

**Targeted Community Solutions** 

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**Green Building Science Institute** – Targeted Community Solutions Program Education, Certification, Program Administrator







**GE** - Healthymagination, Ecomagination, City Solutions (Water, Sewer, Renewable Energy, Electric, Transportation)



**Southeast Energy Efficiency Alliance** (Grant Asst. Program Administration)



Development Manager Program (DMP)



**Department of Energy** – Builders Challenge Zero Energy Homes Program



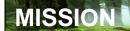
**Environmental Protection Agency**Energy Star, Water Sense, Indoor Air Plus



Florida Solar Energy Center Solar Education, Project Certification Provider for the USGBC, EPA, DOE



**MASCO Industries** – Water Sense Certification Provider Well Home, Environments For Living



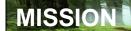


# CALL TO ACTION

The Green Building Science Institute – Targeted Community Solutions program was created as a solution to address several major issues that cities are facing today. The program is a solution to putting local community workers in a position to service the needs of their own community while gaining new valuable skills that will allow them to compete for better paying jobs related to sustainability.

The program also empowers the targeted city to create solutions for dealing with an aging building stock by utilizing the RENEW portion of the program. Existing buildings can achieve energy reductions from 20% to 70%, and reduce water consumption by at least 40%. New construction buildings can reduce energy consumption by 50% to near zero energy.

By creating a micro assembly plant in targeted locations, new high performance buildings that have superior indoor air quality, reduced utility consumption, and improved lifecycle of sustainability are produced while creating jobs for all in the community who have an association to the real estate transaction.





## What is the Targeted Community Solutions Program

A workforce development program with a strong emphasis on education and training to address the retrofitting of existing buildings and new construction needs. The program is implemented as a holistic community approach to sustainability, and utility savings for energy, and water.

GBSI and its affiliate partners are in the business of performing Residential & Commercial Development Services that includes:

Planning and Design Services, Construction Management and Administration Services, Construction and Operation Management.

The team also provides Building Certification and Finance placement services on a nationwide basis. The team brings its years of experience, controls, systems, procedures, personnel, and associates to apply the successful completion of community based projects.



Each Plant covers a 200 mile radius for the shipment of Market Rate and Blight Replacement houses. iGreenBuildingFab





# **Summary of Potential Direct Jobs 100 Targeted Cities**

20,400
5,200
6,500
20,400

# **Total Potential Direct Jobs**

52,500







Residential

Commercial

Institutional

Government

Civic

• Faith Based Organizations

### **IGBF - Gulf Coast Assembly Plant**



### **New Construction**

Our building solutions program delivers highly energy efficient, healthy, sustainable, storm resistant, long life cycle buildings that are designed to last 100 years.

### **Housing Solutions**

Program funding and management for Blight Replacement, Affordable, Senior, First Responder, Workforce, Special Health needs and Market Rate housing.

Green designated community design services with custom amenities and services to promote the feeling of home and unity. While lowering environmental impacts, utilizing the latest in alternative fuel technologies such as geothermal and solar PV coupled with the high performance housing solution to produce quality carbon credits and maximum CO2 reduction.



### **Working with the Local Building Community**

- Builders attend training and gain certification in systems built construction methods
- Gain continuing education credit
- Advantage of buying at bulk pricing direct from the factory
- Training and support for certified sub-contracted labor
- Community and or project marketing support for chosen mediums of advertising
- Training and marketing support for the realtor(s) working the project
- Builder gains "green designation"

### **Additional Benefits**

Shorter construction cycle

Less call backs

Higher profit margins

Certification and testing to ensure the building is built and functions properly



# Assumptions For Manufacturing Job Creation IGBF Micro Plant Community Facility

- 100 Manufacturing plant direct jobs created
- Plus 160 Onsite Assembly direct jobs created
- Each Targeted Region is assumed to average 200 Homes per year









The Targeted Community Solutions Program will provide **blight replacement** and **market rate** homes with energy upgrades to accomplish one of four levels of home performance.

