

INDIAN ENERGY LLC

2017 STATEMENT OF CAPABILITIES

TURNKEY ENERGY SOLUTIONS

MICROGRID CONTROL SYSTEMS

ENERGY STORAGE SOLUTIONS

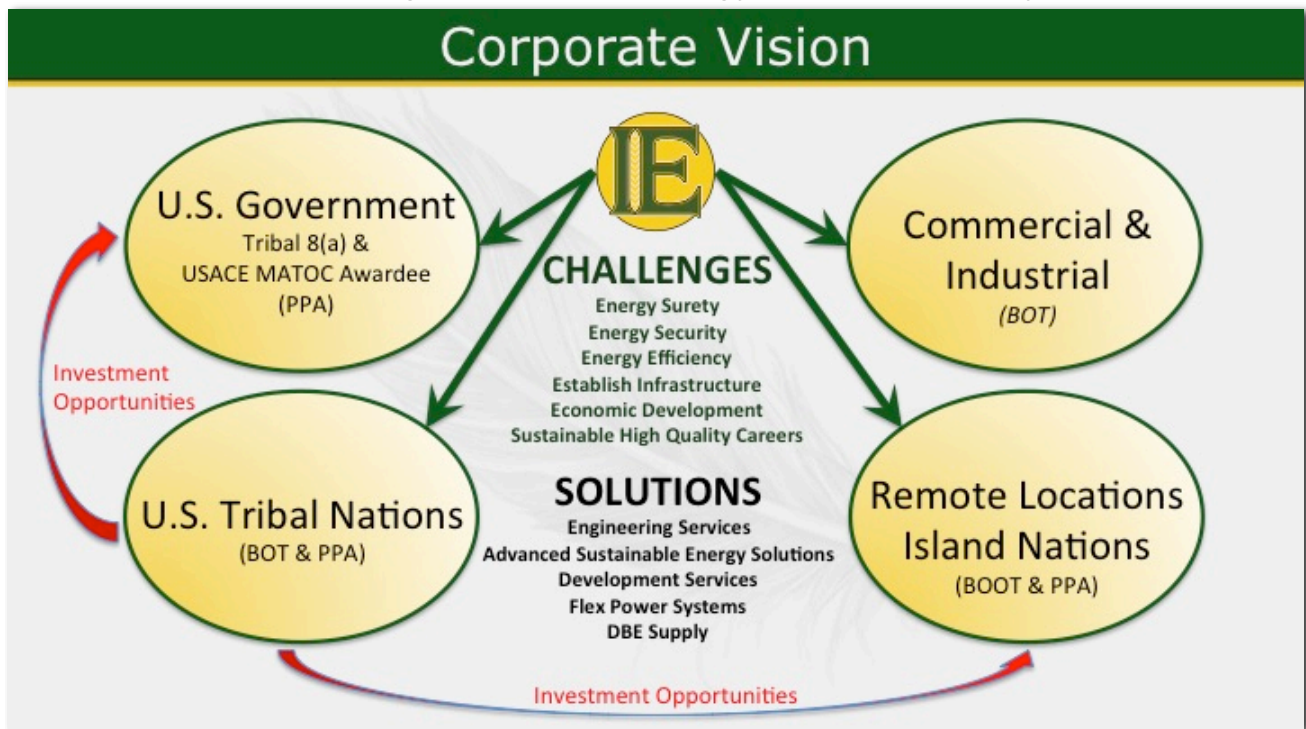
MEASUREMENT, VERIFICATION & ANALYTICS

Indian Energy LLC
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100% Native American Owned
Minority-Certified by SCMSDC (#SC03274)
Minority-Certified by CPUC (Von ID# 14020025)
DUNS Code: 962398025
CAGE Code: 63Y10

INDIAN ENERGY MISSION STATEMENT

"Providing Tomorrow's Energy Solutions, Today"



100% Native American Indian owned and operated. Indian Energy is committed to identifying and developing opportunities for insuring tribal sovereignty; self-sufficiency and future long term revenue streams that provide a means to maintain the traditional way of life and provide for our seventh generations.

Indian Energy also provides "National Energy Security Solutions" to the U.S. Department of Defense and the U.S. Military. These solutions encompass providing renewable energy, energy security, advanced energy storage systems and microgrid control solutions.

Advanced Energy Solutions - Complete Life-Cycle

Detailed Energy Baselineing

Real Time Measurement, Verification and Analysis

Operational & Behavioral Recommendations

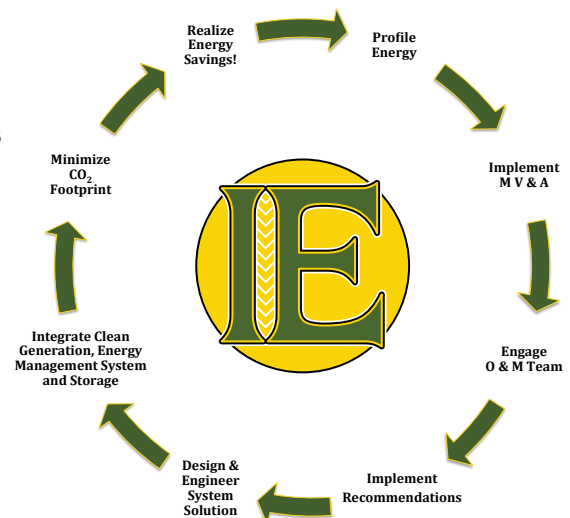
Advanced Energy Solutions Design & Engineering

Integration of Clean Energy, Energy Management

System and Storage

Realize Energy Savings

ADR2.0b Certified



CORE PARTNERS

Indian Energy LLC has created key strategic partnerships with leading OEM's to provide complete turn-key microgrid solutions. From smart meters, advanced microgrid controls to game-changing energy storage; Indian Energy has created a robust portfolio of products and solutions capable of meeting the energy surety needs of the United States Government, Department of Defense, Commercial and Industrial facilities, Indigenous Nations and developing countries worldwide.

