DSMore

The Leading Cost Effectiveness Tool for Energy Efficiency, Demand Side Management and Demand Response Programs.

- *2007 AESP Innovative Product Award Winner*
- *Most accurate cost effectiveness testing*
- *Integrates with IRP Planning*

DSMore is the only modeling tool for Energy Efficiency, DSM and Demand Response that correlates weather, loads and prices on an hourly level. The DSMore application is unique in that it values DSM/DR/EE using a risk-based approach – similar to supply side valuations. The relationship between prices and loads is captured at the hourly level to accurately measure the risk-based DSM value. Utilizing an Excel interface, the planners can quickly look at different variables, e.g., incentive levels and administrative costs, to determine the program risks and the opportunities for program improvements. DSMore was developed by Integral Analytics (IA) for application to program design and evaluation within both regulated and deregulated markets.

Integral Analytics, Inc.

Major Features

DSMore is designed to be easy to use while at the same time producing informative and detailed results. These major features are essential for effective program design.

- **User-friendly Excel interface**
- **Market-based and cost-based evaluation methodologies**
- **Calculates all standard cost effectiveness tests**
- **Calculates a range of results under different weather and price assumptions for each test simultaneously**
- **Option value results for assessing risk**
- **Load curves can be adjusted to match customer base**
- **Multiple years of weather data correlated to prices and loads**
- **Fast results–measure screening is less than 30 seconds**

Additional Functionality

In addition to these core features, IA is continually improving the DSMore application based on customer feedback. DSMore's customer base, currently in over 30 states, drives continual improvement in the application.

- **Batch tool for easy and fast processing of multiple measures in one step**
- **Aggregation tool to group results by measures types, programs, or portfolios without recalculating**
- **Functionality to interface with @Risk and Crystal Ball**
- **Interfaces with DOE-2 to simplify the evaluation of weather-dependent measures**
- **Calculates Greenhouse Gas savings and values based on plant dispatch to get accurate impacts by measure**
- **Analyzes the latest technologies such as customer sited renewables, electric vehicles and ice storage**

DSMore Advantages

- **Reflects more accurate valuations by including weather effects hourly by weather station**
- **Creates appropriate hourly end use load savings, without costly meters**
- **Provides program planners the ability to value "low probability, high consequence events"**
- **Aligns prices and loads at hourly level, by day-type, month, leap years, holidays, etc., and by region**
- **Customizes avoided costs to specific customer load shapes and unique weather sensitivities**
- **Analyzes both market-based and cost-based results at the same time so you can compare the results**

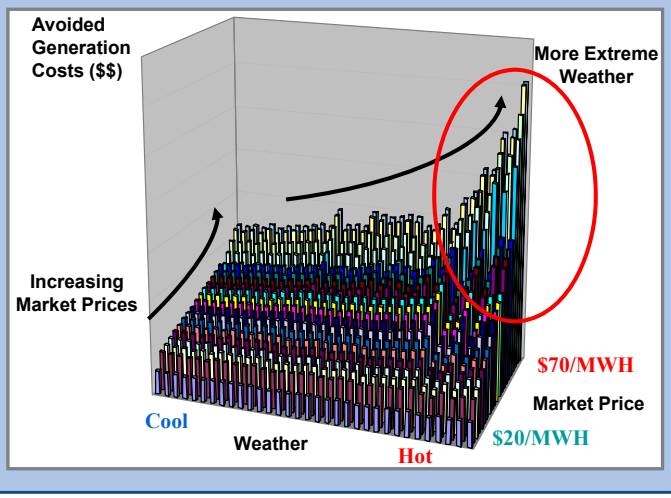
Why Hourly Analysis Matters

Using average loads and prices does not capture the full value of a DSM/DR/EE measure. Using average loads and pricing misses the value at peak times, but it also understates the total measure value. Using the hourly analysis captures both the peak value and the total value of the measure.

Consider two scenarios; one using the average loads and average prices and another scenario using hourly loads and prices. In both scenarios the average load is the same (2 MW) and the average price is also the same ($50/MWh) over the time period. However, the total value of the hourly analysis is greater ($620 versus $500).