Status	Maximum Investment Cost (\$)	HERS Rating	Electric Cost per year (\$)	Savings (\$)
Current	0	100	2350	
Stalwart Level 1	4,000	80	1600	792
Stalwart Level 2	10,000	70	1260	1136
Stalwart Level 3	18,000	55	980	1419
Stalwart Level 4	36,000	25	480	1919

#### **Certifications:**

- 1) Environments for Living
- 2) Ecomagination
- 3) Energy Star 2 and after April 2.5
- 4) Indoor Air Plus (EPA)
- 5) Water Sense (EPA)
- 6) Builders Challenge
- 7) LEED for Homes
- 8) Near Zero Energy

### **LEVEL 4**

#### LEVEL 4 expands the BASE program (0 - 0) plus LEVELS 2 & 3, and adds the following:

■ Solar PV panels or other alternative fuel methods

Brings HERS Score to 30 or below, enables home to cost effectively accept alternative fuel

Allows access to Tax Credits

Allows access to Federal, State, Utility, Foundation Grant Funding where applicable

Estimated energy savings = 77-80%

Estimated water savings = 40% greater

Annual Estimated Savings \$ 1919.00

Including:

General Contractor Fee 501(c)(3) Contribution

Testing & Certification

Development Management Fee Stalwart Science Integration Fee





New Rehabilitation Construction **Standards** 













This is a 76 point check list designed to ensure program compliance with all certifications and inspections required to meet the performance standards of

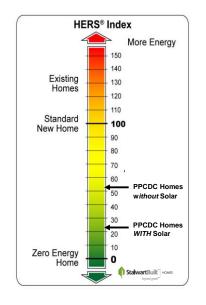
StalwartBuilt high performance buildings both residential and commercial.

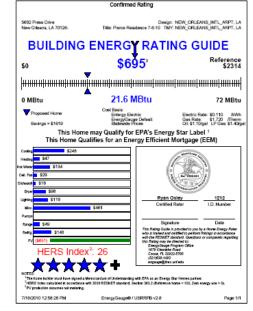
	Check List Requirements	Manufacturer Documentation & Verification Requirement	Third Party Verification Requirement	ВС	ws	IAP	LH	ES	EFL	BSG
1	Construction/Design Documentation	<b>√</b>	<b>√</b>	<b>√</b>	N/A	N/A	<b>~</b>	N/A	N/A	<b>√</b>
2	Building Envelop Molsture Management	✓	✓	~	N/A	<b>√</b>	V	V	V	V
3	Space Conditioning Design Based on ACCA Manual J.D. and 8	✓	✓	✓	N/A	✓	✓	✓	✓	✓
4	All Hot Water Pipe Shall Be Have R-4 insulation	N/A	✓	N/A	N/A	N/A	<b>✓</b>	N/A	✓	<b>√</b>
5	Windows Shall Be Qualified Energy Star Southern Climate Zone	✓	✓	✓	N/A	N/A	✓	✓	✓	✓
6	Whole Building Mechanical Ventilation	<b>✓</b>	✓	<b>~</b>	N/A	<b>✓</b>	<b>✓</b>	N/A	<b>✓</b>	<b>✓</b>
7	There Shall Be Continuous Air Barrier Separating attached garages from living space	✓	✓	✓	N/A	✓	✓	N/A	✓	✓
8	Blower Door Testing Shall be Performed s 0.25 cfm/ft*2 @ 50 pascals	N/A	✓	<b>~</b>	N/A	N/A	N/A	N/A	✓	✓
	Blower Door Testing shall be performed s .15 ACH	N/A	✓	N/A	N/A	N/A	N/A	N/A	N/A	<b>√</b>
9	Kitchen Exhaust Fan a 100cfm	<b>√</b>	✓	<b>\</b>	N/A	N/A	<b>✓</b>	N/A	<b>✓</b>	✓
10	Bathroom Exhaust Fan ≥ 50cfm (intermittent use) or ≥ 20 cfm (continuous use)	<b>✓</b>	✓	<b>~</b>	N/A	N/A	✓	N/A	✓	✓
11	Clothes Dryer Vented Directly To Outdoors	<b>✓</b>	✓	<b>~</b>	N/A	N/A	N/A	N/A	<b>✓</b>	✓
12	All Duct Connections Shall Be Sealed with An Underwriters Laboratories Listed Mastic Product	N/A	✓	✓	N/A	N/A	✓	N/A	✓	✓
13	Total Duct Leakage < 7%	N/A	✓	<b>√</b>	N/A	N/A	V	N/A	<b>√</b>	<b>√</b>
14	Complete Energy Star Thermal Bypass Inspection	✓	✓	<b>√</b>	N/A	✓	N/A	<b>√</b>	<b>√</b>	✓
15	Use Central Air Handler With a Filter ≥ MERV 10	<b>√</b>	✓	~	N/A	<b>√</b>	_	N/A	_	_
16	Combustion Safety	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
17	Central Air Handler Isolated From The Garage by Thermal and Air Barrier	N/A	✓	✓	N/A	✓	✓	✓	✓	✓
18	The Static Water Service Pressure s 60 psi	✓	✓	N/A	<b>√</b>	N/A	N/A	N/A	N/A	✓
19	All Tollets Shall Be Comply with a 1.1 fgpf	✓	<b>√</b>	N/A	_	N/A	~	N/A	<b>✓</b>	<b>√</b>
20	Bathroom and Kitchen Sink Faucets Shall Comply with Max Flow Rate Of 1.5 gpm	✓	✓	N/A	✓	N/A	✓	N/A	✓	✓
22	Showerheads Shall Comply with Max Flow Rate Of 1.75 gpm	✓	✓	N/A	✓	N/A	✓	N/A	✓	✓



