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COST SEGREGATION SERVICES, INC.
Engineering-based Cost Segregation Studies

TPI efficiency
Total Procurement Intelligence™

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THE BUILDING EDUCATION SERIES 2018:
THE OSWALD BUILDING, 1100 SUPERIOR
7:30 AM COFFEE AND REGISTRATION
8:00 – 10:00 AM PRESENTATION

JANUARY 18:  EFFICIENCY PROJECT RESOURCES
FEBRUARY 15: FACILITY MANAGERS ROUNDTABLE
MARCH 22:  CASE STUDIES OF EXEMPLARY EFFICIENCY PROJECTS
MAY 17:  NEW CONSTRUCTION CASE STUDIES
JULY 19:  BUILDING AUTOMATION SYSTEMS AND NEW TECHNOLOGY
SEPTEMBER 20:  ENERGY AUDITS – WHY THEY’RE IMPORTANT
NOVEMBER 15:  THE IMPORTANCE OF PREVENTATIVE MAINTENANCE
EFFICIENCY PROJECT RESOURCES

TODAY’S SPEAKERS:

ANAND NATARAJAN, Energy Manager, City of Cleveland

CRAIG MILLER, President, Duffy & Duffy Cost Segregation Services

MANNY ANUNIKE, Energy Specialist, Ohio Development Services Agency

JACK CIESA, President, JCC Energy Solutions, LLC

NICOLE STIKA, Vice President, Greater Cleveland Partnership/COSE

CHARLES HEYMAN, Outreach, Sodexo

MIKE FOLEY, Director of Sustainability, Cuyahoga County
Anand Natarajan is the Energy Manager for the City of Cleveland Ohio, working out of the Mayor’s Office of Sustainability, since April 2010. Anand focuses on Energy Efficiency, Renewable Energy, Green Buildings and Alternative Fuel Transportation related policy, programs and implementation primarily for city operations ($60M utility spend), as well the city proper. Anand serves on various energy and climate related advisory committees in the region, as well as on the board of the local ASHRAE chapter.

Anand also has extensive project and program management experience in various industries in the for-profit, non-profit and the government sectors. Anand is LEED-AP (O&M) certified, a Certified Energy Manager (CEM), Certified Project Management Professional (PMP), has an MBA w/ emphasis on Sustainability, Organization Development and Non-profit Management, besides a couple of Masters degrees in Systems Science (Computer Science Dept.) and Materials Science ( Mechanical Engineering Dept.).

Anand also program managed the $4.5M U.S. Department of Energy’s (DOE) Energy Efficiency and Conservation Block Grant (EECBG) implementation for the city, in his role as the Principal Investigator (PI) for the award. This grant portfolio included several energy related projects, as well as the development of the Sustainable Municipal and Climate Action Plans (CAP) for city operations and the city proper, respectively. Anand has been managing the periodic greenhouse gas inventory updates for these plans, as well as the associated annual reporting for the annual Carbon Disclosure Project (CDP) and the Global Covenant of Mayors.
Cleveland 2030 – Building Education Series

Energy Efficiency Project Related Resources

Overview, Federal and City of Cleveland Resources

January 18th 2018

Anand Natarajan

Energy Manager, Mayor’s Office of Sustainability

City of Cleveland
Overview - Energy Efficiency Resources

- Emphasis on Energy Efficiency Related Financing Resources for the C2030 Districts
- Federal, State, Regional, County, Local, Non-profit and Utility Resources
  - U.S. Department of Energy’s Better Buildings Financing Navigator
  - State - Ohio Development Service Agency’s Energy Loan Fund
  - Utility and PJM (regional electricity grid) Rebates, Incentives and Customer Engagement
  - Cuyahoga County Initiatives/Upcoming Programs
  - City of Cleveland – One-stop Shop Portal (Coming Soon) & Economic Development Resources
  - 2018 Tax Code: Effect on Efficiency/Renewables Projects; Cost-Segregation/Depreciation
https://betterbuildingssolutioncenter.energy.gov/financing-navigator/explore
Federal - Department of Energy Financing Resources

The diagram below summarizes the energy efficiency financing options available in the market. "Traditional" options are commonly used to finance efficiency projects in addition to other types of goods and services, and "specialized" options are specifically designed for efficiency projects. Organizations can also fund projects internally without seeking third-party financing. For a more detailed typology of financing options, see LBNL's "Current Practices in Efficiency Financing" report.

Energy Efficiency Financing
- Internal Funding

Traditional Financing
- Leases
  - Capital Lease
  - Operating Lease
  - Tax-Exempt Lease
- Loans
  - Commercial Loan
  - Below-Market Loan

Specialized Financing
- On-Bill
  - On-Bill Financing (OBF)
  - On-Bill Repayment (OBR)
- Property Assessed Clean Energy (PACE)
  - Commercial PACE
  - Residential PACE (not included in Navigator)
  - On-Bill Repayment (OBR)
- Savings-Backed Arrangements
  - Energy Performance Contract (EPC)
  - Energy Services Agreement (ESA)

FIND FINANCING THAT FITS YOUR NEEDS

Tell us about your organization, project, and preferences, then we'll match you to financing options that might be a good fit. If you have multiple projects in mind, pick a representative project and fill out your answers accordingly. Mouse over the "?" tooltips for guidance. You don't need to answer all the questions, so feel free to leave some responses blank if you are unsure.