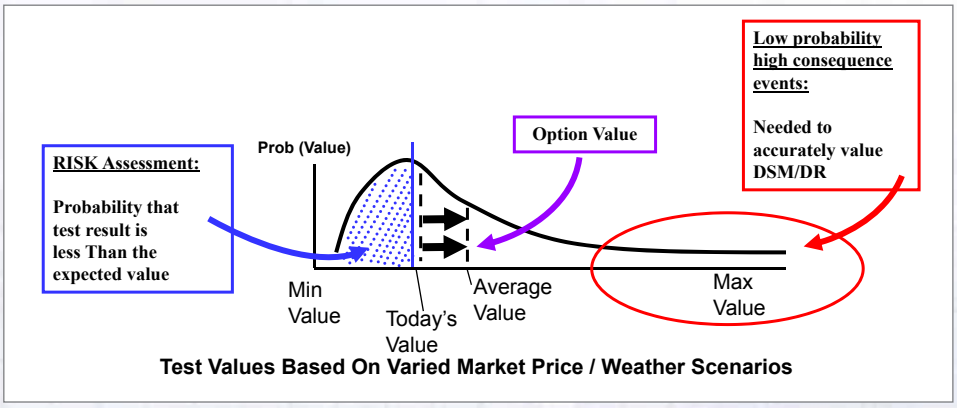
	Average Loads & Prices			Hourly Loads & Prices		
Hour	**MW**	**$/MWh**	**Total $**	**MW**	**$/MWh**	**Total $**
1	2	$50	$100	1	$20	$20
2	2	$50	$100	1	$20	$20
3	2	$50	$100	2	$50	$100
4	2	$50	$100	3	$80	$240
5	2	$50	$100	3	$80	$240
Avg.	*2*	*$50*		*2*	*$50*	
Total			**$500**			**$620**

To perform this hourly analysis DSMore correlates historic loads and prices to historic weather. These relationships (or covariances) between loads and weather, and price and weather, are used to calculate over 700 different market scenarios



700 weather and market price scenarios are modeled to drive the market-based analysis in DSMore. Using market-based evaluation methodologies captures the uncertainty and risk caused by the variability in weather and market prices over time.

Test results are presented based on weather and market price conditions, allowing the user to see the probability distribution over high and low avoided cost scenarios. This helps the program planner assess the risk and value of the DSM/DR program.



Test Values Based On Varied Market Price / Weather Scenarios

	A	B	C	D	E	F	G
1	**DSMore 2011**		**Program:**	Example Program			
2							
3	**Run Setup**						**Notes:**
4	1	Mode (1=% Savings, 2=Loadshapes, 3=Targets, 4=Peak Clipping, 5=TOU, 6=Snapback)					
5	15	Measure Life (Years)					
6							
7	**Quick Reference Tests (Today's Value)**						
8	24.00	Utility Test					
9	12.91	TRC Test					
10	1.00	RIM Test					**Last Run:**
11							
12	**Loads**						
13	ResElecHeat	Electric Pre-Load Directory					
14	ComLrg_Avg	Gas Pre-Load/Price Directory			January	February	March
15	**% Pre-Adjustments (Applied To All Modes)**			Electric kWh	100.00%	100.00%	100.00%
16				Electric kW Peak	100.00%	100.00%	100.00%
17				Gas	100.00%	100.00%	100.00%
18	**Mode 1 - Monthly % Savings**			Electric kWh	0.00%	0.00%	0.00%
19				Electric kW Peak	0.00%	0.00%	0.00%
20				Gas	0.00%	0.00%	0.00%
21	**Mode 3 - Targets**	1000	kWh	Electric kWh	0	0	0
22		2	Non-Coin kW	Electric kW Peak	0	0	0
23		1000	CCF	Gas	1	1	1
24		5	Summer Coincident kW				
25		5	Winter Coincident kW				
26							
27	**Customer Participation**						
28				Year 1	Year 2	Year 3	Year 4
29			Incremental	500	600		
30		Free Rider (Incremental) [%]		10.00%	10.00%		
31		Persistence (Cumulative) [%]					

User-friendly Excel interface simplifies data entry and allows calculations to be used in the inputs – improving flexibility

DSMore is the only model I have seen that fully values DSM/DR. The hourly level of detail, over 30 actual weather years, hour-by-hour DR dispatching capability, and a lot of user flexibility gives us the breadth we need to accurately value any of our measures & programs, including greenhouse gas reductions. The tool's hourly-based analysis platform also makes it a good choice for assessing the new wave of SmartGrid programs, where avoided costs and prices can change hour-to-hour.

Nick Hall
Principal and Owner,
TecMarket Works

Integral Analytics, Inc.

DSMore was developed by Integral Analytics, an award-winning analytical software and consulting firm focused on operational, planning and market research solutions for every aspect of the energy industry. Integral Analytics offers unified approaches to bring advanced analyses to the energy industry to uncover and protect value.