About Indian Energy LLC

Founded in 2009, Indian Energy LLC (IE) is a 100% Native American owned small business. IE is minority certified by the Southern California Minority Supplier Distribution Council (SCMSDC) and the California Public Utilities Commission (CPUC). IE also has an equity position in Chippewa Sustainable Solutions Inc. (CSS), a pending 8(a) SBA participant. Upon certification, CSS will be capable of providing sole-source and set-aside contracting solutions to the US Government for advanced energy solutions. IE was one of nineteen small businesses and the only Native American owned company to be selected by the US Army Corp of Engineers for a \$2.5B Solar MATOC award.

IE provides turnkey energy solutions, including microgrid installation and control, off-grid systems powered by solar and wind renewable energy generation, integrated with measurement and verification networks and analytics. IE's integrated solutions contain state-of-the-art, qualified OEM components and systems manufactured to stringent specifications established by IE that are tailored to specific installations and use profiles desired by their customers.

IE's advanced energy storage offerings, the crucial component of an off-grid or renewables smoothing system, will be provided by advanced kinetic storage devices recently developed under a California Energy Commission (CEC) grant and successfully validated by extensive testing by the US Marine Corp at Camp Pendleton, California. The inventor of the energy storage device is the Company's CTO, and manufactures the energy storage device for IE for exclusivity to Indigenous nations worldwide, US Departments of Defense, and US PublicUtility's under MBE set-asides.

Microgrid control software designed to meet the requirements of IE's customers will be provided by Clean Spark LLC or Siemens Government Technologies.

STRATEGIC PARTNERS

About Siemens Government Technologies

Founded Siemens Government Technologies Inc. (Siemens) is one of the largest federal technology integrators in the Washington, D.C. area, serving government clients across the nation and around the globe. The Company designs solutions that leverage the best in emerging technologies along with proven innovative Siemens product lines, which provides a richer experience for their customers, partners, and employees. Siemens combines key attributes of an entrepreneurial company - flexibility, energy, and a professional working environment – with comprehensive corporate benefits, a focus on employee enrichment and retention, and engaging work-projects.

About MelRok, LLC - OEM

Founded in 2009, MelRok provides its patented Energy IoT and Platform-as-a-Service (PaaS) for commercial and industrial enterprises, energy service companies (ESCO's), OEMs and utilities. IE white-labels its Asigin and Asigin-Pro hardware from MelRok, via a Super Value Added Reseller (SVAR) agreement.

About CTC Global Corporation - OEM

Incorporated in 2003, CTC Global manufactures and supplies conductors for the power generation and transmission industry worldwide. CTC Global began developing the patented ACCC® conductor in 2002. This objective relied on the incorporation of highly evolved aerospace technology and materials science to create a new higher-strength, lighter-weight core that could incorporate additional conductive aluminum without a weight or diameter penalty, and be utilized to reduce thermal sag, increase spans between fewer structures, carry more current, reduce line losses and improve grid reliability. IE is a preferred minority-owned value added distributor (VAD) for CTC Global, providing minority-owned benefits to the US Government and utilities to assist them meet their small business and diversity spend goals.

About CleanSpark LLC - OEM

Founded in 2013, CleanSpark LLC (CS) is a microgrid software developer, systems integrator and patent pending holders for the flex Power System (fPS). The fPS is an advanced weapons grade microgrid control platform, based upon open architecture. IE has exclusivity for distributing and/or developing projects utilizing the fPS within Indian Country, with Public Utilities and Government Agencies via MBE contracting.

INDIAN ENERGY SERVICES, PRODUCTS & SOLUTIONS

Services Offered

Project Development
Engineering Consulting
Measurement & Verification Analytics
Feasibility Analysis
Project Financing
Permitting & Licensing
Transmission & Interconnection Studies
Power Purchase Agreement Negotiations
Site Location & Line Routing Assessments
EPC Contractor Review
BLM & Federal Permitting Processes
EIR/EIS Environmental Management
BACT & Technological Evaluations
Infrastructure Master Planning
Solar Operations & Maintenance (O&M)
Power Line Design
Sub-station Design

Products Offered

Smart Meters
Solar PV Modules
Racking Systems
SCADA Solutions
Energy Storage Device
Inverters
Balance of System Items
ACCC Conductor

Solutions

Measurement & Verification
Microgrid Solutions
Energy Storage Solutions
Energy Surety Solutions
Demand Response Aggregation

NAICS CODES

221111 - Hydroelectric Generation
221112 - Fossil Fuel Generation
221114 - Solar Electric Generation
221115 - Wind Generation
221116 - Geothermal
221117 - Biomass Generation
221118 - Other Power Generation
221121 - Electric Bulk Power T, C & D
221122 - Electric Power Distribution
237130 - Alternative Energy Construction
335911 - Battery Storage Manufacturing
335931 - Current Carrying Wiring
541330 - Engineering Services
541690 - Energy Consulting Services

Socio-economic Status

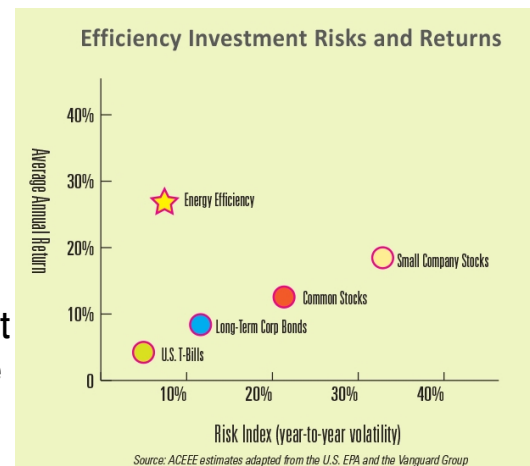
Minority Owned Small Business
Native American Owned

ADVANTAGES OF IE's ENERGY INFORMATION PLATFORM

It is easier and less expensive to save a kilowatt hour than it is to generate or purchase one. Company executives considering energy efficiency investments want to know a few basic items:

- How much is it going to cost?
- How much will the savings be?
- How fast is the return on investment?
- How quickly will results be seen?

They also need to be asking, "Can my investment also become an additional revenue stream?" The short answer to this one is **ABSOLUTELY YES!**



The question of "How much is this going to save?", can only be answered by a comprehensive energy measurement and verification (M&V) program. To calculate accurate savings, a true understand how energy is consumed within the facility or facilities being measured. Energy usage at the branch circuit level must be measured and correlated with external data such as temperature, occupancy and special events.

