

# New Jersey's Clean Energy Program

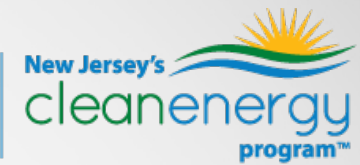
LG&A Exit Meeting for:  
*St. Augustine Preparatory School*

TRC Energy Services

December 4, 2018

# Introductions

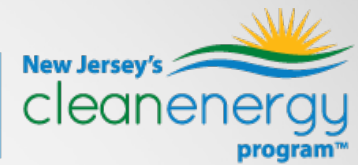
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- *St. Augustine Preparatory School*
  - Guy Hackney – Senior Finance Director
  - Katherine Bauer – Director of Facilities
- *NJ Clean Energy Program*
  - Yagna Otia, CEM – TRC Auditor
  - Sarah Walters– TRC Account Manager
- *South Jersey Gas*
  - Patrick McDevitt – Energy Efficiency & Conservation Program Coordinator

# Agenda

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- The audit process overview
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified
- Questions or concerns regarding the draft audit report
- Overview of NJCEP equipment incentives
- Next steps for St. Augustine Preparatory School

# LGEA Process

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- Application Approval
- Scheduling Call
- Audit
- Benchmarking & Analysis
- Draft Report
- Exit Meeting Presentation
- Final Report

## Overview of Systems, Baseline & Existing Conditions:


- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Solar PV on Forum Roof

## Utility Consumption:

- Electric Consumption and Costs
- Electric Demand and Costs
- Natural Gas Consumption and Costs

# Benchmarking



**ENERGY STAR® Statement of Energy Performance**  
LEARN MORE AT [energystar.gov](http://energystar.gov)

# 98

ENERGY STAR® Score<sup>1</sup>

**St. Augustine Prep - Forum**  
Primary Property Type: K-12 School  
Gross Floor Area (ft²): 107,796  
Built: 2007  
For Year Ending: April 30, 2018  
Date Generated: October 24, 2018

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

**Property & Contact Information**

<b>Property Address</b> St. Augustine Prep - Forum 811 Cedar Avenue Richland, New Jersey 08350	<b>Property Owner</b> St. Augustine Preparatory School 811 Cedar Avenue Director of Facilities, NJ 08350 (856) 697-2600	<b>Primary Contact</b> Kathryn Bauer 811 Cedar Avenue Director of Facilities, NJ 08350 (856) 697-2600 Ext. 124 <a href="mailto:mrs.bauer@hermits.com">mrs.bauer@hermits.com</a>
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Property ID: 8587812

**Energy Consumption and Energy Use Intensity (EUI)**

<b>Site EUI</b> 96.1 kBtu/ft²	<b>Annual Energy by Fuel</b> <table><tr><td>Natural Gas (kBtu)</td><td>4,030,643 (39%)</td></tr><tr><td>Electric - Solar (kBtu)</td><td>5,317,285 (51%)</td></tr><tr><td>Electric - Grid (kBtu)</td><td>1,012,682 (10%)</td></tr></table>	Natural Gas (kBtu)	4,030,643 (39%)	Electric - Solar (kBtu)	5,317,285 (51%)	Electric - Grid (kBtu)	1,012,682 (10%)	<b>National Median Comparison</b> <table><tr><td>National Median Site EUI (kBtu/ft²)</td><td>168.1</td></tr><tr><td>National Median Source EUI (kBtu/ft²)</td><td>200.9</td></tr><tr><td>% Diff from National Median Source EUI</td><td>-43%</td></tr></table>	National Median Site EUI (kBtu/ft²)	168.1	National Median Source EUI (kBtu/ft²)	200.9	% Diff from National Median Source EUI	-43%
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<b>Source EUI</b> 114.9 kBtu/ft²	<b>Annual Emissions</b> <table><tr><td>Greenhouse Gas Emissions (Metric Tons CO2e/year)</td><td>317</td></tr></table>		Greenhouse Gas Emissions (Metric Tons CO2e/year)	317										
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**Signature & Stamp of Verifying Professional**

I \_\_\_\_\_ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Licensed Professional

Kathryn Bauer  
811 Cedar Avenue  
Director of Facilities, NJ 08350  
(856) 697-2600 Ext. 124  
[mrs.bauer@hermits.com](mailto:mrs.bauer@hermits.com)



Professional Engineer Stamp  
(if applicable)

ENERGY STAR Scores are percentile ranking from 1 to 100. It compares your building's energy performance to similar buildings nationwide.

