

ASSOCIATION FOR
**LEARNING
ENVIRONMENTS**

CHICAGO

LearningSCAPES 2023

BRIAN REGAN
APRIL 7

Building Capacity for Energy Champions in Schools



Learning Objectives

- Participants will learn about DOE's goals for building capacity in schools to support staff dedicated to energy and indoor environmental quality management, so schools do not miss valuable opportunities to implement no- and low-cost improvements, access funding for projects, and realize the associated benefits for students and staff.
- Participants will connect with two school districts participating in the Energy CLASS Prize cohort and hear how they are building the energy management plans in their districts through the training and one-on-one coaching provided.
- Participants will hear from the two school districts on real-world barriers to reducing energy use and how they are starting to overcome those barriers.
- Participants will gain a better understanding of resources available for skills development and knowledge building from the Energy CLASS Prize training provider to apply in their own schools.



Energy Champions



Andrea Swiatocha

Schools Portfolio Lead
US Department of Energy



Reilly Loveland

Associate Director
New Buildings Institute



Jennifer Fowler

Senior Director of Environmental
Compliance & Sustainability
Orange County Public Schools



Katie James

Grant Writer / Energy Captain
Elkhorn Area School District



DOE Renew America's Schools Programs

2021

- Bipartisan Infrastructure Law (BIL) Passes
- \$6B allocated to DOE's Office of State and Community Energy (SCEP)

2022

- Of the \$6B, \$500M allocated to DOE for K-12 public schools



Energy CLASS Prize

- \$4.5 million competitive award promoting energy management and capacity building in school districts across America.
- **25 Phase 1 Winners** represent approximately **741,000 students, in 1,300 schools, across 19 states.**

Renew America's Schools Grant

- DOE awards \$178M to 24 selectees announced across 22 states



SCEP

STATE & COMMUNITY ENERGY PROGRAMS

New Buildings Institute (NBI)

A national nonprofit supporting efforts across the United States.

Mission: We push for **better buildings** that achieve **zero energy, zero carbon, and beyond**—through research, policy, guidance, and market transformation—to protect people and the planet.

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St James Intermediate School | Myrtle Beach, SC
Credit: sfL+a Architects

Orange County Public Schools

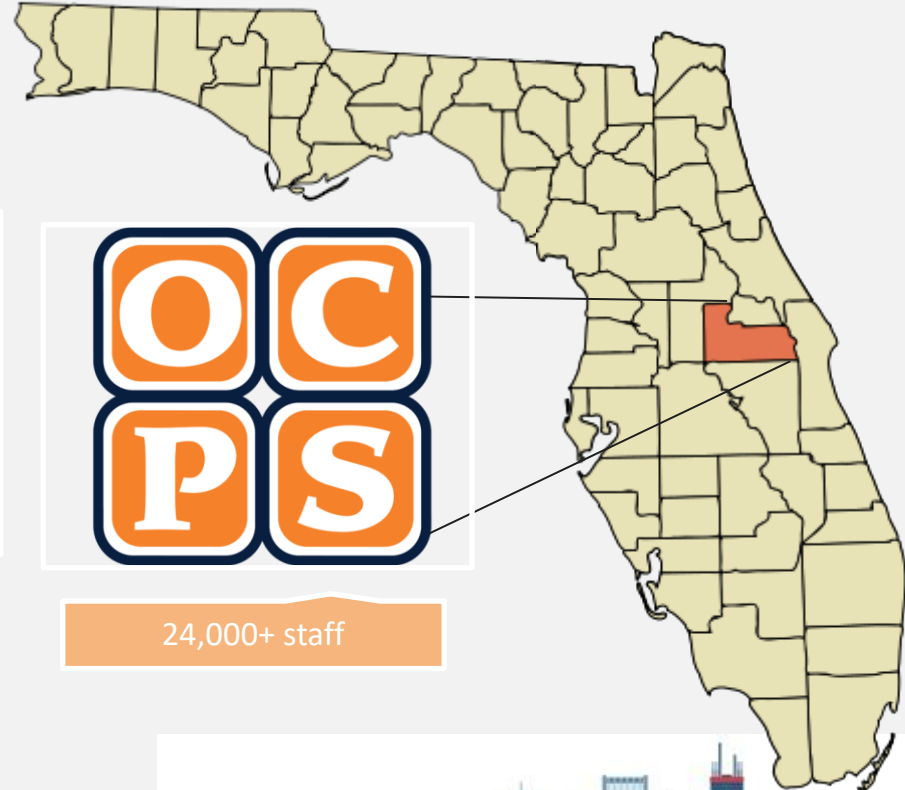
Snapshot of OCPS:



8th largest district in U.S.,
4th largest in Florida



211 schools with
200,000+ students



24,000+ staff

Impact of Energy CLASS Prize:

- Reducing energy intensity at 84 Title 1 schools
- Increase staff and fund dedicated energy conservation training
- Improve energy controls performance, identify repairs and perform needs assessments



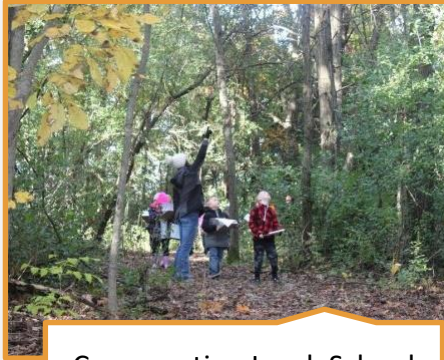


Elkhorn Area School District

Snapshot of Elkhorn:



7 schools with 3,620 students



Conservation Land, School District Forest



County Seat of Walworth County in Southeastern Wisconsin

Impact of Energy CLASS Prize:

- Lower energy consumption and utility costs
- Perform needs assessment on aging infrastructure
- Create first Energy Plan for school district