# GREEN BUILDING SCIENCE INSTITUTE

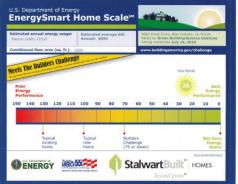






# SOLUTIONS























# Assumptions for Rehab Job Creation Stalwart-Renew Program

- 51 Jobs Created for every 120 Rehab Projects
- 240 Projects Per City Per Year is Estimated
- 102 Jobs Created Per City Per year
- Plus 26 Supplemental Building Science Jobs Created









### Stalwart Renew Program - Rehab & Retrofit - All Building Types

- Audit
- Solution
- Retrofit
- Commissioning
- Quality Assurance



Workforce development engine implemented as Adult Education through the local community college to provide green jobs training in a variety of fields. Locally qualified, certified companies utilize the trained certified workforce to implement the program solution. Program management provided by GBSI, GREE, FSEC, Masco and GE. Works in unison with the 501(c)(3), Housing Authority, local workforce training programs.



### Rehab & Retrofit – All Building Types

- 30-75% efficiency gain per structure
- 30-50% market penetration
- 5-7 year performance period
- Public-private partnership
- Self-sustaining approach
- Replicable model

Managed by the Nonprofit organization: energy and water efficiency program, implementer for the local community.

- Outreach and marketing on the advantages of efficiency
- Financing source for energy and water related improvements provided by GE City Solutions, DOE, EPA, SEEA, JCI, Public Institutional Sources and Private Foundations.
- MASCO Well Home Program is the Quality Assurance provider for property owners and occupants
- Certified Carbon Credits



The Targeted Community Solutions Program will assess the targeted homes for energy upgrades to accomplish one of four levels of home performance.

	Maximum Investment		Electric Cost per	
Status	Cost (\$)	HERS Rating	year (\$)	Savings (\$)
Current	0	150	2350	
Stalwart Level 1	10,000	100	1600	792
Stalwart Level 2	25,000	70	1260	1136
Stalwart Level 3	60,000	55	980	1419
Stalwart Level 4	30,000	25	480	1919

#### Not to exceed - \$10,000

### **LEVEL 1**

#### LEVEL 1 is a program that will focus on a 'BASE' upgrade of:

- Additional attic insulation & air sealing Enhanced HVAC system ●100% CFL Light Bulbs
- ●Low flow water fixtures Performance and certification audits

