

## AnswerModule®

# Energy Usage and Expense Reporting

*Spend less time tracking consumption and cost, and more time actually managing it*

### Monitor and Track Energy Use and Cost

Electricity can be one of the most significant expenses for any facility, large or small. In today's deregulated energy market, facility managers, energy managers and other personnel need to not only keep track of how much energy is being used, but when and where it is being consumed. With peak/off-peak energy pricing and other time-sensitive programs, paying greater attention to usage patterns has become critical to managing energy costs. In addition, the increased use of submetering has created a need for a platform to monitor and manage a number of data collection points.

The Encore Series® System is widely recognized as the premier platform for power monitoring and management. With the available Energy Usage Answer Module®, you can use the web-enabled Encore Series Software to track and manage your energy consumption and costs.

Energy Expense										
Energy Usage kWhr										
Period		On Peak		Partial		Off Peak		Cost		
From	Days	Usage	Percent	Usage	Percent	Usage	Percent	Per Sq Foot (cents)	Actual (dollars)	
04/01/2013	6	4,707.12	47.25	0.00	0.00	5,255.00	52.75	72,823.50	680.59	
04/07/2013	7	5,968.95	52.35	0.00	0.00	5,432.08	47.65	84,998.06	794.37	
04/14/2013	7	5,608.54	51.12	0.00	0.00	5,362.70	48.88	81,408.57	760.83	
04/21/2013	7	5,428.30	50.77	0.00	0.00	5,264.27	49.23	79,233.28	740.50	
04/28/2013	3	2,948.62	66.48	0.00	0.00	1,486.75	33.52	34,849.80	325.70	
<b>Total</b>	<b>30</b>	<b>24,661.53</b>	<b>51.96</b>	<b>0.00</b>	<b>0.00</b>	<b>22,800.79</b>	<b>48.04</b>	<b>353,313.21</b>	<b>3,301.99</b>	
Energy Usage kVARhours										
Period		On Peak		Partial		Off Peak		Cost		
From	Days	Usage	Percent	Usage	Percent	Usage	Percent	Per Sq Foot (cents)	Actual (dollars)	
04/01/2013	6	1,170.57	44.65	0.00	0.00	1,451.33	55.35	0.00	0.00	
04/07/2013	7	1,841.88	56.13	0.00	0.00	1,439.61	43.87	0.00	0.00	
04/14/2013	7	1,572.57	52.28	0.00	0.00	1,435.68	47.72	0.00	0.00	
04/21/2013	7	1,443.88	51.86	0.00	0.00	1,340.40	48.14	0.00	0.00	
04/28/2013	3	822.14	69.72	0.00	0.00	357.12	30.28	0.00	0.00	
<b>Total</b>	<b>30</b>	<b>6,851.04</b>	<b>53.21</b>	<b>0.00</b>	<b>0.00</b>	<b>6,024.13</b>	<b>46.79</b>	<b>0.00</b>	<b>0.00</b>	
Demand Max kW										
Period		On Peak		Partial		Off Peak		Cost		
From	Days	Max kW	Time	Max kW	Time	Max kW	Time	Per Sq Foot (cents)	Actual (dollars)	
04/01/2013	30	172.75	04/10/2013 13:35:00	0.00		160.40	04/19/2013 14:50:00	131,465.52	1,314.66	
Expense Summary										
From	Days	Actual (dollars)	Tax Rate	Tax (dollars)				Per Sq Foot (cents)	Total (dollars)	
04/01/2013	30	4,616.66	0.07	323.17				493,981.32	4,939.81	

The Energy Usage AnswerModule provides three reporting options for monitoring energy usage and expense. All of the reports calculate energy usage for both kWhr and kVARhr, Demand in kW, and include an expense summary section:

1. Aggregated Energy Expense – usage and cost for all DataNodes® or monitoring instruments for a given time period;
2. Energy Expense – energy use for a particular DataNode for a specific time period compared to rate structure;
3. Energy Usage Comparison – energy use for a specific monitoring location for various time periods against a specified reference period.

All three reports allow you to view peak and off-peak energy consumption, enabling you to track usage patterns against scheduled rates and bills. This approach helps you optimize energy usage and take advantage of off-peak rate incentive programs saving you money. The built-in flexibility of the Encore Series® Software allows various points to be simultaneously monitored in your facility or on your process line, tracking total costs, as well as costs for a particular piece of equipment or activity.

*Easy to use and accessible by multiple users simultaneously, reports can be generated by the web browser of any computer.*

Up to 20 different rate structures can be specified, allowing for a wide range of analyses for a wide range of usage scenarios. Peak usage times are specified so the Energy Usage AnswerModule can report on consumption by on-peak, intermediate - (or partial) peak, or off-peak periods. The monitoring area for a particular DataNode can be specified in square feet, allowing you to view energy use on a per square foot basis.

Energy Usage Comparison									
Energy Usage kWhr									
Period		On Peak		Partial		Off Peak		Total	
From	Days	Current Usage	Percent Change	Current Usage	Percent Change	Current Usage	Percent Change	Percent Change	
04/01/2013	6	2,625.81	-44.22	0.00		3,699.65	-29.56	-36.49	
04/07/2013	2	4,158.58	176.47	0.00		1,887.27	112.20	152.59	
Total	8	6,784.39	9.23	0.00		5,586.92	-9.03	0.15	
Energy Usage kvarhours									
Period		On Peak		Partial		Off Peak		Total	
From	Days	Current Usage	Percent Change	Current Usage	Percent Change	Current Usage	Percent Change	Percent Change	
04/01/2013	6	742.50	-36.57	0.00		936.86	-35.42	-35.93	
04/07/2013	2	1,190.97	178.84	0.00		459.15	89.92	146.70	
Total	8	1,933.48	21.02	0.00		1,396.01	-17.51	1.20	
Demand Max kW									
Period		On Peak		Partial		Off Peak		Total	
From	Days	Current Max kW	Percent Change	Current Max kW	Percent Change	Current Max kW	Percent Change	Percent Change	
04/01/2013	8	158.56	2.82	0.00		144.02	-0.21	2.82	

Use the Energy Usage Comparison Report to display the energy usage by a particular DataNode over a specific period, as compared to a reference time period.

### Specifications for the Energy Usage AnswerModule

**Operating Environment:**

Optionally available in InfoNode®  
Encore® Series Software.

**Input Data:**

Accepts energy usage and demand data from any Energy capable DataNode®.  
User must input rate structures and peak/off-peak consumption and demand parameters.

**Output Information:**

On-peak energy consumption in \$kWhr, \$/kW, and \$/kVARhr. Partial-peak energy consumption in \$kWhr, \$/kW, and \$/kVARhr. Off-peak energy consumption \$/kWhr, \$/kW, and \$ kVARhr

**Applications:**

Creates reports showing total energy usage, energy or usage compared against total, and energy usage for specified time intervals.

**Algorithms:**

Algorithms for usage comparison with rate, time, peak, penalty, and tax.