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# Net-Zero/Energy Positive Leased Public Schools

Joint Legislative Committee on Energy Policy

Feb 4, 2014

*creating* **JOBS**



*saving* **MONEY**



*educating  
the* **FUTURE**

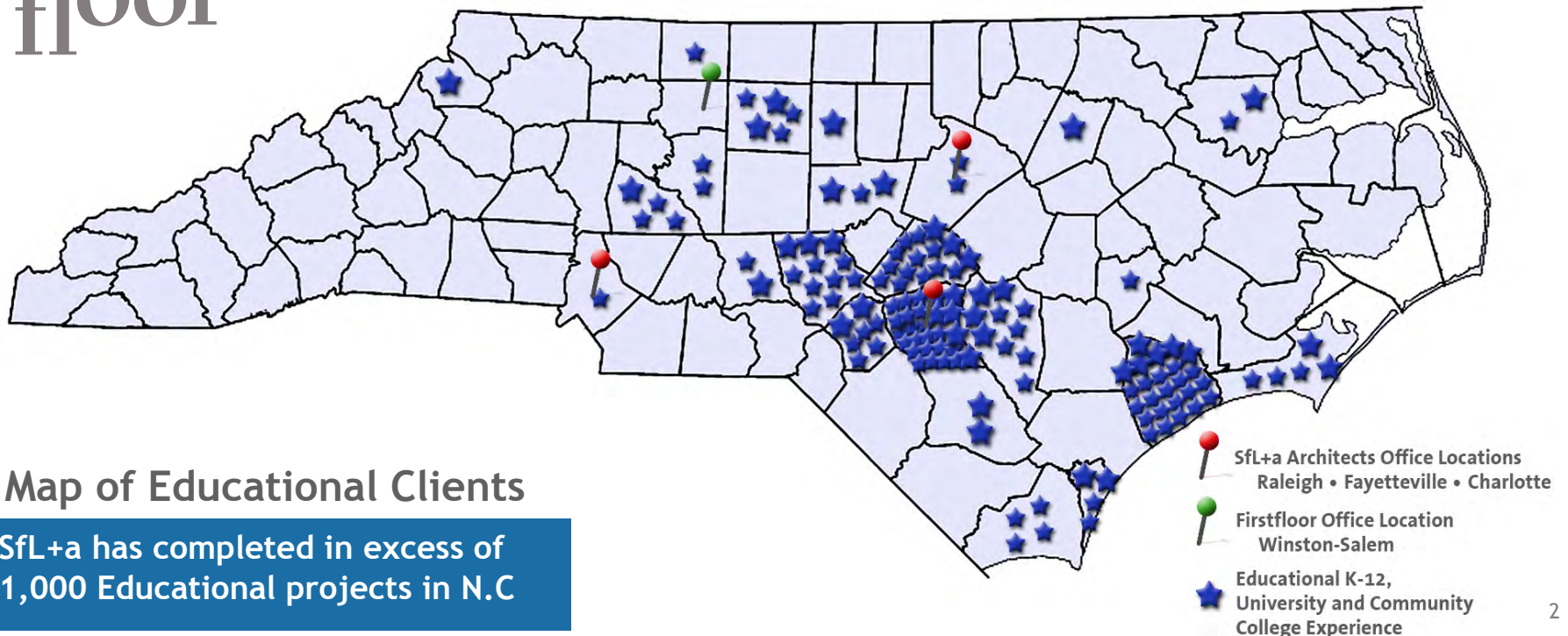




We are a proven leader in the design of high performance educational facilities in NC with over 30 years in business



Created as a development arm for SfL+a Architects, we provide innovative solutions to our clients' goals with alternative project delivery methods.



