQUISITION	NO:	HCP/R-4024-01/14			SOURCE: 5

SPSPO INDEX NO: SI-23 SUBJECT: SOCIAL ISSUES AUTHOR(S): Bohn, J. G. Patmore, J. W. Zaininger, H. W. AUTHOR AFFILIATION: Systems Control, Inc. TITLE: Satellite Power System: Utility Impact Study PAGES: 72 REFERENCES: 37 DATE: September 1980 VOLUMES: SOURCE: 26 ACQUISITION NO: EPRI AP-1548 TPS 79-752 Power Regulation **KEY WORDS:** Economics Financial Regulation Institutional Concerns

SUBJECT: SOCIAL ISSUES	S	SI	PSPO INDEX NO: SI-27
(1) Carne	man, B. H. s, S. A. itzer, M.	(1) (2)	Peelle, E. Enk, G.
AUTHOR AFFILIATION:	(1) Oak Ridge Nation (2) Institute on Man	nal Laboratory n and Science	
TITLE: The Decentraliz Review of Activ		ology Assessmen	t Program:
DATE: May 1980	VOLUMES:	PAGES: 104	REFERENCES: 44
ACQUISITION NO: ORN	L/TM-7189		SOURCE: 13
KEY WORDS: Decentrali Demographi Institutio		Terrestrial S	olar

SUBJECT: SOCIAL ISS	SUES		SPSPO INDEX N	0: SI-6
AUTHOR(S): Christol,	c. Q.			
AUTHOR AFFILIATION:	PRC Energy Analysi	s Company		
TITLE: Satellite	Power System (SPS) I	nternational A	Agreements	7
DATE: October 1978	VOLUMES:	PAGES: 28	REFERENCES:	
ACQUISITION NO:	HCP/R-4024-08	3,995,120	SOURCE:	5
	ability ntal Concerns onal Concerns	R	icrowave Standar adio Spectrum pace Law	ds

SUBJECT: SOCIAL	ISSUES	SF	PSPO ĮNDEX NO	: SI-5
AUTHOR(S): Citize	ns' Energy Project			
AUTHOR AFFILIATION	ON: Citizens' Energy P	roject		
TITLE: Satell	ite Power System Program	Summary Series		
DATE: 1978	VOLUMES:	PAGES: 69	REFERENCES:	None
ACQUISITION NO:	By Title, 22 White	Papers	SOURCE:	31
Annual Control of the	nmental Concerns national Concerns ssues	Mi	nd Use litary Issues olic Outreach	*

SPSPO INDEX NO: SI-17 SUBJECT: SOCIAL ISSUES AUTHOR(S): Citizens' Energy Project AUTHOR AFFILIATION: Citizens' Energy Project Solar Space Satellites TITLE: 10 8 REFERENCES: PAGES: **VOLUMES:** DATE: June 1978 SOURCE: 31 ACQUISITION NO: By Title Institutional Concerns KEY WORDS: Decentralization Power Regulation **Economics** Public Acceptance Environmental Concerns

SPSPO INDEX NO: SI-29 SUBJECT: SOCIAL ISSUES AUTHOR(s): (1) Crist, M. (2) Hill, J. (3) Kotin, A. (2) Rabe, J. A. Hill, J. Kotin, A. D. None AUTHOR AFFILIATION: Environmental Resources Group Kotin, Regan and Mouchly, Inc. TITLE: Satellite Power System (SPS) Utility Integration: Institutional Planning and Operational Issues PAGES: 200 REFERENCES: **VOLUMES:** DATE: October 1980 Bibliography ACQUISITION NO: PRC - EAC R-4015 SOURCE: 5 KEY WORDS: Economics International Concerns Financial Regulation Power Regulation Institutional Concerns Resource Use

SUBJECT: SOCIAL	ISSUES		SPSPO INDEX NO: SI-30
AUTHOR(s): (1) C (2) G (3) M	riswell, D. R. laser, P. E. layur, R.	(4) O'Leary, B (4) O'Neill, G (5) Vajk, J. P	i. K.
AUTHOR AFFILIAT: Inc. (3) Urban Dev (5) Science Appli	ION: (1) Lunar and elopment Institute (cations, Inc.	Planetary Institute (India) (4) Princet	(2) Arthur D. Little, on University
TITLE: The Role o	of Space Technology i	in the Developing Co	ountries
DATE: 1980	VOLUMES:	PAGES: 11	REFERENCES: None
ACQUISITION NO:	0191-9067/80/010097 Space Solar Power F pp. 97-107		SOURCE: 33
	omics gy Options rnational Concerns	Population Resource Use	

SUBJECT: SOCIAL ISSU	SJECT: SOCIAL ISSUES		PSPO INDEX NO: SI-33
AUTHOR(S): Daurio, A	. P.		
AUTHOR AFFILIATION:	PRC Energy Analysis	Company	
TITLE: Determinants of SPS Program	f a Strategy for Inte	rnational Parti	cipation in an
DATE: December 1980	VOLUMES:	PAGES: 54	REFERENCES:
ACQUISITION NO: DOE	/ER/10041-T13		SOURCE: 5
KEY WORDS: Economics Energy Op Financial	tions Regulation	Inter	national Concerns national Interest Regulation