Tell us about your organization
- Sector (required)
  - [Select] [▼]

Tell us about your project
- Project Cost (required)
  - $ [▼]
  - [None] [▼]
  - [Building Ownership] [▼]

Your preferences
- Do you want the financing to be on or off balance sheet?
  - [None] [▼]
- How important is it that the financing provider guarantees savings?
  - [None] [▼]
- How important is it for you to claim depreciation on the equipment?
  - [None] [▼]
- How important is it that project savings are measured and verified as part of the financing contract?
  - [None] [▼]
- Do you prefer a shorter (1-5 years) or longer (6+ years) financing term?
  - [None] [▼]
- How important is minimizing complexity of the financing contract (e.g., shorter documents, fewer parties involved)?
  - [None] [▼]
- How quickly do you need financing?
  - [None] [▼]

Submit [►]
Below is a list of the Better Buildings Financial Allies—market-leading financing companies that have committed to funding energy efficiency projects. Select a financing option from the drop-down to see Allies that offer it. Click on any Ally for more details, including contact information so you can get in touch directly.

SHOW ME ALLIES THAT OFFER: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

- All American Investment Group
- Bank of America Merrill Lynch
- BioStar Renewables
- Bostonia Partners LLC
- Byline Financial Group
- Commercial Power Partners, LLC
- Connecticut Green Bank
- Direct Energy Business
- EDF Renewable Energy
- Hannon Armstrong
- Metrus Energy
- NYCEEC
- OUS Capital
- Rockwell Financial Group
- Southeast Capital & Finance, LLC
- SparkFund
- **Economic Development Loan Program**
  - Building renovation; Equipment purchases
  - Fixed rate below market loans, 186 months max. loan term
  - Max. $500K, max. 33.3% of total project cost
  - Job creation/retention requirements
  - Other terms and conditions apply (refer website/brochures)

- **Equipment Loan Program**
  - Similar to Economic Development Loan Program
  - 90 months max. loan term

- **Neighborhood Retail Assistance Program (NRAP):**
  - Financial assistance to small retail businesses, merchants and locally owned restaurants
  - Up to $3,000 in loan forgiveness for energy efficiency and green/sustainable improvements
Northeast Ohio Advanced Energy District - Special Improvement District:

- City of Cleveland & First Suburbs Development Council (2010)
- Property Assessed Clean Energy (PACE):
  - Assessment for special energy improvements
  - Improvement stays with property
  - Public, Non-Profit and Private (Commercial-PACE) Financing

Recent project (2017):

- Solar PV and energy efficiency improvements for Lakefront Development - Cumberland Project Plan (Approx. $12M). Ord# 936-17
- Special revenue bonds issued by the Cleveland Cuyahoga Port Authority, 15 years project
- Cooperative agreement among the Port Authority, City of Cleveland, the District and the owner
City of Cleveland - Resources

- Cleveland Public Power’s My CPP Portal:
  - Just Launched: December 2017 for Commercial Customers
  - Dashboard: 3 years of graphical historical consumption compared to other like-users and energy-savers.
  - Profiles & Surveys: Specific to customer type, with customized energy savings tips
  - Outage Alerts & Bill Payment Links

log in and see how YOUR ENERGY USAGE COMPARES
City of Cleveland - Resources

Coming in 2018!!

- City of Cleveland - One-Stop Shop/Web Portal for Energy Efficiency Financing/Assistance Resources
- Emphasis on local/regional resources
Thank you!

Questions?

Anand Natarajan, Energy Manager, Mayor’s Office of Sustainability
City of Cleveland

anatarajan@city.cleveland.oh.us
Phone: 216.664.2459
Craig Miller, CPA, CGMA, CGFM, MBA
President, Duffy+Duffy Cost Segregation Services, Inc.

Mr. Miller is a Cleveland native and a graduate of Cleveland State University. He is a former Tax Commissioner Agent for the State of Ohio, an Adjunct Faculty Instructor of Accounting and Finance at Cleveland State University and Lorain County Community College, and is currently the NAIOP Commercial Real Estate Finance and Tax Subcommittee Chairman in Washington DC.

Mr. Miller is past-President of the Northern Ohio Board of Directors of NAIOP and has been a Chapter Board Director of the U.S. Green Building Council since 2008. Mr. Miller is a frequent speaker on Cost Segregation for the National Business Institute, the Ohio, Michigan, Pennsylvania CPA Societies, and has published numerous articles in CPA Trendlines, Builder’s Exchange, Properties Magazine, and other industry trade publications.
ENGINEERED COST SEGREGATION

“The most powerful tax tool for real estate”

Presented by Craig Miller, CPA, CGMA, CGFM
Duffy+Duffy Cost Segregation
Cleveland, OH
Key Takeaways

DEPRECIATION IS AN INCOME TAX SHIELD:
Tax Cuts and Jobs Act of 2017 – VERY Favorable to Commercial Real Estate Owners and Developers (2017 is still open until tax filing, including extension).

Types of Entity Structures: Real Estate and tenant-paid leaseholds owned by Individual, LLC, Partnerships, S Corp., C Corp., Trusts that are profitable and paying income tax all qualify

Active v. Passive: Owners who are active, are real estate professionals, or are owner occupied business tenant. If passive, owners with other passive sources of income can offset passive gains with passive losses without limit

In-Service Date: Any property place in-service since Jan. 1, 1987 qualifies for Accounting Method Change. The "Sweet Spot" for existing building owners is for properties with in-service dates in the last 10-15 years. The larger the cost basis, the farther back a study can be justified.

Property Segregation Range: Typical commercial properties contain 10-25% of Personal Property (this excludes furniture, business machines), and 10-15% land and site improvements. The client uses the engineered study to reclassify 20-40% of 39n life commercial and 27.5n life residential properties to 5yr or 7yr personal property lives, and to 15 year life for land improvements.