Once the true baseline has been completed can energy efficiency recommendations be considered, savings calculated and efficiency measures recommended.

Indian Energy's energy information platform provides all the information necessary for energy efficiency decisions to be made, as well as provide operations and maintenance (O&M) crews with key usage signatures to assist with proactive maintenance schedules. This is accomplished with the Asigin and Asigin-Pro IoT Router and Smart Meter along with the advanced energy cloud.

Asigin IoT Energy Router



Asigin-Pro IoT Energy Smart Meter



ADVANTAGES OF IE's ENERGY INFORMATION PLATFORM

Asigin IoT Energy Router

The ESP Asigin is an Internet-of-Things (IoT) device that combines the functionality of a Gateway, Data Logger, On-Site Server, Demand Management Controller, and ADR DRAS Client all in one. It collects and streams data from existing meters (power, water, gas, environmental, etc.) and streams 1-minute energy data in real-time to the ESP Cloud (a cloud-based database) and to as many additional remote databases as desired (using an API). It collects and streams data from existing EMS, BMS, SCADA, utility meters, and energy meters to the Cloud for storage, analytics, visualization and reporting. Once in the cloud, the data is accessible by energy managers and authorized service providers via automated and secure API. The Asigin is certified with an embedded Automated Demand Response (ADR) client compatible with Open ADR 1.0 and 2.0b protocols

Asigin IoT Energy Smart Meter

The Asigin Pro IoT Smart Meter is the preferred solution for energy measurement & verification and demand management. The Asigin Pro combines the functionality of multiple hardware systems, including up to 24 meters, integrators for flexible CTs, data acquisition software, a data logger, multi-protocol drivers (BACnet, Modbus, etc.), and a data server to stream real time energy information to cloud-based servers. The Asigin Pro also includes a built-in Automated Demand Response (ADR) Client to obtain ADR event notification and pricing information from utility servers. The built-in multi-protocol drivers allow the Asigin Pro to serve as an interface with existing building automation systems (BAS) or energy management systems (EMS) for peak demand management and demand response controls. Monitored metrics: RMS Voltage, RMS Current, Power (kW), Energy (kWhr), Total Energy (kVAhr) and Power Factor.

ESP Cloud

IE is using the cloud to transform the way energy is managed. From a robust, scalable, secure and real time fast cloud storage and search infrastructure, to built-in real time analytics, reporting and alert engines: the IE energy cloud sets the standard for the next generation of energy cloud applications.

Energy applications include: energy benchmarking, energy baselines, advanced energy profiling, portfolio demand management, automated demand response, peak demand management, carbon footprint management, energy cost analysis, automated anomaly detection and TOU management. It includes a complete set of published APIs to allow for secure and automated access of data by authorized systems.

ADVANTAGES OF THE fLEX POWER SYSTEM

CleanSpark's flex Power System is an advanced Command, Control, and Communications, Computers Intelligence (C4I) middleware based upon the innovative clean energy systems architecture patent under the FractalGrid systems architectural approach. The flex Power System provides energy security and reduction of current energy costs. Indian Energy envisions, either selling the system to the customer with an operating/management service contract, or owning and operating the system for the customer. The flex Power System is flexible starting at 4kW loads and infinitely extensible and interoperable with all generation, storage, and distribution technologies.

- ★ Grow incrementally, infinitely scalable
- ★ Physical/Cyber security is greatly enhanced
- ★ No need for centralized ICS/SCADA unit, each fPS microgrid can function independently
- ★ Future-resistant (components can easily be replaced through open interfaces)
- ★ Can react instantaneously to circumstances; Local conditions do not have to propagate to a centralized ICS/SCADA unit
- ★ Small fPS microgrids can participate in a larger fPS microgrid network. Large fPS microgrids can take advantage of aggregating excess energy produced by smaller fPS microgrids
- ★ Self-healing by taking advantage of multiple connection points
- ★ The architecture allows software to reside and execute in much smaller environments
- ★ Technology agnostic, any storage technology, any energy generation input

ADVANTAGES OF THE ADVANCED KINETIC ENERGY STORAGE

Kinetic energy storage devices have the advantages (compared to chemical batteries) of long cycle life, high efficiency, and rapid switching capability. The IE kinetic energy storage device integrates inexpensive and readily available materials and components with innovations in processing, design and geometry to make low-cost, reliable kinetic energy storage a reality for the first time in grid applications.

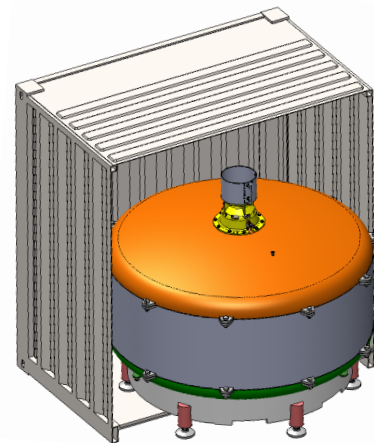
To illustrate the value of this technology, a kinetic energy storage unit when compared with a chemical battery (Li-ion) technology shows that over a typical utility-scale life of 25,000 cycles, the kinetic energy storage system is much more cost-effective. Since a chemical battery has a typical life of only 4,000 cycles, the battery must be replaced 5 times after the initial installation. In contrast, IE's kinetic energy storage module would not need replacement, its core would retain 100% of its original capacity and, at the end of 25,000 cycles the unit can be fully recycled.

A long duration energy storage system utilizing kinetic energy and state-of-the-art sensor and control technology.

Long life (>25,000 cycles – 35 years)
kinetic energy storage at
< \$150/kWh at high volume

System versatility with an energy management platform enabling all energy storage modes for:

- frequency regulation
- peak-load shaving
- load shifting
- renewable energy integration
- long duration backup power
- transmission/distribution support.