UBJECT: SOCIAL ISSUES			PSPO INDEX NO: SI-22
AUTHOR(S): Duffy-Arms	trong, M.		
AUTHOR AFFILIATION:	SRI International		
TITLE: A Technology As Impediments to	sessment of Solar End Implementation of Sol	48. THE RESERVE OF THE PROPERTY OF THE PROPERT	Community
DATE: November 1979	VOLUMES:	PAGES: 119	REFERENCES: 35
ACQUISITION NO: DOE	/EV-0059		SOURCE: 5
KEY WORDS: Decentrali Economics Financial	ization Regulation	Industrý Institutiona Terrestrial	

SUBJECT:	SOCIAL IS	SUES		SPSPO INDEX NO	<b>):</b> SI-13
AUTHOR(S):	Edler, H.	G.			
AUTHOR AFFIL	IATION:	PRC Energy Analysis	Company		
TITLE:	Satellite tional St	Power System (SPS): ructures in the Solar	An Overview of Power Satelli	of Prospective On ite Field	rganiza-
DATE: October	1978	VOLUMES:	PAGES: 16	REFERENCES:	15
ACQUISITION	NO:	TID-29094		SOURCE:	5
KEY WORDS:	Economics Financial Internati	Regulation onal Interest		Power Regulati	on

SUBJECT: SOCIAL ISSUES	5	s	PSPO INDEX	NO: SI-26
AUTHOR(S): Energy, U.	S. Department of			
AUTHOR AFFILIATION:	U. S. Department o	of Energy		
TITLE: Some Questions	and Answers About t	he Satellite Powe	er System (S	SPS)
DATE: January 1980	VOLUMES:	PAGES: 44	REFERENCE	<b>S:</b> 67
ACQUISITION NO: DOE	/ER-0049/1		SOURCE: 5	5
KEY WORDS: Damage Lia Economics Environmen	bility tal Concerns	Institutiona Internationa Land Use	28 500	

SUBJECT: SOCIAL ISS	JES	\$	SPSPO INDEX NO: SI-19
AUTHOR(S): Forum for Technolog	the Advancement o	f Students in Scie	ence and
AUTHOR AFFILIATION:	Forum for the A Science and Tec	dvancement of Stud	dents in
TITLE: Satellite Pow	er System (SPS) FA	SST Briefing	
DATE: July 1979	VOLUMES:	PAGES: 76	REFERENCES: None
ACQUISITION NO: By	Title		SOURCE: 38
Environm	lization ental Concerns ional Concerns	Internationa Military Iss Student Inte	ues

SPSPO INDEX NO: SI-15 SUBJECT: SOCIAL ISSUES AUTHOR(S): George Washington University AUTHOR AFFILIATION: George Washington University TITLE: Social Assessment of On-Site Solar Energy PAGES: 235 REFERENCES: 197 DATE: April 1979 **VOLUMES:** SOURCE: 5 ACQUISITION NO: HCP/R4040-02 Public Acceptance KEY WORDS: Decentralization Resource Use Economics Energy Options Terrestrial Solar

SUBJECT: SOCIAL ISSUES			SPSPO INDEX NO: SI-24
AUTHOR(S): George Wasi	hington University	42	23. S-1
AUTHOR AFFILIATION:	George Washington Un	iversity	
TITLE: Energy Implicat	ions of an Aging Popu	lation	
DATE: August 1980	VOLUMES:	PAGES: 64	REFERENCES: 17
ACQUISITION NO: DOE	/ER/10041-01		SOURCE: 5
KEY WORDS: Demographi Economics Population			

SUBJECT: SOCIAL ISSUES SPSPO INDEX NO: SI-16 AUTHOR(S): Gerlach, L. P. AUTHOR AFFILIATION: University of Minnesota TITLE: Technological Innovation and Social Exploration in Economic Growth and Energy Development PAGES: 12 42 REFERENCES: **VOLUMES: DATE:** May 1977 SOURCE: 2 ACQUISITION NO: 77-558 Environmental Concerns KEY WORDS: Decentralization Public Acceptance Economics Resource Use Energy Options

SPSPO INDEX NO: SI-7 SUBJECT: SOCIAL ISSUES AUTHOR(s): Gorove, S. AUTHOR AFFILIATION: PRC Energy Analysis Company TITLE: Satellite Power System (SPS) International Agreements VOLUMES: PAGES: 80 REFERENCES: DATE: October 1978 Bibliography SOURCE: ACQUISITION NO: HCP/R-4024-12 KEY WORDS: International Concerns Key Issues Radio Spectrum Space Law