IRS Authority/Guidance: The IRS has issued a favorable Legal Memorandum and taxpayers have "Automatic Consent" to the use of cost segregation studies
What is Cost Segregation?

Results in **Faster Tax Write-Offs**

Uses **Accelerated Depreciation** as a Tax Shield

Results in **Working Capital and Cash Flow Generation**

A **tax deferral tool** that allows building owners to allocate building costs between real estate and personal property based on **case law and IRS guidance**.

A **Cost Segregation Study** is a detailed engineering analysis using **qualified engineers and estimators** that identifies **Section 1245 tangible personal property** and **Section 1250 land improvements** and conforms to IRS standards for quality.

Takes advantage of the timing of depreciation by classifying assets **properly** for tax purposes.
“How to Depreciate Property”
Class Life of Buildings
IRS Pub. 946
Legal Framework

Hospital Corporation of America (HCA)-1997 established cost segregation allowing shorter lives for certain assets. Establishes link between Investment Tax Credit case law and rulings.

IRS acquiesces in 1999 and issues Legal Memorandum 199921045 agreeing to reclassification and stating that “the use of cost segregation studies must be specifically applied by the taxpayer.”

The IRS issues Cost Segregation Audit Techniques Guide in 2004 which assists examiners in the review and examination of cost segregation studies. Updates and specific industry bulletins issued since.
## Typical Example

<table>
<thead>
<tr>
<th>Property Class</th>
<th>Method</th>
<th>Before Segregation</th>
<th>After Segregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>39 yrs.</td>
<td>Straight-line</td>
<td>$2,000,000</td>
<td>$1,400,000</td>
</tr>
<tr>
<td>15 yrs.</td>
<td>150% DB</td>
<td>-</td>
<td>350,000</td>
</tr>
<tr>
<td>5/7 yrs.</td>
<td>200% DB</td>
<td>-</td>
<td>250,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$2,000,000</td>
<td>$2,000,000</td>
</tr>
</tbody>
</table>

- Depreciation accelerated - years 1-7: $366,000
- Additional cash flow generated - years 1-7: $125,000
- Present value of cash flow at 6% - project life: $94,500
## Impact Over Building Life

### Discounted Cash Flow

<table>
<thead>
<tr>
<th>Year</th>
<th>Depr Before CSS</th>
<th>Depr After CSS</th>
<th>Change in Depr</th>
<th>Tax Deferrals</th>
<th>Discount Factor</th>
<th>NPV of Tax savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>27,778</td>
<td>97,659</td>
<td>69,881</td>
<td>27,952</td>
<td>1.0000</td>
<td>27,952</td>
</tr>
<tr>
<td>2018</td>
<td>51,282</td>
<td>160,372</td>
<td>109,090</td>
<td>43,636</td>
<td>0.9434</td>
<td>41,166</td>
</tr>
<tr>
<td>2019</td>
<td>51,282</td>
<td>120,554</td>
<td>69,272</td>
<td>27,709</td>
<td>0.8900</td>
<td>24,661</td>
</tr>
<tr>
<td>2020</td>
<td>51,282</td>
<td>114,067</td>
<td>62,785</td>
<td>25,114</td>
<td>0.8396</td>
<td>21,086</td>
</tr>
<tr>
<td>2021</td>
<td>51,282</td>
<td>87,449</td>
<td>36,167</td>
<td>14,467</td>
<td>0.7921</td>
<td>11,459</td>
</tr>
<tr>
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<td>~</td>
<td>~</td>
</tr>
<tr>
<td>2046</td>
<td>51,282</td>
<td>35,897</td>
<td>(15,385)</td>
<td>(5,992)</td>
<td>0.1379</td>
<td>(826)</td>
</tr>
<tr>
<td>2046</td>
<td>51,282</td>
<td>35,897</td>
<td>(15,385)</td>
<td>(5,992)</td>
<td>0.1301</td>
<td>(780)</td>
</tr>
<tr>
<td>2047</td>
<td>51,282</td>
<td>35,897</td>
<td>(15,385)</td>
<td>(5,992)</td>
<td>0.1227</td>
<td>(735)</td>
</tr>
<tr>
<td>2048</td>
<td>51,282</td>
<td>35,897</td>
<td>(15,385)</td>
<td>(5,992)</td>
<td>0.1158</td>
<td>(694)</td>
</tr>
<tr>
<td>2049</td>
<td>51,282</td>
<td>35,897</td>
<td>(15,385)</td>
<td>(5,992)</td>
<td>0.1092</td>
<td>(654)</td>
</tr>
<tr>
<td></td>
<td><strong>2,000,000</strong></td>
<td><strong>2,000,000</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
<td></td>
<td><strong>94,500</strong></td>
</tr>
</tbody>
</table>
## Tax Impact
### Typical Study Results

<table>
<thead>
<tr>
<th>Type</th>
<th>1st Year Deferral</th>
<th>Peak Year Deferral</th>
<th>Overall NPV Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>$35,710</td>
<td>$130,984</td>
<td>$93,560</td>
</tr>
<tr>
<td>Retail</td>
<td>$144,204</td>
<td>$290,360</td>
<td>$207,400</td>
</tr>
<tr>
<td>Apartments</td>
<td>$38,450</td>
<td>$84,910</td>
<td>$60,650</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>$103,100</td>
<td>$298,528</td>
<td>$186,580</td>
</tr>
<tr>
<td>Medical</td>
<td>$20,504</td>
<td>$109,526</td>
<td>$72,687</td>
</tr>
<tr>
<td>Hotel</td>
<td>$88,575</td>
<td>$487,968</td>
<td>$304,980</td>
</tr>
<tr>
<td>Auto Dealer</td>
<td>$100,849</td>
<td>$135,245</td>
<td>$88,081</td>
</tr>
</tbody>
</table>
The Benefit to Building Owners

Income Tax Deferrals
Businesses Use *Free Cash Flow* for Many Business Uses:

- Business Expansion
- Working Capital
- Purchase Equipment
- Research & Development
- Energy Efficient Improvements/Building Automation Systems
- Renewable Energy Building Systems
- Hire/Retain Employees
- Pay Down Debt
Tests to Determine if an Asset is Tangible Personal Property

Tangible Personal Property does not include assets that are structural components of a building.

