

# Energy AnalytiX<sup>®</sup>

Advanced Energy Management Software

Product Brief v10.9

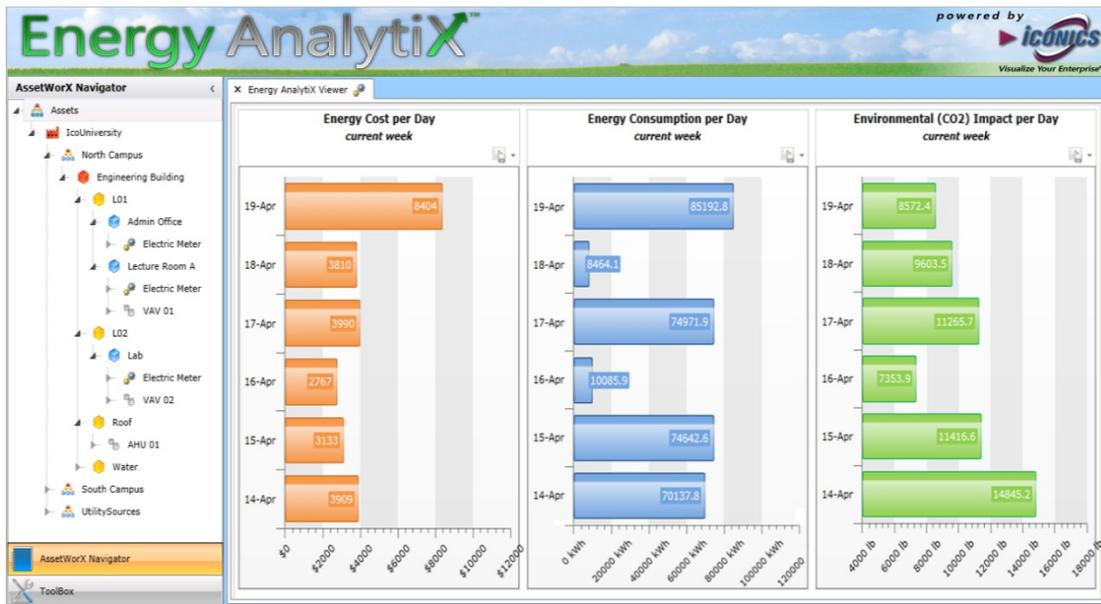
October 2015



Visualize Your Enterprise™

## Advanced Energy Management Solution

In today's competitive global economy, with soaring energy prices and increasing environmental regulations, profitability and the ability to quickly analyze energy usage and closely control operating costs becomes ever more critical. A smart integrated energy management solution can easily save money, which translates into a greatly improved bottom line. Everyone is looking for ways to reduce consumption, monitor demand trends, lower energy costs and minimize carbon emissions. ICONICS Energy AnalytiX<sup>®</sup> provides you with the analysis and information you need to implement continuous improvements.



Energy AnalytiX Default Overview Display

Energy AnalytiX is an off-the-shelf Energy Management System (EMS) that focuses on energy data analysis to increase efficiency and reduce overall operational costs. It helps with improving energy usage patterns, monitor energy reliability, and even forecast energy consumption. Information obtained from Energy AnalytiX can be used to:

- Optimize your energy management program
- Drill down to identify inefficient assets that consume too much energy
- Identify peak usage periods to load-balance assets and take advantage of off-peak rates
- Visualize energy usage per site, normalized by square foot or square meter
- Analyze carbon footprint per person / per site
- Monitor equipment energy usage trends and details
- Notify personnel with alerts when meters fail or energy usage is unexpectedly high
- Automatically email energy consumption and cost information to managers
- Leverage alternate energy sources for efficiency and cost savings

**Features and Benefits**

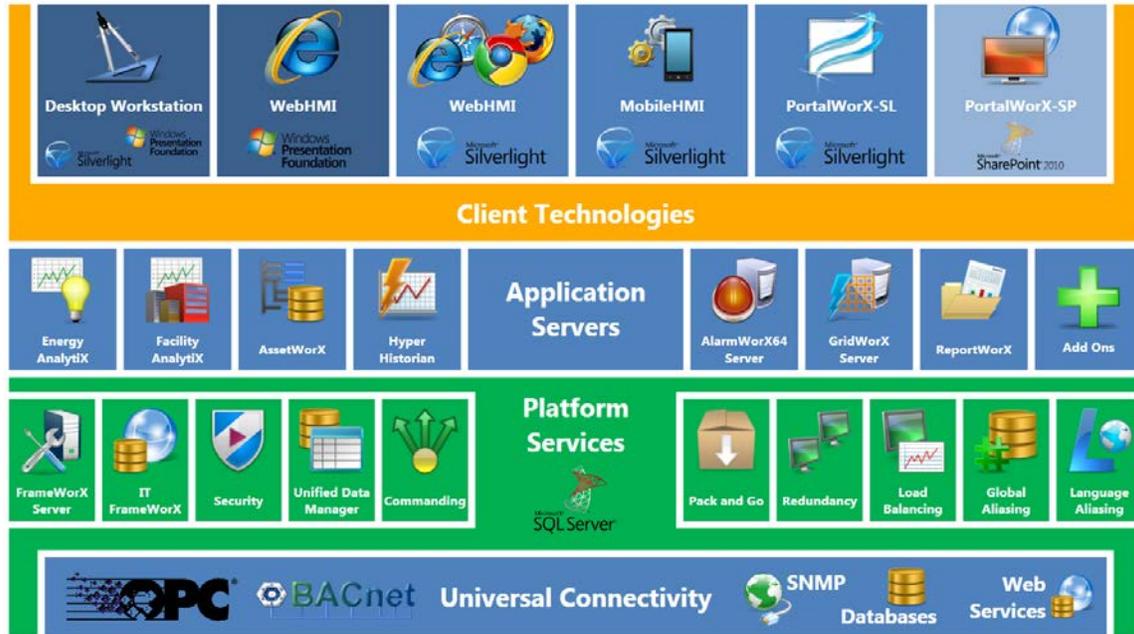
The goal of Energy AnalytiX is to enable key stakeholders to reduce costs, increase efficiency, and improve energy planning and cost allocation through the use of intuitive visualization techniques and insightful reports. Energy AnalytiX offers the flexibility to cater to just about any application in any industry, and to scale up from a single entity to a large enterprise or campus-wide installation. Virtually any process, production or building data that requires summarization, aggregation, comparison, and observation over time can greatly benefit from use of this solution. Energy AnalytiX provides the following high-level features and benefits:



<b>Feature</b>	<b>Benefit</b>
Built-in Energy Cost, Consumption, and Carbon Calculations	Easy to configure, not only to record and chart energy, but to correlate unexpected consumption with its probable causes.
Universal Connectivity	Universal Connectivity includes integrated OPC, OPC UA, BACnet, SNMP, Modbus, Databases, and Web Services, enabling immediate collection of meter data. Collect real-time data or import historical records.
Rich Visualization and Drill Down to Energy Offenders	Rich charting, graphics, tables, and reporting provide the analysis needed to find sources of energy waste. Powerful templates facilitate automatic reuse and rollups without additional engineering time.
Robust and Scalable	Built on top of the powerful ICONICS Platform Services, the system is proven to collect data from just a few meters, to multi-campus or multi-site deployments.
Quick to Deploy	Energy savings quickly add up when combined with overall project cost savings achieved by simply “Plugging Us On” your existing network.
Support for Multiple Units and Currencies	Users are able to view data in terms that they are familiar with, on a scale that makes sense to them.
Stay Informed, Anywhere, Any Time, Any Place	Information can be delivered to the desktop, to any browser, be built into Microsoft SharePoint® collaboration portals, or to mobile devices.
Monitor to Goals and Budgets	Not only monitor data, but monitor adherence to budget and reduction goals. Establish targets and view KPI’s as they track to those targets.