SUBJECT: SOCIAL I	SSUES	s	PSPO INDEX N	IO: SI-12
AUTHOR(S): Hazelric	g, G. A.		(3)	
AUTHOR AFFILIATION	ECON Incorporate	ed		
	l and Legal Implication	ations of Developin	ng and Operatir	ıg
DATE: August 1977	VOLUMES:	PAGES: 244	REFERENCES: Bibliography	
ACQUISITION NO:	77-195-1 JPL 954652		SOURCE:	4
[	cs tional Concerns y Issues	Sa	wer Regulation tellite Vulner ace Law	

SUBJECT: SOCIAL ISSUES			SPSPO INDE	x NO:	SI-25
AUTHOR(s): Klineberg	, S. I.				
AUTHOR AFFILIATION:	Rice University				
TITLE: Social Acce The Near Te	ptability of Satell rm Outlook	ite Power Systems	(SPS):		
DATE: May 1980	VOLUMES:	PAGES: 58	REFERENC Bibliogn		
ACQUISITION NO: By	Title		SOURCE:	13	X. —————
KEY WORDS: Decentral Power Reg Public Ac	ulation				**

SUBJECT:	SOCIAL ISS	SUES		SP	SPO I	NDEX NO	): SI-8
AUTHOR(S):	Kotin, A.	D.					
AUTHOR AFFI	LIATION:	Allan D. Kotin Ed	onomic Cons	ultant	S		
TITLE:	Satellite to Satell	Power System (SPS) ite Power System Mic	State and L rowave Rece	ocal R iving	egulat Antenn	ions as a Facili	Applied ties
DATE: Octobe	r 1978	VOLUMES:	PAGES:	90	REFER	ENCES:	164
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KEY WORDS:		Regulation onal Concerns			nd Use wer Re	gulation	

SUBJECT:	SOCIAL ISS	SUES		SP	SPQ INDEX I	NO: SI-9
AUTHOR(S):	Ladwig, A. David, L.					· · · · · · · · · · · · · · · · · · ·
AUTHOR AFFI	LIATION:	Forum for the and Technology		Studer	nts in Scienc	æ
				ticina		
TITLE:	Satellite	Power System (SP	S) Student Par	стстра	cion	
DATE: Octobe		Power System (SP	PAGES:		REFERENCES	148

SI-32 SPSPO INDEX NO: SUBJECT: SOCIAL ISSUES AUTHOR(S): Mc Neal, S. R. AUTHOR AFFILIATION: PRC Energy Analysis Company TITLE: Satellite Power System (SPS) Public Outreach Experiment REFERENCES: 67 PAGES: 66 **VOLUMES:** DATE: December 1980 SOURCE: 5 ACQUISITION NO: DOE/ER/10041-T11 Public Outreach KEY WORDS: Institutional Concerns Student Interest International Concerns Public Acceptance

SUBJECT: SOCIAL ISSUES

AUTHOR(S): Marsh and McLellen, Inc.

AUTHOR AFFILIATION: Marsh and McLellen, Inc.

TITLE: Satellite Power System (SPS) Initial Insurance Evaluation

DATE: September 1980 VOLUMES: PAGES: 31 REFERENCES: 11

ACQUISITION NO: DOE/ER/21059-01 SOURCE: 5

KEY WORDS: Damage Liability Economics Institutional Concerns

SUBJECT: SOCIAL ISS	SUES		SPSPO	INDEX NO:	SI-36
AUTHUR(S): Christia	. R. (1) n, J. E. (1) W. L. (1) D. (1)	Hagler, H. (2) Shanker, R. (2 Koppelman, L. Greenstein, D.	) (2)		
AUTHOR AFFILIATION:	(1) Oak Ridge (2) Resource P	National Laborat lanning Associat	ory es, Inc.		
TITLE: Market Assessm	ent of Fuel Cell	Total Energy Sys	tems		
DATE: April 1978	VOLUMES:	PAGES: 9	9 REFE	RENCES:	19
ACQUISITION NO: W-7	405-ENG-26		SOUR	CE:	13
KEY WORDS: Building Commerci Economic	al Market		Perf	gy Analysis ormance lation	

SUBJECT: SOCIAL ISS	SUES		SPSPO INDEX NO	: SI-10
AUTHOR(s): Naisbitt,	J.			
AUTHOR AFFILIATION:	PRC Energy Analysis	Company		7
TITLE: Satellite	Power System (SPS) Ce	ntralization/	Decentralization	
DATE: October 1978	VOLUMES:	PAGES: 63	REFERENCES: Bibliography	
ACQUISITION NO:	HCP/R-4024-09		SOURCE:	5
KEY WORDS: Economics Energy Opt Power Regi			ublic Acceptance	

SPSPO INDEX NO: SI-18 SUBJECT: SOCIAL ISSUES AUTHOR(S): National Space Institute AUTHOR AFFILIATION: National Space Institute TITLE: Solar Power Satellite Issue Guides PAGES: 40 REFERENCES: VOLUMES: DATE: October 1978 Bibliography SOURCE: 38 ACQUISITION NO: By Title Military Issues KEY WORDS: Environmental Concerns Satellite Vulnerability Institutional Concerns International Concerns