(Reg. Sect. 148-1(e)(2)

- Does an item within the building relate to the operation or maintenance of the building? (Scott Paper Co. v. Commissioner, 74 T.C. 137 (1980)

- Can the property be easily moved? (Whiteco Industries, Inc. v. Commissioner, 65 T.C. 664, 672-673 (1975)

- Does it play a structural role? (L.L. Bean, Inc. v. Commissioner, T.C. Memo. 1997-175, aff’d F.3d53 (1st. Cir. 1998)

- What is the justification for an item being installed? (Rev Rul 79-83)

- Does the asset serve a dual function? (Rev Rul 66-299)
Examples of Eligible Costs
Personal Property

- Solar/Wind/Geothermal/CHP
- Demountable Walls/Floors
- Decorative lighting
- Decorative millwork
- Voice/Data Cable Mgt.
- Wall/Floor coverings
- Portions of electrical
- Portions of plumbing
- Extra Structural support
- Communication systems

- Cabinetry & countertops
- Signage
- Process related HVAC
- Emergency lighting
- Security Systems
- Compressed air systems
- Shelving & racks
- Equipment pads
Tax Cuts and Jobs Act of 2017
Permanent Savings for Real Estate

- Corporate and Pass-through/Individual Business Tax Rates lowered to 21%/29.6% beginning 2018

  - EXISTING BUILDING OWNERS: 1-Time Permanent Tax Savings Available for tax filing for 2017

    • Realize Monumental permanent tax savings with an IRS – approved Cost Segregation Study for the 2017 tax year

    - Deductions have HIGHER value before tax cuts
      • IRS Automatic Consent Unchanged – Sec. 481 (a) Depreciation Catch-up

    - **Not Just a Timing Difference!**
## 2017 is the Year
Permanent Tax Savings For
Existing Building Owners

**Example:** $2M Building, Purchased or Constructed in 2012
Prior 39n SL Life - CSS Study Prepared for 2017 Tax Filing

<table>
<thead>
<tr>
<th></th>
<th>2017 Rate</th>
<th>2018 Rate</th>
<th>Permanent Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C Corp</strong></td>
<td>35%</td>
<td>21%</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Sec. 481(a) Adj.</strong></td>
<td>352,000</td>
<td>352,000</td>
<td></td>
</tr>
<tr>
<td><strong>Tax Deferral</strong></td>
<td>123,200</td>
<td>73,920</td>
<td>49,280</td>
</tr>
<tr>
<td><strong>Pass-through</strong></td>
<td>39.6%</td>
<td>29.6%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Sec. 481(a) Adj.</strong></td>
<td>352,000</td>
<td>352,000</td>
<td></td>
</tr>
<tr>
<td><strong>Tax Deferral</strong></td>
<td>139,392</td>
<td>104,192</td>
<td>35,200</td>
</tr>
</tbody>
</table>
Tax Cuts and Jobs Act of 2017

- MACRS Depreciation Remains intact
  - Solar/Wind/Geothermal/CHP Extended
  - EPACT Sec. 179D Not Extended (Exp. 2016)

- Bonus Depreciation – 100% Immediate Expense 5, 7, 15 Yr Property thru 2022
  - 100% Expensing beginning 9/27/17
  - NEW: Includes used equipment/machinery
    - INCLUDES PURCHASED BUILDINGS NOW

- Pass-through businesses (partnerships and LLCs) pay a new, lower top rate of 29.6 percent on their business income
Tax Cuts and Jobs Act of 2017

- Sec. 179 - $1M Limit/$2.5M Phase Out
  - Purchased, Leased, Financed- Begins 11/2/17
  - **NEW**: Residential Property Now Eligible
  - Includes 15n Qual. Improvements in 168(e)(6)
- **VERY FAVORABLE**: Includes High Efficiency HVAC, Fire Suppr., Roofs, Security

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof/HVAC/Fire Suppression/Security</td>
<td>$650,000</td>
<td>$650,000</td>
</tr>
<tr>
<td>First Year Write Off:</td>
<td>-</td>
<td>650,000</td>
</tr>
<tr>
<td>Bonus Depreciation:</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Normal Yr. 1 Depre.:</td>
<td>8,333</td>
<td>-</td>
</tr>
<tr>
<td>Total Yr. 1 Deduction:</td>
<td>8,333</td>
<td>650,000</td>
</tr>
<tr>
<td>Cash Savings:</td>
<td>3,300</td>
<td>192,400</td>
</tr>
<tr>
<td>After Tax Cost:</td>
<td>646,700</td>
<td>457,600</td>
</tr>
</tbody>
</table>
Tax Cuts and Jobs Act of 2017

- Section 1031 like-kind exchanges are preserved for real estate.
  - Big Change: No Deferral on 1245 Recapture
  - Increases importance of CSS Study on replacement building purchased

- IRS Definition of a Small Business <$25M
  - Previously <$5M
  - Small Businesses no longer required to use accrual method of accounting up to $25M

