POWER ENGINEERING
DONE RIGHT.

ILLUMINE i
EMPOWERING BUILDERS

Austin | Brisbane | Chennai

From the CEO's Desk

Greetings from Illumine International Inc. (Illumine-i)

The global power mix is being driven by sustainable and renewable energy sources with total installed capacity of renewables estimated to grow from 37% in 2025 to 60% in 2035. With businesses and homeowners increasingly adopting renewable power solutions, the industry is set for substantial growth, crucial for global climate efforts and sustainability goals. At this pivotal moment, I'm excited to introduce Illumine-i and explore collaborations with businesses and communities navigating the path toward energy transition.

Drawing from my extensive background in developing and managing large-scale projects at esteemed companies, I possess a deep understanding of the opportunities and challenges within the power ecosystem. At Illumine-i, our team is passionately dedicated to innovating solutions that empower clients to capitalize on these opportunities. With over a decade of experience in the US power industry, predominantly in solar, we specialize in providing value-engineered solutions to EPCs, developers, manufacturers, and financial institutions, positioning them strategically to lead market disruption.

We are proud contributors to the US's five million installations milestone and the largest independent digital design engineering firm in the residential PV Solar sector. Continuously enhancing client experience is our priority, driven by innovation and addressing evolving needs. We have channelled our passion and expertise into developing our engineering services that integrate extensive research, meticulous design, and unwavering commitment to quality. I invite you to explore these services and experience first-hand the unconventional approach to make a difference.

When you choose Illumine-i, you become part of a community—a community built on trust, reliability, and a shared passion for unconventional innovation.

Thank you for considering Illumine-i as your partner in progress. We look forward to serving you and exceeding your expectations at every turn.

Warm regards,

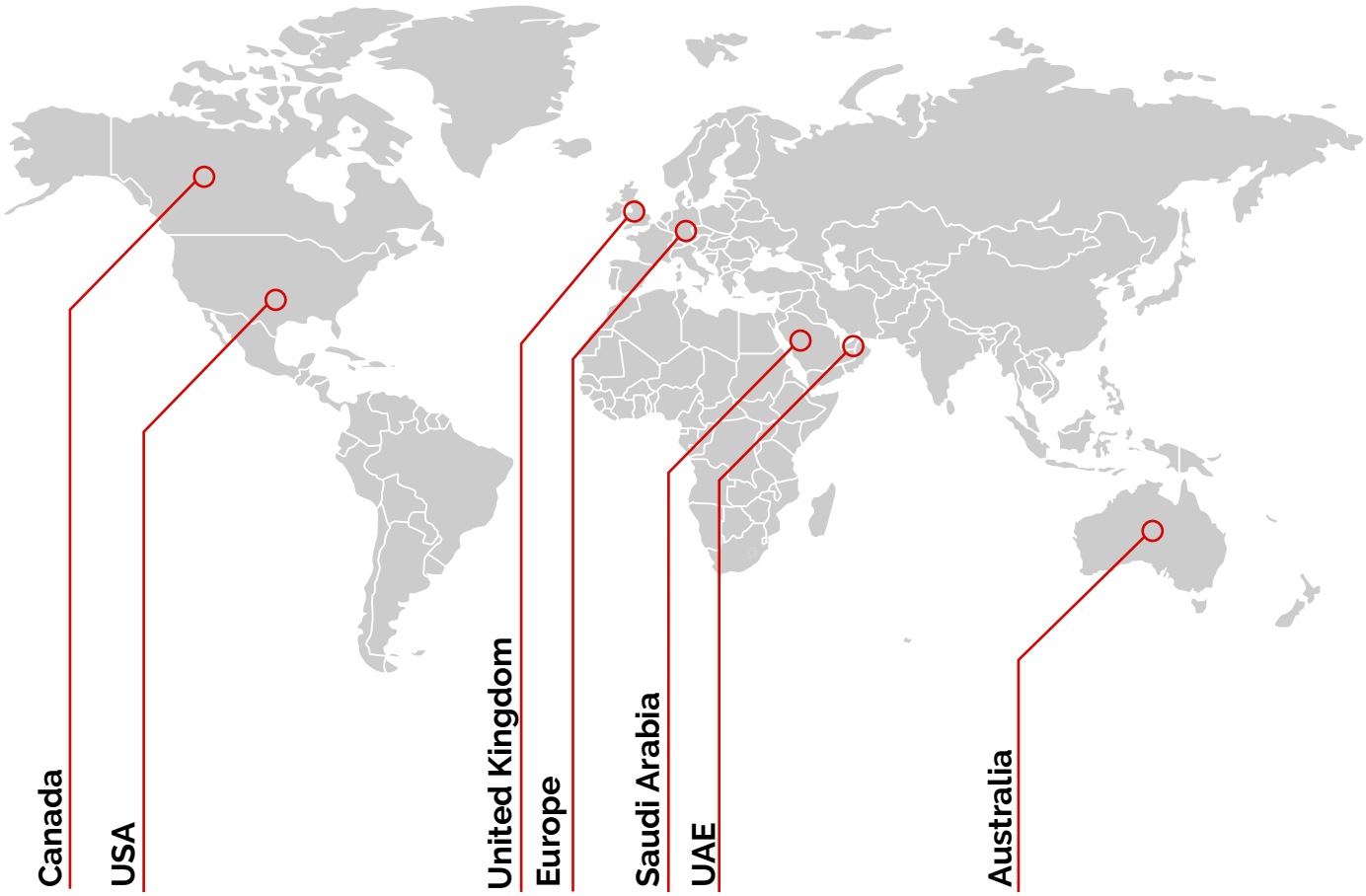
Nithish Sairam
CEO
Illumine International Inc.