SUBJECT: SOCIAL IS	SUES		SPSPO INDEX	NO: SI-3
AUTHOR(S): Ozeroff,	M. J.			
AUTHOR AFFILIATION:	PRC Energy Analysi	is Corporation		
TITLE: Satellite	Power System (SPS)	Military Implic	ations	
DATE: October 1978	VOLUMES:	PAGES: 43	REFERENCES Bibliography	<b>!</b>
ACQUISITION NO:	HCP/R-4024-01		SOURCE:	5
Military	onal Concerns Issues Vulnerability			

UBJECT: SOCIAL ISSUES			SPSPO INDEX NO: SI-2	0
AUTHOR(S): Poch, L. A. Wolsko, T.	D.			
AUTHOR AFFILIATION:	Argonne Nationa	1 Laboratory		
TITLE: A Review of the	Nuclear Safegua	rds Problem		
DATE: October 1979	VOLUMES:	PAGES: 19	REFERENCES: 13	
ACQUISITION NO: ANL/EES-TM-67			SOURCE: 5	
KEY WORDS: Institution Internation Public Acce	nal Concerns			

SUBJECT: SOCIAL ISSUE		SPSPO INDEX NO: S	I-31	
AUTHOR(s): PRC Energy	Analysis Company			
AUTHOR AFFILIATION:	PRC Energy Analysis	Company		
TITLE: Satellite Power	System (SPS) Societa	al Assessment		i Dip
DATE: December 1980	VOLUMES:	PAGES: 55	REFERENCES: 31	
ACQUISITION NO: DOE	/ER/10041-T12		SOURCE: 5	
KEY WORDS: Economics Energy Opt Environmen	tions ntal Concerns	Inte	itutional Concerns rnational Concerns ic Outreach	

SUBJECT: SOCIAL ISSUES			SPSPO INDEX NO: SI-21
AUTHOR(S): Ritschard,	R. L.		
AUTHOR AFFILIATION:	Lawrence Berkeley La	aboratory	
TITLE: Assessment of So Community-Level	lar Energy Within a Studies	Community: S	ummary of Three
DATE: October 1979	VOLUMES:	PAGES: 38	REFERENCES: 3
ACQUISITION NO: DOE/	EV-0054		SOURCE: 5
KEY WORDS: Decentrali Economics Institutio	zation onal Concerns	Land Use Public Acce Terrestrial	

SUBJECT: SOCIAL ISS	UES	s	PSPO INDEX NO	SI-1
AUTHOR(S): Ruth, J. Westphal,	w.			
AUTHOR AFFILIATION:	European Space Age	ency		
TITLE: Study on	European Aspects o	f Solar Power Sate	ellites	
DATE: June 1979	VOLUMES:	PAGES: 131	REFERENCES: Bibliography	
ACQUISITION NO:	3705/78/F/DK(SC)		SOURCE:	1
KEY WORDS: Internati Western E	onal Interest urope			

## SPACE TRANSPORTATION (CATEGORY ST)

Reports in this category deal only with space transportation technology, advancements and concepts and are applicable to space ventures in general.

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Economics and Finances (EF)

Resources and Materials (RM)

Systems Analyses (SA)

Space Utilization (SU)

SPSPO INDEX NO: ST-6 SUBJECT: SPACE TRANSPORTATION AUTHOR(S): Alabama, University of AUTHOR AFFILIATION: University of Alabama TITLE: The Final Report of the SPS Space Transportation Workshop REFERENCES: 9 PAGES: 140 **VOLUMES:** DATE: October 1980 SOURCE: 4 ACQUISITION NO: By Title, NAS 8 - 33132 Heavy Lift Launch Vehicle KEY WORDS: Cargo Vehicle Orbit Transfer Electric Vehicle Engineering Constraints Personnel Launch Vehicle

SUBJECT: SPACE TRANSPORTATION SPSPO INDEX NO: ST-7 AUTHOR(S): Battelle Columbus Laboratories AUTHOR AFFILIATION: Battelle Columbus Laboratories Satellite Power Systems (SPS) Space Transportation Cost Analysis TITLE: and Evaluation PAGES: 138 DATE: November 1980 **VOLUMES:** REFERENCES: 10 SOURCE: 5 ACQUISITION NO: DOE/ER-0086 Heavy Lift Launch Vehicle Cargo Vehicle KEY WORDS: Orbit Transport Cost Personnel Launch Vehicle Electric Vehicle

ST-3 SPSPO INDEX NO: SPACE TRANSPORTATION SUBJECT: AUTHOR(S): Boeing Aerospace Company AUTHOR AFFILIATION: Boeing Aerospace Company TITLE: SYSTEMS CONCEPTS FOR STS - Derived Heavy Lift Launch Vehicle Study PAGES: 14 REFERENCES: **VOLUMES:** None DATE: June 1976 SOURCE: ACQUISITION NO: NAS 9-14710 DRL-T-1183 DRD-MA48T KEY WORDS: Thruster Concept Cost Payload Space Shuttle

