gi energy

Energy Infrastructure Development

Company Overview & Experience

GIE resolves every aspect of an energy challenge: our capabilities

Solutions

- Energy Master Planning
- Building and Development Modelling
- Project Feasibility Studies

Financial Structuring

- Asset Ownership
- Coordinate financial structure
- Joint Venture Ownership
- Capital Structuring

Engineering & Design

- Develop and Manage Projects
- Development Support Services
- Incentive Coordination
- Exterior and Interior Ground-Loop Design
- Equipment Sizing and Specification
- HVAC System Integration

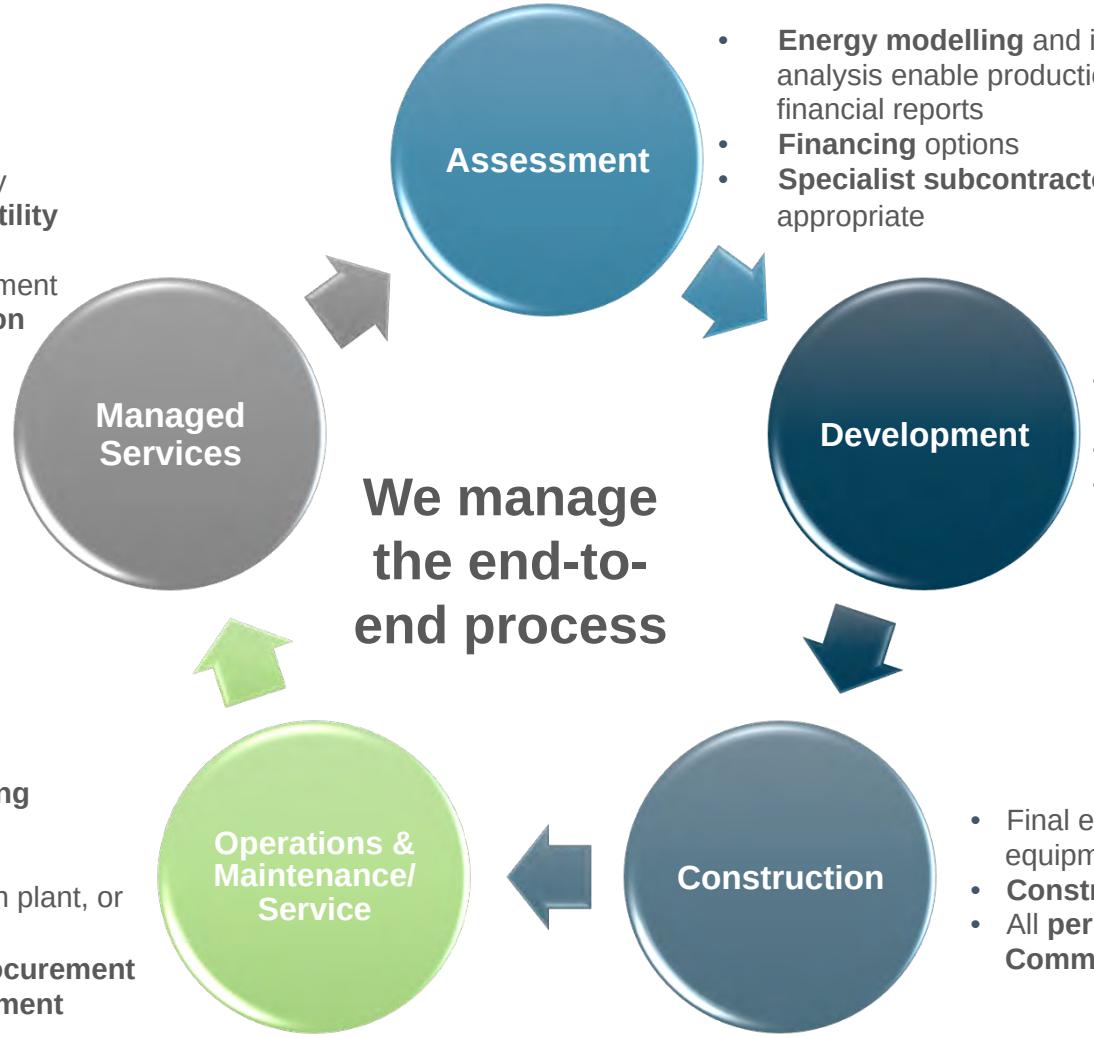
Construction & Installation

- Full EPC Solutions
- Build Assets
- Project Management
- Startup Services
- Quality Assurance Oversight
- Coordination Between Trades
- Equipment Commissioning

Services

- Procurement Services
- Manage Energy Assets
- Operate Projects
- Maintain/ Service Projects

We are a single point of contact: applying our capabilities



- **Energy modelling** and incentive & utility tariff analysis enable production of technical and financial reports
- **Financing** options
- **Specialist subcontractors** sourced as appropriate