Bring HERS Score below code rating of 100

Estimated energy savings = 32-35%

Estimated water savings = 40% or greater

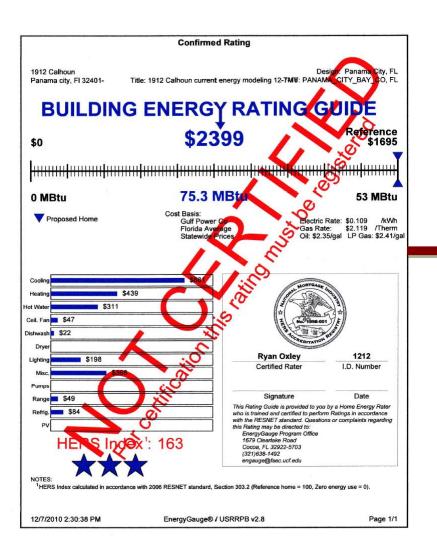
Including:

General Contractor Fee 501(c)(3) Contribution Testing & Certification Development Management Fee Stalwart Science Integration Fee

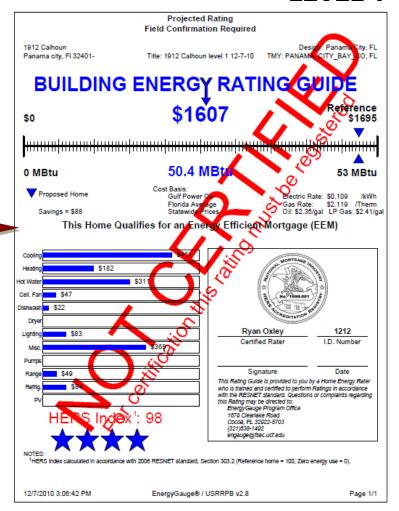
Annual Estimated Energy Savings \$ 792.00

<sup>\*</sup> Model will include Federal, State and local rebates and tax credits

<sup>\*</sup> Includes verification testing to be at or below Code 100 HERS - existing 150 HERS



### **LEVEL 1**











iGreenBuildingFab

A better system for a Beyond Green home. The building science used in a StalwartBuilt home incorporates high performance green technology within a system-built process. All aspects of the home are designed as an integrated system, with components working together to create a building that maximizes performance within any given climate. The result is a healthier, energy-efficient living environment that not only meets the high "green" standards of national and federal government certification standards, but also includes other high performance attributes that make StalwartBuilt homes...Beyond Green.

### STANDARDS & CERTIFICATIONS - STALWARTBUILT HOMES

STAINDARDS & CERTIFICATIONS - STALWARTBUILL HUNES

















StalwartBuilt<sup>™</sup> HOMES beyond green™



# **Building Solutions**











Location: Callaway, Florida

Inner city mobile home park converted to a high performance green single family community.

First LEED Platinum Certified House in the State

of Florida.

# PARTNER

# ZERO ENERGY HOME



HERS Index = 27

### First LEED Platinum Home in FL



StalwartBuilt

beyond green

HOMES

Stalwart Built Homes
NZEH

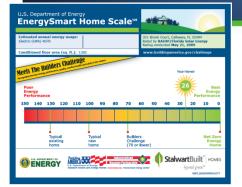
Callaway, FL

Prototype House Peer Review February 25, 2009

**Eric Martin** 

D. Parker, J. Sherwin, C. Colon







StalwartBuilt HOMES
beyond green

# LEED® Facts

Stalwart Built Homes Panama City, FI

LEED for Homes Program Certified on: March 21, 2008

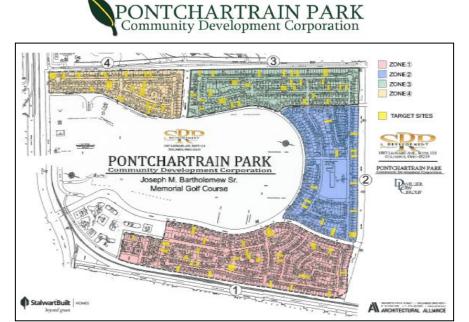
Platinum	86
Locations & Linkages	9
Sustainable Sites	12
Water Efficiency	7
Energy & Atmosphere	<u>34</u>
Materials & Resources	7
Indoor Environmental	
Quality	10
Innovation & Design	5
Awareness & Education	2













Location: New Orleans, LA

Community destroyed by Hurricane Katrina. Urban redevelopment infill project. Re-built to Stalwart Beyond Green and LEED certification standards.