SPSPO INDEX NO: ST-2 SUBJECT: SPACE TRANSPORTATION AUTHOR(s): Helms, I. L. (Editor) AUTHOR AFFILIATION: National Aeronautics and Space Administration TITLE: Advanced Propulsion Comparison Study PAGES: 205 REFERENCES: **VOLUMES:** 53 DATE: April 1973 SOURCE: ACQUISITION NO: By Title Nuclear Rocket KEY WORDS: Chemical Rocket Solar Electric **Economics** Space Shuttle Nuclear Electric

SUBJECT: SPACE TRANS	PORTATION		SPSPO INDEX NO	: ST-10
AUTHOR(S): (1) Hertz (1) Sun, (2) Jones	berg, A. K. , W. S.			
AUTHOR AFFILIATION:	(1) University (2) Lockheed M	of Washington issiles and Space (	Company	
TITLE: A Laser Powere	ed Flight Transpo	rtation System		
DATE: August 1978	VOLUMES:	PAGES: 30	REFERENCES:	28
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KEY WORDS: Cost Laser Roc Orbit Tra	cket	Payload Thruster Concept		

SUBJECT: SPACE TRANS	ECT: SPACE TRANSPORTATION			ST-11
AUTHOR(S): Kramer, P. Buhler, R.	. R. . D.			
AUTHOR AFFILIATION:	Universitat St	uttgart (Germany)		
TITLE: Hybrid Rocket, Transportation	/Air-Breathing Pr n - Project ITUST	opulsion for Balli RA	stic Space	
DATE: April 1979	VOLUMES:	PAGES: 10	REFERENCES:	21
ACQUISITION NO: 79.	-7038		SOURCE: 2	
KEY WORDS: Cargo Vel Payload Thruster				

SUBJECT: SPACE TRANS	SPORTATION	PSPO INDEX NO: ST-4	
AUTHOR(S): Lockheed	Missiles and Space	Company, Inc.	
AUTHOR AFFILIATION	: Lockheed Missile	es and Space Company	, Inc.
TITLE: Laser Rocket	System Analysis St	tudy	
DATE: August 1978	VOLUMES:	PAGES: 190	REFERENCES: 20
ACQUISITION NO: L	MSC-D564671A		SOURCE: 4
KEY WORDS: Cost Laser R Propell	ocket	Thruster Concept	

SUBJECT: SPACE TR	SPACE TRANSPORTATION		SPSPO INDEX NO: ST-		
AUTHOR(S): Rice,	Ξ. Ε.		*3		
AUTHOR AFFILIATIO	N: Battelle Columb	us Laboratories			
TITLE: Energy Impa Launch Vehi	ct Assessment of NAS cles	A's Past, Present	and Future Space		
DATE: May-June 197	8 VOLUMES:	PAGES: 7	REFERENCES: 20		
ACQUISITION NO:	By Title; Journal of Vol. 2, No. 3, pp 18		SOURCE:		
KEY WORDS: Energy Payloa Techno					

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AUTHOR(s):	Weiss, R. Pirri, A. Kemp, N.	N.				
AUTHOR AFF	LIATION:	Physical Science	s, Inc.			
TITLE: Lase	r Propulsio	on				
DATE: Marc	h 1979	VOLUMES:	PAGES:	9	REFERENCES:	30
ACQUISITIO	NO: VOT	ronautics and Aero . 17, No. 3 50-58	onautics		SOURCE:	
KEY WORDS:	Engineer Laser Ro Propella				hermal Systems hruster Concept	

SUBJECT: SPACE TRANSPORTATION S			SPSPO INDEX NO: ST-5
AUTHOR(S): Woodcock,	G. R.		
AUTHOR AFFILIATION:	Boeing Aerospac	e Company	
TITLE: Solar Power Sa Analysis	tellite System D	efinition Study, Sp	ace Transportation
DATE: June 1980	VOLUMES:	PAGES: 150	REFERENCES: 9
ACQUISITION NO: D180 NAS	-25969-5 9-15636		SOURCE:
KEY WORDS: Chemical R Economics Payload	Rocket	Propellant Space Shuttle Solar Electric	

SPSPO INDEX NO: ST-8 SUBJECT: SPACE TRANSPORTATION AUTHOR(S): Wolfe, M. G. AUTHOR AFFILIATION: Aerospace Corporation TITLE: Satellite Power System (SPS) Transportation Cost Assessment Study REFERENCES: PAGES: DATE: January 1981 **VOLUMES:** 87 45 ACQUISITION NO: ATR-81 (7898)-1 SOURCE: 27 NAS Contract PRM-7919687 Heavy Lift Launch Vechicle KEY WORDS: Cargo Vehicle Orbit Transport Cost Personnel Launch Vehicle Electric Vehicle

# SPACE UTILIZATION (CATEGORY SU)

The space utilization category includes reports and papers concerning a wide range of issues and interests about exploring and using space (including other planets) to fulfill and expand upon man's social needs and goals.