Energy CLASS Prize

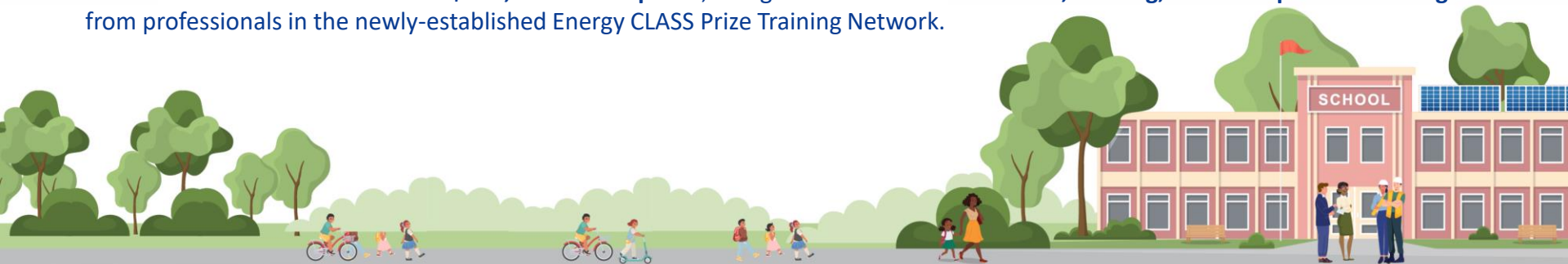
The Energy CLASS Prize is a two-phase, **\$4.5 million competitive award promoting energy management and capacity building in school districts across America.**

The competition was designed to help some of the **nation's highest-need K-12 schools** make critical improvements by establishing training, and supporting energy managers – or Champions – in their districts. These Champions will:

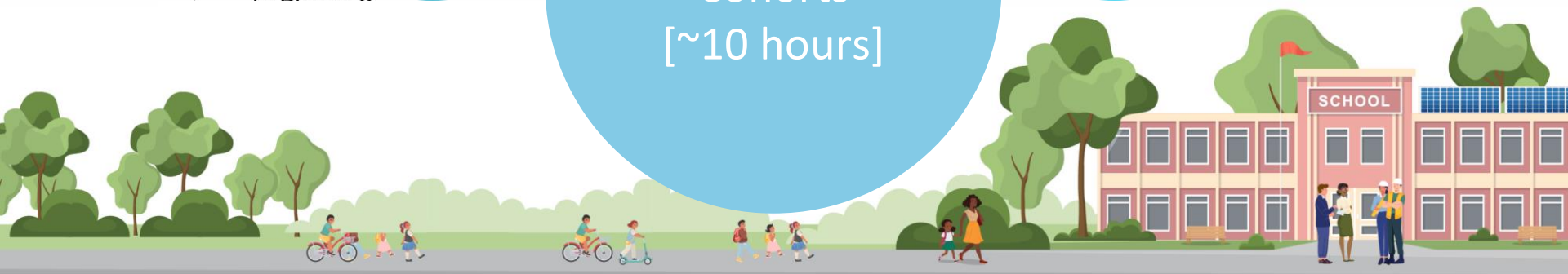
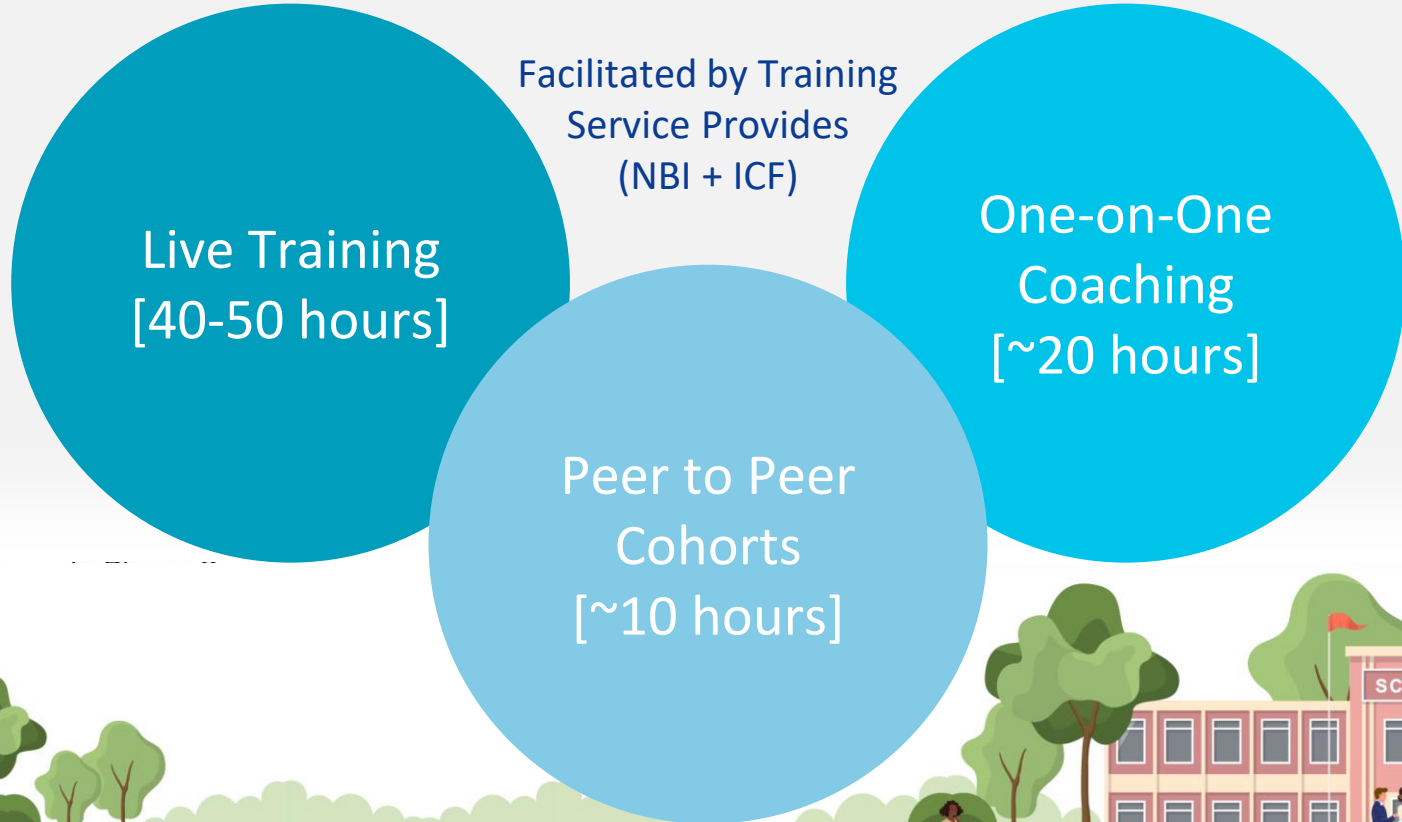
- Build proficiencies to identify, plan, and implement infrastructure upgrades, developing institutional capacity to make energy management a lasting feature of their communities.
- Develop skills to pursue upgrade opportunities that will reduce public schools' utility costs, improve indoor air quality, reduce carbon emissions, and enhance learning environments long-term.