Power Engineering consultants to transform your clean energy vision into reality through value engineering solutions.

Who We Are

Established in 2015, Illumine-i has seen remarkable growth, expanding both horizontally and vertically to become a leading provider of engineering services in the power industry. Headquartered in Austin, Texas, we've extended our reach globally, with a significant presence in the United States, Europe, Middle East and Canada. Our ongoing expansion continues into new geographies, as we strive to foster building resilient, greener and smarter communities globally.

Markets Served



Impact that Speaks

635,000 hours
of consulting for
power engineering projects

250+
engineers and consultants

30% Reduction
in project time, ensuring
efficiency & cost-effectiveness

4 Continents
serving various AEC
stakeholders

Power Verticals

Our team specializes in delivering engineering-driven solutions for diverse stakeholders across the energy value chain. We focus on enabling the seamless integration of renewable energy technologies into a sustainable and resilient power grid. From power generation to delivery, our expertise ensures reliable, scalable, and future-ready infrastructure that meets the evolving demands of the energy sector.

Power Generation

- Solar PV
- Battery Energy Storage System
- Microgrids

Power Delivery

- Transmission Infrastructure
- Distribution Lines
- Substations
- Electric Vehicle Charging Station

Ive Otterson is here to provide expert consultation on your power project requirements, ensuring efficient, tailored solutions for success.

I am an EPC/Developer/IPP. I have a few proposed sites for development. I need to explore the viability and merits. How Illumine-i can help me?

Feasibility Studies

- Site Selection
- Solar Resource Assessment
- Production Estimate
- Environment Impact Studies
- Preliminary Survey
- ALTA Survey
- Topographical & Contour Survey
- Geotechnical Survey

Preliminary Engineering

- Site Plan
- Plant Layout
- String Layout
- Single/Three line Diagram
- Communication Plan
- Shading Analysis

I am an EPC/Developer/IPP. I have a pipeline of won projects. What expertise can Illumine-i offer me?

Electrical Engineering

- One Line Diagram (LV ,MV, and HV)
- Three Line Diagram
- Cable Routing Plan
- Grounding and Bonding Design
- Lighting Plan

Structural Engineering

- Racking design
- Foundation Design & Analysis
- Structural Analysis
- Seismic and Wind Load Analysis
- Equipment Elevation Design
- Pad-mounted Equipment Sizing

Civil Engineering

- Detailed Site Layout
- Grading Plan
- Trenching design
- Zoning and Notice of Intent
- Stormwater Pollution Prevention Plan (SWPPP)

Power Studies

- Arc Flash Studies
- Load Flow and Fault Simulations
- Short Circuit Studies
- Lightning protection and system design

Scope of Work

Feasibility Studies

Preliminary Engineering

Electrical Engineering

Structural Engineering

Civil Engineering

Special Studies

Feasibility Studies

Site Selection
Identify optimal locations based on technical, environmental, and regulatory constraints.