- All **engineering services** provided, including constructability reviews
- Equipment lifecycle analysis
- **Connection to existing utilities** managed

- Final engineering completed and equipment procured
- **Construction** process fully managed
- All **permitting arranged** before **Commissioning of asset**

- Variety of on-site **training** available
- We can support Client maintenance staff to run plant, or offer services directly
- We also offer **parts procurement** and **warranty management**

- Performance & efficiency tracking, and **ongoing utility analysis**
- Fuel sourcing & procurement
- **Continuous optimization**
- Retro-commissioning

We support real estate developers from the earliest stages

Early Stage Environmental Review

- Working with our partners, GIE provides input into Environmental Impact Reviews and Studies. By addressing potential challenges to sustainable development early on, we minimizing the need for time for costly addendums or supplemental studies.

Master Utility Planning

- The most innovative approaches to sustainable development require early system integration: power, water, thermal & telecommunications. From day one GIE will work with your civil engineering and planning team to ensure a cohesive approach.

Energy Modeling and Forecasting

- GIE harnesses our expertise in energy modeling to accurately forecast site loads, and model environmental and economic gains of various technology applications.
- Our analytics team conducts deep analysis informed by real world performance data, informing key decision makers by delivering accurate and transparent assessments.

JLL

EMPIRE STATE REALTY TRUST

LENNAR

Cypress College

Trinity Health Livonia, MI

CBRE GLOBAL INVESTORS

City of Hartford Connecticut

WINTRUST BANK

Google

Selected Case Studies

THE UNIVERSITY OF CHICAGO

Dignity Health.

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Cornell University Founded A.D. 1865

Walgreens

UBS

Hunters Point Eco-District, San Francisco

- Over 800 acres for residential, commercial & municipal use (8m sq ft)
- Master planned site under single real estate developer, with GIE as eco-district development partner
- New Master Utility Plan designed along with street grid and development blocks
- ~450,000 GPD water recycling system, 10-15MW rooftop PV, 15,000 ton capacity geothermal heating & cooling
- Third party funded systems including automated waste collection, EV charging and self-sustaining street lights
- Mix of direct-use third party offtake contracts, and partnerships with local municipal utilities

Cornell Tech Geothermal System
Roosevelt Island, NYC

- Ground Source Heat Pump technology for 150,000sq ft Bloomberg Center, the campus' first academic center
- 80 Bores – 350 ft deep
- Modelled peak load on 265 tons of cooling
- Originally designed to support Bloomberg Center to be one of largest Net Zero buildings in USA

Con Edison – Energy Storage

Con Edison – Energy Storage Demo Project

- GIE has created brand new business model
- Installing Four 1 MWh/1 MW lithium-ion batteries and one 400 kWh/200 kW zinc-manganese dioxide battery, on Con Edison customers' properties.
- Customers will receive lease payments, their electric bills will be unaffected
- The batteries will be located in 'front-of-the-meter' (FTM)
- When Con Edison does not need the stored power, GIE will dispatch the batteries, maximizing secondary revenue streams