The **25 Phase 1 Winners** represent approximately **741,000 students, in 1,300 schools, across 19 states.**

Phase 1 Winners will **each receive \$100,000 in cash prizes**, along with **access to coursework, training, and LEA-specific coaching** from professionals in the newly-established Energy CLASS Prize Training Network.

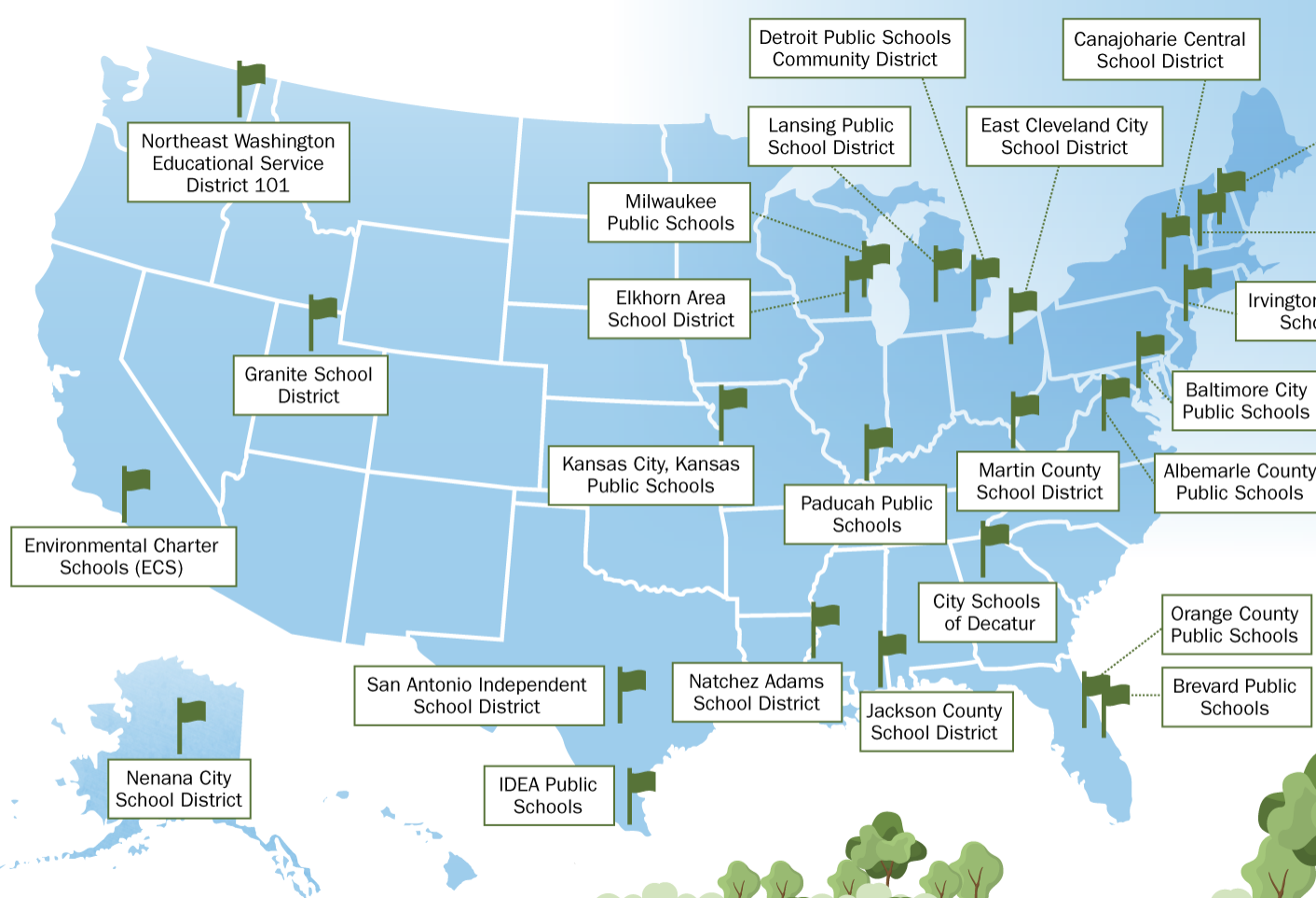


Energy CLASS Prize – SY23-24



Training Topics

Fundamental Building Science	Benchmarking and Management	Indoor Air Quality	Procurement Strategies	Business and Communications Skills	Stakeholder Engagement	Resiliency
<p>Basic building science concepts</p> <p>Such as: indoor thermal environment; indoor acoustic environment; indoor light environment; indoor air quality; and building resource use.</p>	<p>Basic building needs analysis.</p> <p>Interpreting energy bills and reports.</p> <p>Establishing energy and health benchmarks and goals.</p> <p>Interventions which can help a building meet different types of energy and indoor air quality goals.</p>	<p>Approaches to improving indoor air quality in schools</p> <p>Protecting occupants from harmful chemicals, wildfire smoke, traffic-related black carbon, allergens, and air-borne diseases.</p> <p>Funding sources for indoor air quality improvements.</p>	<p>Third-party partnerships and/or public-private-partnerships.</p> <p>Power purchase agreements.</p> <p>Working with energy as a service contractor.</p>	<p>How to build trust and support for facility improvement projects.</p> <p>Budgeting and financial analysis, assessment of health impacts, and presenting the business case.</p>	<p>How to bolster public and private support for projects by engaging the student body, school staff and administrators and the community-at-large.</p> <p>Showcase benefits from building improvements.</p> <p>Teaching the community about the importance of energy efficiency and indoor air quality.</p>	<p>Understanding climate concerns and natural disasters the school faces.</p> <p>How to work towards healthier, safer, and more resilient buildings that protect occupants from indoor and outdoor hazards.</p>



