

"Energy Credits"

For GovEnergy Conference

Renewable Energy Track

August 16, 2007

Sterling Planet



Renewable Energy

Solar. Wind. Water. Bioenergy.

Company Background and Introduction

- First nationwide green power marketer with 100% green energy choice
- Founded January 2000
- Sold over 13,232,050,777 kWh of green energy (equal to 1,273,292 average residential customers or avoidance of 7,230,527 trips between New York City and Los Angeles)
 - Nation's leader in renewable kWh sales
 - Includes largest transaction in U.S. green energy history (PepsiCo)
- Buyer and seller of green energy certificates
- Intellectual Property Includes:
 - Energy Efficiency Credits Measurement and Verification Software for White Tags™
 - Twelve Unique Renewable Energy Retail Products – Including Sterling Planet Fixed-Price Hedge™
- Customers in 45 states
- 583 Commercial and Industrial Customers (many the largest purchase in their sector)
- Utility partnership-based enterprise – 46 utilities to date
 - Most utility partnerships in green industry
- Certified Products by Both Major Certification Organizations
 - Center for Resource Solutions (Green-e)
 - Environmental Resources Trust (ERT)
- Endorsed by environmental groups and government agencies



Some of Our Clients



Company Background and Clients

- First nationwide green power marketer with 100% green energy choice – Founded in 2000
- Sold over **13,232,050,777** kWh of green energy (equal to **1,273,292** average residential customers or avoidance of **7,230,527** trips between New York City and Los Angeles)
- Nation's leader in renewable kWh sales
- Largest Transaction in U.S. green energy history (Pepsi)
- Buyer and seller of environmental attributes (RECs, White Tags™ and Carbon Credits)

583 Large Clients

Universities (32)

- Harvard 
- Yale 
- Duke 
- University of Utah 
- Florida State 

Utilities (46)

- FPL 
- Con Edison 
- PEPCO Energy 
- Constellation 
- Connecticut P&L 

Commercial & Industrial (435)

- Alcoa 
- DuPont  *The miracles of science™*
- Johnson and Johnson 
- Pepsi 
- Staples 
- Nike 
- Whirlpool 
- 2004 Democratic Convention
- 2004 Republican Convention
- NFL (2007 Super Bowl)
- Coca Cola 

Government (70)

- US Air Force 
- US Army 
- Homeland Security 
- NASA 
- Western Area Power Administration
- US EPA 
- US GSA 
- National Renewable Energy Lab
- Veterans Affairs 
- State of New York
- State of Illinois



Products & Services

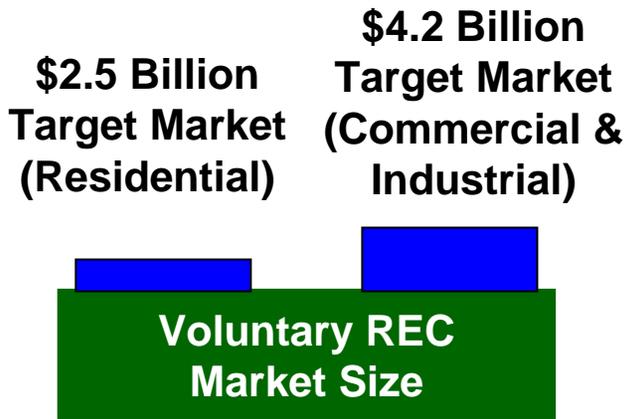
1. Selling Green Tags or RECs (Renewable Energy Certificates)
2. Creating and Selling White Tags™ (Energy Efficiency Credits)
3. Manage Residential Green Power Programs (Utility Partners)
4. Developing Offsite Fixed-Price Green Electricity Projects
5. Developing Onsite Fixed-Price Green Electricity Projects



Green Energy Market and Market Size

U.S. Electricity Market is Over \$250 Billion a Year

\$10 Billion - \$3 Trillion Target Market (Global Green House Gas Emissions)
Current Estimated at \$1.2 Trillion in 2012



Source: Department of Energy

Customers Voluntary Pay More

23 Utility Marketing Programs in:

- Florida
- New York
- New Jersey
- Connecticut
- Massachusetts
- Rhode Island

\$53 Billion Target Market (RPS)



Source: Global Energy Decisions

Target Marketing – Portfolio Standards States



Legend
 ■ 24 States with Portfolio Standards
Note: Includes Hawaii
 ■ 7 States Considering Portfolio Standards

Very Early in its Definitions and Rules

More Advanced in:

- Europe
- Japan

Sterling Planet is Active in All 3 Markets

REC Markets

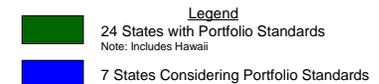
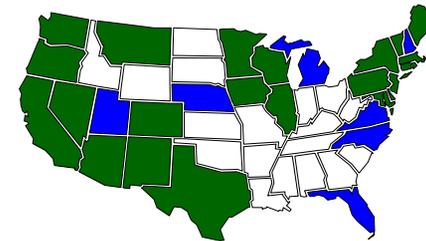
Voluntary Markets

- Customers voluntarily pay more for renewable energy
- Participating in 24 (46 Overall) utility renewable marketing programs in:
 - Florida, Massachusetts, New York, Connecticut, New Jersey, Rhode Island and Washington, DC

Mandated Markets

- Sell RECs to utility to satisfy RPS
- Manage RECs exchange among utilities
- Provide RECs to government agencies

Target Marketing – Portfolio Standards States



GHG Emission Markets

Greenhouse Gas Emission Markets

- Very Early in its Definitions and Rules
- More Advanced in:
 - Europe
 - Japan



Voluntary Renewable Energy Market

- RECs represent the contractual right to claim the environmental and other attributes associated with electricity generated from renewable energy. Companies apply these to their Greenhouse Gas (GHG) emissions.



