PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT3945812

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST

CONVEYING PARTY DATA

Name	Execution Date
ALPHABET ENERGY, INC.	06/30/2016

RECEIVING PARTY DATA

Name:	ARES CAPITAL CORPORATION
Street Address:	245 PARK AVENUE, 44TH FLOOR
City:	NEW YORK
State/Country:	NEW YORK
Postal Code:	10167

PROPERTY NUMBERS Total: 37

Property Type	Number
Application Number:	12943134
Application Number:	13299179
Application Number:	14567793
Application Number:	13308945
Application Number:	14203360
Application Number:	13331768
Application Number:	14567813
Application Number:	13364176
Application Number:	61438709
Application Number:	13749470
Application Number:	14686641
Application Number:	13760977
Application Number:	13947400
Application Number:	13786090
Application Number:	14333197
Application Number:	14059362
Application Number:	14062803
Application Number:	14053452
Application Number:	14297444
Application Number:	14469404

Property Type	Number
Application Number:	14707671
Application Number:	14679837
Application Number:	14682471
Application Number:	14872681
Application Number:	14872898
Application Number:	62098945
Application Number:	62129348
Application Number:	62138606
Application Number:	62208954
Application Number:	62216366
Patent Number:	7834264
Application Number:	13430558
Application Number:	61668766
Application Number:	61842842
Patent Number:	8277677
Application Number:	12882580
Application Number:	14823738

CORRESPONDENCE DATA

Fax Number: (949)567-6710

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

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ATTORNEY DOCKET NUMBER:	28633.1
NAME OF SUBMITTER:	VICTOR SANTOS
SIGNATURE:	/Victor Santos/
DATE SIGNED:	07/01/2016

Total Attachments: 7
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ATTACHMENT 2
TO SECURITY AGREEMENT

GRANT OF SECURITY INTEREST

PATENTS

This GRANT OF SECURITY INTEREST, dated as of June 30, 2016, is executed by Alphabet Energy, Inc., a Delaware corporation ("Grantor"), in favor of Ares Capital Corporation ("Lender").

A. Pursuant to that certain Loan and Security Agreement, No. V13112 dated as of December 12, 2013 (as amended, supplemented or otherwise modified from time to time, the "Loan Agreement"), between Grantor and Lender and the Fifth Amendment to Loan and Security Agreement dated as of May 1, 2016 (the "Amendment"), Lender agreed to extend loans and other financial accommodations to Grantor upon the terms and subject to the conditions set forth therein.

B. Grantor owns the letters patent of the United States and certain foreign countries, more particularly described on Schedule 1-A annexed hereto and made a part hereof (collectively, the "Patents").

C. Grantor and other entities party thereto from time to time have entered into a Security Agreement (Intellectual Property) dated as of June 30, 2016 (as amended, restated, supplemented or otherwise modified from time to time, the "Security Agreement") in favor of Lender.

D. Pursuant to the Security Agreement, Grantor has assigned and granted to Lender a security interest in all right, title and interest of Grantor in and to the Patents, together with any reissue, continuation, continuation-in-part or extension thereof, and all proceeds thereof, including any and all causes of action which may exist by reason of infringement thereof (the "Collateral"), to secure the prompt payment, performance and observance of the Secured Obligations, as defined in the Security Agreement

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, Grantor does hereby further grant to Lender a security interest in the Collateral to secure the prompt payment, performance and observance of the Secured Obligations.

Grantor does hereby further acknowledge and affirm that the rights and remedies of Lender with respect to the security interest in the Collateral granted hereby are more fully set forth in the Security Agreement, the terms and provisions of which are hereby incorporated herein by reference as if fully set forth herein.

The Lender's address is:
Ares Capital Corporation
245 Park Avenue, 44th Floor
New York, NY 10167

IN WITNESS WHEREOF, the Grantor has caused this Grant of Security Interest to be executed as of the day and year first above written.