Version 2.0 being installed at
Camp Pendleton

APPLICATIONS FOR ADVANCED ENERGY SOLUTIONS

Automated Demand Response (ADR)¹

Demand response (DR) is becoming a growing part of the resource base that electric system operators rely on to maintain reliability on the grid. Market liberalization, economic pressures, and environmental regulations are all moving toward a path of fewer traditional central power plants and more distributed energy resources (DER) to address future energy needs. Advanced technologies can help speed this transition and make it more reliable. Automated demand response (ADR) describes a system that automates the DR dispatch process, from the grid operator to the DR aggregator (if involved) to the end-use customer – all without any manual intervention.

Distributed Grid-Connected PV Integration²

Distributed grid-connected photovoltaics (PV) is playing an increasingly significant role as an electrical supply resource and as an integral part of the electrical grid. However, PV poses some notable challenges to grid engineers, planners and operators. They include rapid output variations (ramping), daily variability of the output, effects on power quality, especially voltage and current harmonics, current “backflow” and a mismatch between PV output and end-users’ peak demand. Grid-connected or on-site electricity storage that is located near to or on-site where PV is deployed provides means to offset or manage those challenges.

Bulk Wind Generation To Distributed Storage²

Large scale wind generation is poised to be a significant future electric supply resource. As such, there are looming challenges related to integrating wind generation whose output varies throughout the day and from minute-to-minute. Coupling that variable wind generation with distributed electricity storage – especially within generation and/or transmission constrained “load pockets” – may be quite attractive.

Community Energy Storage²

The concept of community energy storage (CES) has captured the imagination of the growing ranks of stakeholders with interest in electricity storage (storage). It involves electric utility owned storage that is distributed, being located at the periphery of the utility distribution system, near end-users. The potential benefits of distributing the storage capacity rather than using one or a few large units can be significant.

1 - Source, Navigant Research

2 - Source, Energy Storage Association (ESA)

APPLICATIONS FOR ADVANCED ENERGY SOLUTIONS

End-User Bill Management²

Electricity storage can be used to reduce the cost incurred for electric service. The benefit can be significant. There are two variations on this value proposition. One involves electricity end-users that pay “time-of-use” (TOU) electric energy prices. Second, commercial and Industrial end-users that use a significant amount of electricity qualify for electrical service pricing that includes both a) TOU energy pricing and b) demand charges. Demand charges reflect the end-user’s maximum power draw rather than energy use. It could be used by the electricity end-user to time-shift energy from on-site photovoltaics (PV) or other generation system, or the storage could assist with integration of other nearby PV systems.

Uninterruptible Power Supply²

An uninterruptible power supply (UPS) is an electricity storage system that is used to reduce or avoid negative effects and costs associated with electrical service outages and/or poor power quality (PQ). During outages, the stored energy is used to maintain power to specific end-user’s electricity using equipment (aka: load). UPSs also filter and otherwise offset power quality anomalies, continuously.

Merchant Electricity Storage²

An especially valuable electricity storage value proposition is the “merchant” business model. It involves what can be described simply as continuous optimization of benefit derived from operation, cost incurred for the operation to generate profit. Owner-operators apply a “real options” mindset to understand and successfully pursue profit. To the extent that the merchant storage facility is technically able and qualified, it participates in the wholesale market for electric energy, capacity (power) and ancillary services. In some cases they may sell some of their services to one or more utilities or even high power end-users directly, under contract.

Spinning Reserve²

A variety of reliability demands apply to the electric utilities. Amongst others, and perhaps the most significant is that a utility or a group of utilities must be able to accommodate the loss of the largest generator in the system with limited power flow and frequency variation. Utilities typically have Spinning Reserves (online and available within 10 minutes), Supplementary Reserves (Offline available within 10 mins) and Backup Supply.

² - Source, Energy Storage Association (ESA)

APPLICATIONS FOR ADVANCED ENERGY SOLUTIONS

Frequency Regulation²

In order to synchronize generation assets for electrical grid operation, the alternating current (ac) frequency must be held within tight tolerance bounds. Different methods available for “frequency regulation” include generator inertia, adding and subtracting generation assets, dedicated demand response and electricity storage. Each of these methods has pros and cons, and the implementation of these methods takes from a millisecond to 20 minutes. In the group of “ancillary services” provided in the open market management of the grid, frequency regulation has the highest value. Frequency regulation is mainly provided by ramping (up and/or down) of generation assets. This typically takes minutes rather than seconds. Electricity storage has the capability for doing the job in milliseconds, and Pacific Northwest National Laboratory (PNNL) has suggested millisecond electricity storage should have a value of at least twice that of 20 minute assets.

T&D Upgrade Deferral²

Two especially compelling and closely related value propositions for electricity storage include use to: 1) defer or avoid the need to upgrade electrical transmission and distribution (T&D) equipment or 2) extend the life of existing T&D equipment. Depending on the circumstances, the value is high and the same storage used for those value propositions can be used for numerous other benefits. A key premise for this value proposition is that a small amount of storage can: a) allow the utility to delay the need for expensive, demand growth-related T&D equipment upgrades or b) reduce demand served by existing T&D equipment such that the equipment’s life is extended. Importantly, to be used for the deferral and life extension value propositions the storage must be located electrically “downstream” from the affected equipment. So the storage would qualify as a “distributed energy resource” (DER).