- Bank of America pledges to reduce its total U.S. GHG emissions by 9% from 2004 to 2009.
- Eastman Kodak pledges to reduce total global GHG emissions by 10% from 2002 to 2008.
- Gap pledges to reduce its U.S. GHG emissions by 11% per square foot from 2003 to 2008.
- Marriott pledges to reduce U.S. GHG emissions by 6% per available room from 2000 to 2010.
- Pfizer pledges to reduce global GHG by 35% per \$ of revenue from 2000 to 2007.
- Baxter, IBM, NREL and SC Johnson achieved their ambitious 2000 to 2005 goals.

Connecting The Market



Residential Customers

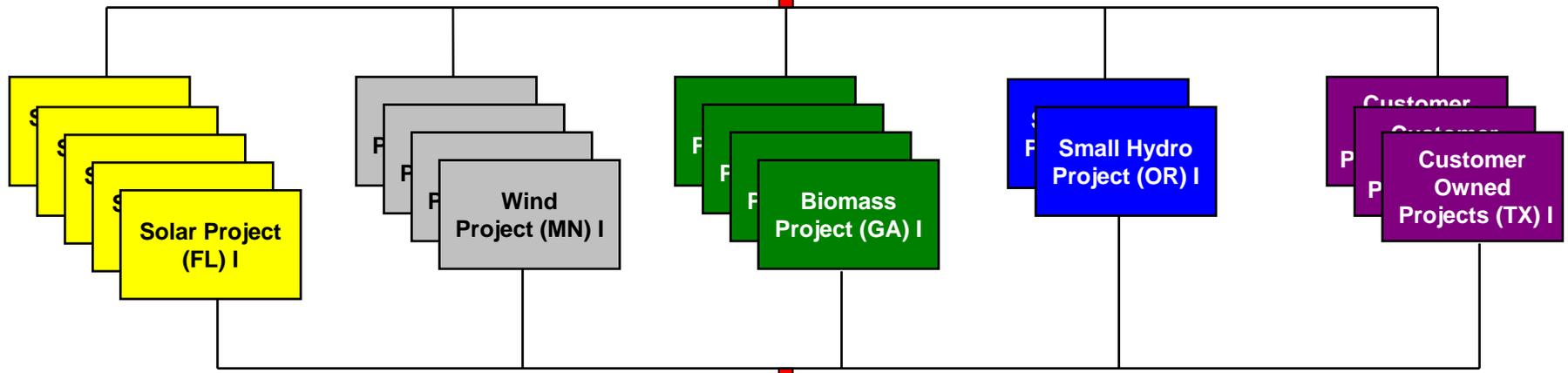
Local Utility Companies

STERLING PLANET

Actual Commercial and Industrial Customers
Sterling Planet Markets Attributes
 Leveraging EPA Green Partnership Program

Attribute Contracts

Bi-Lateral Attribute Contracts



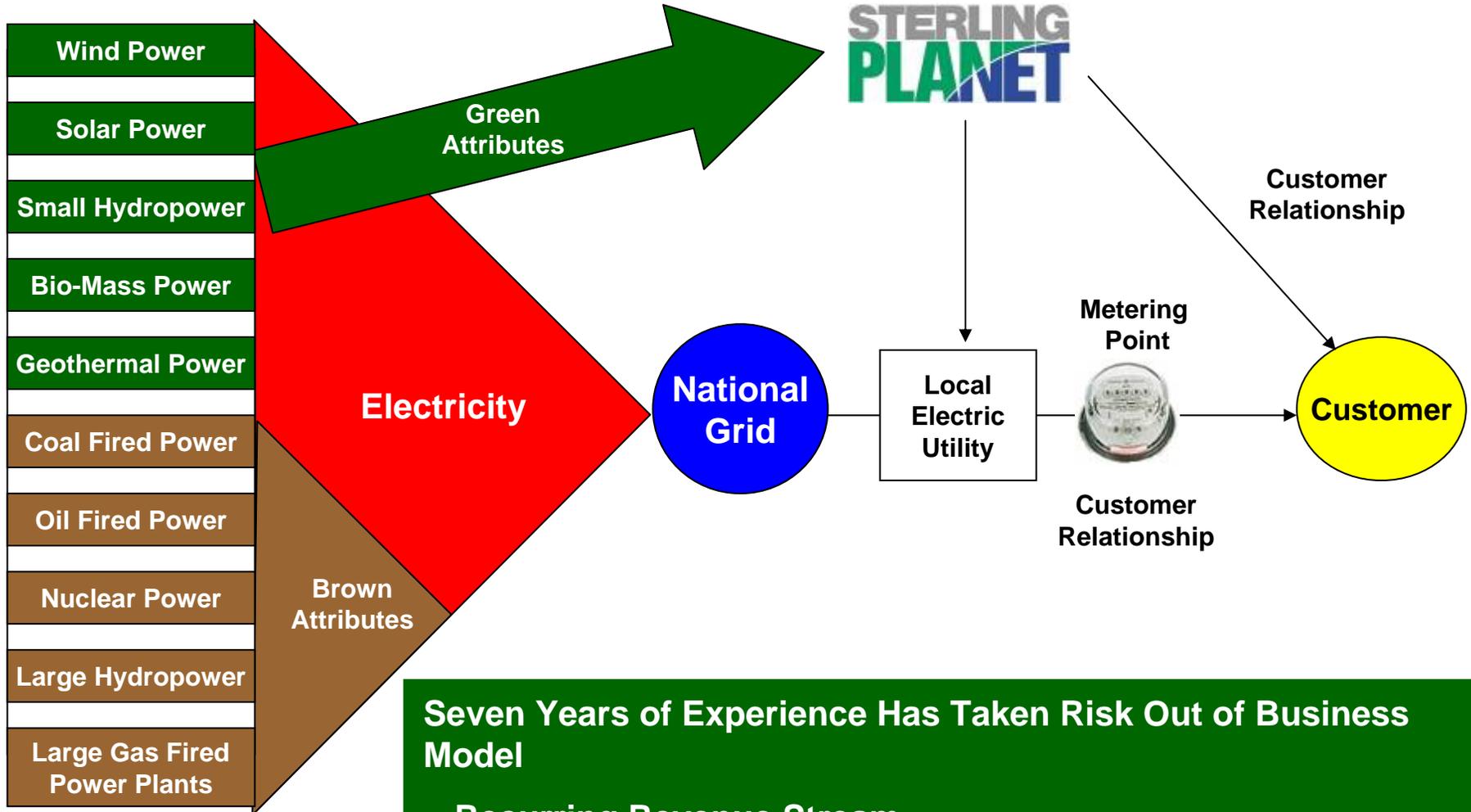
Electricity (Null Power) Contracts - PPA