GRANTOR

Alphabet Energy, Inc.,
a Delaware corporation

By: _____
Name: MICHAEL L. JEULIN
Title: CEO

SCHEDULE 1-A TO GRANT OF SECURITY INTEREST
PATENTS AND PATENT APPLICATIONS

TITLE	COUNTRY	APPLICATION NO.	STATUS
UNIWAFER THERMOELECTRIC MODULES	US	12/943,134	PENDING
ARRAYS OF LONG NANOSTRUCTURES IN SEMICONDUCTOR MATERIALS …	CA	2,818,368	PENDING
ARRAYS OF LONG NANOSTRUCTURES IN SEMICONDUCTOR MATERIALS …	CN	201180065569.0	PENDING
ARRAYS OF LONG NANOSTRUCTURES IN SEMICONDUCTOR MATERIALS …	EP	11841453.1	PENDING
ARRAYS OF LONG NANOSTRUCTURES IN SEMICONDUCTOR MATERIALS …	JP	2013-540036	PENDING
ARRAYS OF LONG NANOSTRUCTURES IN SEMICONDUCTOR MATERIALS …	KR	10-2013-7015414	PENDING
ARRAYS OF LONG NANOSTRUCTURES IN SEMICONDUCTOR MATERIALS AND METHODS THEREOF	US	13/299,179	PENDING
ARRAYS OF LONG NANOSTRUCTURES IN SEMICONDUCTOR MATERIALS AND METHODS THEREOF	US	14/567,793	PENDING
LOW THERMAL CONDUCTIVITY MATRICES WITH EMBEDDED NANOSTRUCTURES ,,,	CA	2,819,638	PENDING
LOW THERMAL CONDUCTIVITY MATRICES WITH EMBEDDED NANOSTRUCTURES ,,,	CN	201180066221.3	PENDING
LOW THERMAL CONDUCTIVITY MATRICES WITH EMBEDDED NANOSTRUCTURES ,,,	EP	11845164.0	PENDING
LOW THERMAL CONDUCTIVITY MATRICES WITH EMBEDDED NANOSTRUCTURES ,,,	JP	2013-542193	PENDING
LOW THERMAL CONDUCTIVITY MATRICES WITH EMBEDDED NANOSTRUCTURES ,,,	KR	10-2013-7016783	PENDING
LOW THERMAL CONDUCTIVITY MATRICES WITH EMBEDDED NANOSTRUCTURES AND METHODS THEREOF	US	13/308,945	ISSUED
LOW THERMAL CONDUCTIVITY MATRICES WITH EMBEDDED NANOSTRUCTURES ,,,	US	14/203,360	PENDING
ARRAYS OF FILLED NANOSTRUCTURES WITH PROTRUDING SEGMENTS AND METHODS THEREOF	US	13/331,768	PENDING
ARRAYS OF FILLED NANOSTRUCTURES WITH PROTRUDING SEGMENTS AND METHODS THEREOF	US	14/567,813	PENDING

TITLE	COUNTRY	APPLICATION NO.	STATUS
ELECTRODE STRUCTURES FOR ARRAYS OF NANOSTRUCTURES „,	CA	2,825,888	PENDING
ELECTRODE STRUCTURES FOR ARRAYS OF NANOSTRUCTURES „,	CN	201280016754.5	PENDING
ELECTRODE STRUCTURES FOR ARRAYS OF NANOSTRUCTURES „,	EP	12790253.4	PENDING
ELECTRODE STRUCTURES FOR ARRAYS OF NANOSTRUCTURES „,	JP	2013-552585	PENDING
ELECTRODE STRUCTURES FOR ARRAYS OF NANOSTRUCTURES „,	KR	10-2013-7022698	PENDING
ELECTRODE STRUCTURES FOR ARRAYS OF NANOSTRUCTURES …	PCT	PCT/US2012/023425	EXPIRED
ELECTRODE STRUCTURES FOR ARRAYS OF NANOSTRUCTURES „,	US	13/364,176	PENDING
STRUCTURE AND METHOD FOR A NANOWIRE DEVICE	US-PRV	61/438,709	EXPIRED
MODULAR THERMOELECTRIC UNITS FOR HEAT RECOVERY SYSTEMS …	AU	2013212087	PENDING
MODULAR THERMOELECTRIC UNITS FOR HEAT RECOVERY SYSTEMS …	CA	2,862,350	PENDING
MODULAR THERMOELECTRIC UNITS FOR HEAT RECOVERY SYSTEMS …	CN	201380016304.0	PENDING
MODULAR THERMOELECTRIC UNITS FOR HEAT RECOVERY SYSTEMS …	EP	13740495.0	PENDING
MODULAR THERMOELECTRIC UNITS FOR HEAT RECOVERY SYSTEMS …	US	13/749,470	PENDING
MODULAR THERMOELECTRIC UNITS FOR HEAT RECOVERY SYSTEMS …	US	14/686,641	PENDING
BULK NANOHOLE STRUCTURES FOR THERMOELECTRIC DEVICES AND METHODS FOR MAKING THE SAME	US	13/760,977	PENDING
METHOD AND STRUCTURE FOR THERMOELECTRIC UNICOUPLE ASSEMBLY	US	13/947,400	PENDING
BULK NANOPOROUS STRUCTURES FOR THERMOELECTRIC DEVICES AND METHODS FOR MAKING THE SAME	US	13/786,090	ISSUED
BULK NANO-RIBBON AND/OR NANO-POROUS STRUCTURES FOR THERMOELECTRIC DEVICES AND METHODS FOR MAKING THE SAME	US	14/333,197	PENDING
NANOSTRUCTURED THEMOELECTRIC ELEMENTS AND METHODS OF MAKING THE SAME	US	14/059,362	ISSUED
BULK-SIZE NANOSTRUCTURED MATERIALS AND METHOD FOR	AU	2013338232	PENDING