**Energy AnalytiX Solution Architecture**

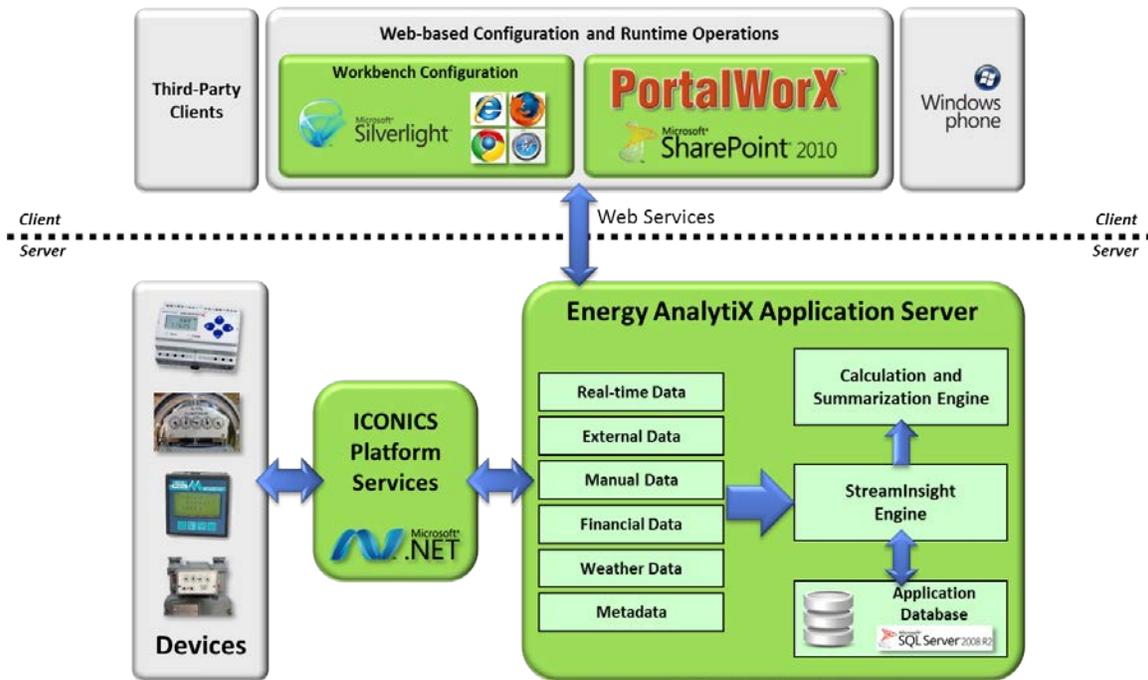
Energy AnalytiX is part of the AnalytiX suite of operational excellence solutions from ICONICS, built on top of the powerful Platform Services and as such it fits into the overall ICONICS V10 system architecture as shown in the diagram below:



**ICONICS V10 System Architecture**

Energy AnalytiX periodically processes raw data and populates its runtime operational database tables with energy cost, consumption and carbon data in increments of a configurable base summarization period, which by default is every 15 minutes. The Energy AnalytiX summarization engine processes values, events and associated variables collected via the ICONICS Platform Services and populates separate tables containing data for each base summarization period, as well as hourly, daily, weekly, monthly and annually summarized data. As a result, users can quickly leverage highly sophisticated data queries and reports with ease.

The Energy AnalytiX solution architecture (shown below) is broken up into several different key areas: the Workbench for Silverlight (Workbench-SL™) configuration provider, Runtime Visualization via PortalWorX™ for Silverlight (PortalWorX-SL™) or PortalWorX for SharePoint (PortalWorX-SP™), the Application Database, Runtime Summarization Engine, StreamInsight complex event processing engine, and a comprehensive web services framework that connects it all together.



**Energy AnalytiX Solution Architecture**

Energy AnalytiX uses a Microsoft SQL Server 2008 R2 (or higher) database engine as its configuration and runtime data storage repository. As the Energy AnalytiX engine collects data from your system, it analyzes those pieces in real time and processes, extracts, aggregates and summarizes that information to the appropriate level in your ISA-95 equipment hierarchy. This is a new and unique approach for energy data analysis that relieves the end user from the complicated task of collection, extraction, transformation and load while providing an aggregated view of the process performance. This revolutionary approach to energy analysis provides the following advantages:

- Collects and calculates energy usage data efficiently
- Normalizes and structures the collected data
- Summarizes at the asset level and performs rollup calculations
- Processes large volumes of database data at the source – to avoid network bottlenecks
- Exposes a rich set of database stored procedures to facilitate energy data analysis, grouping, sorting and filtering
- Simplifies integration with desktop clients as well as browser clients
- Centralizes user data to offer a single version of the truth

Energy-related information is available to clients such as GraphWorX64™, ReportWorX™, PortalWorX-SL, PortalWorX-SP, MobileHMI™, and third-party systems. Information can be accessed either via open database connectivity methods or through ICONICS Platform Services using the Unified Data Browser, and of course via the rich visualization tools provided out of the box as part of Energy AnalytiX.

**Energy Solution Suite for Any User in Any Industry**

Any manufacturing plant, building or facility interested in analyzing its consumption of resources is a great fit for Energy AnalytiX. It is the ideal solution for monitoring corporate initiatives around energy reduction or carbon emissions (“Green”) goals. Energy AnalytiX simply plugs into your existing network and easily connects up to all meters. It is best suited for corporations that are looking to improve their energy efficiency and reduce overall operational costs, and is most commonly used for the industries of facilities management, utilities, large industrial plants, and multi-site industries such as retail. Below are some examples of the types of applications that can benefit from Energy AnalytiX:

- Commercial Buildings and Campuses
- Government Facilities
- Manufacturing Plants
- Process Plants
- Large Industrial Plants
- Water and Wastewater process plants
- Utilities
- Central Steam Plants



**Built-in Energy Cost, Consumption and Carbon Calculations**

Energy AnalytiX utilizes an extremely powerful calculation framework to provide you with all of the energy related information and analysis that you could possibly need. ICONICS provides a full set of predefined calculations that allow you to get up and running quickly by simply applying these calculations to your own meters and sensors. All energy calculations are defined using ICONICS’ powerful Expression Editor, which supports a wide variety of out-of-the-box functions and features. Examples of Calculation Categories are: General, Cost, Consumption and Carbon. As you can see below it is easy to add your own custom categories as well:

Calculation Categories		
Category Name	Description	Reserved
Click here to add new item		
> Carbon	Carbon emmissions calculations	<input checked="" type="checkbox"/>
Consumption	Consumption calculations	<input checked="" type="checkbox"/>
Cost	Cost calculations	<input checked="" type="checkbox"/>

**Calculation Categories in Energy AnalytiX**

For cost-based calculations users can define cost centers for energy assets and associate those energy assets to logical units within an organization for monitoring associated energy costs. Defining cost centers as tiers in the asset tree gives you a logical organizational unit where energy costs can be attributed. Cost centers can be logical units within the Asset tree (such as

Science Complex of a University Campus) or they can be tenants of a building or campus, or responsible departments within a manufacturing company (such as Shipping, Accounting or IT).