Local Utility Companies



How It Works?

Electric Power Plants

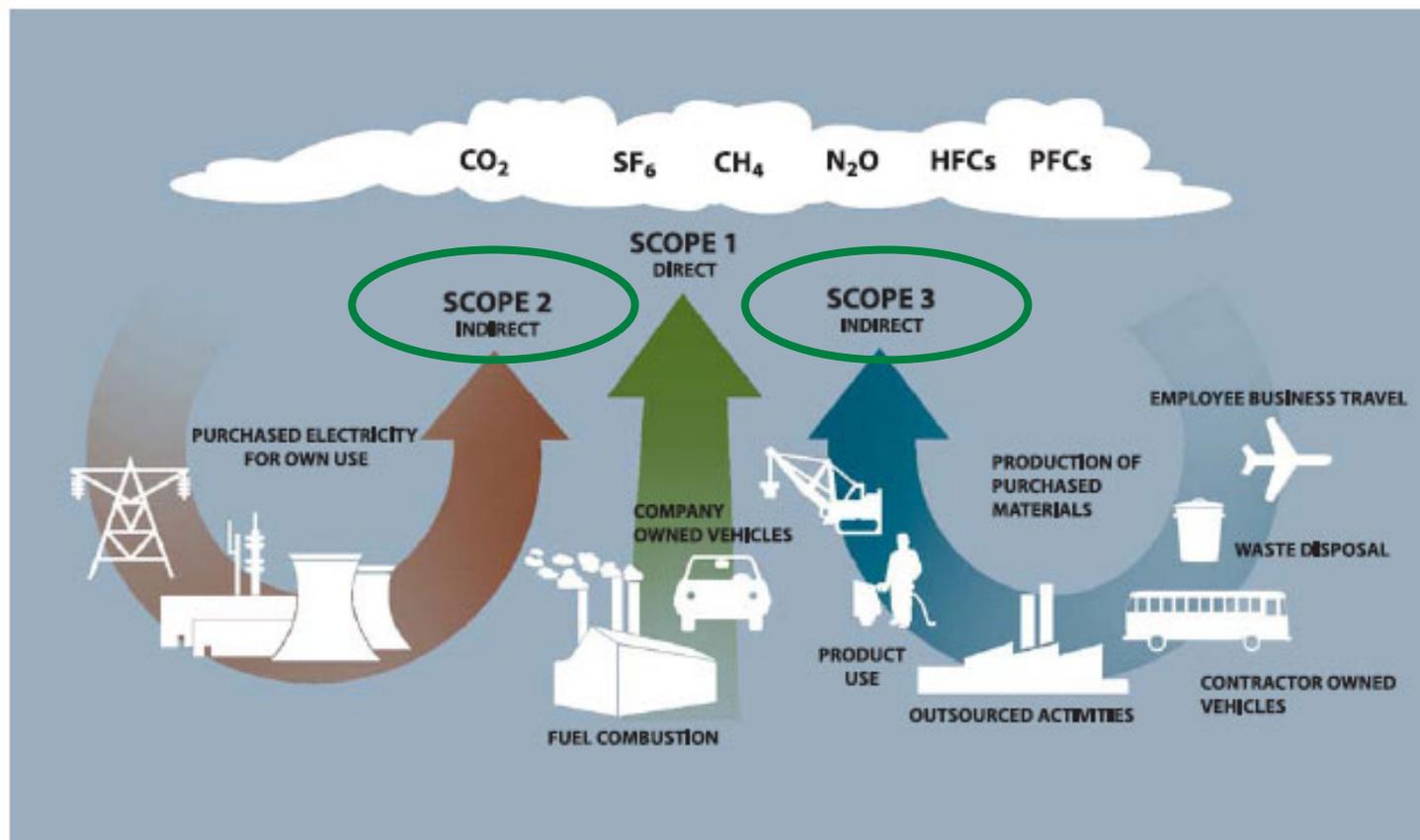


Seven Years of Experience Has Taken Risk Out of Business Model

- Recurring Revenue Stream
- Market is Rapidly Growing and Becoming “Mainstream”

Intersection of RECs, White Tags™ and Carbon Credits

FIGURE 5 | OPERATIONAL BOUNDARIES



Source: New Zealand Business Council for Sustainable Development.

What are White Tags?