Energy CLASS Prize

PHASE 1 WINNERS



Energy CLASS Prize Winner Cohort (Announced May 5th)



18 Winners have schools located
in a **DAC**



8 Winners are “Large”
School Districts with
44,000+ students



The Winners have a combined Free
& Reduced-Price Lunch average of
73%



8 Winners are in a
Rural Locale



7 Winners are “Small”
School Districts with less than
3,000 students

QI: CLIMATE ACTION PLANS

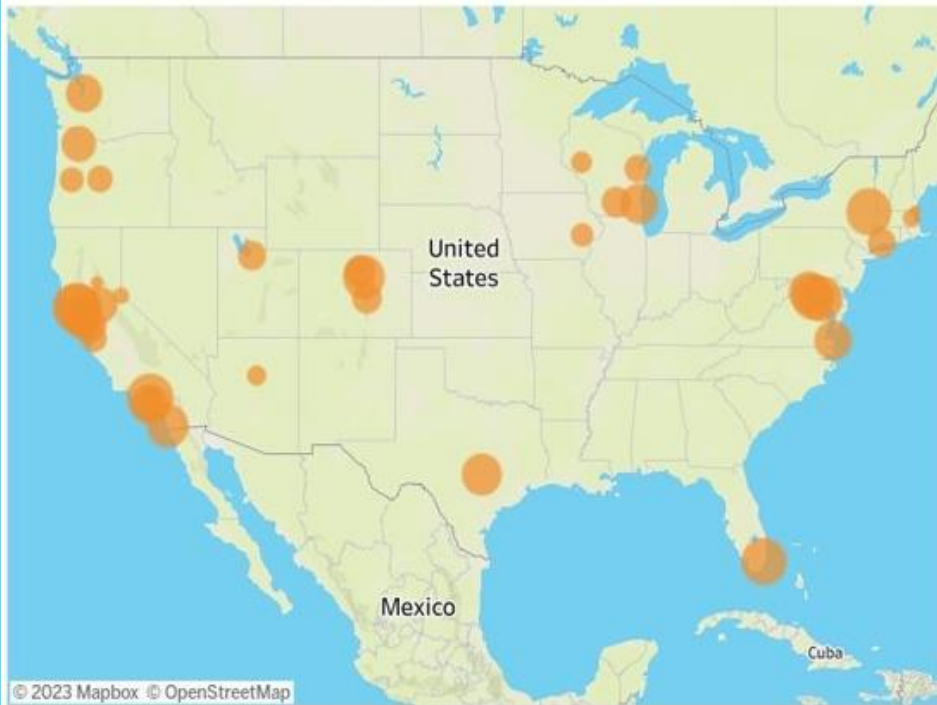
Panel Discussion



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NBI Carbon Neutral Schools Policy and Resolutions Map

Use the filters on the left to filter projects in the map, and/or select a bubble on the map to filter the table below.



State

- (All)
- Arizona
- California
- Colorado
- Connecticut
- Florida
- Iowa
- Maryland
- Massachusetts
- New York
- Oregon
- Texas
- Utah
- Virginia
- Washington
- Wisconsin

Goal Type

- (All)
- Battery Storage
- Climate Justice
- Curriculum
- Curriculum/Workforce
- Electrification
- Embodied Carbon
- Energy Efficiency
- Operational Emissions
- Renewables
- Resilience
- Transportation
- Workforce

District Size Classification (Large...

- (All)
- Large

School district & climate building commitments

<https://newbuildings.org/resource/interactive-map-of-carbon-neutral-school-districts/>

School District	State	Jurisdiction	Goal Language
Alameda Unified School District	CA	Alameda	• The AUSD Board of Education will strive to achie
Austin Independent School District	TX	Austin	• Austin ID adopts a goal of net zero greenhouse
Bend-La Pine Schools	OR	Bend, La Pine	• The district will commit to reviewing and followin
Boulder Valley School District	CO	Boulder	• Goals to reduce greenhouse gas emission by 80
Colorado Springs School District 11	CO	Colorado Springs	• Colorado Springs School District 11 Board of Ed
Cotati Rohnert Park Unified School Board	CA	Cotati, Rohnert P..	• Establish a Climate Change Committee to devel
CREDO High School Governing Board	CA	Rohnert Park	• Making buildings and manufacturing energy effi
Denver Public Schools	CO	City and County	• Use 100% clean electricity by 2030 in accordanc

