Energy Efficiency Stakeholder Meeting

December 21, 2023

Agenda

1. Re-cap of Last Meeting
2. New Jersey Energy Efficiency Programs
3. Energy Efficiency Updates
    - NJCEP Updates
        - NJCEP Newsletter Update
        - New Construction Program Update
        - CHP Feasibility Study
        - LEUP Higher Education Decarbonization Pilot
        - Benchmarking Update
        - Community Energy Plan Grant / Community Energy Plan Implementation Grant Update
    - Regulatory Updates
        - Triennium 2 Filings Review
        - Evaluation, Measurement, and Verification Updates
4. Presentation -- NJCEP Year In Review
5. General Q&A
6. Items of Interest
7. Next Meetings

Recap of Last Month

October Meeting Recap

What we covered:

- ✓ NJCEP and Utility Program Updates
  - ✓ NJCEP New Construction Program
  - ✓ Benchmarking
- ✓ Regulatory Updates
  - ✓ Triennium 2 Filing Extension
  - ✓ Evaluation, Measurement, and Verification
- ✓ Guest Presenter: Comfort Partners Program
- ✓ Q&A

New Jersey Energy Efficiency Programs

New Jersey Energy Efficiency Programs

www.NJCleanEnergy.com/TRANSITION

NJBPU and NJCEP Administered Programs

New Jersey's cleanenergy program℠

- New Construction (residential, commercial, industrial, government)
- Large Energy Users
- Energy Savings Improvement Program (financing)
- State Facilities Initiative*
- Local Government Energy Audits
- Combined Heat & Power & Fuel Cells

*State facilities are also eligible for utility programs

Utility Administered Programs

atlantic city electric (An Exelon Company) | Jersey Central Power & Light (A FirstEnergy Company) | PSE&G | Rockland Electric Company | Elizabethtown Gas | South Jersey Gas | New Jersey Natural Gas

- Existing buildings (residential, commercial, industrial, government)
- Efficient Products
  - Lighting & Marketplace
  - HVAC
  - Appliance Rebates
  - Appliance Recycling

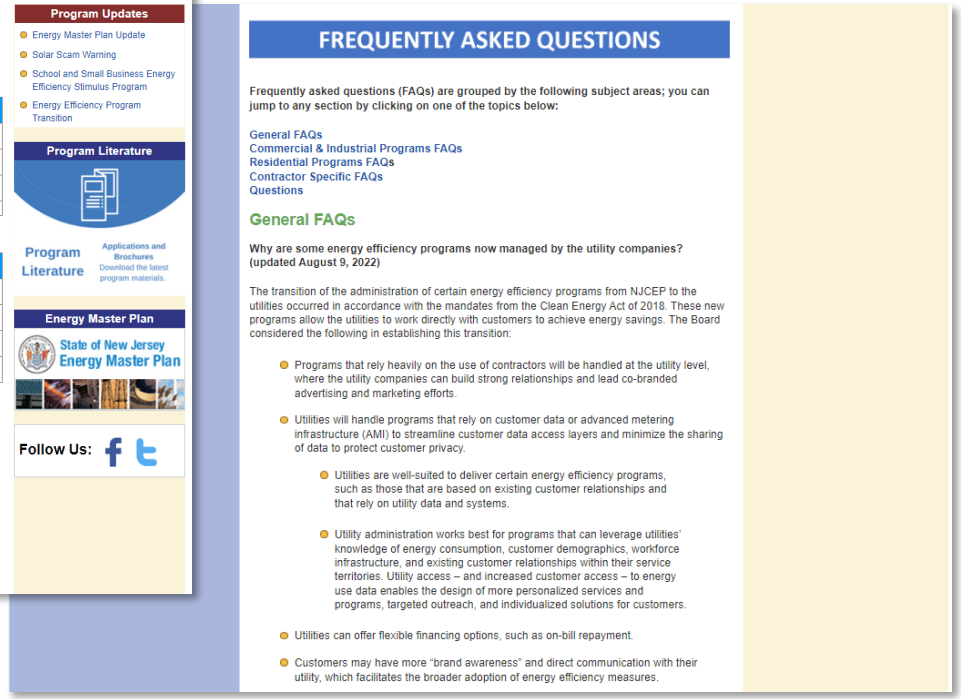
NJBPU and Utility Co-Administered Programs

New Jersey Comfort Partners

BPU | New Jersey's cleanenergy program℠

Energy Efficiency Program Information

www.NJCleanEnergy.com/TRANSITION



FREQUENTLY ASKED QUESTIONS

Frequently asked questions (FAQs) are grouped by the following subject areas; you can jump to any section by clicking on one of the topics below:

General FAQs
Commercial & Industrial Programs FAQs
Residential Programs FAQs
Contractor Specific FAQs
Questions

General FAQs

Why are some energy efficiency programs now managed by the utility companies? (updated August 9, 2022)

The transition of the administration of certain energy efficiency programs from NJCEP to the utilities occurred in accordance with the mandates from the Clean Energy Act of 2018. These new programs allow the utilities to work directly with customers to achieve energy savings. The Board considered the following in establishing this transition:

- Programs that rely heavily on the use of contractors will be handled at the utility level, where the utility companies can build strong relationships and lead co-branded advertising and marketing efforts.
- Utilities will handle programs that rely on customer data or advanced metering infrastructure (AMI) to streamline customer data access layers and minimize the sharing of data to protect customer privacy.
  - Utilities are well-suited to deliver certain energy efficiency programs, such as those that are based on existing customer relationships and that rely on utility data and systems.
  - Utility administration works best for programs that can leverage utilities' knowledge of energy consumption, customer demographics, workforce infrastructure, and existing customer relationships within their service territories. Utility access – and increased customer access – to energy use data enables the design of more personalized services and programs, targeted outreach, and individualized solutions for customers.
- Utilities can offer flexible financing options, such as on-bill repayment.
- Customers may have more "brand awareness" and direct communication with their utility, which facilitates the broader adoption of energy efficiency measures.