# SfL+a Experience

## Past Projects



Guilford County  
Eastern Guilford  
High School



Guilford County  
Northern Guilford  
High School



Nash County  
Rocky Mount  
High School



Moore County  
Union Pines  
High School



Harnett County  
Highland  
Middle School



New Hanover  
County  
Snipes Academy of  
Arts and Design



Hoke County  
Sandy Grove  
Middle School



Rowan County  
Jesse Carson  
High School



## Leased Net-Zero/Energy Positive School:

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A public school that is leased from a private sector developer that generates more electricity than it consumes. The building has back up generation or energy storage to meet all of its electrical needs for a minimum of 24 hours. The contract with the utility service provider may allow for interruptible power. The building does not utilize grid power during the utilities peak.

# What is a Leased Net-Zero/Energy Positive School

Net-Zero/Energy Positive buildings reduce the total cost of ownership (TCO) by at least **30%** while improving the quality of the facility.

## Traditional School

Construction	\$21.5M
*Electricity	\$16M
Interest	\$16M

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**TCO** **\$53.5M**

\* Estimated electrical cost over 40 years

## Leased Net-Zero/ Energy Positive School

Construction	\$21.5M
*Electricity	\$0
Interest	\$16M

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**TCO** **\$37.5M**

\* Estimated electrical cost over 40 years

## Other Benefits of Leased Net-Zero/Energy Positive Schools

- Lower maintenance costs
- No light bulb replacements
- School as a learning tool
- Eliminates long term exposure to operational cost inflation
- ➡ • Reduces need for state sponsored school bonds
- ➡ • One project creates hundreds of construction jobs and over 100 permanent jobs that would not have existed.

“So if you want efficiency and effectiveness, if you want knowledge to be properly utilized, you have to do it through the means of private property.”

-Milton Friedman

## Leased Net-Zero/Energy Positive Schools are NOT dependent on:

- Renewable Energy Certificates (RECs)
- N.C. Solar Tax Credits
- Energy incentives of any kind



# WHY LEASE NET-ZERO/ ENERGY POSITIVE FACILITIES?





# Why Lease Energy Positive Facilities?

## Advantages for State Tax Payers

REDUCES THE NEED FOR “STATE SPONSORED” SCHOOL  
CONSTRUCTION BONDS

**PRODUCES** MUCH NEEDED **JOBS** IN BUILDING DESIGN,  
CONSTRUCTION, FINANCE, LEGAL AND OPERATIONS



# Why Lease Energy Positive Facilities?

Advantages for County Tax Payers and School Leaders

NO UP FRONT CAPITAL REQUIREMENTS FOR COUNTY/FLEXIBLE LEASE TERMS

SPEEDS PROJECT DELIVERY/REDUCES INFLATION

- Reduces first cost
- Reduces interest rate

ELIMINATES CONSTRUCTION RISK FOR THE COUNTY

- Eliminates bid day risk
- Eliminates change orders

REDUCES OPERATING COSTS

- Electrical cost
- No light bulb replacements
- No HVAC maintenance costs

IMPROVES THE QUALITY OF THE BUILDING

- Premium equipment and materials
- Extended warranties
- Indoor air quality

PROVIDES EMERGENCY SHELTER

INSPIRES CHILDREN TO REACH THEIR POTENTIAL

# Why Lease Energy Positive Facilities?

Advantages for the Private Sector

## SPEEDS THE CYCLE OF INNOVATION

- The cost of Energy Positive Buildings is dropping while building performance is improving
- The cycle of implementing an improvement is reduced from 4 or 5 years to 1 year or less

## PROVIDES MUCH NEEDED JOBS/REVENUES

- Architects & Engineers
- Financers
- Land Owners
- Lawyers
- Accountants
- Contractors
- Maintenance Contractors
- Operations

Could generate  
**\$500,000,000**  
in School  
Construction  
in 2014!