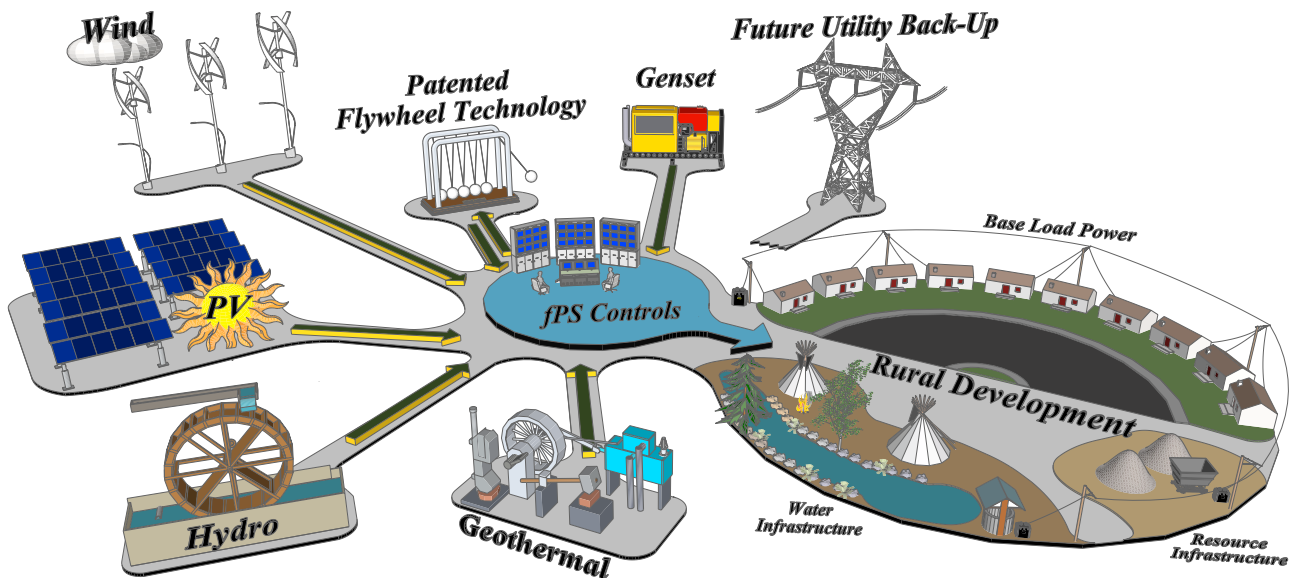
End Of Line/Remote Locations/Island Nations

Advanced energy storage and microgrids that integrate renewables can provide significant savings in stand alone diesel fuel powered generation environments. The ability to stabilize grid intermittency at the end of the line is another value added proposition of microgrids and energy storage. New development in remote off-grid locations can be serviced with a combination of renewables, storage, microgrid control and diesel fuel powered generation as a backup supply.

2 - Source, Energy Storage Association (ESA)

fLEX POWER SYSTEM - MICROGRID SHOWCASES

- ★ DaVinci (70kW) Commercial
 - ★ Fully integrated - Proof of Concept
- ★ Camp Pendleton (1.1MW) Military
 - ★ Fully Integrated - Proof of Concept
- ★ Mining Operation, AZ (1.5MW) Off-Grid
 - ★ Development
- ★ Golf Course & Planned Community, CA (1MW) End of Line/Remote
 - ★ Fully Integrated - Proof of Concept
- ★ Kosrae Utility Authority, Kosrae, FM (1.5MW) Island Nation
 - ★ Development



CAMP PENDLETON (1.1MW) MILITARY

1.1 MW - PV, CPV

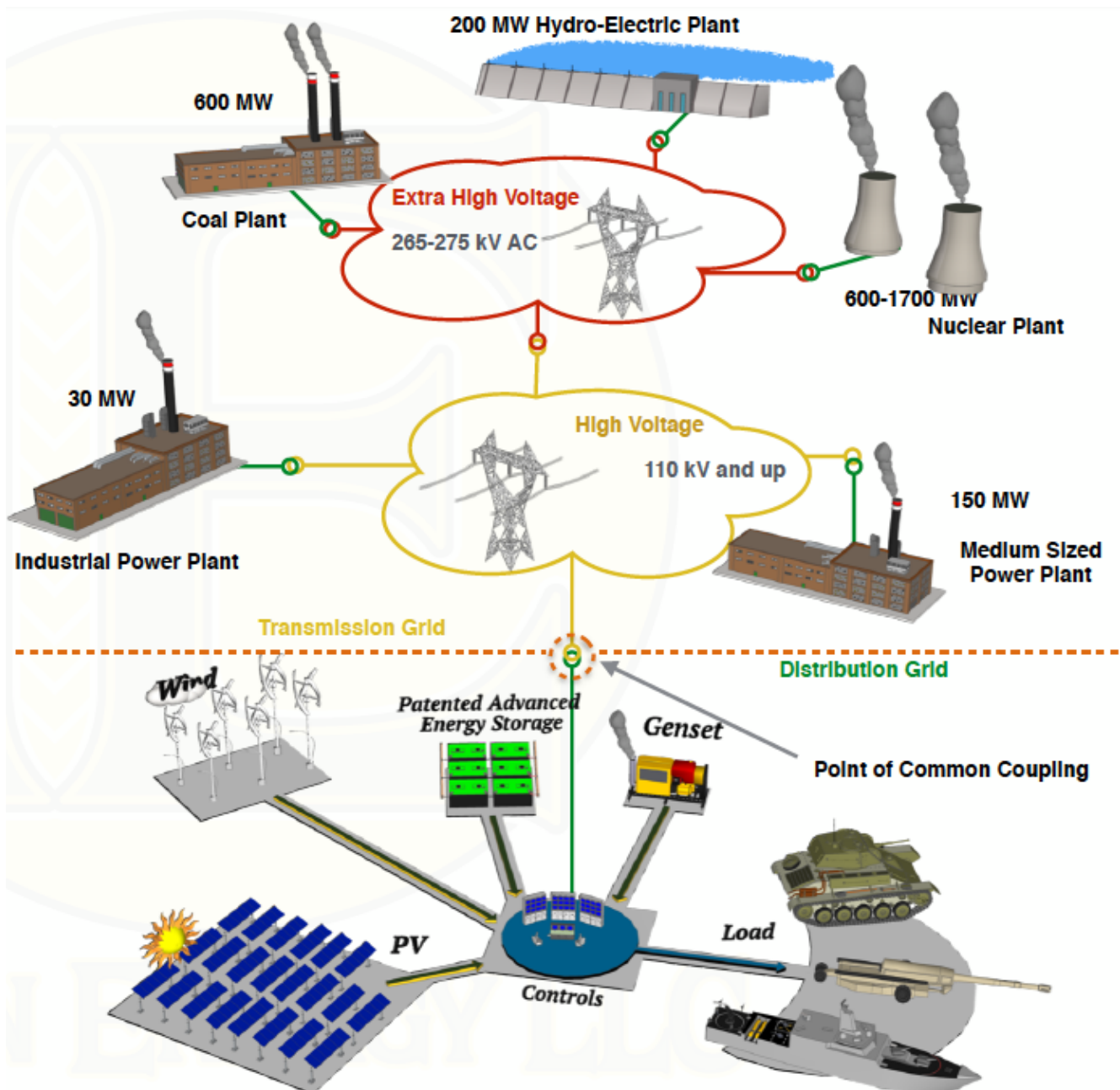
First to implement CS innovative microgrid network architecture