Brightspots

Denver Public Schools, CO

BUILT ENVIRONMENT

Electrification

Electrify 80% of the heating load for 10 buildings

Building Envelope

Commission two existing building envelopes and incorporate findings into future financial impact assessments

Design Standards

Require Sustainable Design Guidelines to be integrated into all capital improvement decisions

SMART Buildings

Implement one fully SMART building, perform a cost-benefit analysis, and create a funding plan for additional SMART buildings

Renewables

65% of electricity supplied to DPS is renewable

Grounds

Create Sustainable Landscape Standard & Implementation Plan

RESOURCE MANAGEMENT

Energy Management

Reduce energy (MMBtu) consumption by 15% from 2021 baseline

Water Conservation

Reduce consumption by 15% from 2021 baseline

Waste Diversion

Ensure landfill diversion rate is at least 25%

Sourcing

Embed sustainable practices in all procurement policies including "end of life planning"

5-YEAR GOALS

5-YEAR GOALS

Portland Public Schools, OR



Oregon School District, WI

"The Oregon School District believes it is critical for the future of our planet to **develop learners who are ecologically literate and environmentally responsible citizens and stewards.** We believe it is important to model the District's commitment by establishing these values and developing practices consistent with them:

The District will **continue to develop building and operational practices and procedures** that reflect a commitment to environmental sustainability; and

The District will have an **aligned K-12 ecological and environmental science** curriculum, including socio-economic aspects. The District will also support environmental services projects."



OREGON'S VALUE STATEMENT

01

2020 Bond Electrification Evaluation

- Consult on schools receiving new cooling or cooling upgrades
- Recommend electrification, assess costs

02

2024 Capital Planning Electrification Evaluation

- Plan ahead for next bond round to include electrification
- Recommend electrification, assess costs

03

Renewable Energy Assessment

- Analyze gap to achieve 100% renewable energy by 2030 considering Xcel Energy targets
- Determine options and costs for new solar

04

Portfolio Level Analysis

- Evaluate historic energy use and emissions
- Assess impacts and costs for efficiency, electrification, and renewables across DPS

Q2:
PARTICIPATION
GOALS

Panel Discussion



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Katie James
District Activist
& Grant Writer



Bill Trewyn
District Business
Manager



Jessica Rima
EAMS Assistant
Principal



Eli Thimmesch
District Building &
Grounds Supervisor



Chris Trottier
Director of School to
Work Opportunities



Mindy Binnie
K-3 Teacher



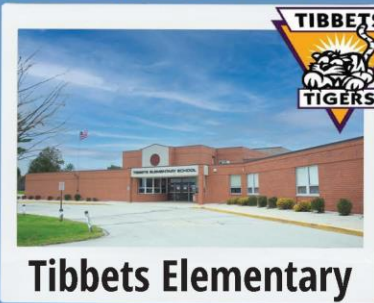
Jackson Elementary

- Built in 1939; 550 students & faculty
- 89,000 sq. ft.; Annual utilities: \$154K
- Community Disaster Relief Site



Elkhorn Area Middle

- Built in 2003; 800 students & faculty
- 143,400 sq. ft.; Annual utilities: \$261K
- Community Disaster Relief Site



Tibbets Elementary

- Built in 1954; 485 students & faculty
- 62,000 sq. ft.; Annual utilities: \$78K



West Side Elementary

- Built in 1956; 500 students & faculty
- 70,000 sq. ft.; Annual utilities: \$89K
- Community Disaster Relief Site

Impact Statement:

The Elkhorn Area School District in rural southeastern Wisconsin seeks environmental training assistance to learn more about creating healthy working/learning environments, develop a more thoughtful approach to facility upgrades, begin the implementation of alternative energy resources on district properties, and create a long-term districtwide Comprehensive Energy Plan for future improvements.



Elkhorn Area High School

- Built in 1965; 1,100 students & faculty
- 351,000 total sq. ft.: Largest building in town!
- Annual utility operation cost: \$406,000
- Countywide Community Disaster Relief Site

Team Challenges:

- Lack of Regional Energy Resources
- Aging, Unhealthy Buildings
- Outdated, Unreliable Building Equipment
- 2-Year Wisconsin State School District Freeze of Revenue Caps
- Rising Inflation and Utility Costs
- Municipal Electrical Company

Why did you apply for the Energy CLASS Prize?

Orange County Public Schools:

- OCPS Sustainability Office includes three (3) Energy Advisor staff members
- 84 work locations per EA
- Nearly 950 buildings each
- 83 Title I Schools



Managing many schools



Supporting staff



Q3: ENERGY EFFICIENCY

Panel Discussion



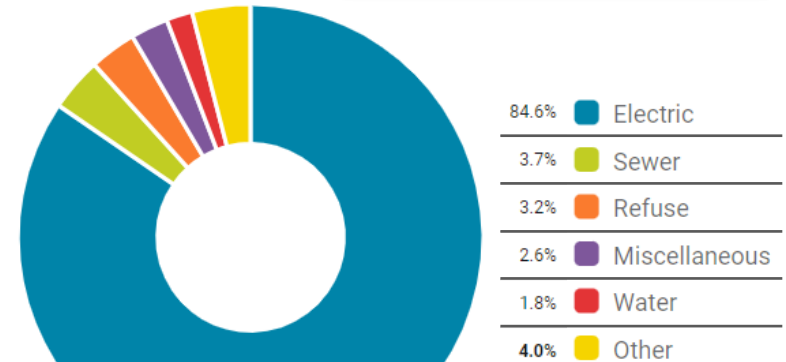
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Why Energy Efficiency?

- Utility spending is the 2nd highest cost to the district after salaries.
 - OCPS spends over **\$50,000,000** on utilities, with ***electricity*** being the vast majority.
 - The energy team is dedicated to reducing those costs to keep dollars in the classroom.



