## Intelligent Optimization in Energy Storage with IHI

IHI's energy storage technology provides customers with analysis, control, and real-time operation capabilities to optimize their energy storage solution. With 160 years of technology experience and a skilled engineering team, IHI provides customers with the tools to achieve their energy goals and maximize their return on investment.



**TRUE END-TO-END SOFTWARE**with advanced performance
guarantee



BANKABILITY WITH IHI'S ENERGY EXPERIENCE

and 86GW of installed projects



\$15 BILLION IN REVENUE and 252 subsidiaries world-wide

## **ACTIVE PROJECTS**

#### **TUCSON ELECTRIC POWER**

Size: 1MW/1MWh

Battery technology: Li-Ion (Samsung SDI, LG

Chem)

Use case: Renewable ramp up/down support

and capacity investment deferral

IHI's scope: Control platform and autonomous

operation (ESWare)/ System integration

### ONTARIO IESO (Through Hecate Energy)

Size: 2MW/6MWh

Battery technology: Flow (ViZn Energy)

Use case: Ancillary services – reactive support

and voltage control

IHI's scope: Control platform (ESWare)/ System

integration





## **IHI's Unique Capabilities:**

IHI combines software, solutions, and performance guarantees to create optimal energy storage projects.



EXPERTLY DESIGNED
SYSTEM FOR THE BEST
RETURN ON INVESTMENT

Reduction of investment through optimization of the size and suggestion of the major components.



FINANCIAL ANALYSIS OF INVESTMENT AND USE CASES

Includes NPV, IRR, ROI, forecasting for peak shaving, T&D deferrals, renewable support, demand charge reduction, energy arbitrage, Ontario Global Adjustment reduction, and more



AUTONOMOUS AND SCALABLE ESS CONTROL

Through real time data integration, economic dispatch, and scalable platform.



Total system offering of energy storage system including control platform, battery, inverter, and other major components.



WARRANTY AND ADVANCED PERFORMANCE GUARANTEE BACKED BY IHI



#### **IHI's Software:**

#### ESWare, a True End-End Energy Storage Enabler



- Sophisticated techno economic analysis based on adaptive dispatch algorithms
- Optimized autonomous operation using real time data integration and forecasting
- Supports both front-of- the-meter and behindthe-meter opportunities
- 9 different modes of operations in addition to economic operation
- Robust security procedures including NERC security codes
- Highly scalable from 100kW to 100MW
- Secured data management
- Technology agnostic in integrating different batteries and inverters

# **Solutions:** From Project Analysis to System Integration



- Detailed analysis of the opportunity including dispatch strategy, optimized size and investment, and financial projections
- Unparalleled knowledge of batteries and other major components
- Procurement, system design and engineering through 86GW energy project experience



## Warranty and Performance Guarantee:



IHI Energy Storage provides an advanced performance guarantee with warranty management and maintenance services included to give you peace of mind and financial security. IHI is committed to providing customers with the best value possible through top-of-the-line software, a reliable guarantee, and highly optimized solutions.



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