First to use DOD driven storage solution

First to be OpenADR 2.0b certified

First military microgrid to participate in the open market - DOD TRL9 certified

Planned: First microgrid with DIACAP C&A



IE ADVANCED ENERGY STORAGE & MICROGRID CONTROLS PLATFORM

Flexible

- Configurable from kW to MW scale in 15kW-1MW power output and 120kWh-360kWh capacity
- High volumetric energy density and power density
- Multiple applications
 - Off-grid or Microgrid systems
 - Peak shaving or time-of-use energy arbitrage for behind-the-meter deployment
 - Distribution system hardening and renewables integration for utilities
- Simple cost-effective system installation with integrated power electronics (COTS)

Efficient

- 99% standby efficiency
- 95% charge & discharge efficiency
- Harmonic cancellation
- Transient protection
- High speed voltage regulation
- Power factor correction
- Low input current distortion

Reliable

- DOD Test Readiness Level 9
- 25 year guarantee
- 25,000 full charge/discharge cycle life
- Robust service and technical support with central data center
- Extremely low service and maintenance costs
- 100% recyclable materials and non-toxic
- System monitoring with alerts via voice, text, and e-mail
- Dashboard access via secure internet connectivity

Microgrid Controls – Modular and Extensible

- DOD Test Readiness Level 9 Certified
- Real time reactive capability
- Utility grid interoperable
- OpenADR2.0 enabled
- Utility market interactive
- Load following, critical circuit management and preservation
- Open systems architecture
- Infinitely extensible
- Plug-and-play
- C4I dashboard
- Islanding Capable
- Integrates all onsite generation and storage while using local grid as “Back-Up”
 - Existing, Gas Generation, Bio Mass, Hydro, Wind, Solar Battery Storage and Fuel Cell
 - Automatic Energy Management
 - Island During “On Peak”
 - Charge Storage during “Off-Peak”



INDIAN ENERGY LLC

KES360 Technical Specifications (2017)

Features	
Energy storage capacity	360 kWh
Maximum output power	30, 60, 90, 150, 375 kW
Reliability	Over 50 years (core kinetic energy material life)
Charge/discharge cycle life	> 25,000 full depth-of-discharge (DoD) cycles
Electrical Interface	
Input voltage/frequency	480 VAC 3 phase, 50 or 60 Hz
Maximum current	225 A
Efficiency	> 85 % Round trip AC to AC
Power factor	> 0.99
Total harmonics	< 4%
Operating Environment	
Operating Temperature:	-40 to 40 C
Storage Temperature:	-60 to 60 C
Humidity:	10 - 95% RH, non-condensing
Mechanical	
Outer dimensions	8 feet diameter, 10 feet high (without motor module) (2.44 m diameter, 3.05 m high)
Weight	57,200 lb (26,000 kg)
Installation on site	15 ft (4.57 m) below grade, 11 ft (3.35 m) diameter
Data Communications and Monitoring	
Data communications	Modbus or DNP3 over TCP/IP
Monitoring	Internet-based
Network:	1 LAN 10/100 BaseT, 1 Cellular communication (optional), 1 Wi-Fi (optional)

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Specifications subject to change without notice

www.indianenergy.com

Asigin

Energy M&V and Demand Management



KEY FEATURES

- Supports simultaneous data acquisition from up to 122 metering devices (power, water, gas, flow, environmental, etc.)
 - Up to 20 metering devices with RS-485 serial communication (Modbus RTU, BACnet RTU, or other published serial protocol)
 - Up to 100 IP-Based metering devices (Modbus TCP, BACnet/IP, SNMP, or other published IP-based protocol)
 - One KYZ Pulse Output energy meter
 - One ZigBee SEP-enabled Utility Smart Meter
- Streams 1-minute energy data in real-time to the ESP Cloud and to as many additional remote databases as desired (using an API)
- Onboard demand management control over IP or dry contacts with less than 1 minute response time
- Certified with an embedded Automated Demand Response (ADR) client compatible with Open ADR 1.0 and 2.0b protocols
- Preserves data in local memory for up to a year until receiving confirmation of cloud storage
- Utilizes features that optimizes existing EMS and BMS infrastructures
- Designed to leverage currently deployed automation infrastructure and avoid stranded asset costs
- Exceeds LEED v4 requirements
- Complies with International Performance Measurement and Verification Protocol (IPMVP)
- Additional data security with 128-bit encryption

In the Ojibwe Language, Asigin means to Gather Up or Collect.

Energy Challenge

Increasing energy costs are a challenge around the world. Understanding and managing the various energy programs and billing methods continues to become more and more complex. At the same time, facility managers are tasked with finding means to reduce energy costs year over year to maintain profitability. Utilities are faced with an increase in demand from their customers. Traditional reliable energy generation is being replaced with unreliable and unpredictable alternative clean energy generation.

The Solution: ESP Asigin

The ESP Asigin is an Internet-of-Things (IoT) device that combines the functionality of a Gateway, Data Logger, On-Site Server, Demand Management Controller, and ADR DRAS Client all in one. It collects and streams data from existing meters (power, water, gas, environmental, etc.) and sends that data to the ESP Cloud (a cloud-based database). It collects and streams data from existing EMS, BMS, SCADA, utility meters, and energy meters to the Cloud for storage, analytics, visualization and reporting. Once in the cloud, the data is accessible by energy managers and authorized service providers via automated and secure API.



Variety of communication protocols:

The ESP Asigin provides a very flexible solution for connecting your energy data to the cloud. The ESP Asigin can communicate over multiple protocols: BACnet/IP, Modbus TCP, SNMP, BACnet RTU, Modbus RTU, KYZ Pulse, ZigBee, and many other published protocols.