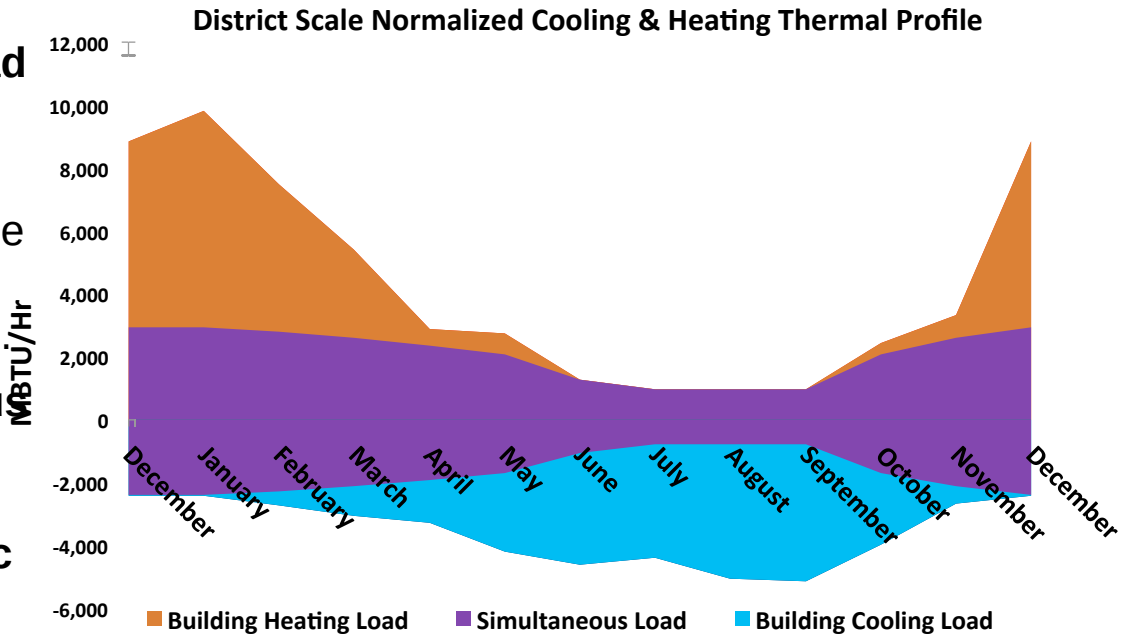
Parkville Microgrid, Hartford CT

Municipal critical infrastructure protection project

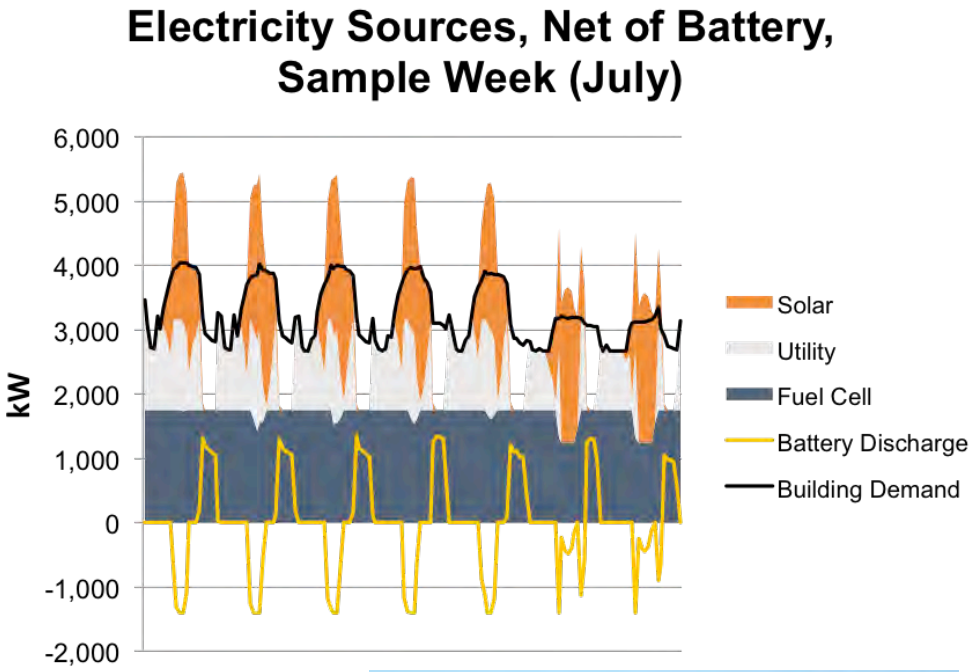
- First microgrid project in CT
- Will provide uninterrupted power for school, gas station, and grocery store during grid outages
- Contains 800 kW Bloom Energy fuel cell
- Funding includes $2.1M grant from State of Connecticut secured by GIE, Virtual Net Metering, and RECs
- Owner of system will be an Exelon-Bloom joint venture

Efficiency and Electrification

- **Eliminate need for redundant HVAC equipment by taking advantage of load diversity across different building types**
- Commercial energy loads peak during the afternoon while residential energy loads peak in the early mornings and evenings.
- **Where possible, connect simultaneous heating and cooling needs through energy loops (ex. Capturing heat off pumps and compressors for domestic hot water pre-heat)**
- **Electrification: Convert thermal energy production from fossil-fuel based (natural gas boilers) to electric heat pumps**



Decarbonization



- Secure offsite electricity from renewable sources (third party power purchase agreements and RECs)
- Maximize onsite renewable electricity production using photovoltaics and wind, where feasible
- Utilize targeted energy storage to maximize utilization factor for renewable electricity and minimize offsite power import
- Implement district scale HVAC system utilizing geo-exchange to eliminate water used in mechanical cooling (elimination of evaporative cooling towers)

Resiliency

- **“Smart Grid” design to enable isolation**
- **Integrated building management controls networked throughout buildings to allow for load shedding during critical events**
- **Utilize energy storage for multiple use cases including as targeted back-up power**
- **Utilize fuel cells to provide cleaner baseload power and backup capabilities to reduce reliance on diesel generators**

Innovative Finance

- **Identify low cost sources of long-term capital (30+ year time horizons) such as infrastructure funds**

- **Remove cost barrier to deployment of green and sustainable technologies by engaging long-term capital while maintaining parity with conventional infrastructure (monetizing long-term operating efficiencies on day one)**

- **Public private partnerships (PPP) that reduce burden on municipalities while allowing for meaningful participation in new development**