# All Opportunities - Forum



#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>		<b>263,394</b>	<b>40.8</b>	<b>-54</b>	<b>\$25,522</b>	<b>\$81,528</b>	<b>\$14,515</b>	<b>\$67,013</b>	<b>2.6</b>	<b>258,881</b>
ECM 1	Install LED Fixtures	104,975	16.4	-22	\$10,172	\$41,399	\$4,555	\$36,844	3.6	103,180
ECM 2	Retrofit Fixtures with LED Lamps	158,418	24.4	-33	\$15,350	\$40,129	\$9,960	\$30,169	2.0	155,701
<b>Lighting Control Measures</b>		<b>57,220</b>	<b>8.8</b>	<b>-12</b>	<b>\$5,542</b>	<b>\$35,036</b>	<b>\$3,690</b>	<b>\$31,346</b>	<b>5.7</b>	<b>56,220</b>
ECM 3	Install Occupancy Sensor Lighting Controls	51,545	7.9	-11	\$4,992	\$33,636	\$3,690	\$29,946	6.0	50,644
ECM 4	Install High/Low Lighting Controls	5,675	0.9	-1	\$550	\$1,400	\$0	\$1,400	2.5	5,576
<b>Motor Upgrades</b>		<b>2,666</b>	<b>0.5</b>	<b>0</b>	<b>\$266</b>	<b>\$11,110</b>	<b>\$0</b>	<b>\$11,110</b>	<b>41.7</b>	<b>2,684</b>
	Premium Efficiency Motors	2,666	0.5	0	\$266	\$11,110	\$0	\$11,110	41.7	2,684
<b>Variable Frequency Drive (VFD) Measures</b>		<b>86,723</b>	<b>19.2</b>	<b>52</b>	<b>\$9,420</b>	<b>\$30,955</b>	<b>\$4,175</b>	<b>\$26,780</b>	<b>2.8</b>	<b>93,453</b>
ECM 5	Install VFD on Variable Air Volume (VAV) Fans	80,887	19.2	0	\$8,079	\$28,227	\$3,575	\$24,652	3.1	81,453
ECM 6	Install VFDs on Kitchen Hood Fan Motors	5,836	0.0	52	\$1,341	\$2,729	\$600	\$2,129	1.6	12,001
<b>Electric Unitary HVAC Measures</b>		<b>39,439</b>	<b>25.9</b>	<b>0</b>	<b>\$3,939</b>	<b>\$382,818</b>	<b>\$8,190</b>	<b>\$374,628</b>	<b>95.1</b>	<b>39,714</b>
	Install High Efficiency Air Conditioning Units	39,439	25.9	0	\$3,939	\$382,818	\$8,190	\$374,628	95.1	39,714
<b>Gas Heating (HVAC/Process) Replacement</b>		<b>0</b>	<b>0.0</b>	<b>333</b>	<b>\$4,831</b>	<b>\$61,707</b>	<b>\$3,200</b>	<b>\$58,507</b>	<b>12.1</b>	<b>39,021</b>
	Install High Efficiency Furnaces	0	0.0	333	\$4,831	\$61,707	\$3,200	\$58,507	12.1	39,021
<b>Domestic Water Heating Upgrade</b>		<b>0</b>	<b>0.0</b>	<b>63</b>	<b>\$908</b>	<b>\$158</b>	<b>\$0</b>	<b>\$158</b>	<b>0.2</b>	<b>7,333</b>
ECM 7	Install Low-Flow DHW Devices	0	0.0	63	\$908	\$158	\$0	\$158	0.2	7,333
<b>Food Service &amp; Refrigeration Measures</b>		<b>12,262</b>	<b>1.7</b>	<b>262</b>	<b>\$5,023</b>	<b>\$87,319</b>	<b>\$6,275</b>	<b>\$81,044</b>	<b>16.1</b>	<b>43,025</b>
	Food Service Equipment Replacement	2,558	0.6	262	\$4,054	\$80,871	\$6,275	\$74,596	18.4	33,254
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	1,311	0.2	0	\$131	\$607	\$0	\$607	4.6	1,320
ECM 9	Replace Refrigeration Equipment	6,781	0.8	0	\$677	\$5,612	\$0	\$5,612	8.3	6,829
ECM 10	Vending Machine Control	1,612	0.2	0	\$161	\$230	\$0	\$230	1.4	1,623
<b>TOTALS</b>		<b>461,703</b>	<b>97.0</b>	<b>644</b>	<b>\$55,452</b>	<b>\$690,632</b>	<b>\$40,045</b>	<b>\$650,587</b>	<b>11.7</b>	<b>540,332</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria.