Energy AnalytiX' runtime views and reporting tools provide filtering support that end users can use to classify energy utilization and related costs using Cost Centers. The Energy AnalytiX runtime tracks changes to your budget as they occur, and takes Cost Centers into account as another "normalizing" factor within its cost-based calculations.

For advanced analysis that may be specific to your particular application, use the predefined calculations as a starting point and create your own derived calculations and comparisons using the powerful ICONICS Expression Editor, with full equation parsing and syntax checking.

### Energy AnalytiX Calculations

#### Standard

Consumption	The actual measured energy needed to operate or run the system (a single asset or hierarchy of assets).
Input	The measured energy that is provided into the system.
Output	The energy generated within the system (i.e. from a Wind Turbine, Solar Panel, etc.) and exported for example onto the grid.
Loss	Anything that is typically not explicitly measured but is instead calculated by the difference between the input on one side and the consumption and output on the other side (Loss = Input - Consumption - Output).

#### Consumption

Normalized Consumption by Area	The Consumption normalized by area of a Campus, Building, Floor, etc. Derived from the Consumption calculation divided by the asset's Floor Space parameter.
Normalized Consumption by Occupancy	The Consumption normalized by average occupancy of a Campus, Building, Floor, etc. Derived from the Consumption calculation divided by the asset's Occupancy.

#### Cost

Normalized Cost by Area	The Cost normalized by area of a Campus, Building, Floor, etc. Derived from the Consumption calculation multiplied by the Rate, divided by the asset's Floor Space parameter.
Normalized Cost by Occupancy	The Cost normalized by average occupancy of a Campus, Building, Floor, etc. Derived from the Consumption calculation multiplied by the Rate, divided by the asset's Occupancy.

#### Carbon

CO <sub>2</sub> Footprint	Measure of the carbon dioxide (CO <sub>2</sub> ) emissions or greenhouse gasses (GHG) emitted by an energy asset.
---------------------------	---

#### Weather Data

Analysis by Degree Days	Enables users to analyze their consumption and cost data by heating and cooling degree days for reporting purposes.
-------------------------	---

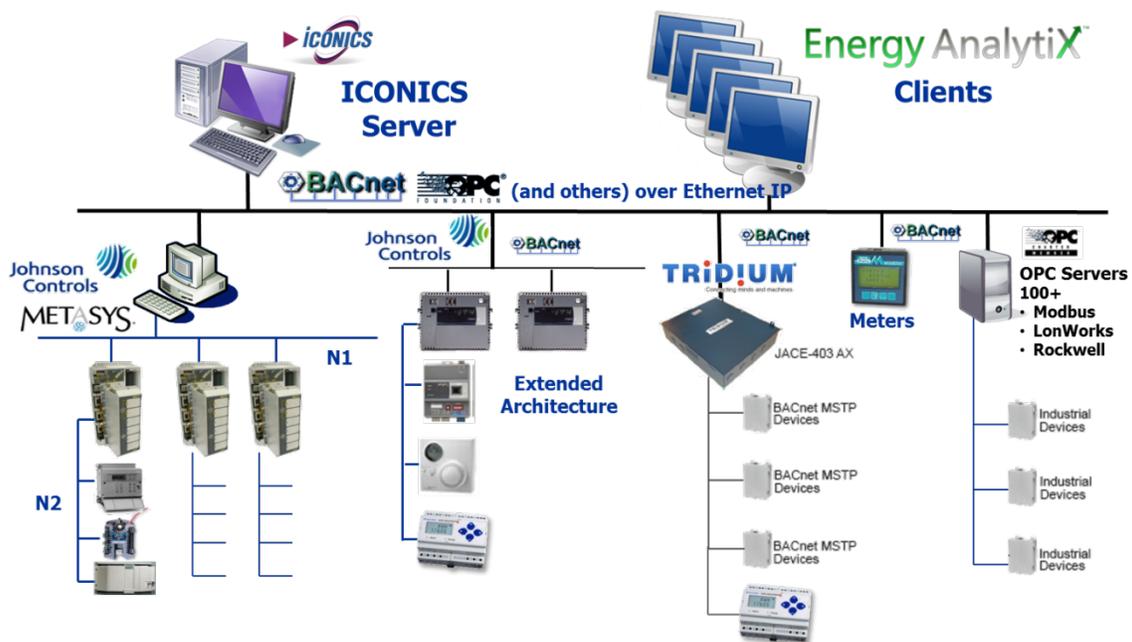
#### Create Your Own...

Energy AnalytiX' flexible calculation framework empowers users to add their own custom calculations such as Consumption per Unit of Product Produced for example.

**Connect to Virtually Any Building or Factory Infrastructure**

Energy AnalytiX provides the infrastructure you need to accumulate and compare relevant information. It aggregates and calculates derivations and provides very intuitive point-and-click roll up. With Energy AnalytiX you literally just “Plug-Us-On” and instantly integrate to almost any equipment that is already networked in a facility. In many cases no construction is necessary if meters or sensors are already in place.

If new metering is needed, just have an electrician “Clamp It On”, with a split core CT and plug the new meter into the network. For companies interested in how the Energy AnalytiX solution typically fits into a standard Building Automation architecture, refer to the diagram below:



**Energy AnalytiX within a typical Building Automation Architecture**



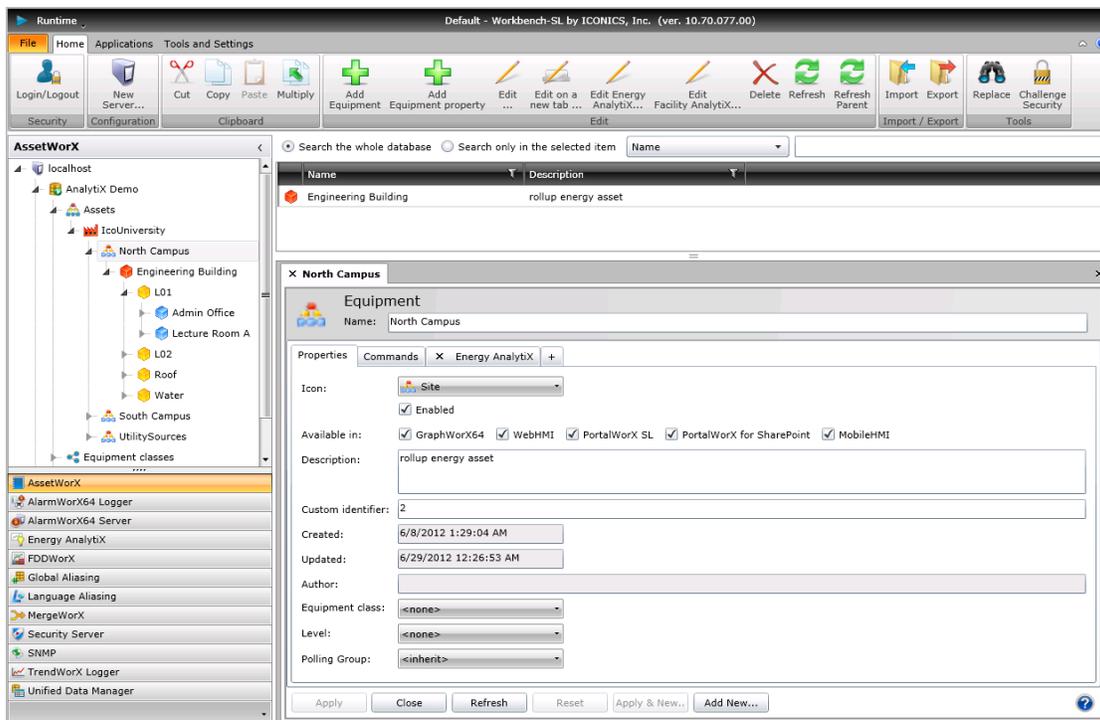
## Hyper Historian™ Historical Data Integration

Energy AnalytiX offers users the ability to retrieve data directly from ICONICS Hyper Historian as well as other 3<sup>rd</sup> party historians supporting the OPC UA historical data access interface. This historical data, which is collected using periodic time triggers configured within Energy AnalytiX, can be used to supply data for meters as well as property bindings to be used in derived calculations for advanced analysis.

New users who wish to leverage the robust, scalable data collection capabilities of Hyper Historian can simply configure new meters or property bindings right from within the Energy AnalytiX configuration dialog, and designate them as Hyper Historian tags. For existing Hyper Historian users you have the option to simply point to historical tags that have already been collecting meter data, as a convenient way to consume Energy AnalytiX information. Users can also utilize the External Data Processing feature to import vast amounts of historical data from your existing historian, to backfill Energy AnalytiX with a base set of information.

## ISA-95 Compliant AssetWorX Integration

Energy AnalytiX is built on top of the powerful AssetWorX provider in the Workbench-SL. This allows users to configure Energy Assets right within an ISA-95 compliant hierarchical tree structure along with utility sources and meters that will be used as sources for energy calculations.



AssetWorX Workbench-SL Configuration Environment

AssetWorX is an additional architectural layer within ICONICS Platform Services that enables the system to be engineered and operated based on an intelligent asset technology configured to represent a customer's enterprise. Assets can be defined in a hierarchical model in one centralized system for analysis, in the form of physical locations and business units, along with equipment such as buildings and machinery, as defined by the ANSI/ISA-95 standard.

AssetWorX offers a centralized repository for integrating business and manufacturing intelligence systems. The ISA-95 compliant tree structure provides a functional hierarchy for navigation and for data roll-ups, along with a way to organize data sources and physical entities. For example, rather than OPC data sources being organized based on the address space of the server itself, these data sources can be organized based on the geographic/physical locations of the associated sensors (for example, by site, building, floor, and machine).

Energy AnalytiX integrates with AssetWorX for defining Energy Assets, relationships between those assets, security on those assets, and a powerful commanding infrastructure for rich visualization.

**Equipment Classes:** AssetWorX also introduces a time-saving concept called Equipment Classes, which allow you to “template” any asset or equipment type for rapid deployment. Energy AnalytiX users can define equipment classes such as meter types, which might include electricity meters, water meters, gas meters, oil meters, or meters from a variety of different manufacturers. Users can also template machines, equipment, or even entire buildings or campuses for rapid deployment.

**Configuring a Meter Equipment Class**

When instantiating an Equipment Class the user is presented with a list of parameters that the Equipment Class expects. For a Building-level template this might include pieces of information like Building Owner, Construction Year, Floor Space, and so on. For a Meter-level template it

might include properties like Manufacturer, Serial Number, Contact Name, Date of Install, and Date of Calibration. This powerful concept of parameterization is what provides for such flexibility in Energy AnalytiX data analysis capabilities, and enables users to analyze their information from a virtually unlimited number of angles.



**Instantiating a Meter Equipment Class**

**Context-sensitive Commands to Quickly Navigate Your Enterprise**

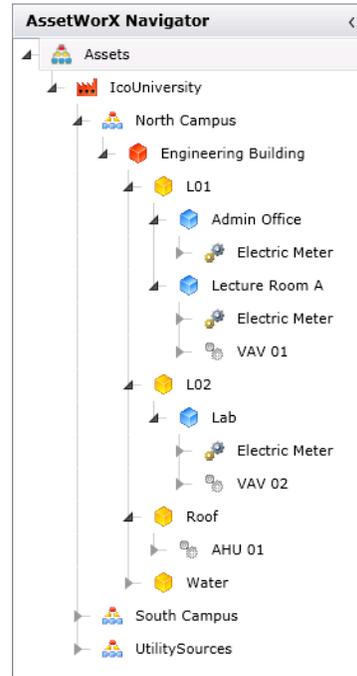
The same powerful AssetWorX hierarchy that you build in configuration mode can also be used to drive much of the rich visualization for Energy AnalytiX on the runtime side. This is achieved using a flexible “Commanding” infrastructure, which is part of ICONICS Platform Services, to send information, displays, alarm views, reports, and much more between modules. Commands can be enabled at any level of your ISA-95 hierarchy and support the concept of inheritance as well to simplify configuration. The following Commands are presently supported:

**Commands**

General	Set Language, Custom, Set Global Alias, Save Configuration, Group, Sort, Expand/Collapse, Refresh, Set Global Color Theme, Zoom
AlarmWorX64	Load Configuration, Set Filter, Acknowledge
AssetWorX	Select Asset
BridgeWorX	Run Transaction (Server Side)
EarthWorX	Go To Location
Energy AnalytiX	Load Configuration
Facility AnalytiX	Load Configuration
GraphWorX64	Open URL, Call Method, Write Value (Server Side), Load Display, Set Visibility, Navigate, Print, Export Image
GridWorX	Load Configuration, Select Element
MobileHMI	Send SMS, Phone Call, Send Email, Load Mobile Layout
ReportWorX	Run Report (Server Side), Load Report, Load Executed Report
ScheduleWorX64	Load Schedule Control Configuration, Schedule Clear Override, Schedule Override
TrendWorX64	Load Configuration, Set Time Range, Set Period, Create Pen, Delete Pen, Edit Pen, Set Freeze Mode, Export Statistic

### AssetWorX Navigator

ICONICS AssetWorX Navigator is shared between MobileHMI, GENESIS64 and the powerful AnalytiX solution suite, providing a consistent navigation interface across every application. This enables the flexibility to apply the Navigator as an embedded component inside a graphic or mobile display, or as a standalone component inside a PortalWorX dashboard to launch or command other applications in the same portal. The AssetWorX Navigator enables operators to quickly and intuitively navigate to the subject of interest, and the Navigator can also browse and execute reports natively via the ReportWorX provider, if ReportWorX is installed and accessible from the ICONICS application server.