TITLE	COUNTRY	APPLICATION NO.	STATUS
MAKING …			
BULK-SIZE NANOSTRUCTURED MATERIALS AND METHOD FOR MAKING …	CA	2,887,213	PENDING
BULK-SIZE NANOSTRUCTURED MATERIALS AND METHOD FOR MAKING …	CN	201380062751.X	PENDING
BULK-SIZE NANOSTRUCTURED MATERIALS AND METHOD FOR MAKING …	EP	13852014.3	PENDING
BULK-SIZE NANOSTRUCTURED MATERIALS AND METHOD FOR MAKING …	JP	NOT ASSIGNED YET	PENDING
BULK-SIZE NANOSTRUCTURED MATERIALS AND METHOD FOR MAKING …	KR	10-2015-7011275	PENDING
BULK-SIZE NANOSTRUCTURED MATERIALS AND METHOD FOR MAKING THE SAME BY SINTERING NANOWIRES	US	14/062,803	PENDING
STRUCTURES AND METHODS FOR MULTI-LEG PACKAGE THERMOELECTRIC DEVICES	US	14/053,452	PENDING
SILICON-BASED THERMOELECTRIC MATERIALS INCLUDING ISOELECTRONIC IMPURITIES, THERMOELECTRIC DEVICES BASED ON SUCH MATERIALS, AND METHODS OF MAKING AND USING SAME	PCT	PCT/US2014/041227	PENDING
SILICON-BASED THERMOELECTRIC MATERIALS INCLUDING …	US	14/297,444	PENDING
THERMOELECTRIC DEVICES HAVING REDUCED THERMAL STRESS AND CONTACT RESISTANCE, AND METHODS OF FORMING AND USING THE SAME	PCT	PCT/US2014/053102	PENDING
THERMOELECTRIC DEVICES HAVING REDUCED THERMAL STRESS AND …	US	14/469,404	ISSUED
THERMOELECTRIC DEVICES HAVING REDUCED THERMAL STRESS AND …	US	14/707,671	PENDING
FLEXIBLE LEAD FRAME FOR MULTI-LEG PACKAGE ASSEMBLY	US	14/679,837	PENDING
FLEXIBLE LEAD FRAME FOR MULTI-LEG PACKAGE ASSEMBLY	PCT	PCT/US2015/024484	PENDING
FORMATION AND TRANSFER OF ULTRA-LONG SILICON NANOWIRES	US	14/682,471	PENDING
FORMATION AND TRANSFER OF ULTRA-LONG SILICON NANOWIRES	PCT	PCT/US2015/024484	PENDING
THERMOELECTRIC GENERATING UNIT AND METHODS OF MAKING AND USING SAME	US	14/872,681	PENDING
	PCT	PCT/US2015/053434	PENDING
THERMOELECTRIC GENERATORS	US	14/872,898	PENDING