No longer are energy meters stranded due to incompatibility – you can now connect a variety of meters and view all of that data in the EnergiStream user-interface.

DRAS Server and Demand Management Controller:

The ESP Asigin is also a Demand Response Automated Server (DRAS) client for implementation of Automated Demand Response (ADR) actions using OpenADR 1.0 and 2.0b. The ESP Asigin can implement manual (DR) or ADR actions across a nationwide portfolio of facilities with a 1-minute response time. The same embedded control mechanisms can be implemented for actions to manage manual Demand Management or automated Demand Management.

How does it work?

To connect an existing energy meter to the ESP Cloud, install the ESP Asigin and connect it to the meter using Modbus, BACnet, SNMP, or other protocol. Once connected, the ESP Asigin starts to collect data from the energy meter and sends it to the ESP Cloud (or another database using an API).

Once in the cloud, use the ESP User Interface to view, analyze, and generate reports on that data.

Unleash the Power of Big Data

The ESP Asigin propels energy management to the world of real time big data collection, analytics and reporting. The ESP Asigin amplifies the return on investment of spent energy capital expenditures by leveraging existing energy metering and management infrastructure for maximum benefits. Streaming and actionable energy information, to levels only achievable using big data engines, are a necessity in today's energy reality. The ESP Asigin makes it possible.

TECHNICAL SPECIFICATIONS

Communication Protocols and I/O

- Modbus RTU, Modbus TCP
- BACnet/IP
- SNMP
- ZigBee
- RS-485 serial interface
- KYZ pulse counter (input)
- 4 dry contact relays (output)
- 4 USB ports

Device

- 1GHz ARM CPU with 512MB RAM
- Linux OS
- 4GB nonvolatile memory

Duty Cycle

- 100% duty cycle
- Communication to Cloud Database
- Wired Ethernet 10 Base T and 100Base-TX (autosensing)
- Wireless 3G/4G LTE

Environmental

- Operating temperature: -20 C (-4 F) to 55 C (131 F)
- Storage temperature: 60 C
- 95% non-condensing humidity

Packaging

- Wall mountable enclosure
- NEMA rated enclosures

Dimensions

- 12.5" x 13.6" x 4.7" (317.5mm x 345.4mm x 119.4mm)





INDIAN ENERGY LLC

Asigin Pro Datasheet

Asigin Pro

Energy M&V and Demand Management
EMG-1212/EMG-2412 Series



FEATURES

Power Metering Features

- 12/24 channel smart meter
- Single model used for 120-480VAC systems
- Single model accommodates 10A – 10,000A split core and flexible CTs
- Built-in integrator for flexible CTs (Rogowski coils)
- Single model configurable for single, split, and three-phase configurations
- Monitored metrics: RMS Voltage, RMS Current, Power (kW), Energy (kWhr), Total Energy (kVAhr) and Power Factor
- Rolling Demand (kW, 15-minute window)
- Sampling frequency up to 1 Hz (1-minute standard)

Data Gateway Features

- Interoperable with BAS and EMS systems (BACnet/IP, Modbus IP, SNMP)
- Real time streaming of energy data to the cloud
- Acquires and forwards data from existing meters and sensors
- Pulsed input via Ethernet
- Downloads controls to local systems
- Auto-download of system configuration
- Auto-update of firmware
- Auto-Reporting of a non-responsive channel
- Embedded ADR DRAS client
- Built-in web server
- Automated data sharing via web services
- Data viewing, reporting and download via web-enabled application

In the Ojibwe Language, Asigin means to Gather Up or Collect

DESCRIPTION

The Asigin Pro system is the preferred solution for energy measurement & verification and demand management. The Asigin Pro combines the functionality of multiple hardware systems, including up to 24 meters, integrators for flexible CTs, data acquisition software, a data logger, multi-protocol drivers (BACnet, Modbus, etc.), and a data server to stream real time energy information to cloud-based servers. The Asigin Pro also includes a built-in Automated Demand Response (ADR) Client to obtain ADR event notification and pricing information from utility servers. The built-in multi-protocol drivers allow the Asigin Pro to serve as an interface with existing building automation systems (BAS) or energy management systems (EMS) for peak demand management and demand response controls.

The built-in data acquisition software allows for the collection of data from existing sensors (power, gas, water, temperature, occupancy) and the uploading of that data to the cloud servers for analysis and reporting. The energy data is protected and stored on secure cloud-based servers. The EMG comes with a web-enabled application to view the energy information in real time, and a reporting engine to automatically generate and distribute (via email) intuitive, concise and informative reports to an unlimited number of stakeholders. The EMG's integrated capabilities shatter the cost of energy metering, making detailed and real time energy monitoring, analysis, reporting and control an affordable and value added proposition for ALL businesses.



Contact: (714) 686-9792 • Email: sales@indianenergyllc.com • Website: www.indianenergy.com

TECHNICAL SPECIFICATIONS

Device

- AM3571 CPU @ 600 MHz
- Linux Distribution OS
- 256 MB DDR2 Memory

Accuracy

- + / - 0.5% of reading

Power Rating

- Single-phase loads: 10 to 10,000 Amps, 120/277 VAC
- Three-phase loads: 30,000 Amps (3 x 10,000A), 480Delta, 480Wye, 208Wye

Communications

- Wired Ethernet communication (standard)
- MODBUS IP
- BACnet/IP
- SNMP
- OpenADR compliant
- TCP/IP control of Control interfaces (relays)
- 3G/4G LTE option for wireless connection to the cloud

Packaging

- Wall mountable, metallic enclosure
- Custom enclosures available

Environmental

- Operating Temperature -20° C (-4°F) to 55° C (131°F)
- Storage Temperature 60° C
- 95% non-condensing humidity

Duty Cycle

- 100% duty cycle

Certifications

- CE
- EN-61010-1
- RoHS compliant
- UL certification

Dimensions & Weight

- 13.9" x 11" x 2.1" (353mm x 273mm x 53mm)
- Weight 8 lbs. (3.6kg)

Communications to Cloud database

- RS-485, Ethernet 10 Base T and 100Base-TX (Autosensing)

CT Connectors

- Plug-in terminal blocks for external CT sensors and Rogowski coils
- Built-in integrator for Rogowski coil sensors
- 12 / 24 measurement points

METERING GATEWAYS

MODEL	DESCRIPTION
EMG-1212	EnergiStream12 Metering Gateway. Accommodates up to 12 power sensors. 600 MHz CPU, 256MB, Linux OS, Ethernet interface, 120 - 480 VAC, streaming data server.
EMG-2412	EnergiStream24 Metering Gateway. Accommodates up to 24 power sensors. 600 MHz CPU, 256MB, Linux OS, Ethernet interface, 120 - 480 VAC, streaming data server.