Energy Efficiency Updates:

New Jersey's Clean Energy Program

More NJCEP Information

Clean Energy Program Filings:

www.NJCleanEnergy.com/FILINGS

Clean Energy Program Monthly Progress to Goal Report

www.NJCleanEnergy.com/EE - Meeting Materials Archive

New in FY24:

Progress to Goals Report is posted with post-EE Stakeholder Meeting resources after this meeting

NJCEP Quarterly Newsletter

Relaunched December 2023

Reintroducing *New Jersey's Clean Energy Program* Newsletter:

NJCEP Quarterly Newsletter
Lighting the Way to a Clean Energy Future

Welcome back to our newsletter! We're excited to fill you in on what has taken place. Take this opportunity to learn new information on energy efficiency and other clean energy tech innovations. Remember... we're all helping light the way to a clean energy future!

In this Newsletter:
- What's New from the NJBPU
- Program Highlights
- Stay in the Know: Energy Efficiency
- Let's Get Technical
- NJCEP Calendar
- Resources

"Yes, our dishwasher is a smart appliance. But, you still have to actually put the dishes in it."

What's New from the NJBPU?

New Jersey Board of Public Utilities President Joseph L. Fiordaliso passed away on September 6, after an exceptional career dedicated to public service, including 17 years at the NJBPU, serving as President the last five years.

To build upon his legacy, Governor Murphy announced Christine Guhl-Sadovy as New Jersey Board of Public Utilities President. In June 2023, Guhl-Sadovy was appointed by Governor Murphy as NJBPU Commissioner. Prior to her nomination, Guhl-Sadovy served as Cabinet Secretary as part of the Governor's senior staff.

Stay in the Know

Energy Efficiency

There are low or no-cost approaches to making commercial buildings more energy efficient before taking on larger, more extensive projects. ENERGY STAR® recommends several ways to save using their "Energy Treasure Hunt." More information can be found on the ENERGY STAR website.

Several ways to save include:
- Upgrade lighting with LED fixtures
- Implement operations and maintenance best practices
- Create a checklist of energy-saving measures

New Jersey's Clean Energy Program incentivizes large energy users to invest in energy efficient projects. You could receive up to $4M per fiscal year towards upgrades or energy conservation measures in your existing building, which can help with capital costs. To learn more about this program, visit the Large Energy Users Program website.

Let's Get Technical

Heat Pumps for Commercial Buildings

Heating and cooling commercial buildings can be costly, especially for older systems. Heat pumps are an energy-efficient technology that transfers heat instead of generating it and can be retrofitted to existing buildings, multi-family buildings, schools, and other commercial properties. Heat pumps use electricity to extract heat from the outside air or another nearby source to transfer it where needed. They can also reverse the process to move warm air out to cool a building. NJCEP's New Construction and Large Energy User Programs incentivize heat pumps.

WHAT ARE THE BENEFITS OF HEAT PUMPS?
1. SAVE MONEY
2. CONTROL THE TEMPERATU
3. REDUCED OPERATING COS
4. KNOW YOUR TARGET AUDIEN
5. BE CONSISTENT

Did you know?
Air-source heat pumps that extract heat from the outside air and use it for hea indoor spaces during the cooler months can be up to 50% more efficient than fueled systems. Learn more about this technology on the energy.gov website Northeast Energy Efficiency Partnerships (NEEP) website.

Program Highlights

COMMUNITY SOLAR PROGRAM NOW PERMANENT

e success of the pilot program, the NJBPU made the Community Solar m permanent. Since the creation of the Community Solar Pilot Program in he Board approved 150 projects totaling 243 megawatts (MW) of capacity. To of those projects, totaling 50 MW, have reached commercial operation and over 6,000 New Jersey households the benefits of solar power, including l savings.

nts interested in subscribing to a community solar project may search the unity Solar Project Finder for projects that serve their area. The Community rogram is a great option for those who rent, lack control of their roof, live in mily building, do not have property suitable for solar or can't afford the cost of

OF THE HIGHER ION DECARBONIZATION ROGRAM

a part in protecting the nt and reducing carbon Achieving decarbonization n, commitment, and financial New Jersey's Clean Energy new Higher Education zation Pilot Program offers a esigned to reward 2-4 year niversities and educational that take steps towards tation. this program offers up to entives per applicant. The ill reimburse $1000/ton of CO2 p to 75% of the project cost for ation measures implemented. , the program offsets up to e cost for developing your tation plan.

n our monthly program onal webinar to learn more!

ith experts specializing in tation by emailing erb@NJCleanEnergy.com or -NJSMART.

m is open and accepting s. Learn more at nergy.com/LEUPDecarb.