The advantages of using AssetWorX include:

- Greatly reduced engineering time
- Operator Consistency
- Virtual Naming
- Easy Navigation through the AssetWorX navigation tree
- Simple roll-up and drill down to the summarization or detail of interest
- Virtually unlimited scalability

### Rich Visualization and Drill-down to Energy Offenders

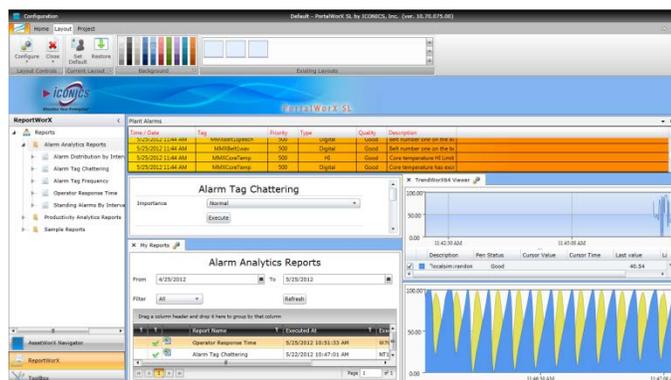
Energy AnalytiX provides you with tools to point to energy efficiency offenders and to correlate energy consumption with the causes of its expected use or its over or under use. Configure side-by-side comparison charts with ease to quickly and visually gauge energy consumption on similar types of equipment, comparably sized facility spaces, varying equipment operational states, and a wide variety of other parameters so that you can easily identify the abnormalities.

Energy information can be presented in a variety of different ways across the ICONICS suite of products, including the following client options:

### PortalWorX-SL™

PortalWorX-SL is an innovative frame-based runtime environment used to force an organized screen layout typically referred to as a portal or dashboard. PortalWorX-SL will make it easier and faster to configure complex dashboards and layouts for functions such as alarm monitoring or operational control. Using Microsoft Silverlight, PortalWorX-SL requires very little setup and can be deployed

# PortalWorX-SL™



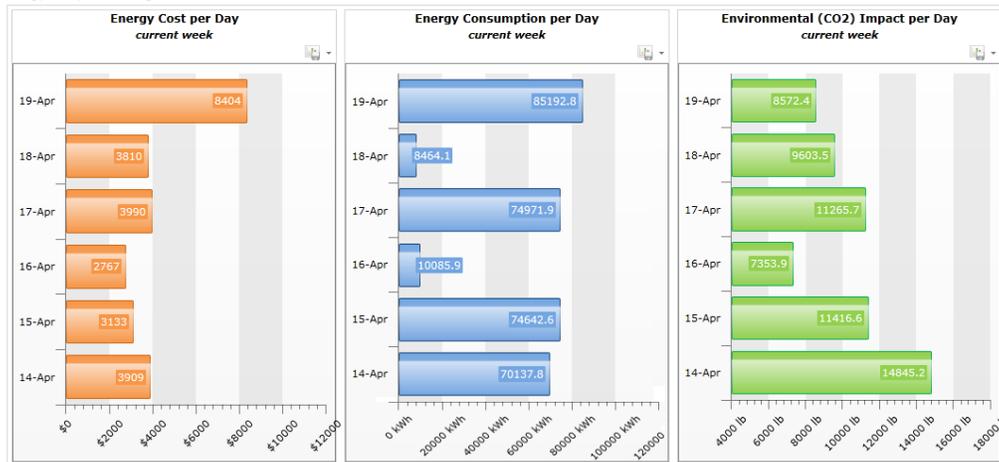
easily on any system. The frame-based dashboards allow anyone to create and customize an organized environment with almost no training. Central to the frame-based environment is the AssetWorX Navigator, which will allow navigation and organization of assets for faster access to data. As a layer of further integration, AssetWorX Commanding also provides options to send messages between frames such as GraphWorX64 displays, AlarmWorX64 Viewers, TrendWorX64 Viewers, FDDWorX Viewers and Energy AnalytiX Viewers.

## PortalWorX-SP<sup>™</sup>

### PortalWorX-SP<sup>™</sup>

PortalWorX-SP is built on top of the powerful Microsoft SharePoint platform. Within this framework, Energy AnalytiX data is just one of the valuable pieces of information that can be integrated into your role-based portals and dashboards. PortalWorX offers a wide variety of Silverlight web parts to integrate your ICONICS application data alongside other third-party information in a single, unified view. For more information on ICONICS PortalWorX, please download the PortalWorX Product Brief from the ICONICS website at [www.iconics.com](http://www.iconics.com).

Energy AnalytiX Silverlight Web Part

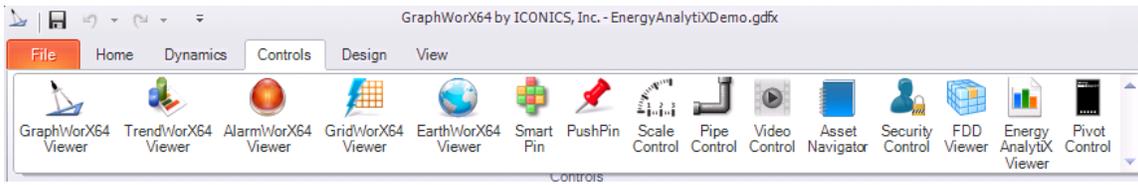


Energy AnalytiX Viewer Web Part

### GraphWorX64<sup>™</sup> Control

## GraphWorX64<sup>™</sup>

GraphWorX64 is at the heart of the visualization in GENESIS64, and now you can leverage this powerful canvas for visualization your Energy AnalytiX information as well with the new Energy AnalytiX Viewer in GraphWorX64! With an intuitive and instantly familiar interface, the power is in your hands to easily develop displays and connect data meaningfully. GraphWorX64 offers a rich and powerful set of drawing and animation tools as well as customizable dynamics to any object. The GraphWorX64 interface can create powerful and elegant graphics without requiring advanced scripting knowledge. Using intuitive menu systems and property lists, users can point and click their way to enterprise graphics. Additionally, save yourself time and effort with simple import, export, publishing tools, smart symbols, shared objects and many other useful features.