Commodity Costs: 1 Year



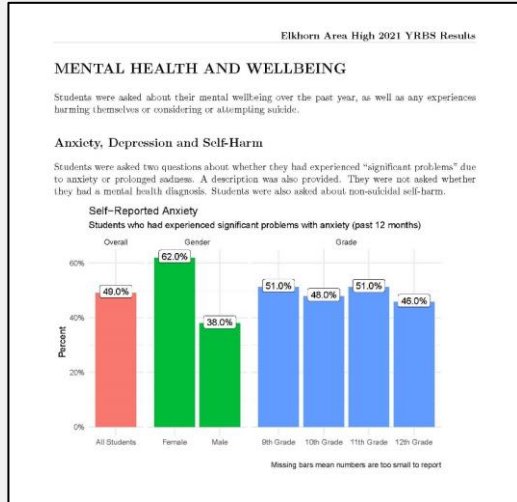
Jan 2022–May 2023



ORANGE COUNTY
PUBLIC SCHOOLS



Why Energy Efficiency?



Q4: FUNDING MECHANISMS

Panel Discussion



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Summary of Funding Opportunities



Traditional Sources for Capital Projects

- State and/or district level funding (non competitive)
- Voter approved bonds or levies



Federal & State Disbursements or Allocations

- Federal: non-competitive, based on funding formulas
- State Lottery(s)
- Other State



Grants, Rebates, and Incentives

- Federal (competitive)
- State (competitive)
- Local (competitive)
- Utility rebates & incentives



Other Procurement & Financing Options

- Energy Service Company / Energy Performance Contracting
- Energy Efficiency as a Service
- Utility Energy Service Contracts
- Private Loans

Focus in: Inflation Reduction Act

The largest investment in climate and clean energy in United States history.

Direct Pay: Tax-free cash payments

- **Investment Tax Credit (ITCs):** Applied to upfront costs of clean energy systems (solar, storage, geothermal, etc.)
- **Commercial Clean Vehicle Credit:** Applied to upfront costs of installing electric school buses.
 - Max credit \$40k
 - Non-competitive, uncapped, can be combined with grants for EV buses
- **Alternative Fuel Refueling Property Credit:** Applied upfront to costs of EV charging equipment for buses or passenger vehicles.
 - Max 30% of costs, or \$100,000 per unit
 - Non-competitive, uncapped, can be combined with grants for charging equipment

Direct Pay Technologies covered:

- Energy Efficiency Measures
- Solar & Wind
- Ground Source Heat Pumps
- Energy Storage
- Electric Vehicle Chargers

179D Energy Efficient Commercial Building Deduction

- \$1.88 per SF
- Schools work with designer to access funds. Should negotiate a 50/50 split.

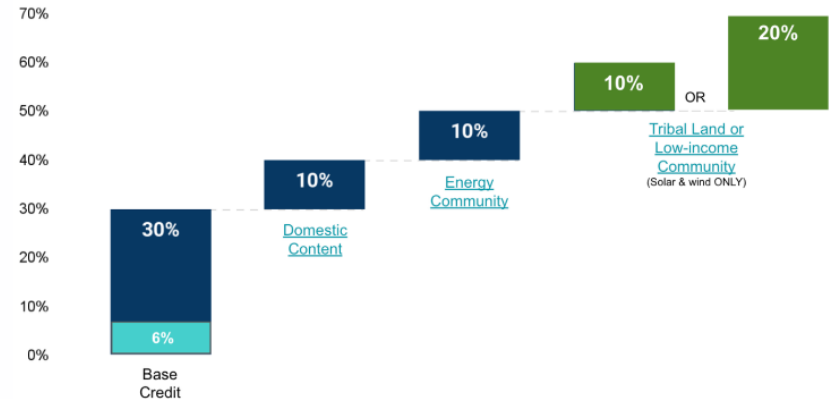
Focus in: Investment Tax Credit (ITCs)

Investment Tax Credit (ITCs): Applied to upfront costs of clean energy systems (solar, storage, geothermal, etc.)

- 30% base credit
- 10% domestic content credit
- 10% energy community (transition community)
- 10-20% low-income or tribal (solar and wind only)

= up to 50-70% depending on the project!

Investment Tax Credit Base and Bonus Credits



Credit: Undaunted K-12

More info on how to get reimbursed:

<https://www.undauntedk12.org/how-schools-get-reimbursed>

Focus in: 179D Tax Deduction

The 179D program allows school districts to allocate the Deduction to the designers of the building through an allocation letter process.

- Schools can now negotiate a split of this deduction. Suggest 50/50.
- Deduction is **\$1.88 per SF**
- Must reduce the energy and power cost by **50% or more** in comparison to ASHRAE 90.1

Technologies include:

- Interior lighting
- Building envelope
- Heating, cooling, ventilation
- Hot water systems

Sample tax benefit analysis:

<i>Location</i>	<i>Square Footage</i>	<i>Tax Benefit</i>
<i>High School: Cedar Creek, TX</i>	262,134	<i>\$504,406.26</i>
<i>High School: San Marcos, TX</i>	343,037	<i>\$370,479.96</i>
<i>High School: Indianapolis</i>	455,018	<i>\$546,021.60</i>
<i>High School: Modesto, CA</i>	275,939	<i>\$458,053.80</i>
<i>High School: Greer, SC</i>	278,111	<i>\$500,599.80</i>
<i>High School: Santa Ana, CA</i>	320,462	<i>\$415,087.70</i>
<i>High School: Trussville, AL</i>	361,078	<i>\$628,275.72</i>
<i>Total Building Cost</i>		<i>\$3,422,924.84</i>
All benefits granted to the designer and their architectural firm		