NJBPU LAUNCH OF COMBINED HEAT AND POWER FEASIBILITY STUDY PROGRAM

The NJBPU is offering financial incentives for a Combined Heat & Power (CHP) Feasibility Study at eligible properties across the state. In support of New Jersey's clean energy goals, the study is designed to increase and expand distributed energy resources. The program will offer an incentive to offset 50% of the cost of the feasibility study, up to $50,000.

CHP systems allow for efficient on-site power generation with heat recovery. Benefits include:
- Reduced demands on the power grid
- Substantial reductions in your company's energy bill
- Less greenhouse gas emissions
- Operate as backup power in times of emergencies

Connect with the team at CHP@NJCleanEnergy.com or by calling 866-NJSMART.

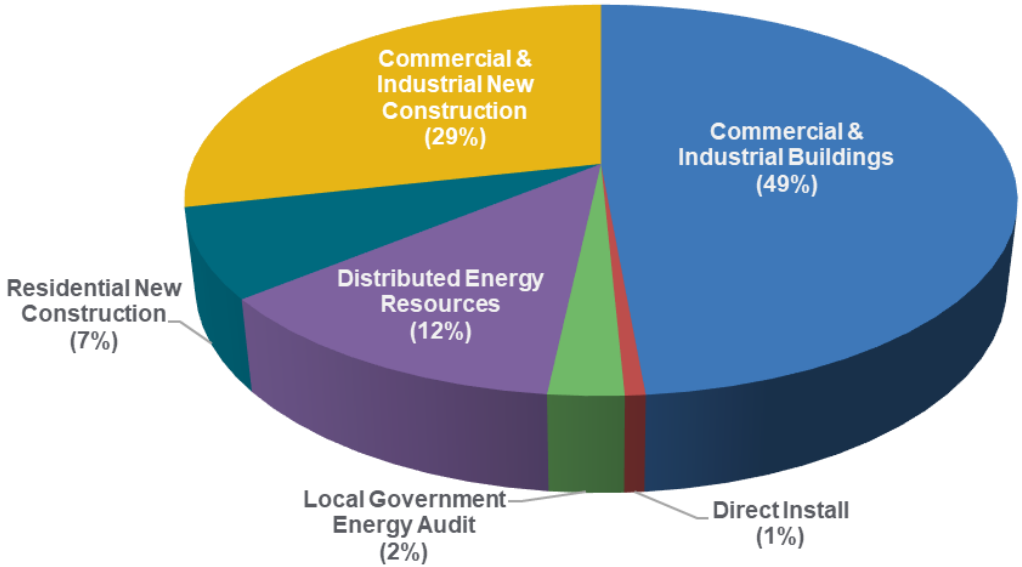
This program is open and accepting applications. Learn more at NJCleanEnergy.com/CHPFeasibility

Receive updates every quarter by subscribing to the newsletter here

Budget Break-down by Program

FY24 TRC Managed Programs

Incentive Budget: $148,502,129



New Jersey's cleanenergy program

Energy Efficiency Programs FY24

NJCEP/TRC Managed

Closed

- Residential Products & HVAC
- Residential Existing Homes
- Direct Install

Closing Out

- C&I Buildings (existing buildings)
- SmartStart Retrofit
- Pay for Performance Existing Buildings
- School & Small Business Stimulus Program (federally funded)

NJCEP/TRC Managed

Open

- New Construction

  Was: Residential New Construction, SmartStart New Construction, Pay for Performance New Construction, Customer Tailored Energy Efficiency Pilot New Construction

- Large Energy Users
- Local Government Energy Audit
- Distributed Energy Resources

BPU/Utility Managed

Comfort Partners

New Jersey's cleanenergy program

New Construction Program & Garden State Challenge Pilot Update

Next Steps

- Finalize program design with Board Staff
- Release for public comment as Compliance Filing update

Combined Heat & Power Feasibility Study Program

NJCleanEnergy.com/CHPFeasibility

New Program

Is a CHP system right for me?

The CHP Feasibility Study will evaluate if the solution of combined heat and power systems and fuel cells repurposing electricity and waste heat suits your property

There are incentives for a CHP Feasibility Study to **offset the cost to evaluate if this solution is right for you**

Incentives will offset up to **50%** cost of the feasibility study, capped at **$50,000**

New Jersey's cleanenergy program

Higher Education Decarbonization Program

NJCleanEnergy.com/LEUPDecarb

New Program

WHO

- Existing accredited college/university institutions with multi-building campuses

QUALIFICATION

- New construction projects are not eligible
- Projects pursuing decarbonization measures including but not limited to **energy efficiency, storage, solar, beneficial electrification, EVs, and more**

PURPOSE

- Assist NJ colleges/universities reach their clean energy goals

OPPORTUNITIES

Up to **$5M** available per applicant:

- Reimbursements of up to **100%** of the cost for the development of a decarbonization plan
- Reimbursements of **$1000/ton of CO_2 reduced**, up to **75%** of total project cost

Decarb in Action

NJCleanEnergy.com/LEUPDecarb

New Program

What is Decarbonization?