- A new tradable attribute similar to green tags or Renewable Energy Credits (REC)
- Represents the value of energy not used (conserved) at facilities
- Created through the implementation of energy conservation (Demand-Side Management) projects
- Also known as Energy Efficiency (EE) Certificates & White Certificates



Comparison to RECs

White Tags™

Many Ways the Same

- Mandated Market - Same States & Similar Mandates (%)
- Voluntary Market - Same rationale, but larger market share (vs mandated)
- Market Size - Similar, but likely larger with broader scope & faster adoption
- Certification - Similar, but more complex (savings vs generation)



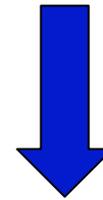
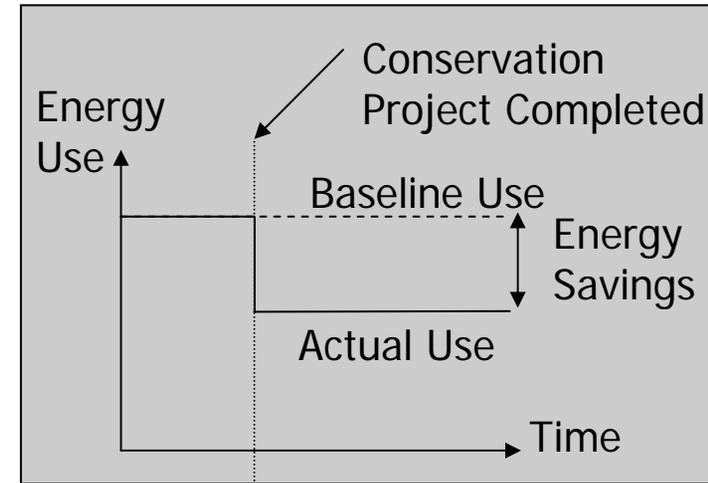
Some Ways Different

- Regulations - Facility based, not equipment based
- Measurement & Verification (M&V) - Historically problematic

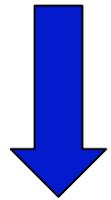
How are White Tags Created?

Implementation of energy conservation projects at a facility, including:

- Equipment upgrades, retrofits, & replacement
- Operational modifications & set point changes
- Energy management and monitoring systems
- Combined Heat and Power (CHP) or cogeneration
- New technologies (e.g. High Efficiency Lighting).



Save \$



Create
White Tag

Other Energy Efficiency Regulations/Policy

PA - Tier 2 "advanced energy resources" must account for an additional 10% of power sold. Tier 2 include energy efficiency, hydro, waste coal generation.

NV - 2005 amendment to the RPS to require Renewable Energy and Energy Efficiency to meet 20% of electricity by 2015, of which up to 25% can be met with energy efficiency. Has a peak demand multiplier.

CT – 1% by 2007; 4% by 2010.

NY – Opened Hearings – 15% by 2015 is their target.

MA – Opened Hearings – Goal not yet established.

CA – Met with the Public Service Commission, CA Air Board and the California Energy Commission. They are serious about upcoming legislation.

TX – Utilities must offset 10% of demand growth.

IL – 25% of projected load growth by 2017.

HI – Energy efficiency projects are treated the same as renewables.

Federal Government – 3% Energy Efficiency per Agency per Year for next 10 years.



Measurement & Verification

White Tags™

- Prescriptive method for direct replacement/retrofit
- Metered method for cogeneration or CHP
- Design method for new buildings (LEED)
- Modeled method for operational changes (existing and new buildings)
 - Requires establishing a baseline (actual building or reference)
 - Traditionally used facility simulation models or statistical models
 - Facility: on-site, complex, expensive, subjective - but accurate
 - Statistical, off-site, simple, inexpensive, objective - but inaccurate
- Sterling Planet has developed neural network model - best of both





Baseline Energy Use Model

“White Tag Pro™”

Illustration

Measurement & Verification: WhiteTag Pro™

STERLING PLANET

Navigation: DASHBOARD | SCENARIOS | SETTINGS | MODEL | CUSTOMER SERVICE
 PROFILE | CERTIFICATES | ENERGY | ENVIRONMENT

Welcome
 Sterling Planet
 1/23/2007
 Time: 1.132s.

Profile
 The Dashboard Profile provides a summary view of the environmental certificates created, energy savings achieved and avoided air emissions by building(s), time period and energy supply.

Building: Energy: View By:

WHITE TAGS™ | **SAVINGS** | **ENVIRONMENT**

Tags Summary:
 Pre-Certified Tags: 0.0
 Certified Tags To-Date: 745.2
 Total Tags Created: **745.2**

Energy Savings Chart (MWh):
 Baseline Energy Use: 5,686 kWh
 Actual Energy Use: -4,941 kWh
 Energy Savings: 745 kWh