\*\* - Simple Payback Period is based on net measure costs (i.e. after incentives).

# Cost Effective Opportunities\* - Forum



\* Opportunities considered cost effective have a payback period less than 2/3rds of the useful life of the measure

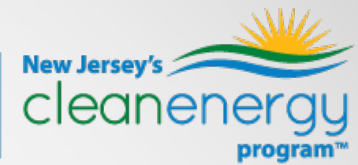
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<b>Domestic Water Heating Upgrade</b>		<b>0</b>	<b>0.0</b>	<b>63</b>	<b>\$908</b>	<b>\$158</b>	<b>\$0</b>	<b>\$158</b>	<b>0.2</b>	<b>7,333</b>
ECM 7	Install Low-Flow DHW Devices	0	0.0	63	\$908	\$158	\$0	\$158	0.2	7,333
<b>Food Service &amp; Refrigeration Measures</b>		<b>9,704</b>	<b>1.1</b>	<b>0</b>	<b>\$969</b>	<b>\$6,449</b>	<b>\$0</b>	<b>\$6,449</b>	<b>6.7</b>	<b>9,772</b>
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	1,311	0.2	0	\$131	\$607	\$0	\$607	4.6	1,320
ECM 9	Replace Refrigeration Equipment	6,781	0.8	0	\$677	\$5,612	\$0	\$5,612	8.3	6,829
ECM 10	Vending Machine Control	1,612	0.2	0	\$161	\$230	\$0	\$230	1.4	1,623
<b>TOTALS</b>		<b>417,041</b>	<b>69.9</b>	<b>49</b>	<b>\$42,362</b>	<b>\$154,126</b>	<b>\$22,380</b>	<b>\$131,746</b>	<b>3.1</b>	<b>425,659</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria

\*\* - Simple Payback Period is based on net measure costs (i.e. after incentives).



# Solar Energy Generation Potential



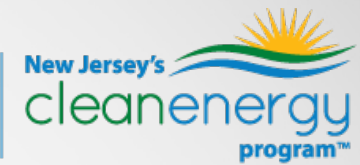
<i>Potential:</i>	<b>High</b>
<i>System Potential:</i>	215 kW
<i>Electric Generation:</i>	256,145 kWh/yr.
<i>Displaced Cost:</i>	\$25,580

For more information on the SREC Registration Program (SRP) please visit:

<http://www.njcleanenergy.com/renewable-energy/programs/solar-renewable-energy-certificates-srec/new-jersey-solar-renewable-energy>

# Energy Efficient Best Practices

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- Reduce Air Leakage
- Close Doors and Windows
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Use Fans to Reduce Cooling Load
- Use Window Treatments/Coverings
- Clean and/or Replace HVAC filters
- Check and Seal Duct Leakage
- Perform Proper Boiler Maintenance
- Perform Proper Water Heater Maintenance
- Plug Load Controls
- Water Conservation

*See individual reports for specific EE practices by building*

# Clean Energy Program Portfolio



## ELIGIBLE SECTORS

Commercial, Industrial, Government, Non-Profit,  
Institutional and Multifamily

### Equipment Rebates:

- SmartStart
- CTEEP

(Customer Tailored Energy Efficiency Pilot)

- Large Energy Users

## INCENTIVE PROGRAMS

### Whole Buildings:

- Direct Install
- Pay for Performance

### Energy Generation:

- Combined Heat and Power (CHP)

## OTHER PROGRAMS

### Renewable Energy Generation:

- SREC Registration Program (SRP)