"To decarbonize a building is to remove greenhouse gas emissions from the building's energy use, achieved through making the building more efficient and integrating appliances powered by clean energy sources"

~Building Decarbonization Coalition

Importance of the Higher Education Decarbonization Program

Supports New Jersey's clean energy goals with the Higher Education Decarbonization Program

- **Meet your campus decarbonization goals**
- **Lower greenhouse gas emissions**
- **Reduce energy bills**

NJ University Decarbonization Goals

- **Rutgers:** net-zero emissions by 2040
- **Princeton:** net-zero emissions by 2046
- **Rider College:** carbon neutral by 2050

Evolving the Large Energy User Program

NJCleanEnergy.com/LEUPDecarb

New Program

Historically …

"Improve energy efficiency"

- Energy Efficiency

Higher Education Decarbonization Pilot

"Use all that you can to reduce CO_2e on campus"

- Energy Efficiency
- CHP
- EV Charging
- On-site Renewables
- Storage
- Beneficial Electrification

Benchmarking Update

- Clean Energy Benchmarking Resources: https://njcleanenergy.com/commercial-industrial/programs/cea-benchmarking

- Regulated utilities implemented aggregated building-level data services (August 2023)
  - These utilities provide building owners their building energy and water data for reporting
  - For a list of utilities who provide data services: https://njcleanenergy.com/commercial-industrial/programs/energy-water-benchmarking/utility-data

- Benchmarking Help Desk: FAQs and Assistance
  - https://nj.beam-portal.org/helpdesk/

- Submission deadline is December 31, 2023 (including 90-day grace period in first year)

- Next steps:
  - First annual report (aggregated data)
  - Preparing to implement the second benchmarking year in 2024 (for 2023 calendar year)
  - Public stakeholder engagement on second annual report data

Community Energy Plan Grant & Community Energy Plan Implementation Grant Update

These two grant programs support municipalities with community-level clean energy initiatives.

Community Energy Plan Grant (CEPG) Program
- Grants for municipalities to develop community energy plans
- Two grant award levels
  - $10,000
  - $25,000 – overburdened municipalities

Community Energy Plan Implementation (CEPI) Grants
- Grants for municipalities to implement community energy projects
- Applicants eligible for $250,000 with possibility of additional awards if funds remain after all priority projects are funded.

Sustainable Jersey will provide Technical Assistance for applicants, with a focus on assistance for overburdened municipalities

Community Energy Plan Grant & Community Energy Plan Implementation Grant Update

- Applications for both programs available on the NJCEP website at www.NJCleanEnergy.com/CEP

- **Application deadline – February 23, 2023**
  - All applications must be submitted by 5:00 PM Eastern Time

- Questions can be submitted to: community.energy@bpu.nj.gov

Energy Efficiency Updates:

Regulatory – State & Federal

Triennium 2 Filings Review (Docket No. QO23030150)

- 10/25/23: Board designated presiding commissioners for Triennium 2 energy efficiency proposals by ACE, ETG, JCP&L, NJNG, PSE&G, RECO, and SJG
- Staff is reviewing filings submitted on 12/1/23 for administrative completeness
- Motions to intervene or participate filed 12/8/23; responses filed 12/14/23
  - Joint utility motion to participate in other utility filings
  - Motions to intervene from EEA-NJ (7), NJLEUC (6), CPower (4), Convergent (3), Uplight (2), NJPEEC (2), NRDC (2), Sierra Club (2), Google (1)*
  - Motions to participate from Uplight (4), Google (2)
- Next steps: Decisions on intervention and participation by presiding commissioners; interveners/parties discuss procedural schedules (e.g., discovery dates); public hearings on each filing; additional opportunities for public input; Triennium 2 starts 1/1/25

*Advanced Energy United (United), Convergent Energy and Power Inc. (Convergent), Energy Efficiency Alliance of NJ (EEA-NJ), Natural Resources Defense Council (NRDC), NJ Large Energy Users Coalition (NJLEUC), NJ Progressive Equitable Energy Coalition (NJPEEC)

Evaluation, Measurement, and Verification

Energy Savings Studies (2023)

- NJ Appliance Standards Law – NMR memo
- NJ building energy code adoption – Rutgers Center for Green Building (RCGB) memo
- NJ Weatherization Assistance Program (NJ Dept. of Community Affairs) – RCGB memo

Adjusted Goal Setting Study for Triennium 2 (Oct. 2023)

- Analysis of achievable, cost-effective goals for State and utility-run programs – Cadmus

AB5160 Savings Exploration

- AB5160 set energy efficiency standards for certain appliances in New Jersey
  - Went into effect in January 2023
  - Air purifiers, commercial kitchen equipment, computers and monitors, EV chargers, lighting products, portable electric spas, residential ventilation fans, and water conservation measures
- Appliance Standards Awareness Project (ASAP)
  - Wrote the draft legislation that became AB5160
  - Estimated appliance standard savings using a methodology they apply to all states
    - Population, fuel usage, regional sales variations, etc.
    - Account for sales that already meet efficiency standards
  - Statewide Evaluator (SWE) in New Jersey raised concerns about accuracy of savings

Study Objectives and Purpose

- Determine whether the state-level savings estimates provided by ASAP were realistic

if not…

- Provide alternative estimates of state-level savings

in order to…

- Help adjust the goal-setting modeling for market and external effects outside the EE programs

Study Methods

- Review ASAP documentation
- Updated sales and market share data for select high savings appliances
- Recalculated first-year electricity and natural gas savings for New Jersey across all measures
- Compared to statewide energy savings targets as reported in the Cadmus goal setting report