- Deductibility of interest on debt is maintained for those involved in real estate development.
Tax Cuts and Jobs Act of 2017

- Current tax treatment of carried interest is preserved (New Min. 3 Yr Holding Period)
- R&D Tax Credit, LIHTC Extended
  - R&D Credit Subject to 15n life Amort beg. 2021
- Energy Investment Tax Credit (30%, 10%)
  - MACRS 5 Yr, Continues through 2021 (was 2019).
  - 24% EIC Available for 2020-2024
- The 20% Historic Preservation Tax Credit and 10% New Markets Tax Credit are continued
  - HTC Change: Spread over 5yrs now, Must be in National Registry
  - NMTC – Expires after 2019 as scheduled
Government Incentives
Solar Rooftop PV Case Study

- What is the true after-tax cost of solar panels, wind power, geothermal?
- Rooftop 96Kw PV All-In Cost: $380,000
- 30% Solar Energy Investment Tax Credit
  - 30% x $380,000 = $114,000 Tax CREDIT
- Plus 100% Bonus Depreciation for 2018
  - Bonus Tax Benefit Yr. 1: $95,000 at 29.6%
  - After-Tax Cost of Solar PV: $170,000
- Plus SREC Income and Energy Savings
  - Energy Savings $8,000-$9,000 per Year
  - SREC Income $8,000-$9,000 per Year
Claiming the Energy Tax Credit

- IRS Form 3468 to Claim the Credit (extended to 2024)
- Use to offset both regular tax and AMT
- Can Carry-back 1 year if exceeds T.I.
- $2M Geothermal, Combined Heat/Pwr
  - New Construction or Retrofit
  - Get 10% ($200,000) EIC – No Limit
  - Get 30% Tax Credit for Solar, Wind, 10% CHP, Biomass
Jack Ciesa has more than forty years of experience in some of the most energy intensive industries in the world, including paper, chemical, and steel. He holds a mechanical engineering degree from the University of Illinois and is a registered Professional Engineer in Ohio, Certified Energy Manager, and a licensed Stationary Engineer. He started his career as a steel mill Power Division Engineer and Foreman. He was also the Power Plant Manager and Project Engineer for a paper mill and the Energy Manager and Design Engineer for a chemical plant. He worked almost twenty years at The Goodyear Tire & Rubber Company as a Senior Facilities Engineer and Engineered Products Energy Manager. He is currently President of JCC Energy-Solutions, which specializes in helping companies and organizations reduce the cost of electricity, natural gas, steam, compressed air, and water. Industries that have been served include, paper and pulp, chemical, oil refining, tire, heavy construction, and others. He has written technical manuals about energy conservation “Best Practices,” cogeneration, steam plant operation, and water treatment. He is also a Department of Energy-qualified process heating (PHAST) and steam specialist. While at Goodyear Jack Ciesa was awarded a process heating patent called the Tire Curing Pressure Relief System.
Energy Efficiency and Energy Finance Programs

Manny Anunike, PhD
Energy Specialist
Energy Section, Office of Community Assistance
## What is an Energy Efficiency Program (EEP)?

### Eligible Entities
- Manufacturers
- Commercial Businesses
- Municipalities
- Universities/School Districts
- Hospitals

### Benefits
- Identifies energy use, inefficiencies, and possible savings
- Helps determine if efficiency measures will create savings and pay for the upgrades
- Identifies the “before” values to measure and verify later savings

### How it works
- Engineer/architect facilitated energy efficiency audit
- Implementation of energy efficiency measures
- Measurement and verification of energy and cost savings
How does the Energy Efficiency Program Work?

Contact ODSA at: energy.development.ohio.gov for referral to energy audit firm

Energy Management Diagnostic (manufacturing-only)

Comprehensive ASHRAE Level II Energy Audit (for all market segments)

Audit process normally takes 3-6 weeks

Final Energy Audit Report

Implement measures identified in audit

Measurement & verification of project results
Energy Efficiency Program Process Detail

• Process Detail:
  – Energy Management Diagnostic (1-2 hr. meeting for manufacturers with facilitator) @ “no-charge”
  – Facility ASHRAE Level II energy audit for both manufacturing and non-manufacturing clients
  – Resulting final audit report typically covers:
    • Existing Buildings/Facilities Conditions Analysis
    • Energy Use Patterns and Utilities Analysis
    • Energy Efficiency Measures Analysis and Recommendations
    • Potential Funding Strategies and Resources
    • Measurement & Verification Strategies
Energy Efficiency Program (EEP)

• Energy audit grants available to qualified clients
  – ODSA pays 50% of the energy audit up to $15,000 maximum
  – Client pays the other 50%, plus any cost in excess of $30,000 if applicable
  – ODSA and Customer pay energy engineer/auditor directly for their portion of the cost

• Qualified/eligible client
  – An Ohio manufacturer, or
  – Any other Ohio entity of 10,000 sq. ft. or more
Energy Efficiency Finance Programs
Energy Loan Fund

• Low-cost loans for **energy efficiency** and **renewable energy** improvements to existing structures

• Expected results include:
  • A minimum of 15% energy use reduction
  • A payback of 15 years or less
  • Economic impacts such as job creation or retention and community impacts such as downtown revitalization
  • Improvement in environmental quality

• Eligibility:
  • Manufacturers
  • Small Businesses
  • Public Entities
  • Nonprofits

• More information or to apply:
  • [https://www.development.ohio.gov/bs/bs_energyloanfund.htm](https://www.development.ohio.gov/bs/bs_energyloanfund.htm)
Energy Loan Fund: Application Deadlines

- **July 24, 2017 - March 16, 2018**
  - Letters of Intent and Applications accepted anytime