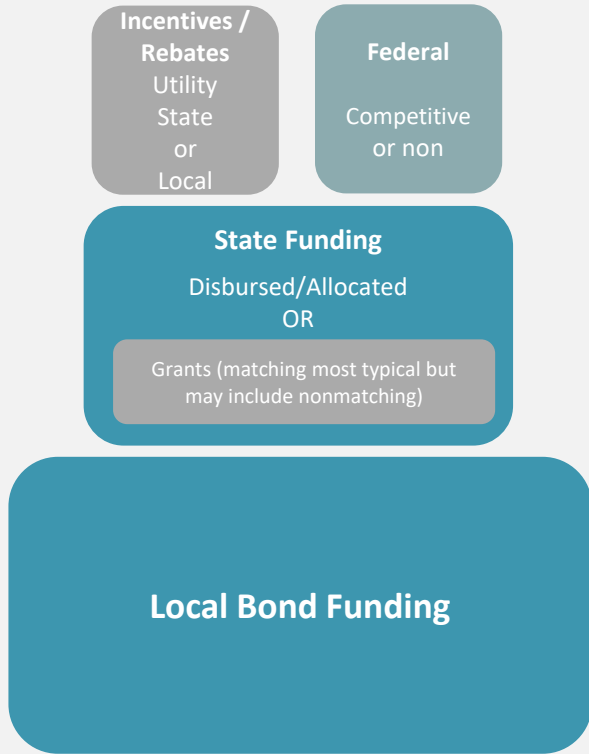
Credit: Engineered Tax Services

Other Mechanisms

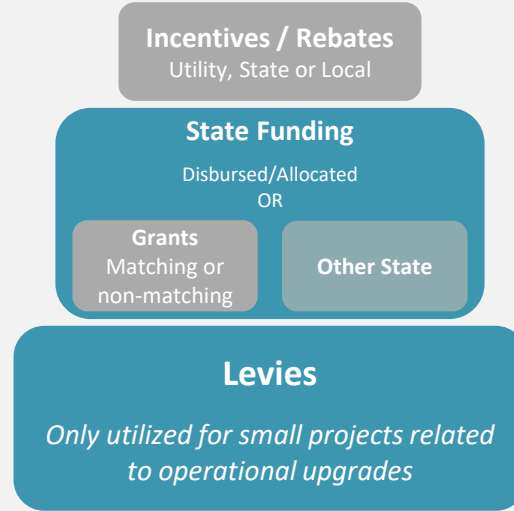
- **Elementary and Secondary School Emergency Fund Relief (ESSER)**
 - ESSER III: \$122.7B – Allocation through September 2024, Spend date through January 28, 2025.
- **Other Federal Programs**
 - Renew America’s Schools
 - Clean School Bus Program
 - FEMA BRIC Grants
 - Tribal Climate Resiliency
- **State or Local Grant Opportunities**
- **Utility Incentives**
- **Energy Service Company’s (ESCOs) and Energy Service Performance Contracts**



Most Commonly Utilized Funding Stacking Approaches



New Construction or Major Modernization Primarily



Retrofits, Modernizations, and System Replacement



Funding Mechanisms



WISCONSIN PUBLIC RADIO npr

MENU LISTEN LIVE

WPR

Wisconsin exchange passports as they explore the different projects at the World Fair on Tuesday, April 10, 2022, in Milwaukee. Wis. Angelo Mijangovic

Wisconsin school districts again turn to voters with referendums to increase revenue limits, fund projects

Partial results reported to DPI show referendum approval rate lower than in November 2022 as schools bank on voters to 'keep doors open'

By Gabby Vinick
Published Wednesday, April 5, 2023, 7:00pm

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Cash-strapped schools around Wisconsin again turned to voters to increase funding to maintain operations. The state saw 82 referendums across 68 districts this year — 53 of which asked local taxpayers to raise districts' revenue limits.

MARKETPLACE milwaukee journal sentinel

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IDEAS LAB

Most Wisconsin school districts have gone to referendums to beg for money; leaders say the funding system is broken

Ben Rodgers, Mario Koran and Dee J. Hall The Press Times/Wisconsin Watch
Published 9:00 a.m. CT June 18, 2021

The results of the referendum that would bring \$1 billion over 30 years to the Racine Unified School District — and allow the district to revamp buildings dating back to the Civil War — came down to just five votes.

On April 7, 2020, voters approved the referendum by this impossibly thin margin. Little more than two weeks later, voters gathered in Festival Hall and held their collective breath as they watched the recount of 33,315 ballots.

Racine Unified School Board president Brian O'Connell said it felt like watching the final seconds of a championship. After six rounds of ballot-counting, the results were final: The referendum had passed.

Advertisment

NEQ LINC Brand-new of a thri

SUDDEN

New report warns of fiscal cliff for Milwaukee, Madison public schools

By Benjamin Yount | The Center Square contributor May 22, 2023

Listen to this article now
Powered by Trinity Audio
00:00 02:48

(The Center Square) — Wisconsin's two largest school districts are likely looking at massive budget shortfalls next year despite millions from local tax increases and tens of millions of

Renew Our Schools Energy Challenge

focus on energy®
Partnering with Wisconsin utilities

Exploring Your School's Energy Use

Improving energy efficiency in schools should be a priority for all districts looking to address sustainability concerns while maintaining high learning environments. Renew Our Schools is an excellent opportunity to engage students and staff with a fun, collaborative challenge focused on sustainable energy use. Participating schools use an energy monitoring system designed to track electricity use and discover the impact of the most actions to conserve energy.

mrca midwest renewable energy association

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Solar on Schools

The cost of energy usage is a significant expense for Wisconsin public schools and rising energy costs can negatively impact the district Operations Budget. Solar PV installation can reduce operating expenses without cutting educational programs. Schools can also utilize solar installations as educational opportunities for students and energize the next generation with hands-on renewable energy curriculum and career awareness. In 2022, solar industry employment increased by more than 17,000 new jobs and the demand for skilled labor far jobs in the renewable energy sector is expected to continue to grow.