ASAP's Approach Reflects Its Mission

- Demonstrate the savings potential for appliances not addressed in federal standards
- Convince states to adopt the appliance standards
- ASAP does not calculate *achieved* savings from state appliances standard
- Leads them to made decisions that diverge from those typically used in energy-efficiency program evaluation
- This AB5160 Savings Exploration updated ASAP's savings estimates in five ways

AB5160 Exploration Updates to ASAP Approach – High Savings Measures

Update	Computer / Monitors	Commercial Fryers	Air Purifiers
#1: Constant Market Share/ Sales	Updated with ENERGY STAR and third-party sales; projected to 2025; sensitivity analysis due to COVID	Updated with recent ENERGY STAR; projected to 2025	Updated with recent ENERGY STAR; projected to 2025
#2: Removed computers and monitors from 2021 fact sheet	Updated with ENERGY STAR and third-party sales; projected to 2025; sensitivity analysis due to COVID	NA	NA
#3: Did not allocate sales proportionately by fuel	NA	Allocating proportionately based on 2020 New Jersey commercial kitchen program sales	NA

How AB5160 Exploration Addressed Concerns – Other Measures
Page 2

Update	General Service Lamps (GSLs)	All Other Products[1]
Concern #4: Included savings from GSLs	Zeroed out savings since AB5160 pre-empted by later federal rulemaking addressing same lamps	
Concern #5: Calculated annual savings cumulatively, not as first-year		Divided ASAP's *cumulative annual* sales by 3.5 to yield first-year savings
[1] Excludes high savings measures and GSLs, for which updates applied per the tables.		

Comparison of ASAP and Recommended Appliance Standards Savings Estimates

	ASAP	Recommended First-Year Savings		
	Cumulative 2025[1]	2025	2026	2027
Electricity GWh	414.6	114.7	114.7	114.7
Natural Gas BBtu	1,187	393.6	390.4	387.0
Fraction of State Goal Electricity	308%	85%	67%	66%
Fraction of State Goal Gas	324%	107%	105%	103%

[1] ASAP estimates based on their 2021 New Jersey Fact Sheet with two exceptions: 1) Includes 2020 Fact Sheet computer and monitor savings; 2) Excludes state-regulated GSL savings due to federal preemption.

Factors Driving Savings Estimates

Reduced Savings

- Using of first year savings versus 3.5 years of cumulative savings
- Allowing air purifier and commercial fryer market shares to increase over time

Increased Savings

- Allowing computers, monitor, air purifier, and commercial fryer sales to increase over time

State Savings Goal Assumptions

	Electricity (GWh)			Natural Gas BBtu)[3]		
	2025	2026	2027	2025	2026	2027
Energy Sales Forecast (amount)	74,693	74,959	75,435	458,475	463,240	468,059
Statewide Program Reduction Goal (%)	0.18%	0.23%	0.23%	0.08%	0.08%	0.08%
Statewide Program Reduction Goal (amount)	134.4	172.4	173.5	366.8	370.6	374.4

[1] State energy forecasts from Goal Set Scenario 1-2-3 Outputs 3.22.23_Cadmus Tables_WG, Tab "Base NJ 2023 Net Targets" cells H23 to H25 for electricity and H89 to H91 for natural gas. NJCEP reduction goal from NJ BPU Report - Executive Summary_20230412, "Table 1. New Jersey Full Compliance Scenario Targets."

[2] The savings goals listed here are for the New Jersey Clean Energy Program (NJCEP) only and do not include savings from AB5160, new code iterations, or other state-induced savings outside of NJCEP.

[3] Converted from Dth.

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NJ Weatherization Assistance Program
Energy Savings Analysis

Center for Urban Policy and Research

December 21, 2023

DRAFT

Weatherization Assistance Program Energy Savings Analysis

- Objective: To calculate the electricity and natural gas savings associated with the NJ WAP for Triennium 2 (FY25-FY27)

- DCA is not currently using pre- and post- energy bill data to calculate actual savings, so RCGB is using a combination of data from NJ WAP and previous ORNL study data to estimate the savings.

Methodology

- To calculate energy savings, RCGB used # of units weatherized, savings per unit, and % of units per type

Number of Units Weatherized
RCGB is assuming 1853 (550 units from FY23 State WAP plan + 1303 additional units using 2022 BIL funds)

Energy Savings per Weatherized Unit
ORNL 2014 National Evaluation of WAP estimated electricity and natural gas savings for Single Family, Large MF, Small MF, and Mobile Homes

Units Weatherized by Type
RCGB averaged 2018-2022 data from NJ WAP to find type of units weatherized. The breakdown was 63% SF, 13% mobile, 14% large MF and 7% small MF.

2023 NJ WAP State Plan: https://www.nj.gov/dca/divisions/dhcr/offices/docs/wap/2023%20State%20Plan.pdf
2022 WAP BIL State Plan: https://www.nj.gov/dca/divisions/dhcr/offices/docs/wap/2022%20WAP%20BIL%20State%20Plan.pdf
ORNL 2014: Tonn, Bruce Edward, Carroll, David, Pigg, Scott, Blasnik, Michael, Dalhoff, Greg, Berger, Jacqueline, Rose, Erin M, Hawkins, Beth A., Eisenberg, Joel Fred, Ucar, Ferit, Bensch, Ingo, & Cowan, Claire. *Weatherization Works--Summary of Findings from the Retrospective Evaluation of the U.S. DOE's Weatherization Assistance Program*. United States.