# SUCCESS STORY

## SANDY GROVE MIDDLE SCHOOL





# Success Story - Sandy Grove Middle School

## Energy Positive Benefits



## High Performance Systems

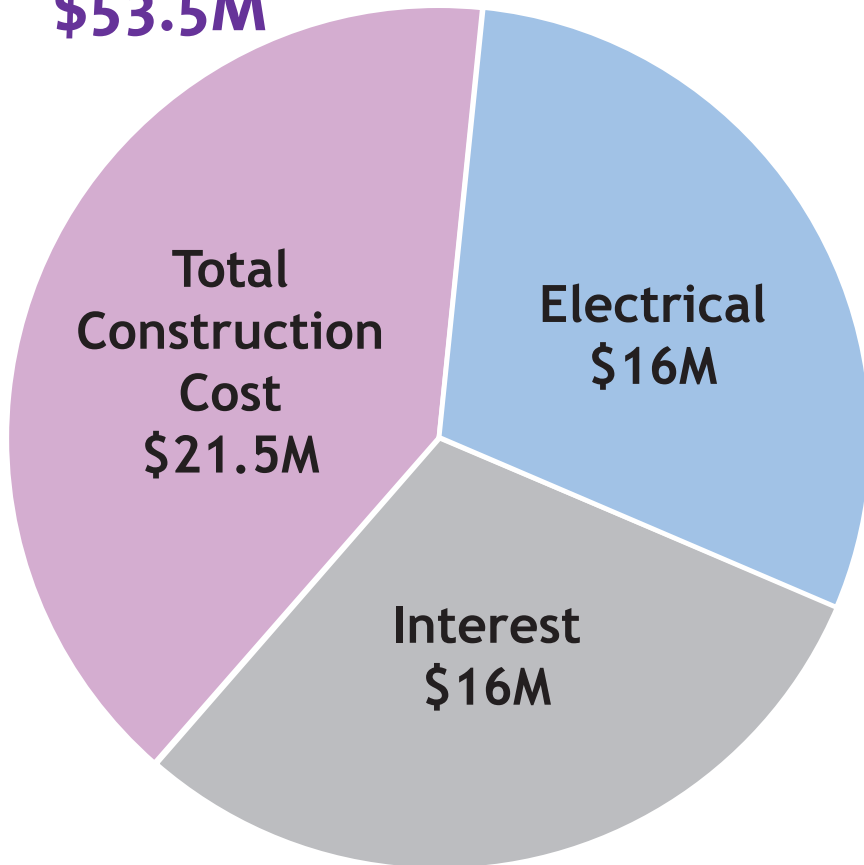
- Ground source geothermal
- High output LED lighting
- Load bearing masonry
- Enhanced building automation system
- Solar PV (589 kWh)
- Full back-up generation