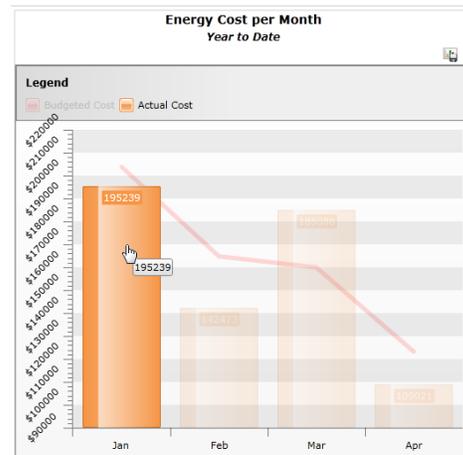
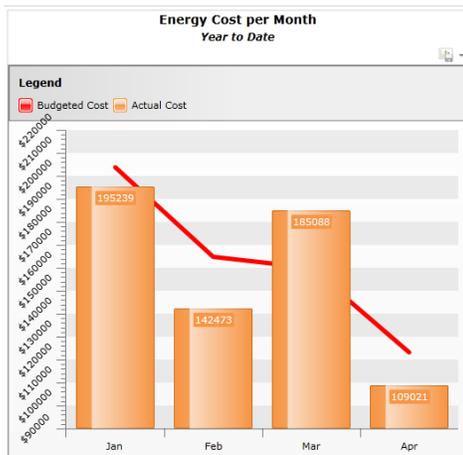


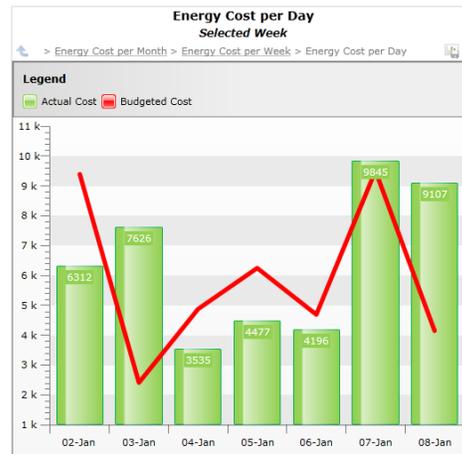
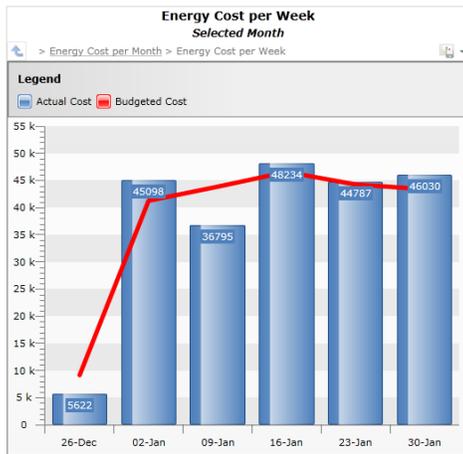
Just drop the Energy AnalytiX Viewer into any of the aforementioned environments and instantly start realizing the value. It is easy to quickly configure runtime views, charts, and reports. Users simply point to their desired calculations or queries for their desired asset or level, and then configure the look and feel, layout, and style of the chart or grid component from there, choosing from a number of predefined options. Stay informed from anywhere, at any time, any place!

### Energy AnalytiX Viewer Features

The Energy AnalytiX Viewer is an extremely flexible visualization control that allows users to build rich energy visualizations through a point-and-click interface. Configuration is simple yet powerful and supports a wide variety of chart types, layouts, grids and options. Users have the option to specify a default overview configuration that should be loaded whenever they visit their role-based Energy AnalytiX dashboard, but it is simple to switch between various charts and grids using the powerful AssetWorX Navigator.

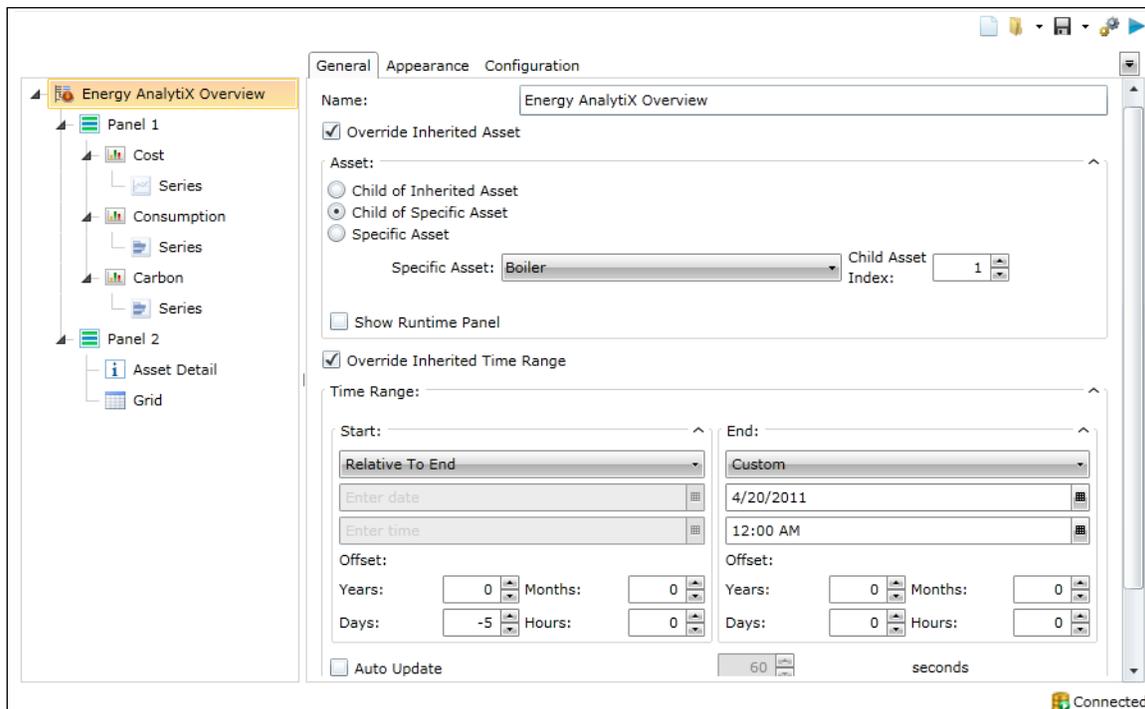
Drill down into energy offenders to uncover savings opportunities and optimizations. Charts support both vertical (asset-based) and horizontal (query-based) drill-down to enhance the ease with which users can identify areas of inefficiency.





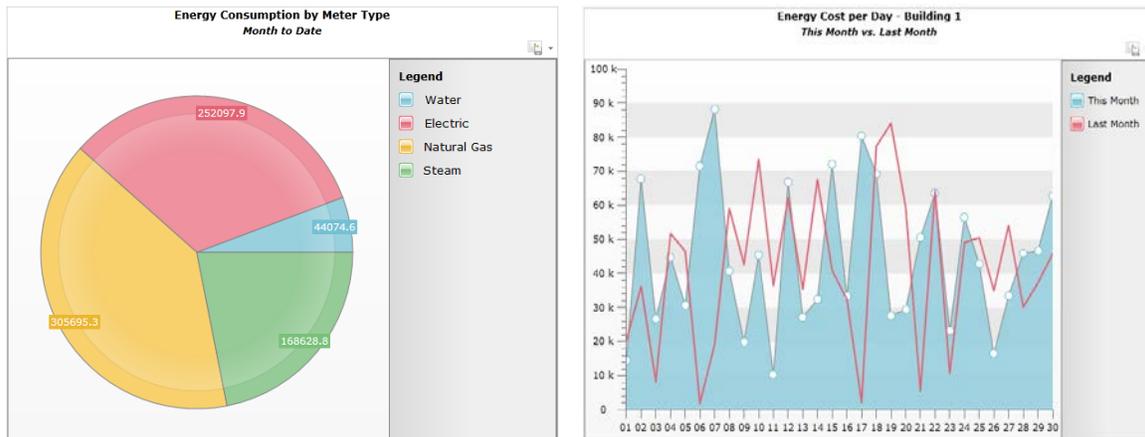
### Energy AnalytiX Viewer Drill-Down Capabilities

Configuring the Energy AnalytiX Viewer is easy. Simply point-and-click to add charts, grids, panels, tab controls, and other details to the configuration, in order to compose a rich visualization control with information that is laid out in an intuitive fashion. Each visual item can be mapped to a query or calculation from Energy AnalytiX in order to expose cost, consumption, carbon, weather data, or any other information collected by the system.