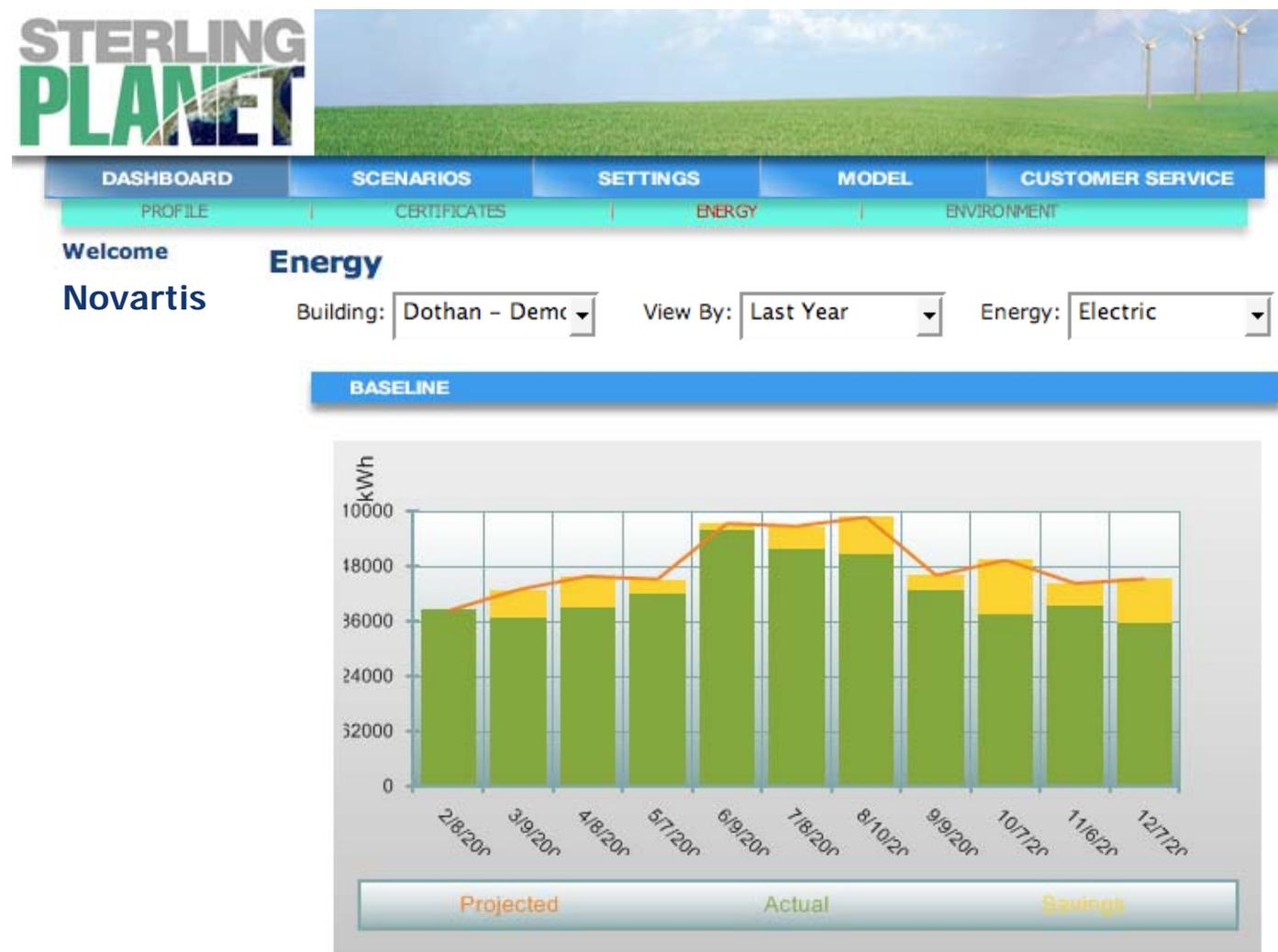
Environmental Emissions Chart (tons):
 Carbon Dioxide (CO2): 582 tons
 Sulfur Dioxide (SO2): 6,860 lbs
 Nitrous Oxide (NOx): 2,509 lbs

[View Details](#)

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- Online System
- Large Portfolio
- Baseline
- M&V
- Scenarios
- Track
 - Energy Use
 - White Tags™
 - CO₂ (GHG)
 - NOx & SO₂
- Database (I/O)
 - Building
 - Billing
 - Weather

Measurement & Verification: WhiteTag Pro™



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 - Weather

Location > Weather & GHG

Main

Client: Division: Country: State/Region: Building:

Building Info | Accounts | Billing | Weather | Forecasts

Location Information

Street Address 1: Street Address 2: City: Latitude: Longitude: **Closest Station**

Weather Station: Station Name: Latitude: Longitude: 8.68 mi

eGrid Region: Year: Intensity Factor: **GHG Calculations**

Contacts:

ContactType	LastName	FirstName	MiddleInitial	WorkPhone	WorkPhoneExt	CellPhone	Fax	EmailAddress	BuildingID
1	Coste	Kenneth	L					kencoste@bellsouth.net	10
1	MacGregor	Paul				404-229-71		paul@paulmacgregor.cor	10

Owners:

ClientName	PercentOwner	Comments
Novare	100	Novare Biltmore Assoc. LP

Billing Data

Client: Novare Division: Novare Country: USA State/Region: GA Building: Biltmore

Building Info Accounts **Billing** Weather Forecasts

Billing Periods

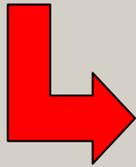
Vendor: Southern Comp

Account: Electric

Bill: <All>

BillNumber	StartDate	EndDate	BillDays	Consumption	ServiceAmount	VendorChargeType	UnitAbbr
1	12/29/2001	1/29/2002	32	697645	37345	Electric Consumption	kWh
2	1/30/2002	2/27/2002	29	591806	34024	Electric Consumption	kWh
3	2/28/2002	3/28/2002	29	587078	34908	Electric Consumption	kWh
4	3/29/2002	4/26/2002	29	533396	32719	Electric Consumption	kWh
5	4/27/2002	5/29/2002	33	631642	35517	Electric Consumption	kWh
6	5/30/2002	6/27/2002	29	594268	35640	Electric Consumption	kWh
7	6/28/2002	7/29/2002	32	722099	38992	Electric Consumption	kWh
8	7/30/2002	8/28/2002	30	753991	40795	Electric Consumption	kWh
9	8/29/2002	9/27/2002	30	695963	37691	Electric Consumption	kWh
10	9/28/2002	10/28/2002	31	642726	35876	Electric Consumption	kWh
11	10/29/2002	11/26/2002	29	578332	33829	Electric Consumption	kWh
12	11/27/2002	12/30/2002	34	635615	35012	Electric Consumption	kWh
13	12/31/2002	1/29/2003	30	649660	38357	Electric Consumption	kWh
14	1/30/2003	2/27/2003	29	562207	33617	Electric Consumption	kWh
15	2/28/2003	3/28/2003	29	507420	31998	Electric Consumption	kWh
16	3/29/2003	4/29/2003	32	516501	32173	Electric Consumption	kWh
17	4/30/2003	5/29/2003	30	506831	32103	Electric Consumption	kWh
18	5/30/2003	6/27/2003	29	521668	33286	Electric Consumption	kWh
19	6/28/2003	7/29/2003	32	596986	34720	Electric Consumption	kWh
20	7/30/2003	8/28/2003	30	616173	35767	Electric Consumption	kWh
21	8/29/2003	9/29/2003	32	609994	34992	Electric Consumption	kWh
22	9/30/2003	10/28/2003	29	495733	31349	Electric Consumption	kWh
23	10/29/2003	11/25/2003	28	494189	31311	Electric Consumption	kWh
24	11/26/2003	12/29/2003	34	643271	35319	Electric Consumption	kWh
25	12/30/2003	1/28/2004	30	584003	36210	Electric Consumption	kWh
26	1/29/2004	2/26/2004	29	564867	33430	Electric Consumption	kWh

Input by
Excel Template



Formulate ("Build") Model

Client: Novare Division: Novare Country: USA State/Region: GA Building: Biltmore

Building Info Accounts Billing Weather Forecasts

Sector: Electric Rank: Official Type: Electric Forecast: <New> Accounts: Electric 3763928000 Electric con

Min Date: 12/29/2001 Max Date: 5/26/2005 Forecast Name: Biltmore, 2/20/2006 11:55:22 AM

Sat T: **"Clean" Weather** 64 Build Train Save Export

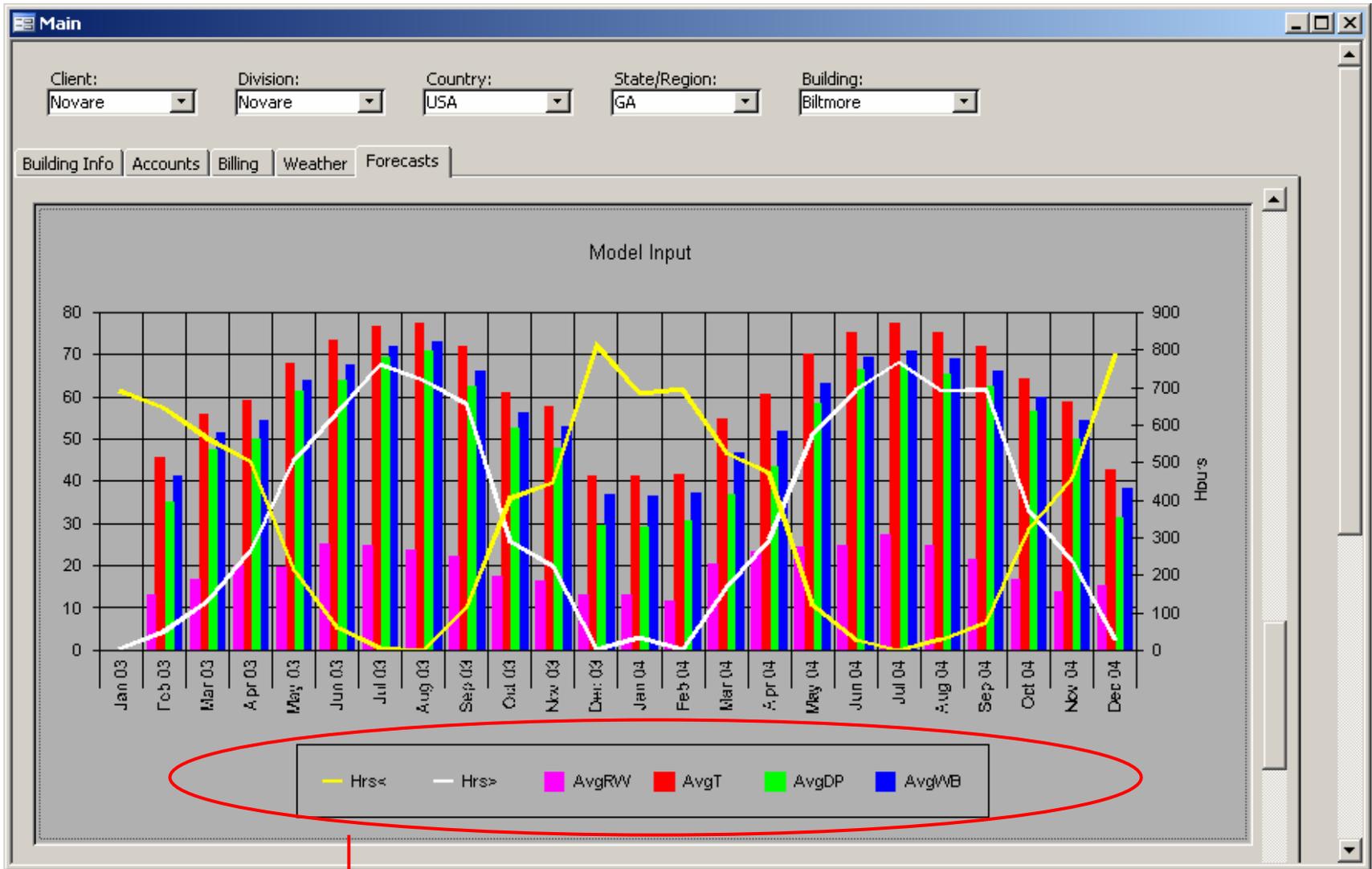
	BillStart	BillEnd	kWh	kW	Billing Days	AvgT	AvgDP	VB	AvgRW	Hrs<	Hrs>	kWh/Day	Forecast	Actual	Error	kWh\$	Cust\$	Fuel\$	kW
▶	12/31/02	01/29/03	649660	30						691	5	21655		649660	0.00	38357			
	01/30/03	02/27/03	562207	29		45.77	34.95	41.25	149.00	645	51	19386	563287	562207	0.19	33617			
	02/28/03	03/28/03	507420	29		55.75	47.53	51.53	187.55	565	131	17497	507992	507420	0.11	31998			
	03/29/03	04/29/03	516501	32		59.21	49.88	54.28	226.05	502	266	16141	517943	516501	0.28	32173			
	04/30/03	05/29/03	506831	30		67.96	61.38	63.97	220.08	214	506	16894	506886	506831	0.01	32103			
	05/30/03	06/27/03	521668	29		73.36	64.07	67.50	281.17	62	634	17989	520491	521668	-0.23	33286			
	06/28/03	07/29/03	596986	32		76.70	69.51	71.82	278.89	6	762	18656	593423	596986	-0.60	34720			
	07/30/03	08/28/03	616173	30		77.51	71.04	73.05	267.04	0	720	20539	616296	616173	0.02	35767			
	08/29/03	09/29/03	609994	32		72.14	62.40	66.11	251.46	112	656	19062	609440	609994	-0.09	34992			
	09/30/03	10/28/03	495733	29		61.06	52.42	56.33	196.17	405	291	17094	493882	495733	-0.37	31349			
	10/29/03	11/25/03	494189	28		57.77	47.83	52.88	183.10	448	224	17650	496671	494189	0.50	31311			
	11/26/03	12/29/03	643271	34		41.38	29.70	36.79	149.20	815	1	18920	639877	643271	-0.53	35319			
	12/30/03	01/28/04	584003	30		41.09	29.19	36.55	148.65	685	35	19467	584979	584003	0.17	36210			
	01/29/04	02/26/04	564867	29		41.48	30.53	37.22	130.69	695	1	19478	564000	564867	-0.15	33430			