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Technology Theory

Unmanned Exploration

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#### RELATED CATEGORIES:

Biologic Effects (BE)

Environmental Effects (EE)

Economics and Finances (EF)

Resources and Materials (RM)

Systems Analyses (SA)

Systems Engineering (SE)

Space Transportation (ST)

SUBJECT: SPACE UTIL	IZATION	s	PSPO INDEX NO	: SU-7
AUTHOR(s): Abdulezer,	L.			
AUTHOR AFFILIATION:	Polytechnic Institut	e of New York		
TITLE: Considerat	tion in the Design of	Large-Scale Sp	ace Habitats	
DATE: November 1977	VOLUMES:	PAGES: 16	REFERENCES:	16
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AUTHOR(S): American I	nstitute of Aeronaut	ics and Astronau	utics
AUTHOR AFFILIATION:	American Institute	of Aeronautics a	and Astronautics
TITLE: Projected Space 2000-2020 Time	Technologies, Missi Period	ons and Capabil	ities in the
DATE: January 1981	VOLUMES:	PAGES: 208	REFERENCES: 85
ACQUISITION NO: By T	itle		SOURCE: 2
KEY WORDS: Communicat Future Pro Industrial	jections	Manned Flight Material Reson Satellite Uses	

SUBJECT: S	UBJECT: SPACE UTILIZATION			SPSPO INDEX NO: SU-19
AUTHOR(S):	(1) Arnol (2) Duke,	d, J. R. (Ed.) M. B. (Ed.)		
AUTHOR AFF	LIATION:	(1) University of C (2) NASA Johnson Sp		)iego)
TITLE: Su	mmer Works	hop on Near-Earth Re	sources	
DATE:	1978	VOLUMES:	PAGES: 107	REFERENCES: 61
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KEY WORDS:	Lunar M Materia	ining 1 Resources		

SUBJECT: SPACE UTI	LIZATION		SPSPO INDEX	NO: SU-11
AUTHOR(S): Criswell,	D. R.			
AUTHOR AFFILIATION:	Lunar and Planet	ary Institute		
TITLE: Extraterr	estrial Materials	Processing and Co	onstruction	
DATE: September 1978	VOLUMES:	PAGES: 474	REFERENCES	: 102
ACQUISITION NO: By	Title		SOURCE:	18
KEY WORDS: Industria Lunar Min Manufactu	ing	Mate	rial Processes rial Resources ess Designs	

SU-8 SPSPO INDEX NO: SUBJECT: SPACE UTILIZATION Freedman, R. S. AUTHOR(S): AUTHOR AFFILIATION: Polytechnic Institute of New York TITLE: Techniques of Optimization Applied to Space Industrialization: An Introduction PAGES: REFERENCES: **VOLUMES:** DATE: November 1977 The Polytechnic Engineer 11 SOURCE: ACQUISITION NO: Vol. XVIII, No. 1 pp. 44-47, 56 KEY WORDS: Industrialization Space Properties Manufacturing Material Resources

SUBJECT: SPACE UTILIZATION SU-24 SPSPO INDEX NO: AUTHOR(S): Galloway, E. AUTHOR AFFILIATION: International Institute of Space Law TITLE: The Future of Space Law DATE: October 1976 **VOLUMES:** PAGES: 11 REFERENCES: 35 ACQUISITION NO: IAF-ISL-76-06; 27th International SOURCE: 42 Astronautical Congress (Anaheim) KEY WORDS: International Cooperation Slot Availability Outer Space Treaty Space Law Satellite Uses Spectrum Usage

SPSPO INDEX NO: SU-23 SUBJECT: SPACE UTILIZATION AUTHOR(s): Gehrig, J. J. AUTHOR AFFILIATION: U. S. Senate Staff TITLE: Geostationary Orbit - Technology and Law REFERENCES: 28 PAGES: 30 **VOLUMES:** DATE: October 1976 SOURCE: ACQUISITION NO: IAF-ISL-76-30; 27th 42 International Astronautical Congress (Anaheim) KEY WORDS: Communications Slot Availability Spectrum Usage International Cooperation Satellite Uses

SPSPO INDEX NO: SU-10 SUBJECT: SPACE UTILIZATION AUTHOR(S): Gorove, S. University of Mississippi AUTHOR AFFILIATION: The Geostationary Orbit: Issues of Law and Policy TITLE: 120 18 July 1979 REFERENCES: PAGES: **VOLUMES:** DATE: American Journal of International Law SOURCE: ACQUISITION NO: 12 Vol. 73, No. 3 pp. 444-461 KEY WORDS: Slot Availability Bogota Declaration Space Law International Cooperation Spectrum Usage Outer Space Treaty