\* eligible programs are highlighted in yellow

# SmartStart: Overview

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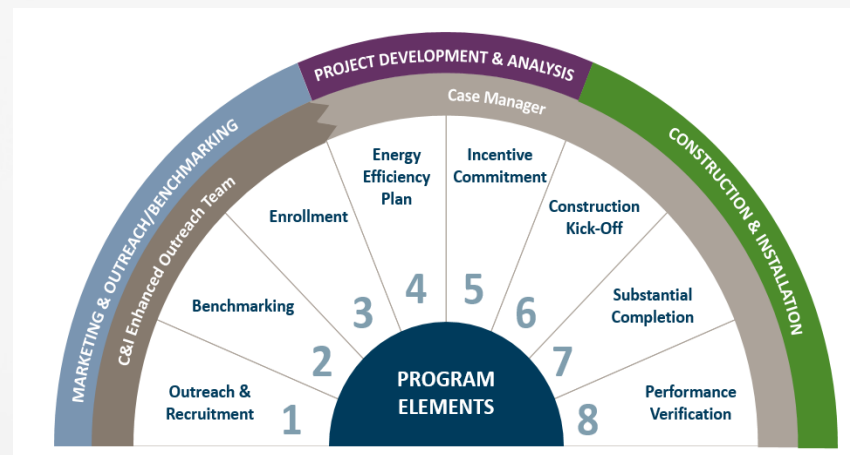
- Two types of incentives for high efficiency equipment installation:
  - Prescriptive
  - Custom
- Project Categories:
  - New Construction
  - Renovation
  - Remodeling
  - Equipment Replacement
- Project pre-approval required for lighting and custom measures
- Incentives up to \$500,000 per electric account & \$500,000 per natural gas account
- Specific incentives and individual applications for Lighting, HVAC, VFDs, Refrigeration, Controls and more!

[www.NJCleanEnergy/SSB](http://www.NJCleanEnergy/SSB)

# CTEEP: Overview

## Customer Tailored Energy Efficiency Pilot (CTEEP)

- Provide customers with **on-site assistance** to discuss project opportunities and program incentives.
- A **single application** submission streamlines multiple prescriptive and custom measures.
- Provide **technical assistance incentives** to help offset soft costs associated with developing and planning an energy efficiency project.
- Incentives up to \$250,000 entity cap. Ability to exceed is possible.