Clear **Build** Train Run Save Export ...

Avg Error: -0.049%, Weighted Error: 0.055%
Run time: 0.00 sec

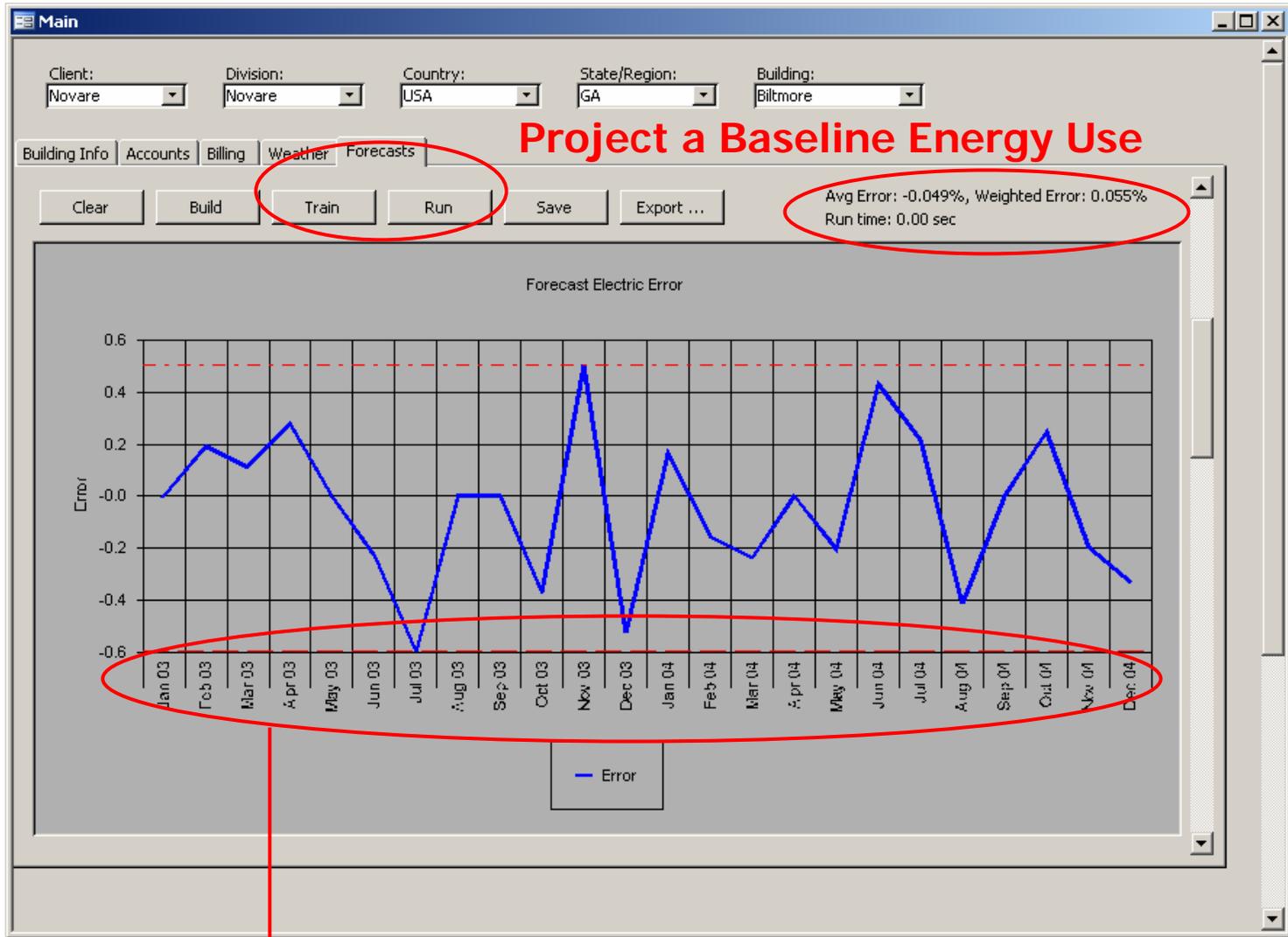
Baseline Energy Use Data Model of a Facility (historical)