# Success Story - Sandy Grove Middle School

## Energy Positive vs Traditional Delivery Models

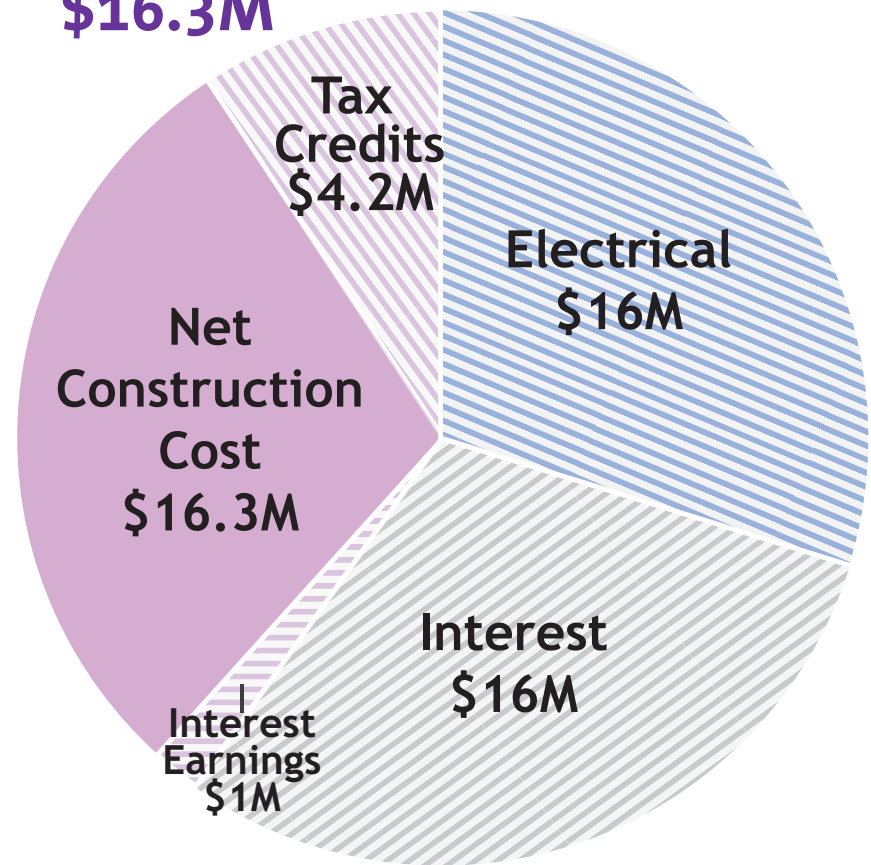
### Traditional Delivery

**\$53.5M**



### Leased Delivery

**\$16.3M**



# WHERE DO WE GO FROM HERE?



# NOT A FREE MARKET

- Good reasons/utilities have done a good job at producing low cost energy

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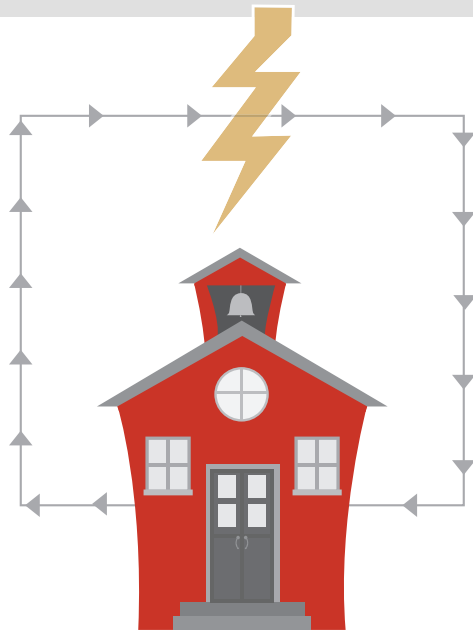


# Where do we go from here?

## Options

### OPTION 1

Net-Zero/Energy Positive Schools go  
“Off Grid”



or

### OPTION 2

Net-Zero/Energy Positive Schools contribute to  
improving grid efficiency  
and reducing the cost of  
energy



## WHAT IS NEEDED TO ENCOURAGE LEASING OF NET-ZERO/ ENERGY POSITIVE SCHOOLS THAT ARE “ON-GRID”

### 1 A CONVERSATION about real time value transactions (Real Time Avoided Cost)

- We **SHOULD NOT PAY** for what we don't use like demand/stand by charges
- We **SHOULD PAY** for services we use like line maintenance and billing
- We **SHOULD BE PAID** for the real value of what we produce – Real Time Pricing
- We **SHOULD BE PAID** for utility usage of on-site storage and/or backup generation
- We **SHOULD BE ABLE** to use what we generate

### 2 State Intercept

This will not cost the state of NC anything and it will have no adverse effect on the state. It will lower borrowing rates in low wealth counties. The Intercept will also reduce long term operating risks for the tax payers. There are 35 states with credit enhancement programs and six states with AAA credit enhancement programs.

# Where do we go from here?

Interview with Jim Rogers



## INTERVIEW WITH JIM ROGERS former CEO of Duke Energy

Q

If you were starting out your career today, where would you want to work?

A

"I would come into the industry as someone who is an attacker, not a defender. I'd want the solar on the rooftop. I'd want to run that. I'd want the ability to deploy new technologies that lead to productivity gains in the use of electricity in homes and businesses. I would go after the monopoly that has been weakened over the last 25 years. My goal would be to take customers away from utilities as fast as I could, because I think they're vulnerable. Regulations will not be changed fast enough to protect them. The business model will not be changed fast enough."



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