### **Pierce Home Site:**

2,600 square feet conditioned space

Grade elevated 6 ft. to meet FEMA requirements.

Garage: site built



One day set and dry in. Security system activation.















## PONTCHARTRAIN PARK Community Development Corporation







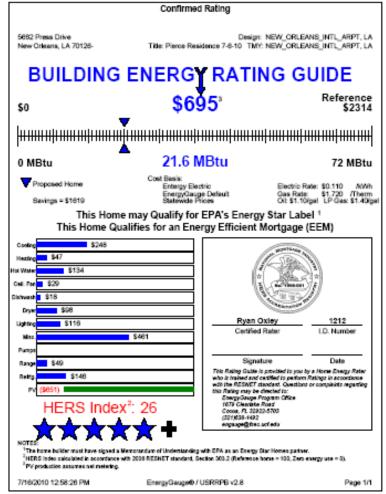




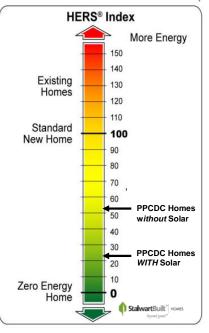












### **BENEFITS**

- Independent third party verification rating by the Green Building Science Institute, Panama City, Fl. Provider compliance approval by the Florida Solar Energy Center, Cocoa Beach, Fl.
- Approved by EPA for Energy Star label
- Qualifies the home for Energy Efficient Mortgage products
- Energy savings count as positive income for the home buyer





























# StalwartBuilt Homes / GBSI Proprietary Data Monitoring and Home Automation Solution

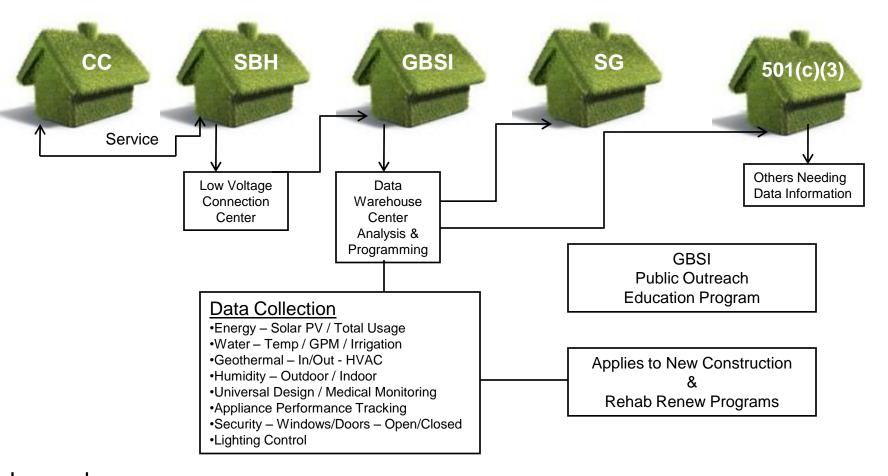






## **Targeted Community Solutions Program**

Does not require additional capital investment

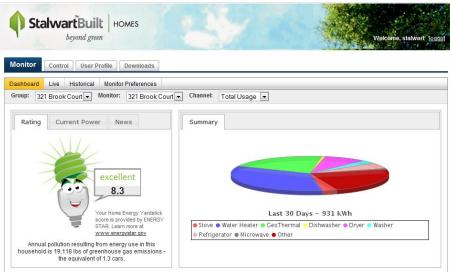


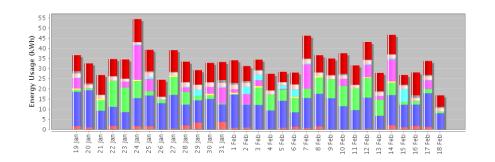




### **Data Collection**











# Solution Partners Team

# **Building Partnerships**





## CERTIFIED GREEN

In Collaboration with



GREEN HAS GROWN UP. AND IT'S READY FOR BUSINESS.