### Energy AnalytiX Viewer in Configuration Mode

Here are just a couple of additional examples of the types of powerful charts that can be built using the Energy AnalytiX Viewer:



### Configure Pie Charts, Line Charts, Area Charts or Combine Different Chart Types

The following specification table lists the features and visual elements supported by the Energy AnalytiX Viewer:

## Energy AnalytiX Viewer Specifications

### Supported Environments

PortalWorX-SL	Thin client operator dashboard
PortalWorX-SP	SharePoint-based manufacturing intelligence portal
GraphWorX64	Supported in both WPF and Silverlight displays

### General

Supported Visual Elements	Chart, Grid, Tab Container, Panel, Detail Panel
Layout Options	Horizontal, Vertical, Embedded within other elements (Charts within Panels, Grids within Tabs, etc.)
Global Configuration Settings	Title, Created By, Created Date, Modified By, Last Modified Date, Description, Default flag (specifies which configuration should be loaded by default)
Toolbar Options	New, Load from File, Load from Database, Save to File, Save to Database, Viewer Settings, Configuration/Runtime mode switch

### Time Range Options

Now	Data initializes with the current time as the Start or End Time
Inherited	Start and/or End Time is inherited from the parent level
Relative to Start/End	Applies an offset (forward or backward) to or from the Start or End Time in Hours, Days, Months, or Years
Preset	First Day Current Week, First Day Last Week, First Day Current Month, First Day Last Month, Last Day Current Week, Last Day Last Week, Last Day Current Month, Last Day Last Month
Custom (Fixed)	Specify a fixed time to be used by default
Offset	All times above support an optional offset (forward or backward) in Hours, Days, Months, or Years
Auto Update	Automatically updates the chart/grid at the specified interval

### Asset Selection

Inherited	Inherit Asset information from parent or override at any level
Child of Inherited Asset	Show data for one of the children of the inherited asset. Allows to specify an index corresponding to which child should be

	shown by default (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , etc.)
Specific Asset	Show data for a specific asset from the AssetWorX Navigator
Child of Specific Asset	Show data for one of the children of a specific asset. Allows to specify an index corresponding to which child should be shown by default (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , etc.)
Show Runtime Panel option	Shows current asset selection in runtime and allows to switch dynamically between assets
<b>Charts</b>	
Preconfigured Chart Types	Degree Days Analysis, Energy Calculation Analysis, Energy Calculation Summary, Energy Meter Values, Energy Meters Summary
Linear Chart Types	Line, Stacked Line, Spline, Stacked Spline, Area, Stacked Area, 100% Stacked Area, Spline Area, Stacked Spline Area, 100% Stacked Spline Area, Step Line Area, Range, Spline Range, Stick, Candle
Column Chart Types	Bar, Stacked Bar, 100% Stacked Bar
Scatter Chart Types	Scatter, Bubble
Radial Chart Types	Pie, Doughnut
Horizontal Chart Types	Bar, Stacked Bar, 100% Stacked Bar
Drill-down Support	Asset-based (Vertical) or Custom (Horizontal)
<b>Chart Appearance Options</b>	
Legend	Visibility, Position, Item Orientation, Item Markers
Data Sampling	Function (Average, First, Last, Max, Min, Sum, Keep Extremes), Threshold
X-Axis	Visibility, Title, Show Labels, Label Format, Layout Mode, Step, Label Step, Label Rotation, Ticks Distance, Step Label Level Count, Step Label Level Height
Y-Axis	Visibility, Title, Show Labels, Label Format, Step, Label Rotation, Fixed Range (Min and Max values)
<b>Chart Series Options</b>	
Override Chart Type at Series Level	Allows to overlay different types of series on the same chart
General Settings	Visibility, Title, Line Color, Thickness, Fill Color, Foreground Color, Item Animation Duration, Series Animation Duration
Point Markers	Visibility, Marker Stroke Color, Thickness, Marker Fill Color, Marker Shape
Labels	Visibility, Format, Show Connectors, Show Zero Value Labels, Distance from Point, Support for Images
Tooltips	Visibility, Format
Data	Bound to any available Energy AnalytiX calculation or query
<b>Grids</b>	
Rows	Background Color, Alternate Background Color (for banded rows support)
Column Options	Visibility, Header Title, Width (in pixels or relative), Background Color, Header Font (Color, Size, Style, Alignment), Cell Font (Color, Size, Style, Alignment), Content Type (Value, Image), Sort (Ascending, Descending, None)
Filtering Options	Equal, Less Than, Less Than or Equal, Greater Than, Greater Than or Equal, Not Equal, Starts With, Ends With, Contains, Does Not Contain, Is Contained In
Grouping Options	Group By any column, with optional default sort order

Data	Bound to any available Energy AnalytiX calculation or query
<b>Panels</b>	
Layout Orientation	Specifies if objects within the Panel will be stacked vertically or horizontally
<b>Asset Detail Panels</b>	
Field Settings	Visibility, Label, Label Font (Color, Size, Style, Alignment), Value Font (Color, Size, Style, Alignment)
Asset Image	Visibility, Stretch (None, Fill, Uniform, Uniform to Fill), Width, Height
Data	Bound to any available Energy AnalytiX calculation or query
<b>Appearance Options</b> (Available within all visual elements in the Viewer)	
Title	Text, Format, Color, Size, Style, Alignment
Subtitle	Text, Format, Color, Size, Style, Alignment
Border	Color, Thickness
Background	Color

## Leverages Microsoft Technology and ISA-95 Asset Hierarchy

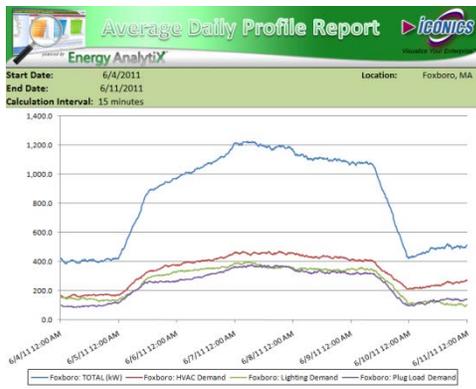
Energy AnalytiX offers the following Microsoft technology benefits and features to bring you a complete energy management solution, providing fast returns from your energy reduction and sustainability initiatives:

Feature	Benefit
ISA-95 Asset Hierarchy	Speed up deployment time by integrating with your existing ISA-95 asset structure
Microsoft Silverlight	Rich visualization and charting components for thin-client, IT-friendly deployment
Microsoft .NET Framework	Web services to enhance the computing experience with highly integrated communications and information
Windows Server Platform	Leverage the foundation on which Microsoft has built all of its latest server-class products
Role-based Collaboration Dashboards using SharePoint	Visualize energy cost, consumption & carbon information within a consistent, unified, single version of the truth
Microsoft SQL Server	Comprehensive data management platform with open database technology for 3 <sup>rd</sup> party integration
Microsoft SQL Server StreamInsight	Complex Event Processing (CEP) engine
Windows Communication Foundation (WCF)	Secure, reliable and transacted messaging and interoperability
Parallel Processing	Distributes the calculation processing load across all available processors
Microsoft SQL Server CLR stored procedures	Exposes rich data retrieval and drill-down capability via database stored procedures

## Scheduled Reports Help Meet Government Regulations

Are you being driven by corporate or government requirements to reduce energy costs or carbon emissions? Are you trying to achieve Energy Star or LEED certification? If so, Energy AnalytiX can provide you exactly the data that you need for this and other regulatory reporting requirements.

With Energy AnalytiX it is easy to configure powerful and detailed reports that expose information from the Energy AnalytiX database. Start from one of the preconfigured reports or customize your own report format using the flexibility of Microsoft Excel combined with the power of ICONICS' ReportWorX reporting tool.



Energy AnalytiX leverages the award-winning ReportWorX technology to turn data into actionable information in the form of reports. ICONICS brings you the most advanced reporting tool available today, taking maximum advantage of Microsoft's powerful technologies. ReportWorX, based on Microsoft .NET, enables you to push data into your reports and to control the report execution frequency and delivery format (Excel, PDF or HTML). Once generated, the reports can be automatically sent to local or remote disk drives, redundant printers, PDF files, Web servers, Fax machines, or multiple users via E-Mail.

ReportWorX allows for the execution of Energy reports in conjunction with other logical areas of your process, based on scheduling triggers within ICONICS Unified Data Manager. The criteria by which reports can be triggered include:

- Manually based on direct operator commands
- Periodically based on time and/or date
- Based on alarms or events
- Based on real-time OPC tags
- Expressions or calculations
- Based on NT events
- File system and database value changes

Energy AnalytiX charts, views and reports help personnel to make intelligent decisions about where and when to allocate or curtail their top energy-consuming assets. The difference between running a machine or not running a machine during times of fluctuating energy costs can make a huge impact to your bottom line!

## System Requirements

Energy AnalytiX requires the following hardware and software components. System requirements may vary based on application size, system performance requirements, and loading factors.

### Minimum Hardware and Additional System Requirements:

Component	Requirement
<b>CPU</b>	Dual Core 64-bit processors (e.g. AMD Athlon 64 X2, Intel Xeon, or AMD Phenom)
<b>Memory</b>	<i>Minimum:</i> 4 GB of RAM ( <b>Recommended:</b> 6 GB of RAM) <b>Note:</b> It is recommended that the system page file size be a minimum of four (4) times the size of installed (physical) RAM.
<b>Hard disk</b>	At least 50 GB of free hard disk space is recommended – for installation and to allow for SQL Server database growth
<b>Drive</b>	DVD Drive for installation
<b>Display</b>	<i>Recommended: Onboard Video Memory (256Megs)</i> <i>Display resolution minimum - <b>1024x768, 32bit color</b></i> <i><b>DirectX 9 or 10</b> Video Card or better</i>
<b>.NET Framework</b>	Microsoft .NET Framework 4.5
<b>Web Server</b>	Microsoft Internet Information Services (IIS) 7.0 or higher
<b>Operating System</b>	Windows 64-bit server class operating systems, including:  Windows Server 2012 R2 x64  Windows Server 2012 x64  Windows Server 2008 R2 x64  Windows Server 2008 x64
<b>SQL Server</b>	Microsoft SQL Server 2014  Microsoft SQL Server 2012  Microsoft SQL Server 2008 R2 SP1  <b>Notes:</b>  1. The connection to SQL Server data source may be either local or remote. 2. ICONICS supports SQL databases with encryption.  Microsoft StreamInsight, a required component for Energy AnalytiX will run in demo mode for 180 days if not registered with a valid SQL Server license key. This means that SQL Express installations will only be able to run Energy AnalytiX for 180 days unless they are upgraded with a valid SQL Server license key.
<b>SharePoint</b>	Microsoft SharePoint 2010 - all editions are supported (PortalWorX-SP only)
<b>Excel</b>	Microsoft Office Excel 2003 or above (required for ReportWorX only)



Founded in 1986, ICONICS is an award-winning independent software developer offering real-time visualization, HMI/SCADA, energy, fault detection, manufacturing intelligence, MES and a suite of analytics solutions for operational excellence. ICONICS solutions are installed in 70% of the Fortune 500 companies around the world, helping customers to be more profitable, agile and efficient, to improve quality and be more sustainable.

ICONICS is leading the way in cloud-based solutions with its HMI/SCADA, analytics, mobile and data historian to help its customers embrace the Internet of Things (IoT). ICONICS products are used in manufacturing, building automation, oil & gas, renewable energy, utilities, water/wastewater, pharmaceuticals, automotive and many other industries. ICONICS' advanced visualization, productivity, and sustainability solutions are built on its flagship products: GENESIS64™ HMI/SCADA, Hyper Historian™ plant historian, AnalytiX® solution suite and MobileHMI™ mobile apps. Delivering information anytime, anywhere, ICONICS' solutions scale from the smallest standalone embedded projects to the largest enterprise applications.

ICONICS promotes an international culture of innovation, creativity and excellence in product design, development, technical support, training, sales and consulting services for end users, systems integrators, OEMs and Channel Partners. ICONICS has over 300,000 applications installed in multiple industries worldwide.

**World Headquarters**

100 Foxborough Blvd.  
Foxborough, MA, USA, 02035  
Tel: 508 543 8600  
Email: us@iconics.com  
Web: www.iconics.com

**European Headquarters**

Netherlands  
Tel: 31 252 228 588  
Email: holland@iconics.com

**Czech Republic**

Tel: 420 377 183 420  
Email: czech@iconics.com

**France**

Tel: 33 4 50 19 11 80  
Email: france@iconics.com

**China**

Tel: 86 10 8494 2570  
Email: china@iconics.com

**Italy**

Tel: 39 010 46 0626  
Email: italy@iconics.com

**UK**

Tel: 44 1384 246 700  
Email: uk@iconics.com

**India**

Tel: 91 22 67291029  
Email: india@iconics.com

**Germany**

Tel: 49 2241 16 508 0  
Email: germany@iconics.com

**Australia**

Tel: 61 2 9605 1333  
Email: australia@iconics.com

**Middle East**

Tel: 966 540 881 264  
Email: middleeast@iconics.com

**Microsoft Partner**

Gold Application Development

**Microsoft Partner**

2014 Partner of the Year Winner  
Public Sector: CityNext



[www.iconics.com/energyanalytix](http://www.iconics.com/energyanalytix)