TITLE	COUNTRY	APPLICATION NO.	STATUS
FOR RECOVERING WASTE HEAT FROM ENGINE EXHAUST, AND METHODS OF MAKING AND USING SAME	PCT	PCT/US2015/053438	PENDING
ELECTRICAL AND THERMAL CONTACTS FOR BULK TETRAHEDRITE	US-PRV	62/098,945	PENDING
LOW TEMPERATURE BONDING FOR HIGH TEMPERATURE THERMOELECTRIC ASSEMBLIES	US-PRV	62/129,348	PENDING
SURFACE PREPARATION AND METALLIZATION OF MAGNESIUM SILICIDE-BASED BULK MATERIALS	US-PRV	62/138,606	PENDING
ELECTRICAL AND THERMAL CONTACTS FOR BULK TETRAHEDRITE MATERIAL	US-PRV	62/208,954	PENDING
STRUCTURE AND METHOD FOR FLEXIBLE MULTI-UNIT THERMOELECTRIC PACKAGE	US-PRV	62/216,366	PENDING
LOW-COST, HIGH RELIABILITY PACKAGE ENABLING BONDING BETWEEN THERMOELECTRIC MATERIALS, AND METHODS OF MAKING THEREOF	US-PRV		PENDING
OXIDATION AND SUBLIMATION PREVENTION METHOD FOR THERMOELECTRIC DEVICES	US-PRV		PENDING
THERMOELECTRIC MATERIAL WITH INCREASED MECHANICAL STRENGTH	US-PRV		PENDING
ELECTRO-ASSISTED TRANSFER AND FABRICATION OF VERTICAL SILICON WIRE ARRAYS (STANFORD LICENSE)	PCT	PCT/US2013/062022	PENDING
METHODS OF FABRICATING NANOSTRUCTURES AND NANOWIRES AND DEVICES FABRICATED THEREFROM (NANOSYS LICENSE)	US	7,834,264 B2	ISSUED
NANOSTRUCTURED SILICON WITH USEFUL THERMOELECTRIC PROPERTIES (LBNL [HOLEY SILICON] LICENSE)	US	13/430,558	PENDING
NANOSTRUCTURES HAVING HIGH PERFORMANCE THERMOELECTRIC PROPERTIES (LBNL LICENSE)	PCT	PCT/US2008/073922	PENDING
THERMOELECTRIC MATERIALS BASED ON TETRAHEDRITE STRUCTURE FOR THE THERMOELECTRIC DEVICES (MSU LICENSE)	US	61/668,766	PENDING
THERMOELECTRIC MATERIALS AND METHOD FOR PRODUCING A THERMOELECTRIC DEVICE (MSU LICENSE)	US	61/842,842	PENDING
THERMOELECTRIC MATERIALS	US-PRV		PENDING

TITLE	COUNTRY	APPLICATION NO.	STATUS
BASED ON TETRAHEDRITE STRUCTURE WITH MODIFIED COMPOSITION FOR THERMOELECTRIC DEVICES (MSU LICENSE)			
IMPROVED MECHANICAL STRENGTH AND THERMOELECTRIC PERFORMANCE IN METAL CHALCOGENIDE MQ (M=GE, SN, PB AND Q=S, SE, TE) BASED COMPOSITIONS (NWU LICENSE)	US	8,277,677	ISSUED
IMPROVED MECHANICAL STRENGTH AND THERMOELECTRIC PERFORMANCE IN METAL CHALCOGENIDE MQ (M=GE, SN, PB AND Q=S, SE, TE) BASED COMPOSITIONS (NWU LICENSE)	PCT	PCT/US/2008/011550	PENDING
THERMOELECTRIC COMPOSITION COMPRISING NANOSCALE INCLUSIONS IN A CHALCOGENIDE MATRIX (NWU LICENSE)	US	12/882,580	PENDING
TIN SELENIDE SINGLE CRYSTALS FOR THERMOELECTRIC APPLICATIONS (NWU LICENSE)	US	14/823,738	PENDING
TIN SELENIDE SINGLE CRYSTALS FOR THERMOELECTRIC APPLICATIONS (NWU LICENSE)	PCT	PCT/US2015/044704	PENDING