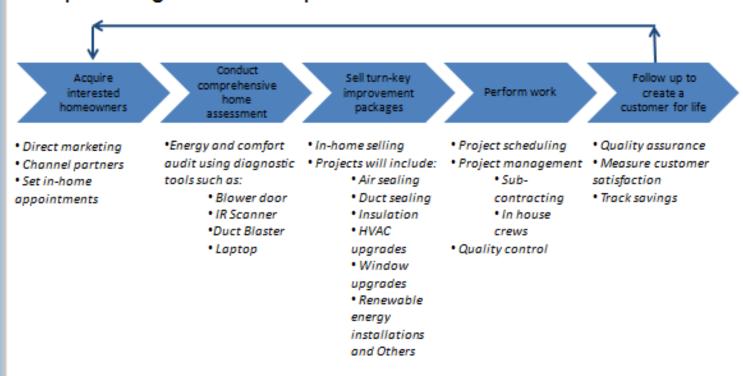






# WellHome Business Model

MHS will make homes operate better and more efficiently by providing whole home performance services







## WellHome Services

### Assess & Recommend

We assess your home, then discuss our recommendations on how to improve your comfort and energy-efficiency.

### Install

WellHome or one of our selected service providers performs the improvements you've selected, with a focus on quality, convenience, and service.

### Guarantee

Ensure improved home performance with the Whole Home Energy Savings Limited Guarantee.







# WellHome Guarantee - Customer for Life

Whole-Home Energy Savings Limited Guarantee
Well-tome guarantees that you will save at least% off your Historic Energy Use for your home ("Home") located at:
Your Historic Energy Use covers the period("Historic Period")
United Supertor Stati Sale.  City for which temperature data 49 be used for always reinige analysis.
Improve the weather inside.
Not device and for lattice depte

18









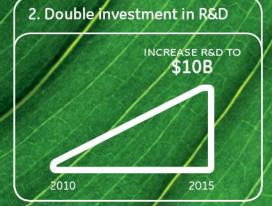
# Sustainable community from GE



### ecomagination

1. Continue to increase revenues from ecomagination products





3. Reduce greenhouse gas emissions and improve energy efficiency of GE



4. Reduce water use and improve water reuse



5. Keep the public informed



INSPIRE A COMPETITIVE GREEN ECONOMY



# Foley Lighting Audit Review and Next Steps

# **Expected Outcomes**

- Review of lighting audit
- Discussion of next steps
- Framework of phased plan to keep Foley – The Forward City





# Foley's Building Solutions Case Studies - indoor

Project	Scope	Estimated Operating Impact	Estimated Environmental Impact	Comments One for one replacement	Payback Years
Comm. Dev.	100 Lighting Fixtures	• \$1,368 / yr. savings	• Equals 3 cars or 5 acres of trees	Replaced T12 incandescent with T8Energy Smart	3.1
Fire station	156 Lighting Fixtures	• \$2,687 / yr. savings	• Equals 5 cars or 8 acres of trees	Replaced T12 incandescent with T8Energy Smart	1.7
5 buildings studied	1,005 Lighting Fixtures	• \$8,008 / yr. savings • 32% Energy Reduction	Deeper dive suggested, based on Foley's metrics	Multiple solutions suggested	2.7





### Foley Parking Lot Case Studies - Outdoor

Project	Scope	Estimated Operating Impact	Comments One for one replacement Year	
Justice Dept.	26 Lighting Fixtures	• \$2,500 / yr. savings	Move to LED lighting	1
City Hall/Library	37 Lighting Fixtures	• \$3,559 / yr. savings	Move to LED lighting 9.	0
2 Lots Studied	63Lighting Fixtures	• \$6,059 / yr. savings • 42% Energy Reduction	Multiple solutions suggested 8.	9