- **March 16, 2018**
  - Letters of Intent and Applicant Questions not accepted beyond this date

- **March 30, 2018**
  - Applications not accepted beyond this date
Energy Finance Programs: Loan Loss Reserve Fund

• Offers credit enhancement to eligible Ohio Port Authorities as they originate loans for energy projects
• $17 million available for this program
• Participating Ports:
  • Cincinnati
  • Cleveland-Cuyahoga County
  • Columbus-Franklin County
  • Dayton-Montgomery County
  • Lake County
  • Lorain County
  • Summit County
  • Toledo-Lucas County
Energy Efficiency Contacts
Manny Anunike, PhD
Energy Specialist
Energy Efficiency Programs
Ohio Development Services Agency
Office of Community Assistance
77 South High Street, Columbus, Ohio 43215
614.466.4092
Manny.Anunike@development.ohio.gov

Anthony Howard, Manager
Energy Office
Ohio Development Services Agency
Office of Community Assistance
77 South High Street, Columbus, Ohio 43215
614.466.3185
Anthony.Howard@development.ohio.gov

- https://development.ohio.gov/bs/bs_renewenergy.htm
- https://www.development.ohio.gov/bs/bs_energyloanfund.htm
- https://www.development.ohio.gov/cs/cs_llr.htm
Nicole Stika is the Vice President of Energy Services for the Greater Cleveland Partnership and the Council of Smaller Enterprises (COSE) and leads the chamber’s energy portfolio. She oversees the electric and natural gas procurement programs, and development and implementation of the energy efficiency, demand side management, and sustainability programs on behalf of member businesses. Under her leadership, the individual services have rapidly grown into a robust program that now provides comprehensive energy audits, consultative project development, financing, rebate administration, education, green leasing and support services to businesses of all sizes. She is driving energy efficiency policies and legislation throughout the State of Ohio.

She serves on the Advisory Council for Chambers for Innovation and Clean Energy (CICE), Executive Council for the Emerald Cities Cleveland and Vice President of the NE Region, Ohio Chapter of the USGBC. She speaks nationally and internationally on sustainable economic development strategy and building successful businesses, organizations and communities. Nicole earned her LEED Green Associate in 2013. She earned her Master’s in Public Administration specializing in economic development at the Maxine Goodman Levin College of Urban Affairs at Cleveland State University and her Bachelor of Arts from the University of Dayton.
Energy Solutions for Your Business

Driving Choice, Savings & Efficiency Since 1999
YOU’RE INVITED

WHAT CAN YOU DO WITH THE EXTRA CASH YOU SAVE ON OPERATING COSTS?

- Keep prices down for customers?
- Hire more employees?
- Stock more inventory?
Do You Know How Your Building Uses Energy?

Facility Energy Assessments

25,000 - 150,000 Square Feet (or multiple electric meters)
Must be a FirstEnergy Customer
~25-30% energy savings identified
My Energy Checklist

- SCHEDULE: Schedule energy assessment
- PROVIDE: Provide building walk through and utility bills for the assessment
- REVIEW: Review report and savings opportunities – Is there an opportunity?  Yes  No
- PRIORITIZE: Prioritize projects (i.e. capital requirements, savings opportunities, business/usage needs/plan)
- COORDINATE: Coordinate contractor quotes for complete installation cost
- IDENTIFY: Identify ways to maximize ROI (i.e. rebates, financing, tax credits, green lending)
- INSTALL: Project(s) installation
- ARRANGE: Arrange for preventative maintenance for long-term energy savings

Next Steps:

- [ ]
- [ ]
- [ ]

We'll reconnect soon.

Other Notes:

Don't go at this alone. We're here to help!
(216) 592-2205, energy@cose.org

YOUR BUILDING RECEIVED AN ENERGY ASSESSMENT

What have you done since reviewing your report?

HOW MANY CIRCLES HAVE YOU CHECKED OFF?

- Schedule energy assessment
- Conduct energy assessment
- Review report with GCP/COSE Energy Advisor
- Identify projects and priorities with GCP/COSE Energy Advisor and understand cash flow potential
- Connect with contractors for hard quote(s)
- Connect/identify ways to maximize ROI (i.e. rebates, financing, tax credits, green leasing)
- Install Project(s)
- Arrange for preventative maintenance for long-term energy savings
- Act now! FirstEnergy rebates now available
ENERGY SAVINGS WILL PAY FOR YOUR EFFICIENCY PROJECTS

Unlocking Cash Flow for Your Business

Do you want your business to grow while reducing expenses?

Whether it’s energy-efficient lighting, or a top-to-bottom overhaul, energy efficiency upgrades can help your business more than offset rising utility costs. Financing solutions exist that will help your company add money to the bottom line.

TIME IS MONEY. You’re wasting energy and money every day you wait to act on the savings identified in your report. Your investment will generate savings well beyond the term of the loan.

ENERGY SAVINGS OPPORTUNITIES BY CATEGORY

- 9% Operational
- 5% Hot Water
- 29% Envelope
- 18% Lighting
- 31% HVAC
- 8% Other

ENERGY EFFICIENCY UPDATES BENEFITS

- BUILDING VALUE
- COMFORT
- OVERALL BUILDING QUALITY
- CONDITIONS QUALITY (e.g., lighting)
- INCREASE CAPACITY
- REDUCE MAINTENANCE
- REINVEST DOLLARS SAVED
- PRODUCTIVITY

DID YOU KNOW?

- 20-30% is the average energy savings from a whole building retrofit
- An average of 30% of energy consumed in commercial buildings is wasted

COSE can help you choose the right energy project and financing solution that puts money back in your pocket.