Route Planning
Selection of the most practical by considering the environmental criteria, cost of construction, land use, public impact, maintenance, and engineering aspects.

Solar Resource Assessment
Analyse historical weather data, past solar irradiance levels, cloud cover patterns, and satellite imagery to understand solar energy generation potential.

Material Specification
Defining technical requirements and selecting major equipment to ensure code compliance, long-term reliability and performance.

Production Estimate
Calculating expected energy output based on site-specific solar resource and design parameters.

Cost Estimate
Prepare a cost breakdown for the project including construction, materials, and labor.

Environment Impact Studies
Assess the environmental impact of the project and document the information to evaluate project feasibility.

Preliminary Survey
Conduct initial site investigations to gather general data for planning and design.

ALTA Survey
Providing a detailed property survey to support land ownership and title verification.

Right-of-Way Studies
Determine property boundaries to inform landowners about the project's purpose and acquire permission to access necessary land areas for survey and infrastructure development.

Line Survey
Map the route of transmission lines to obtain data for plan and profile drawings

Topographical & Contour Survey
Generate detailed terrain models to guide engineering and construction planning

Geotechnical Survey
Assess soil and subsurface conditions at the proposed site to determine their suitability for supporting the electrical equipment and project infrastructure

Field Staking
Locate and place markers for electrical equipment, poles, lines, and underground systems on the proposed site

Preliminary Engineering

Site Plan
Outline the layout and topography of a project area, showcasing existing and proposed features for construction and grading.

Plant Layout
Design the proposed physical arrangement of solar panels, inverters, and other equipment.

String Layout
Configure the best way to connect solar modules into strings to optimize electrical performance.

Single/Three line Diagram
A simplified representation of the electrical distribution system, showing the connections and components from generation to interconnection.

Communication Plan
Prepare protocols for team communication, stakeholder engagement, reporting mechanisms, and crisis management strategies.

Shading Analysis
Simulation of on-site conditions to assess the potential shading impacts and optimize panel placement

OH and UG Design
Design overhead (OH) and underground (UG) electrical systems for transmission and distribution

PLS-CADD Modeling
Visualize the power line structures and alignments by modeling the structures in software like PLS-CADD

General Arrangement Plan
Depict the spatial organization and key components of a facility to provide a clear overview of its structure and function

Substation Plan
Outline the physical layout, equipment, structures, and components in a substation with associated sections and details for construction and operation.

Electrical Engineering

One Line Diagram (LV, MV, and HV)
Electrical schematic diagram showing power distribution at low, medium, and high voltage levels.

One Line Diagram (Switching)
Outline the switching equipment and interconnection locations to depict power flow and ensure operational flexibility.

One Line Diagram (Functional Relaying)
Highlight the protection and relaying schemes to ensure fault detection and isolation.

Three Line Diagram
Design all three phases of electrical systems, including connections and components.

Cable Routing Plan
Map the pathways for cable installations to avoid interference.

Cable and Equipment Sizing
Determining appropriate sizes for cables and equipment based on current capacity and load flow.

Control Building Plans
Outline the layout, equipment placement, and infrastructure within a control building. It may include HVAC and architectural aspects if required.

Relay Control Panel Layouts and Wiring Diagrams
Define the physical and functional arrangement of relays, switches, and associated components along with bill of materials and wiring diagrams.

Grounding and Bonding Design
Prepare a layout for the grounding system and define the grounding methods for installation.

Lighting Plan
Design and implement efficient lighting systems to illuminate the areas surrounding the project location.

Structural Engineering

Racking design
Design mounting systems that ensure the stability and maximize the production efficiency of solar panels.

Foundation Design & Analysis
Determine the appropriate foundation type according to site conditions and load requirements.

Structural Analysis
Assess the structural integrity of components to ensure compliance with safety standards.

Pole Load Analysis
Calculate the load-bearing capacity of poles for overhead systems, including forces from cables and equipment.

Seismic and Wind Load Analysis
Analyze the structural behavior under seismic and wind forces to ensure durability and safety.

Equipment Elevation Design
Determine equipment heights to mitigate risks from flooding, snow, or other site-specific conditions.

Pad-mounted Equipment Sizing
Select equipments that meet the operational, safety, and spatial needs within the constraints of the project.