SUBJECT: SPACE UTILIZATION			SPSPO I	NDEX	NO:	SU-18
AUTHOR(S): Grey, J. (	Ed.)	•				
AUTHOR AFFILIATION:	American Institute o	of Aeronautics	and Ast	ronaut	ics	
TITLE: Space Manufac	turing Facilities 2 -	- Space Coloni	es			
DATE: September 1977	VOLUMES:	PAGES: 367	REFER	RENCES	5: 58	36
ACQUISITION NO: By T	Title (Proceedings of nceton/AIAA Conference		SOUR	CE: 2		
KEY WORDS: Energy Son Industria Lunar Min	lization	Manned Flight Space Coloni: Space Transm	zation			

SUBJECT: SPACE UTILI	ZATION		SPSPO	INDEX N	NO: SU-20
AUTHOR(S): Grey, J. Krop, C.	(Ed.) (Ed.)				
AUTHOR AFFILIATION:	American Institut	e of Aeronautic	s and As	tronauti	ics
TITLE: Space Manufac	turing III		19 <b></b>		
DATE: 0-4-1-1070		DACTO: 505	lacer	DENCES	959
DATE: October 1979	VOLUMES:	PAGES: 585	KEFE	RENCES	; 303
Fou	itle; Proceedings of the th Princeton/AIAA Conference 1979)		SOUR	RCE: 2	2
KEY WORDS: Economics Energy So Habitat R	urce Mar	dustrialization nned Flight ace Colonization	•		
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SPSPO INDEX NO: SU-1 SPACE UTILIZATION SUBJECT: AUTHOR(S): Harford, J. J. American Institute of Aeronautics and Astronautics AUTHOR AFFILIATION: A Rush of Space Programs TITLE: PAGES: 10 None REFERENCES: VOLUMES: DATE: January 1979 2 SOURCE: Astronautics and Aeronautics ACQUISITION NO: January 1979 pp. 56-65 KEY WORDS: International Cooperation Satellite Uses Manned Flight Space Experiments Unmanned Exploration National Programs

SPSPO INDEX NO: SU-3 SUBJECT: SPACE UTILIZATION AUTHOR(s): Hellman, H. AUTHOR AFFILIATION: Omni Magazine TITLE: Artful Dodger of the Physical World REFERENCES: PAGES: **VOLUMES:** 9 None DATE: June 1979 SOURCE: ACQUISITION NO: OMNI, Vol. 1, No. 9 10 pp. 44-49, 108-110 KEY WORDS: Communications **Particles** Energy Source Theory Neutrino

SPSPO INDEX NO: SU-9 SUBJECT: SPACE UTILIZATION AUTHOR(S): Homatas, G. Polytechnic Institute of New York AUTHOR AFFILIATION: Man Powered Flight in a Space Habitat TITLE: 5 November 1977 REFERENCES: PAGES: DATE: **VOLUMES:** 11 The Polytechnic Engineer SOURCE: ACQUISITION NO: Vol. XVIII, No. 1 pp. 42-43, 47, 56 Habitat Requirements KEY WORDS: Manned Flight

SPSPO INDEX NO: SUBJECT: SU-5 SPACE UTILIZATION Mc Hugh, D. AUTHOR(S): AUTHOR AFFILIATION: Polytechnic Institute of New York TITLE: Space Industrialization: Redefining the World PAGES: 14 REFERENCES: **VOLUMES:** DATE: 33 November 1977 11 The Polytechnic Engineer SOURCE: ACQUISITION NO: Vol. XVIII, No. 1 pp. 6-17, 55-56 Space Colonization **Energy Source** KEY WORDS: Industrialization Manufacturing

SPSPO INDEX NO: SUBJECT: SU-15 SPACE UTILIZATION AUTHOR(S): Marshall Space Flight Center AUTHOR AFFILIATION: National Aeronautics and Space Administration TITLE: Space Colonization by the Year 2000 -- An Assessment PAGES: REFERENCES: 60 None **VOLUMES:** DATE: January 1975 SOURCE: 4 ACQUISITION NO: By Title KEY WORDS: **Economics** Space Properties Habitat Requirements Space Colonization

SPSPO INDEX NO: SU-2 SUBJECT: SPACE UTILIZATION AUTHOR(S): Mokhoff, N. AUTHOR AFFILIATION: Institute of Electrical and Electronic Engineers Communications and Microwave--Orbit and Spectrum Congestion TITLE: REFERENCES: None PAGES: January 1980 **VOLUMES:** DATE: 6 SOURCE: ACQUISITION NO: 0018-9235/80/0100-0038 KEY WORDS: Interference Effects Slot Availability International Cooperation Space Transmission National Programs Spectrum Usage