Visit cose.org/energy or call (216) 592-2205 to speak with a COSE Energy Advisor to help you from A to Z.
It Pay to be Energy Efficient
Rate Reduction Program

City Lighting Project
• Total project cost $368,000
  • City hall, police, fire, senior center, service center, cultural center
  • Financed $250,000
    • Received Loan Rate Reduction at 2% = $12,177.39 discount paid by COSE Fund
  • Utility Cash Rebate: $28,438
  • Annual Energy Savings: $16,428
  • Simple Payback: 4.3 years

School Lighting Project
• Total project cost $30,273
  • Financed $30,273
    • Received 4.25% Rate Reduction from 6.34 to 2.09% = $3,131.95 discount paid by COSE Fund
  • Utility Cash Rebate: $4,855
  • Annual Energy Savings: $10,355
  • Simple Payback: 2.63 years
What’s Eligible?

- Interior/Exterior lighting retrofits
- New construction interior lighting
- HVAC
- Motors
- LEED-certified buildings
- Geo-thermal
- Chillers
- VFDs

*must achieve a permanent, continuous reduction in electric energy consumption (during summer peak demand – KW savings)

The value of an EE Resource is based upon the project’s expected electric demand reduction (kw savings) and the auction pricing results.
DOE Grant/Green Leasing Initiative

Remove the split incentive

Engage landlord & tenant

Mutually benefit from energy efficiency improvements
Questions? Thank You

Nicole Stika, Vice President, Energy Services
nstika@gcppartnership.com | (216) 592-2338

www.COSE.org/energy
@COSEenergy
After 31 years, Mr. Heyman retired from FirstEnergy in January 2017. Before retirement, Chad ran the Ohio FirstEnergy Energy Efficiency Commercial/Industrial Program. After a brief break, he started with Sodexo who FirstEnergy pays to manage the C&I energy efficiency program in the Outreach Group working with Trade Allies and customers who wish to become more energy efficient.
FirstEnergy’s Ohio Utilities

Energy Efficiency Programs for Business
Program Overview – 2018

- Lighting Program
- Traffic Signal Lighting
- HVAC Program
- Food Service Program
- Appliances Program
- Consumer Electronics Program
- Agricultural Program
- Custom Programs
- Data Centers Program
- Facility Audits Incentive Program (*coming soon)

Pre-approval is REQUIRED before purchasing any equipment!!!
Lighting Incentives for Business Program

- Retrofit and New Construction projects are eligible for incentives
- Prescriptive & Performance based incentives are offered for installing LED lighting fixtures, lamps, retrofits, and controls
- Incentives limited to the total equipment cost

Traffic & Pedestrian Signal Program

- Flat-rate incentives are offered by converting lighting technologies, which may include: LED round signals, LED pedestrian signs
- Incentives are limited to the total equipment cost
EXAMPLES OF
NO OR LOW COST LIGHTING MEASURES

- Utilize rebate program to replace medium base screw in incandescent lamps.
  - Incentives are available on these types of lamps at $5 per lamp.
  - Example would include the standard 60 watt fixture you might find in a restroom, storage room, ceiling fixtures, etc.
- Replace incandescent or fluorescent exit signs with LED
  - Current incentive is $15/sign and annual savings is about $10.00/sign.
- Nothing is cheaper than when usage is zero
  - Turn off lights when not in use (or where applicable, install occupancy sensors)
  - Utilize occupancy sensors for low traffic areas.
    - Examples of areas where occupancy sensors could be installed: storage rooms, meeting rooms, maintenance/janitor closets, back of house areas, and other low traffic areas.
  - Remove unnecessary lamps in overlit areas.
    - Check light levels vs. Illuminating Engineering Society Standards (IES) to see if you have overlit areas.
- Prescriptive incentives are offered for a wide variety of HVAC equipment
- Equipment must meet or exceed HVAC program guidelines
- Incentives are capped at total equipment cost
- Only new equipment is eligible
- Optimize HVAC start-times and setpoints, particularly if you have programmable thermostats or digital control systems
  - Potential rebate opportunities exist for retro-commissioning or installation of control systems under the Custom program.
- Preventative maintenance
  - Filter changes, condenser coil cleaning, cooling tower coil cleaning
    - All contribute to maintaining overall efficiency of HVAC equipment
  - Pre-season tune-ups of hvac equipment heading into cooling and heating seasons.
    - Verify proper and efficient operation of equipment
Prescriptive incentives are offered for a wide variety energy efficient food service equipment

- Equipment must be ENERGY STAR® certified
- Only new equipment is eligible
- Incentives are capped at the total equipment cost
Prescriptive incentives are offered for energy efficient equipment

- Equipment must be ENERGY STAR® certified
- Only new equipment is eligible
- Incentives are capped at the total equipment cost
Prescriptive incentives are offered for energy efficient equipment.

- Equipment must be ENERGY STAR® certified.
- Only new equipment is eligible.
- Incentives are limited to the total equipment cost.
Prescriptive incentives are offered for high-efficiency agricultural equipment related to milking, cooling, ventilation equipment.

- Only new equipment is eligible.
- Incentives are capped at the total equipment cost.

- Automatic Milker Takeoffs
- Dairy Scroll Compressors
- High-Efficiency Ventilation Fans
- High-Volume Low-Speed Fans (HVLS)
- Livestock Waterer
- VFD for Milk Vacuum Pump
- Dairy Parlor Heat Reclaimers
Performance incentives are offered for projects that do not meet the eligibility criteria for other business programs.