Draft Results

Example Calculation for SF Homes:

1853 units * 63% * 1799 kWh = 2,100,134 kWh

1853 units * 63% * 182 Therms = 212,465 Therms

kWh and Therm savings estimates were from ORNL 2014

Energy Savings per Weatherized Unit: Single family savings were 182 therms and 1799 kWh. Large Multifamily units were 76 therms and 275 kWh. Small Multifamily units were 161 therms and 412 kWh. Mobile homes were 107 therms and 441 kWh.

Unit Type	FY25 (MWh)	FY26 (MWh)	FY27 (MWh)		FY25 (DTh)	FY26 (DTh)	FY27 (DTh)
Single Family	2,100	2,100	2,100		21,246	21,246	21,246
Mobile	110	110	110		2,657	2,657	2,657
L MF	71	71	71		1,972	1,972	1,972
S MF	53	53	53		2,088	2,088	2,088
TOTAL	**2,334**	**2,334**	**2,334**		**27,963**	**27,963**	**27,963**

ORNL 2014: Tonn, Bruce Edward, Carroll, David, Pigg, Scott, Blasnik, Michael, Dalhoff, Greg, Berger, Jacqueline, Rose, Erin M, Hawkins, Beth A., Eisenberg, Joel Fred, Ucar, Ferit, Bensch, Ingo, & Cowan, Claire. *Weatherization Works--Summary of Findings from the Retrospective Evaluation of the U.S. DOE's Weatherization Assistance Program*. United States.

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Statewide Energy Savings from NJ Energy Code Adoption for New Construction

ASHRAE 90.1 2019 & IECC 2021

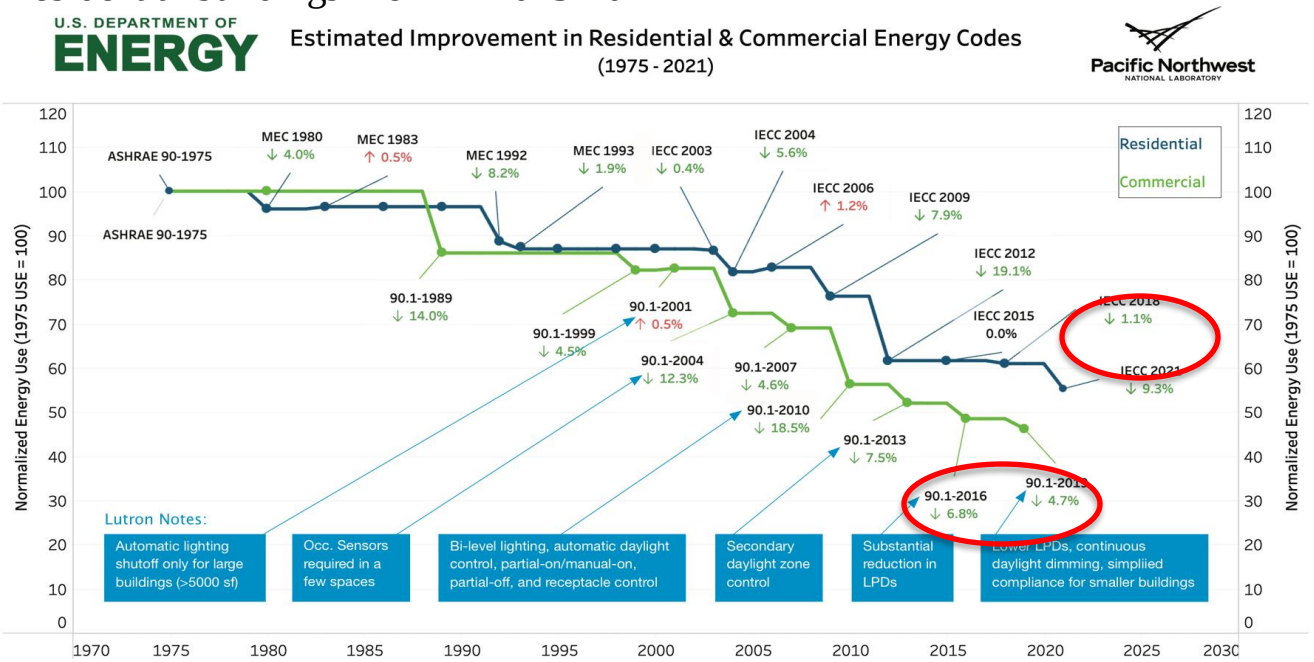
Center for Urban Policy and Research

December 21, 2023

DRAFT

Attributing energy savings to building code adoption

We have ascertained savings from the adoption of ASHRAE 90.1 2019 for new construction of commercial buildings, and IECC 2021 for new construction of residential buildings* for FY 2025-2027



https://commercial.lutron.com/us/en/energy-code-state-union

* ASHRE 90.1 2019 is applicable to Multifamily High Rises. Residential typologies include single family attached and detached homes, multifamily low rises.

Key Takeaways

- Improvements in IECC 2021 from IECC 2018 result in a significant improvement in residential building energy consumption. The impact of code adoption in the residential sector is considerably higher than the commercial sector.