Recognizing these unique benefits, and with generous support from the Couillard Solar Foundation, Solar on Schools was developed to provide a range of resources to Wisconsin schools, assisting with and simplifying the solar project development process. The program aims to help Wisconsin schools realize the financial, educational, and community benefits of going solar. **Wisconsin schools are going solar!**

Program Contact
Erika Stroup
Program Manager
Email: erika@mrca.org
Phone: (608) 575-4338

GETTING STARTED GRANT CASE STUDIES FOR SOLAR PLANNING TEAMS



Funding Mechanisms



- General Operation Budget
 - Staff
 - Utilities
- Rebates (Sustainability Program)
 - Duke Energy
 - OUC



- ESSER (Construction Projects)
 - HVAC retro-commissioning
- BIL/IRA
 - Energy CLASS Prize



Q3: ENERGY STAKEHOLDERS

Panel Discussion



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Key Energy Stakeholders



- Facilities Maintenance
- Custodial Services
- Real Estate Management
 - Facilitron Facility Management
- Construction Department

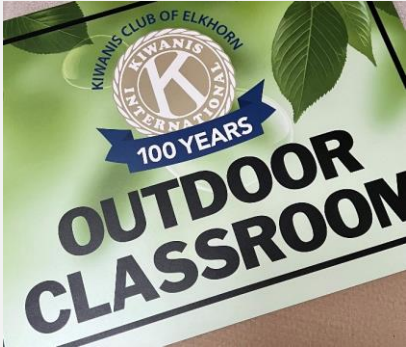


- Green Schools
- Student Sustainability Advisory Committee



ORANGE COUNTY
PUBLIC SCHOOLS

Key Energy Stakeholders



Key Energy Stakeholders

It can be...

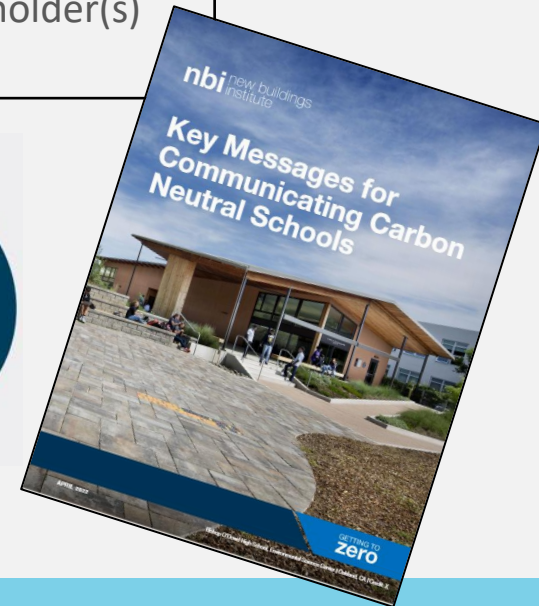
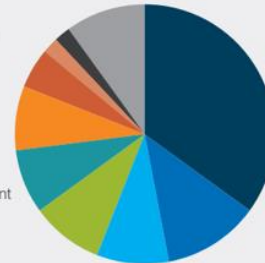
- Superintendent
- School Board member(s)
- Chief Business Officer
- Facilities Director
- Educators
- Students
- Parents
- Community
- Anyone!

Identifying and engaging stakeholders:

- Who are the decision makers?
- What messaging do you need to communicate?
- What are the stakeholder(s) goals and drivers?

EDUCATION BUILDING ENERGY USE
(2012 CBECS Data)

35% Space heating
12% Cooling
9% Computing
9% Lighting
8% Ventilation
8% Water heating
5% Refrigeration
2% Cooking
2% Office Equipment
10% Other



**COMING
SOON**

The Renew America's Schools Program is working to provide opportunities for LEAs across the country. In SY23-24, we anticipate . . .

- ❑ **Fall 2023** – Webinar with a network of stakeholders sharing their successes on “powerful partnerships for school districts”
- ❑ **Winter 2024** – Webinar with FY22-23 Selectees sharing highlights and key successes of their applications.
- ❑ **Spring 2024** – anticipated release for second round of funding.

**Sign-up for
updates**

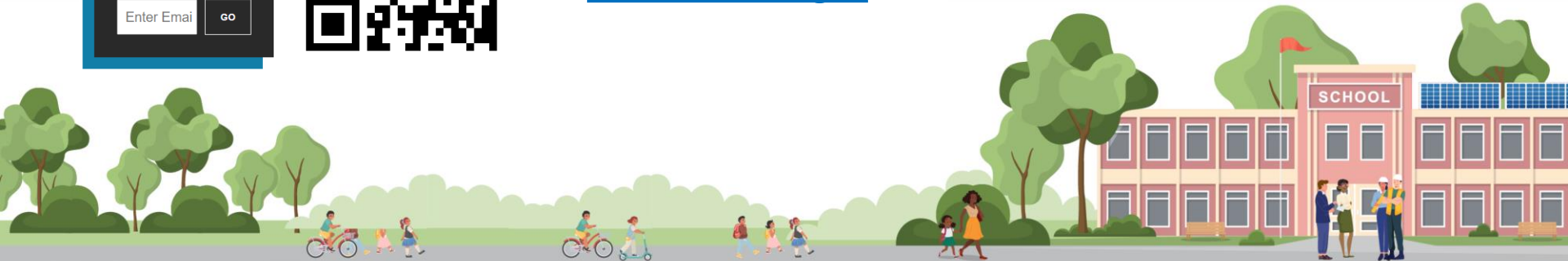
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<https://www.energy.gov/scep/renew-americas-schools>
schools@doe.gov





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THANK YOU!