Sag and Tension Calculations
Calculate cable pulling tension and sag for transmission and distribution lines under various conditions.

Civil Engineering

Detailed Site Layout
Prepare a detailed plan by expanding on preliminary design documents and revisions.

Grading Plan
Identify requirements necessary to prepare the land for the installation of infrastructure and define earthworks specification

Fence design
Define the perimeter and design fence, gate, and security features that comply with budgetary and regulatory requirements.

Trenching design
Design the trenching route as planned for underground conduits and document the as-built drawings.

Raceway Plan
Provide layout of conduits, underground cables, and cable trenches along with detailed references for installation.

Duct Bank Design
Design the layout of high-voltage cables and their duct systems with horizontal and vertical profiles and sections.

Zoning and Notice of Intent
Review local regulations to ensure code compliance and submit a notice of intent to the local authorities for land use and project development.

Stormwater Pollution Prevention Plan (SWPPP)
Assess the topology, and drainage patterns to provide site-specific plans for stormwater management and best management practices.

Special Studies

Arc Flash Studies
Safety assessments in compliance with NFPA-70E standards.

Load Flow and Fault Simulations
Analyze the electrical behavior of the system/grid under different conditions to identify potential issues and optimize performance.

Short Circuit Studies
Study the grid under fault conditions to calculate the fault current values and determine ratings for protection devices.

Device Coordination Studies
Outline the settings for devices involved in power production, data collection, communication, and safety.

MET/Weather station design
Create a system to accurately monitor meteorological parameters and optimize the performance and efficiency of the solar PV system accordingly.

Lightning protection and system design
Designing and implementing measures to safeguard infrastructure from lightning-induced damage.

DAS and SCADA Drawings
Develop detailed schematics to monitor and control grid infrastructure.

Reconductoring and Pole Replacement
Studies to evaluate upgrades to existing lines for capacity, reliability, or regulatory compliance.

OH to UG Conversion
Engineer the transition of overhead systems to underground configurations.

Leadership Team

Nithish Sairam, Chief Executive Officer

Nithish earned his master's degree from the Fulton School of Engineering at Arizona State University. He then spent over five years working at Tesla, OneRoof Energy, and NextEra Energy.

During this time, he developed, managed, and built projects across the United States with system sizes ranging from 5MW to 100MW. He launched Illumine-I as a disruptor in the solar ecosystem that helps energy players develop, operate, manage and maintain assets efficiently and sustainably through value engineering.

Sudarsan Krishnan, Co-Founder & Chief Product Officer

Sudarsan has more than 7 years of experience in development, engineering, and construction of solar projects, ranging from residential rooftops to community/utility solar projects.

Prior to his current role, he was a team lead at Black & Veatch as a part of the specialized solar performance group and provided independent engineering bankable production estimates for over 1.5 GW utility scale solar projects.

Eric Steele, Engineering Manager

Eric is an experienced electrical engineer with 12+ years of experience working with companies such as Sunrun, Vivint Solar and Omaha Public Power District.

He specializes in residential and commercial photovoltaic systems, electrical power generation & distribution, and electrical utilities. It extends to electrical system design, complex troubleshooting and root cause analysis, equipment reliability and maintenance, etc.

Cedar Falcon, Professional Engineer

Experienced Electrical Engineer with expertise in low, medium, and high voltage electrical distribution systems, mission critical engineering and data centers.

Project Portfolio

Commercial

1.2 MW (Ground mount)
Rockingham, Virginia

130 kW (Rooftop)
Plumas, California

700 kW (Rooftop)
Fremont, California

1000+
Projects

Education

868 kW (Ground mount)
Bedford, Virginia

266 kW (Rooftop)
New Canaan, Connecticut

99 kW (Rooftop)
Boise, Idaho

200+
Projects

Healthcare

1.3 MW (Ground mount)
Winchester, Virginia

480 kW (Ground mount)
Tazewell, Virginia

423 kW (Car port)
Santa Clara, California

100+
Projects

Multifamily homes

610 kW (Rooftop)
Los Angeles, California

974 kW (Rooftop)
Los Angeles, California

151 kW (Rooftop)
Tacoma Park, Maryland

800+
Projects

Community

107 kW (Rooftop)
Upland, California

250 kW (Rooftop)
Fredericksburg, Texas

101 kW (Rooftop)
Edmonds, Washington

50+
Projects

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