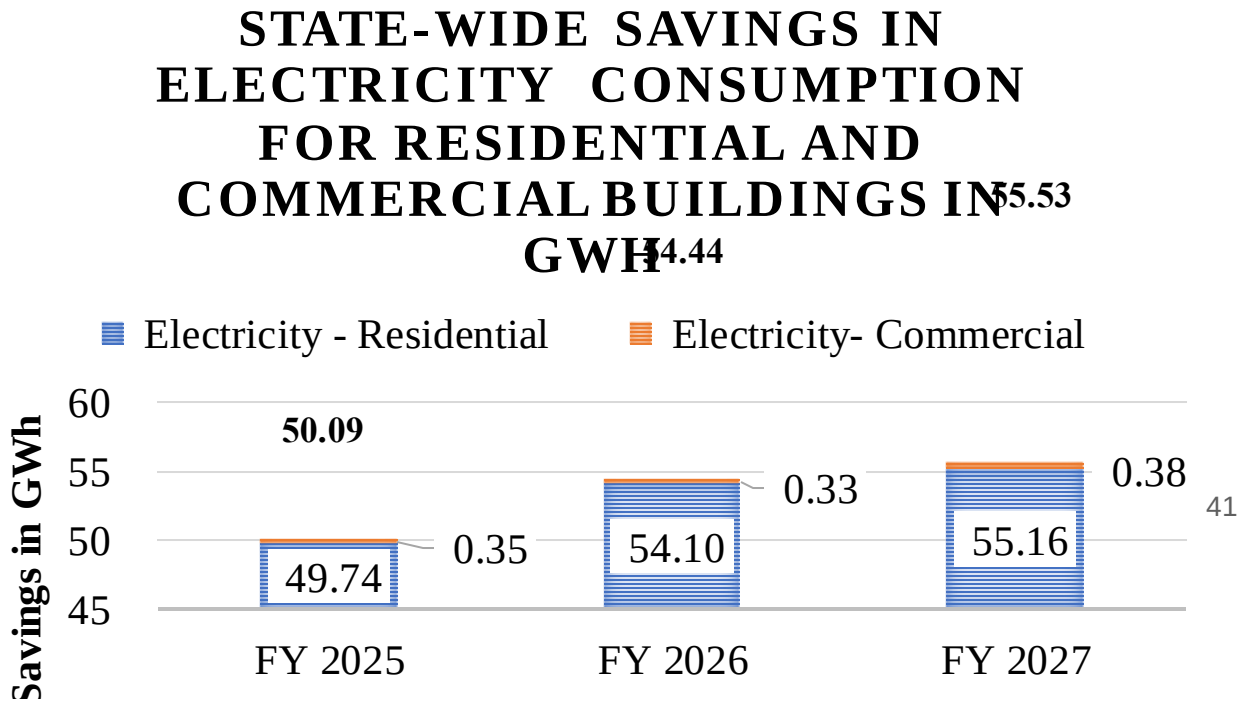
- Construction volume & compliance rates are the highest source of uncertainty in estimating savings due to code adoption.

- Above code lighting reduces gas savings considerably. Based on documented Industry Standard Practice in New Jersey, we know that new construction has above code lighting.

- There is a need to adjust the Net-to-Gross ratio to reflect increasing market adoption

Savings in Electricity Consumption in GWh

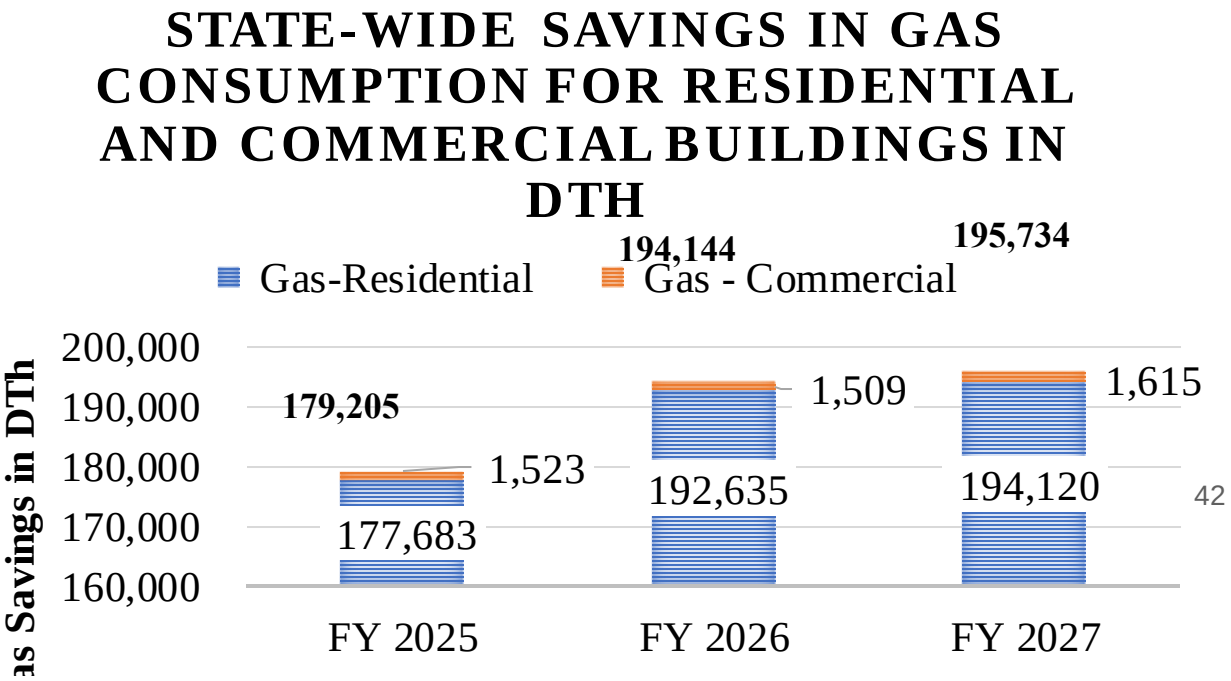
Due to adoption of ASHRAE 90.1 2019 and IECC 2021 (New Construction)