SPSPO INDEX NO: SU-17 SUBJECT: SPACE UTILIZATION AUTHOR(S): National Aeronautics and Space Administration AUTHOR AFFILIATION: National Aeronautics and Space Administration TITLE: A Forecast of Space Technology: 1980-2000 REFERENCES: 243 PAGES: 312 **VOLUMES:** DATE: January 1976 SOURCE: 4 ACQUISITION NO: NASA SP-387 Space Colonization KEY WORDS: Economics Technology National Programs Unmanned Exploration Satellite Uses

SPSPO INDEX NO: SU-16 SUBJECT: SPACE UTILIZATION AUTHOR(S): National Research Council AUTHOR AFFILIATION: National Academy of Sciences TITLE: Materials Processing in Space PAGES: 75 **VOLUMES:** REFERENCES: None DATE: 1978 SOURCE: ACQUISITION NO: By Title Space Properties KEY WORDS: Industrialization Space Shuttle Manufacturing Material Processes

SPSPO INDEX NO: SU-21 SUBJECT: SPACE UTILIZATION AUTHOR(S): O'Neill, G. K. AUTHOR AFFILIATION: Princeton University TITLE: Space Colonies and Energy Supply to Earth PAGES: 5 REFERENCES: 23 **VOLUMES:** DATE: December 1975 SOURCE: 7 ACQUISITION NO: By Title; Vol. 190, pp. 943-947 **KEY WORDS:** Economics Manufacturing Energy Source Satellite Uses Industrialization Space Colonization

SPSPO INDEX NO: SU-12 SUBJECT: SPACE UTILIZATION AUTHOR(S): Rather, J. D. G. AUTHOR AFFILIATION: W. J. Schafer Associates, Inc. TITLE: Space Transportation, Solar Power from Space and Space Industrialization: A Better Way 7 PAGES: 21 REFERENCES: DATE: None **VOLUMES:** 21 SOURCE: ACQUISITION NO: By Title KEY WORDS: **Energy Source** Space Colonization Industrialization Technology Manned Flight Unmanned Exploration

SUBJECT: SPACE UTIL	IZATION		SPSPO INDEX NO	: SU-4
AUTHOR(s): Robinson,	G. S.			
AUTHOR AFFILIATION:	Omni Magazine			
TITLE: The Matter	of Space Law			
DATE: June 1979	VOLUMES:	PAGES: 4	REFERENCES:	None
ACQUISITION NO: OMNI	, Vol. 1, No. 9, pp.	76-78, 114	SOURCE:	10
KEY WORDS: Bogota Dec Internation Outer Space	nal Cooperation		Space Colonization Space Law	n

SUBJECT: SPACE UTILIZATION S			SPSPO INDEX NO: SU-25		
AUTHOR(s): Stine, H.					
AUTHOR AFFILIATION:	OMNI Magazine				
TITLE: Industry Goes	to Space				
DATE: April 1979	VOLUMES:	PAGES: 8	REFERENCES: None		
ACQUISITION NO: By	Title pp. 37-41, 100-	102	SOURCE: 10		
KEY WORDS: Economics Energy Sour Industrial	rce Mater	acturing rial Resources nology			

SUBJECT: SPACE UTILIZATION

SPSPO INDEX NO: SU-22

AUTHOR(S): Turner, G. F.

AUTHOR AFFILIATION: Lockheed Missiles and Space Company

TITLE: Electric Power Systems for Space

DATE: December 1975 VOLUMES: PAGES: 12 REFERENCES: None

ACQUISITION NO: By Title, pp. 18-29

KEY WORDS: Energy Source Satellite Uses Technology

SU-13 SPSPO INDEX NO: SUBJECT: SPACE UTILIZATION AUTHOR(S): Vajk, J. P. Lawrence Livermore Laboratory AUTHOR AFFILIATION: A World Dynamics Code for Assessing the Impact of Space TITLE: Newworld: Colonization PAGES: 42 REFERENCES: **VOLUMES:** DATE: January 1976 13 SOURCE: ACQUISITION NO: UCID-17003 KEY WORDS: Computer Model Space Colonization

SU-14 SPSPO INDEX NO: SUBJECT: SPACE UTILIZATION Vajk, J. P. AUTHOR(S): AUTHOR AFFILIATION: Science Applications, Inc. TITLE: The Impact of Space Colonization on World Dynamics 28 DATE: March 1976 38 REFERENCES: PAGES: **VOLUMES:** 24 SOURCE: Technological Forecasting and Social ACQUISITION NO: Change: 9, 361-399 (1976) Computer Model KEY WORDS: Resources Depletion Economics Space Colonization **Energy Demands** 

SPSPO INDEX NO: SUBJECT: SU-6 SPACE UTILIZATION AUTHOR(s): Ziegler, W. Polytechnic Institute of New York AUTHOR AFFILIATION: Weather Report from L-5 TITLE: 6 None PAGES: REFERENCES: November 1977 **VOLUMES:** DATE: 11 SOURCE: The Polytechnic Engineer ACQUISITION NO: Vol. XVIII, No. 1 pp. 22-27 KEY WORDS: Habitat Requirements Space Colonization

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