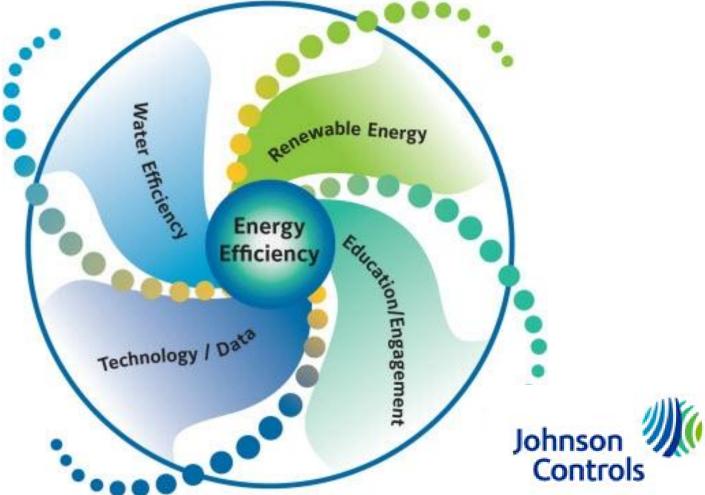






#1 Government need: cut budgets yet develop economy for jobs

#1 Budget item outside of salaries: energy plus always increasing





### Smart Meters, Smart Grid, Sustainable City

The real power of the Smart Grid concept for municipal utilities goes far beyond metering technology and better system control. It lies in the communication network that makes the concept possible – while creating opportunities to deliver popular new services, attract businesses, energize economic growth, and engage residents in community improvement with sustainable solutions.

Meet

• City stakeholder leads meeting: fleet, management, procurement with Johnson Controls to determine needs