Key Data Variables



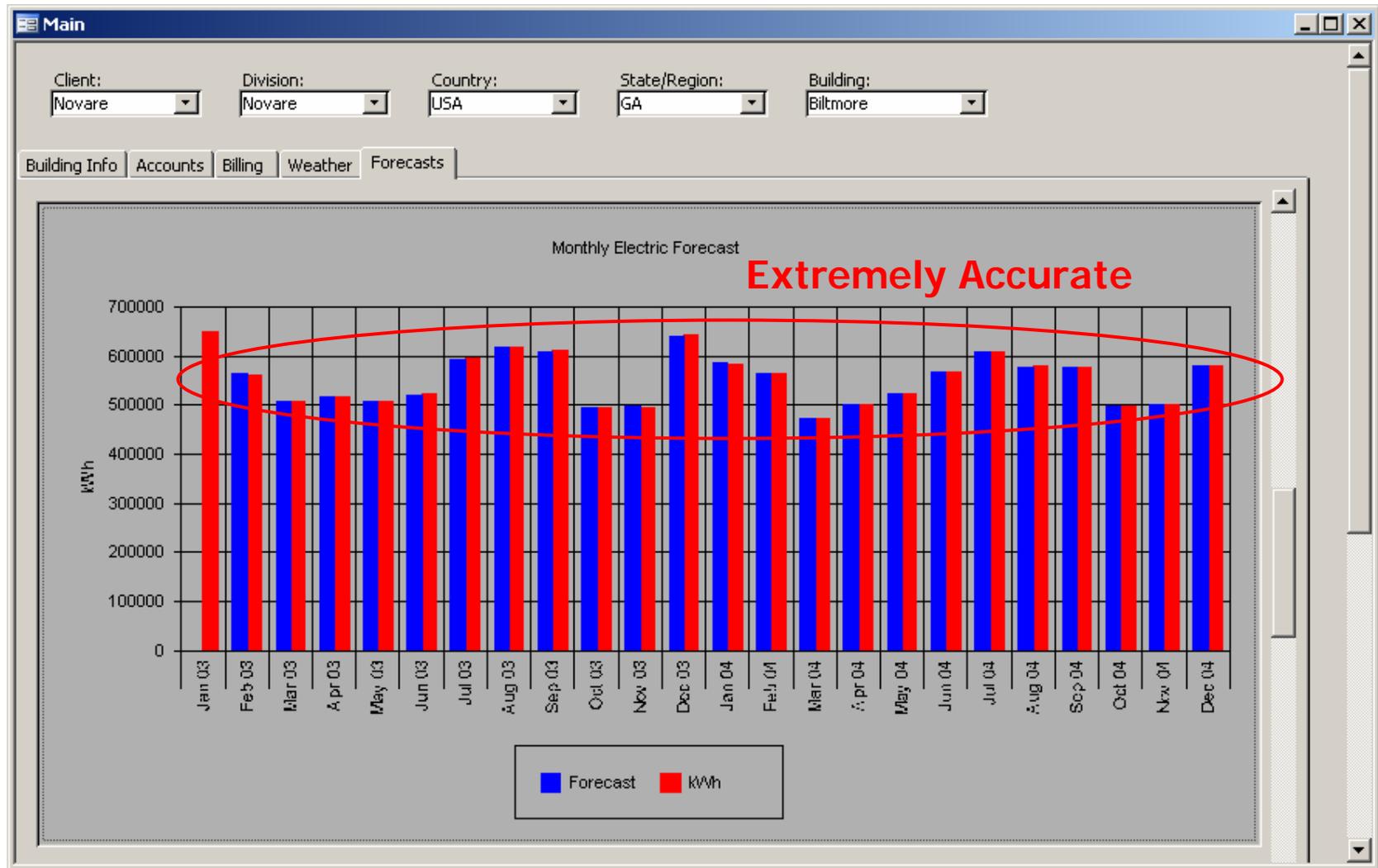
Plus Manufacturing Data (MUC) for Industrial

Train & Run the Model



Projecting Historical Baseline Energy Use to Test Accuracy

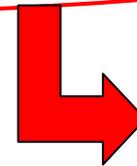
Monthly Projections



Why is this Important?

White Tags created by energy conservation projects can be certified by 4 different methods:

- Prescriptive - applicable to purchase of specific technology & assumes savings are independent of operations (with a pre-set amount and lifetime)
- Metered - applicable to installation of generation and operationally independent sub-metered loads (expensive)
- Modeled - applicable to any technology, either new installation or retrofit, as well as operational changes achieved (low cost, scalable, no time limit)
- Design - applicable to new buildings (LEED)



Create the Most White Tags



Questions?

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