ACCESSORIES

SCT-60	60A CT. Split core CT sensor, 60A rating. 1.0cm window size. +/- 1% linearity @ 10 to 130% of rated current.
DCT-200	200A CT. Detachable head CT. 3m / 10ft lead wire, 1.9cm window size. +/- 1% linearity @ 10 to 130% of rated current.
DCT-400	400A CT. Detachable head CT. 3m / 10ft lead wire, 3.2cm window size. +/- 1% linearity @ 10 to 130% of rated current.
DCT-600	600A CT. Detachable head CT. 2.4m / 8 ft lead wire, 3.2cm window size. +/- 1% linearity @ 10 to 130% of rated current.
DCT-1000	1000A CT. Detachable head CT. 2.4m / 8 ft lead wire, 5.1cm window size. +/- 1% linearity @ 10 to 130% of rated current.
FCT-3KXS	3000A XS Flex CT. 100A - 3000A linear range. 20 cm diameter, 3m / 10ft lead wire, 5.5cm window size. Linearity 1%. Positioning 2%.
FCT-3KM.1	3000A S Flex CT. 100A - 3000A linear range. 60 cm diameter, 3m / 10ft lead wire, 17.9 cm window size. Linearity 1%. Positioning 2%.
FCT-3KL.1	3000A L Flex CT. 100A - 3000A linear range. 100 cm diameter, 3m / 10 ft lead wire, 30.6cm window size. Linearity 1%. Positioning 2%.
FCT-5K.1	5000A Flex CT. 250A - 5000A linear range. 45 cm diameter, 2.4m / 8ft lead wire, 15.0cm window size. Linearity 1%. Positioning 2%.
	[Other CT sizes available.]

SOLICITATION, OFFER AND AWARD				1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING		PAGE OF PAGES 1 64			
2. CONTRACT NO. W912DY-14-D-0068		3. SOLICITATION NO. W912DY-11-R-0036		4. TYPE OF SOLICITATION [] SEALED BID (IFB) [X] NEGOTIATED (RFP)		5. DATE ISSUED 30 Jul 2012		6. REQUISITION/PURCHASE NO.			
7. ISSUED BY US ARMY ENGINEERING & SUPPORT CENTER CEHNC-CT 4820 UNIVERSITY SQUARE HUNTSVILLE AL 35816-1822 TEL: 256-895-1110 FAX:				CODE W912DY		8. ADDRESS OFFER TO See Item 7		(If other than Item 7) CODE TEL: FAX:			
NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".											
SOLICITATION											
9. Sealed offers in original and <u>5</u> copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in _____ until <u>12:00 AM</u> local time <u>28 Sep 2012</u> (Hour) (Date)											
CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.											
10. FOR INFORMATION CALL:		A. NAME SARAH M TIERNEY		B. TELEPHONE (Include area code) (NO COLLECT CALLS) 256-895-1219		C. E-MAIL ADDRESS sarah.m.tierney@usace.army.mil					
11. TABLE OF CONTENTS											
(X)	SEC.	DESCRIPTION		PAGE(S)	(X)	SEC.	DESCRIPTION		PAGE(S)		
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X	B	SUPPLIES OR SERVICES AND PRICES/ COSTS		6 - 22	PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS						
X	C	DESCRIPTION/ SPECS/ WORK STATEMENT		23 - 39		J	LIST OF ATTACHMENTS				
X	D	PACKAGING AND MARKING		40	PART IV - REPRESENTATIONS AND INSTRUCTIONS						
X	E	INSPECTION AND ACCEPTANCE		41		K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS				
X	F	DELIVERIES OR PERFORMANCE		42		L	INSTRS, CONDS., AND NOTICES TO OFFERORS				
X	G	CONTRACT ADMINISTRATION DATA		43 - 46		M	EVALUATION FACTORS FOR AWARD				
X	H	SPECIAL CONTRACT REQUIREMENTS		47 - 51							
OFFER (Must be fully completed by offeror)											
NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.											
12. In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.											
13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52.232-8)				Net 30 Days							
14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated):				AMENDMENT NO.		DATE		AMENDMENT NO.		DATE	
15A. NAME AND ADDRESS OF OFFEROR		CODE 63Y10		FACILITY		16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print) Henry J Boulley Jr Owner/COO					
INDIAN ENERGY LLC HENRY BOULLEY 3501 JAMBOREE RD STE 606 NEWPORT BEACH CA 92660-2945											
15B. TELEPHONE NO (Include area code) 1-855-437-3639		<input checked="" type="checkbox"/> 15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.		17. SIGNATURE 		18. OFFER DATE 7/25/2014					
AWARD (To be completed by Government)											
19. ACCEPTED AS TO ITEMS NUMBERED				20. AMOUNT \$2,500,000,500.00		21. ACCOUNTING AND APPROPRIATION					
22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304(c)() <input type="checkbox"/> 41 U.S.C. 253(c)()						23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)		ITEM			
24. ADMINISTERED BY (If other than Item 7) See Item 7				CODE		25. PAYMENT WILL BE MADE BY US ARMY ENG & SUP CENTER - FINANCE OFFIC US ARMY CORPS OF ENGRS FINANCE CTR 5722 INTEGRITY DRIVE MILLINGTON TN 38054-5005		CODE 964145			
26. NAME OF CONTRACTING OFFICER (Type or print) TONJU L BUTLER TEL: 256-895-1166 EMAIL: Tonju.L.Butler@usace.army.mil						27. UNITED STATES OF AMERICA  (Signature of Contracting Officer)		28. AWARD DATE 25-Jul-2014			
IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.											