Survey

Survey departments for EV truck needs, identify funding & process procurement

Show

 Showcase success, demonstrate savings & integrate with grid

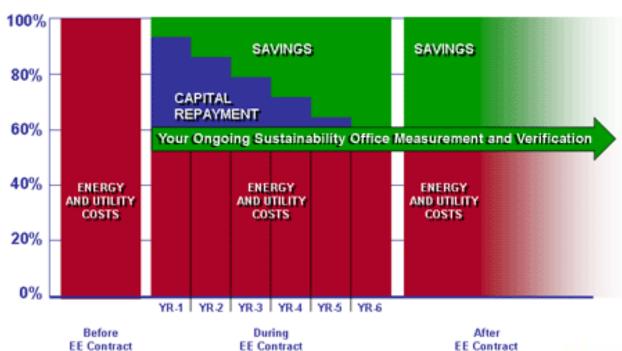






# How do you pay for your energy budget cuts, retrofits & upgrades: energy savings

Payback Example for a 5 YR Project



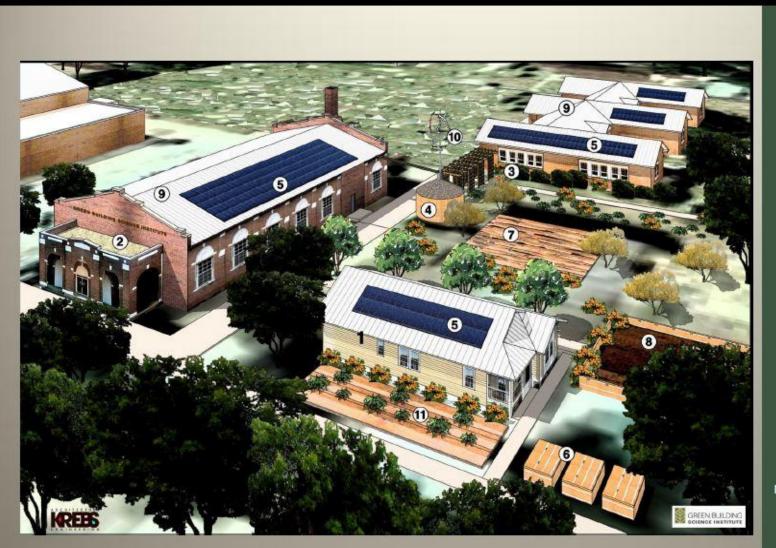




### **Education Solutions**

Targeted Community Solutions
Curriculum Offering
Class Room and Online Courses

# GREEN BUILDING SCIENCE INSTITUTE FOLEY CAMPUS



#### **LEGEND**

IGBF MODEL HOME

2 AUDITORIUM

3 CLASSROOMS

RAIN WATER CISTERN

PHOTOVOLTAIC PANELS

6 COMMUNITY RECYCLING CENTER

COMMUNITY GARDEN

8 NEIGHBORHOOD COMPOST

9 HEAT REFLECTIVE METAL ROOF

10 DEMONSTRATION WIND TURBINE

> 11 XERISCAPE





The Targeted Community Solutions Program education initiative is offered as adult education. We work in partnership with the local college to design flexible schedules and core curriculum for workforce training.

We offer a blended curriculum of On-Line and Classroom courses. The majority of our course offering have CEU credits.

Program content is provided by our team partners. We supply our own certified instructors, additionally we offer "train the trainer" courses for some content.













#### **Demonstration House Programming**

GBSI proposes a demonstration house located at the Community College that would be used by the College, GBSI and the green building community for education and "Green Events"

- The House would be a "Behind the Walls" that shows the functional systems of a Zero Energy House
- Finishing of the house would be part of the kick-off for education programming
- House would be changed approximately every 2 years to keep pace with building and technology changes

House provided by StalwartBuilt Homes & IGBF













#### **Public Outreach and Education**

#### **Public Training / Seminars**

Local college interns

College projects (like solar decathlon, etc.)

Understanding green (realtors)

Appraising high performance homes

Energy efficient mortgage/underwriting training

Questions to ask your contractor

Sustainable and high performance incentives for homeowners:

Federal, State & Local Governments

**Utility Companies** 

Private / Public Foundations

Efficiency improvements for existing homes (best bang for your buck)

Home energy management (understanding peak utility rates the methods to save

water, power, in your daily routine etc.)

**New Urbanism** 

Sins of Green Washing (prioritizing green through third party certification)

Alternative construction methods

Indoor air quality threats, causes, and solutions

#### **Conferences**

GBSI works with its national, regional, and local partners to co–sponsor and provide education content in green building and development events through out the Gulf Coast area.















## **Marketing Program**

**Vendors Partners** 

&

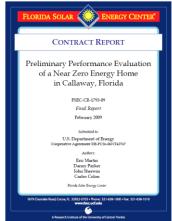
**Community Participation Campaigns** 



### Local & National Community Participation Campaign

**Eco- Expo** and all educational events will be advertised and marketed through a coordinated community effort.

- White Paper Case Studies by Dept. of Energy
- National & Local Media Programs
- Local cable stations
- Community College
- Chamber of Commerce
- USGBC chapters and local "Green" organizations











#### STRATEGIC COMMUNICATION PLAN

This planning track will develop a strategic plan to enhance communications and planning with the key community stakeholders during the planning process. This track will focus on communication with key groups connected to the planning process.

#### **Communication Plan Components**

- Resources and Expertise
- The Objectives
- The Targeted Audiences
- The Program of Work

- Informing the Community
- The task Timetable for Work
- Methods of Communication
- Evaluation Process Description

#### **Methods of Communication**

- Written Information
- Media Relations Announcements
- Marketing and Sales Materials
- Internal & external Comm. Procedures
- Taskforce & team Comm.
- Report Summaries & Procedures
- Surveys or other methods of feedback
- Website(s)

- Periodic Print Publications
- Public Relations Materials
- Legal & Legislative Documents
- Online Communications
- CDC Updates & Newsletters
- Special & Confidential Reports
- Paper or Electronic Signage



Contact:

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C: 850-625-3061

jallen@stalwartbuilt.com

### Thank You

On behalf of the Green Building Science Institute and our strategic alliance partners.