- Incentives are offered for Variable Speed Drives (VSDs)
  - Current incentive rate is $50/hp controlled
- Incentives are offered for premium efficiency Three Phase Motors
  - Current incentive rate is $20/hp
- Current performance incentive rate: 5 cents per kWh saved annually
- Incentives capped at 50 percent of the total project cost
Performance incentives are offered for Custom Buildings projects that do not meet the eligibility criteria for other programs.

Custom Building projects include replacement of existing roof with reflective coating, building automation control system installation, and smart thermostats.

Current incentive rate: 5 cents per kWh saved annually.

Incentives are limited to the total project cost.

Note: Program eligibility requires the project to achieve a minimum savings of 20,000 kWh/year.
LOW TO NO COST EXAMPLES FOR INSTITUTIONS AND INDUSTRY

- Compressed Air Leak Audits
- Chiller scheduling in summer for schools
  - Reduce operation during summertime off periods
- Adding VFDs
  - Cooling towers, pumping control, chiller retrofits
- Turn process motors off during down periods
  - Breaks and lunch or line shifts.
- Incorporate sensors and VFD’s into process control
Incentives are offered for data center facilities which house IT equipment for data processing, data storage, and communication networking.

- Server closets or computer training areas are not eligible.
- Projects may include: server virtualization, high efficiency power supplies, automation system installation, high efficiency computer room air conditioning.
- Incentives are limited to 50% of the total equipment cost.
Coming Soon!

- Intended to encourage customers to acquire a detailed ASHRAE Level II third party energy audit for their buildings or process systems.

- Incentives will be capped at 50 percent of the audit cost or $5,000, whichever is less, upon completion of the installation of qualifying audit recommended measures at the customers’ facility.
• Program overview and guidelines

• Program incentives, requirements, and forms

• File applications

• Check application status

• Contact Information
LIGHTING INCENTIVE PROGRAM

Learn more about each incentive program that provides reimbursement for lighting improvements.

Available to existing facilities and new construction projects, the Lighting Incentive Program is offered to Ohio commercial, industrial, governmental and institutional facilities. For more information, visit our website or call 1-866-381-9062.

LIGHTING INCENTIVES

<table>
<thead>
<tr>
<th>Incentive</th>
<th>Equipment &amp; Eligibility Requirements</th>
<th>Incentive</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED Lamps</td>
<td>Eligible LED lamps must be ENERGY STAR® rated and replace existing A-19 incandescent lamps with a medium screw base.</td>
<td>$15 per Lamp</td>
</tr>
<tr>
<td>LED Exit Signs</td>
<td>Eligible LED exit signs must replace existing fluorescent or incandescent exit signs to be eligible.</td>
<td>$50 per Sign</td>
</tr>
<tr>
<td>CFL Specialty</td>
<td>Eligible CFL specialty lamps must be ENERGY STAR® rated and replace existing specialty incandescent lamps. Specialty lamps include candelabra, PARs, and C9LED.</td>
<td>$1.50 per Lamp</td>
</tr>
<tr>
<td>LED Refractored Case Lighting</td>
<td>Eligible LED cased lighting must be listed by the Design Lights Consortium (DLC) (<a href="http://www.designlights.org">www.designlights.org</a>).</td>
<td>$37.50 per Door</td>
</tr>
</tbody>
</table>

Apply Online
Program Overview – 2018

Energy-saving project is identified

Online application is submitted, along with supporting documents at energysaveOH-business.com

Application is reviewed by administrative and technical staff

Pre-inspection is scheduled and conducted (if applicable)

Pre-approval is granted and incentive funds are reserved; the applicant may then purchase and install equipment

Common issues that delay the application review process:
- Missing required documents (W-9, energy calcs, cut sheets)
- Invalid utility account number
- Letter of attestation not signed and dated
- Invoices do not have enough detail to identify equipment

Incentive check is issued by mail to the payee designated on the Letter of Attestation

Post inspection is scheduled and conducted (if applicable)

Application undergoes final review by administrative and technical staff

The applicant has 90 days to complete the project and submit final documentation
LET’S CONNECT.

WEB: EnergySaveOH-Business.com

PHONE: 866-578-5220

EMAIL: EnergySaveOH@Sodexo.com

FAX: 330-319-8355
Mercantile Customer Program

- Program run internally by FirstEnergy’s Ohio utilities (Not a Sodexo program)
  - A Mercantile customer is defined as a C&I customer who uses more than 700,000 kWh per year, or is part of a national account
  - Projects completed in the past 3 years are eligible
  - Customers may choose an exemption from the DSE2 Rider, or a cash incentive of 75% of the amount of a pre-approval application
  - To apply, a PUCO Docket number is required and can be obtained by emailing: mercantile@firstenergycorp.com
  - Link to the program website found at www.energysaveohio.com
  - Customers can work through these third-party Administrators:
    - COSE
    - Industrial Energy Users – Ohio
    - Ohio Manufacturers' Association
    - County Commissioners’ Association of Ohio
    - Association of Independent Colleges & Universities
Mike Foley is the first Director of the Department of Sustainability for Cuyahoga County. He was appointed to lead the office in February, 2015 by Executive Armond Budish after having served in the Ohio General Assembly from 2006-2014. Foley represented the 120,000 people of the 14th House District and was active in the legislature on environmental, utility, revenue and budget issues. Term limits prevented Foley from running for office after 2014. Prior to being in the legislature, Foley was Executive Director of the Cleveland Tenants Organization (CTO) for almost ten years and has extensive experience in affordable rental housing issues both locally and those involving national policy. Before CTO he was the Court Administrator for Cleveland Municipal Housing Court. Mike has been married to his wife Chris for 30 years, and they have 4 children.