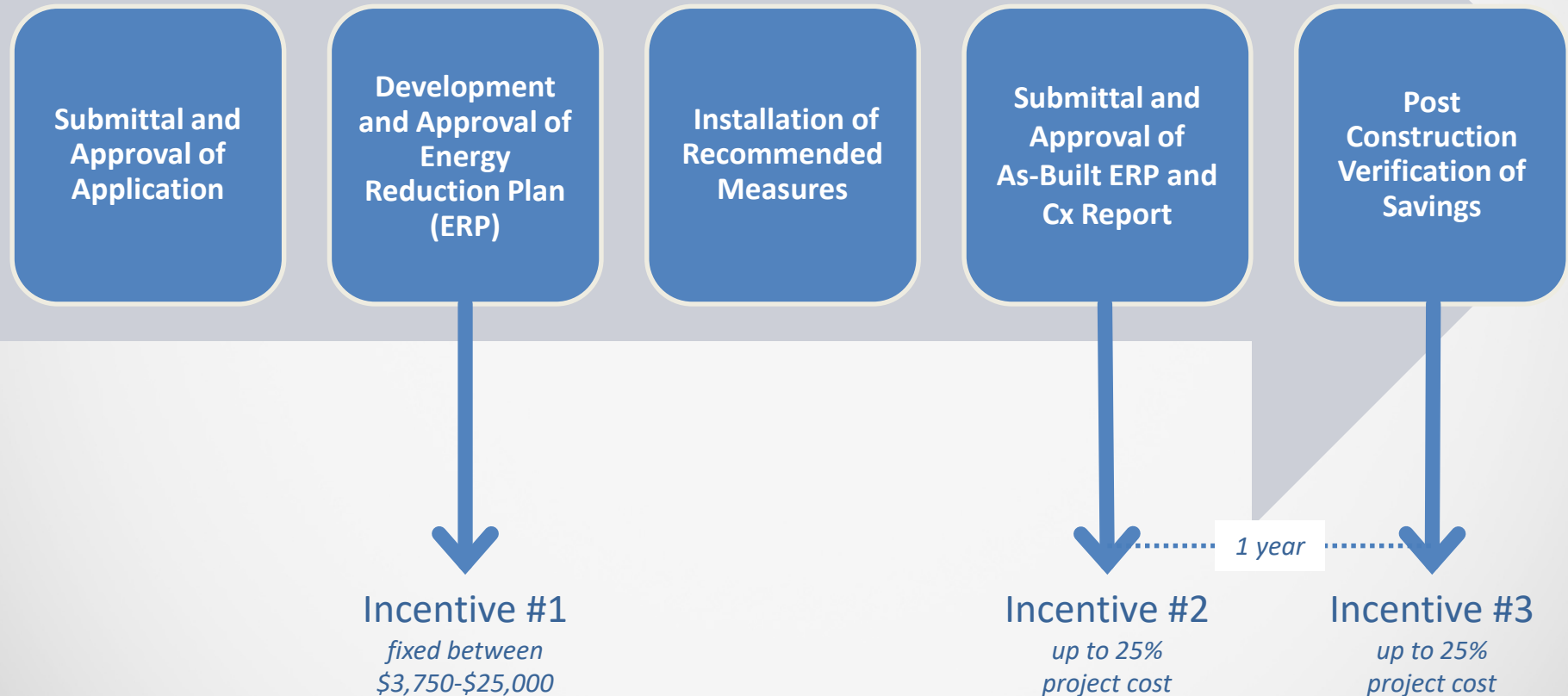
# Pay for Performance: Overview

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- Comprehensive, whole-building approach to save energy in existing or new facilities
- Qualification based on energy consumption, energy savings and measure types
- Customer chooses from network of pre-approved ***Participating Partners***
- Incentives paid in three installments at milestones
  - Incentives up to \$2 million per project (\$4 entity cap/year)
    - \$1 million for electric measures
    - \$1 million for gas measures
  - Incentives up to 50% of total project cost

# Pay for Performance: Process



# Pay for Performance: Details



Incentive #1: Energy Reduction Plan			
Incentive Amount:		\$0.15	per sq ft
Minimum Incentive:		\$3,750	
Maximum Incentive:		\$25,000	or 50% of facility annual energy cost
Incentive #2: Installation of Recommended Measures			
Minimum Performance Target:		15%	
Electric Incentives	Base Incentive based on 15% savings:	\$0.09	per projected kWh saved
	For each % over 15% add:	\$0.005	
	Maximum Incentive:	\$0.11	
Gas Incentives	Base Incentive based on 15 % savings:	\$0.90	per projected Therm saved
	For each % over 15% add:	\$0.05	
	Maximum Incentive:	\$1.25	
Incentive Cap:		25%	of total project cost
Incentive #3: Post-Construction Benchmarking Report			
Minimum Performance Target:		15%	
Electric Incentives	Base Incentive based on 15% savings:	\$0.09	per projected kWh saved
	For each % over 15% add:	\$0.005	
	Maximum Incentive:	\$0.11	
Gas Incentives	Base Incentive based on 15% savings:	\$0.90	per projected Therm saved
	For each % over 15% add:	\$0.05	
	Maximum Incentive:	\$1.25	
Incentive Cap:		25%	of total project cost



# SmartStart, CTEEP, P4P: Financing Option



- 0% Financing
- Up to \$130,000 for 10 years
- SJG can help guide you through the process

Contact:

Bruce Grossman – Program Manager

South Jersey Gas

#1 South Jersey Plaza

Folsom, NJ 08037

Phone: 609-561-9000, ext. 4271



# Recommended NJCEP Incentives per Building



	SmartStart	CTEEP	Pay For Performance
St. Augustine Preparatory School - Forum	X	X	X

## Energy Savings Improvement Program (ESIP)

- Provides alternative financing for energy savings projects at public institutions. Value of energy savings leveraged to pay for cost of EE projects over a 15 year contract. Does not count as debt/require voter approval.
- Requires an audit as 1<sup>st</sup> step (LGEA satisfies requirement)
- ESIP participation question on LGEA application
- Program administered directly by BPU

## ESIP Process

## New Jersey's Clean Energy Program Interaction

Initial Energy Audit completed  
for entity building(s)

Local Government Energy Audit  
(LGEA) may be used to meet  
this requirement

Entity issues ESIP RFP (previously  
approved by BPU) and selects ESCO  
or DIY approach

Investment Grade Energy Audit completed  
and Energy Savings Plan (ESP)  
developed

P4P Energy Reduction Plan (ERP),  
Direct Install, or SmartStart application  
recommended submittal time frame

Third party review of ESP

Review and approval of ESP  
by Board of Public Utilities (BPU)

Entity adopts ESP,  
determines guarantee



# FOR MORE INFORMATION

## ESIP

**Mike Thulen**

ESIP Coordinator

Office: 609-777-3338

Cell: 732-330-2419

ESIP@bpu.nj.gov

# Questions

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# FOR MORE INFORMATION

**Visit** [NJCleanEnergy.com](http://NJCleanEnergy.com)

**Call** (866) NJSMART

**Jim Friedl**

Outreach Manager

732-855-6543

[jfriedl@trcsolutions.com](mailto:jfriedl@trcsolutions.com)