IA's analytic approaches turn SmartGrid data into actionable strategies which are guaranteed mathematically to optimize avoided costs and utility margins. IA has demonstrated the effectiveness of these methods and software over the past 3 years and continues to provide best in class analytics for EE, DR and Smart Grid programs to utilities and consultants nationally.

LoadSEER
GIS based spatial load forecasting software to evaluate new loads, electric vehicle growth, risk to grid capacity

IDROP
Optimally integrates micro grid resources into least cost combinations, in real time

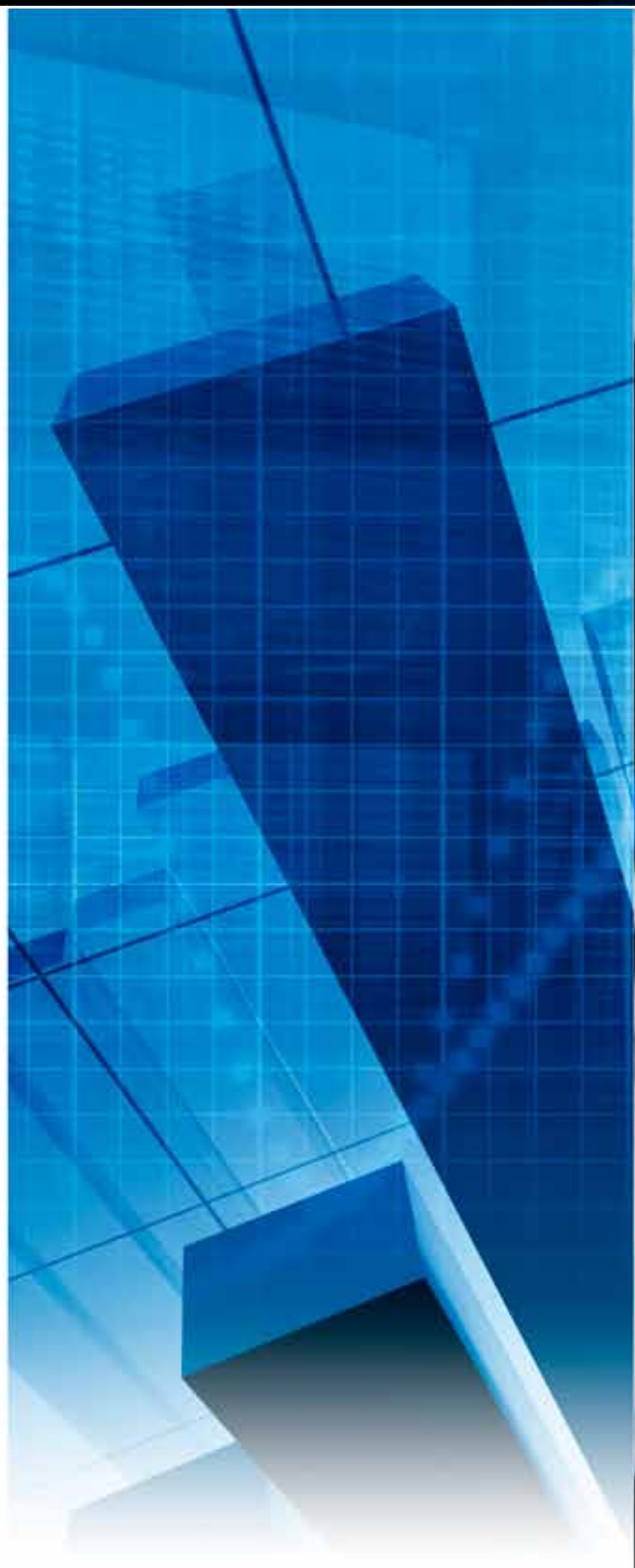
DR Pricer
Accurately values demand response strategies, for price and non-price attributes

XactFit
Automated statistical estimation software to quantify effectiveness of Smart Grid and energy efficiency programs

ProfiSEEK
Measures the margin contribution to the utility of individual loads and customers

GridStore
Measures long term value of battery storage across energy and regulation markets

WindStore
Determines the optimal dispatching strategy for virtual storage of wind within thermal heating



Contact Us Today

For a demonstration of our award winning DSMore software please send us a request at the contact information provided below. We look forward to helping you accurately value your DSM/DR/EE resources.

Integral Analytics, Inc.

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