Numbers might not add up to total due to rounding off

Savings in Gas Consumption in DTh (*MMBtu)*

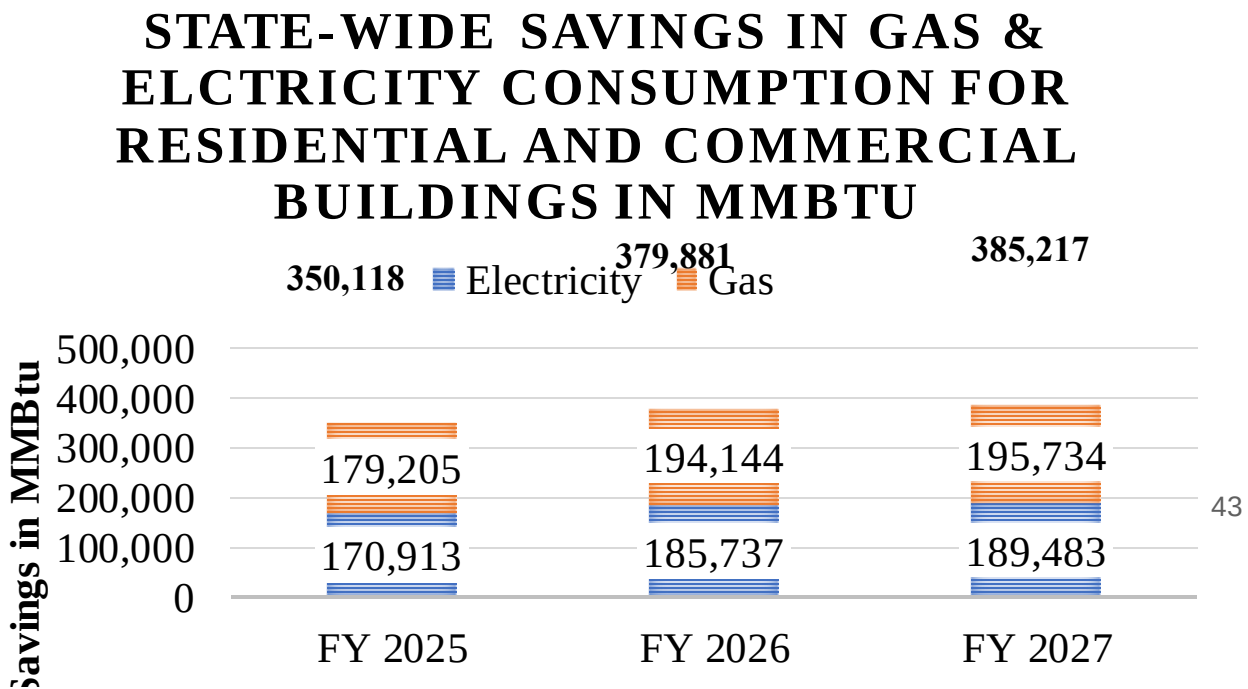
Due to adoption of ASHRAE 90.1 2019 and IECC 2021 (New Construction)



Numbers might not add up to total due to rounding off

Savings in Total Energy Consumption in *MMBtu*

Due to adoption of ASHRAE 90.1 2019 and IECC 2021 (New Construction)



Numbers might not add up to total due to rounding off

Scenarios and Sensitivity Runs

Adjustments made to lighting savings	**Conservative (Lower Bound)**	**Middle of the road**	**Optimistic (Upper Bound)**
New Construction already meets ASHRAE 90.1 2019 and IECC 2021 lighting standards		Today we are discussing the Middle-of-the-Road scenario.	
Not all new construction already meets ASHRAE 90.1 2019 and IECC 2021 lighting standards			

Methodology Overview: Energy Savings Potential

Construction footprint

NJ Department of Community Affairs (URL)
Certificate of Occupancy (CO) data for residential and commercial buildings by building occupancy and climate zones for 2014 to 2023 reported monthly, aggregated quarterly

Energy Savings Potential

PNNL Reports for commercial building and residential building occupancies and climate zones
(+DOE Prototype Models Energy Modeling Output)

Conservative (Lower Bound)	**Middle of the road** (Average)	**Optimistic** (Upper Bound)

Methodology Overview: Potential to Net Savings

Compliance Rate

Adjusted for an **increasing** number of buildings that **comply with the adopted codes** over the three years of the study

Rutgers & DNV NJ Energy Code Compliance Study 2022

Net to Gross Ratio

Adjusted for **current state and federal standards**, and **market commercialization**

DNV's New Jersey Recommended Net-to-Gross Ratios Overall Report, 2023
New Jersey 2023 Triennial Technical Reference Manual For 2024 Filings

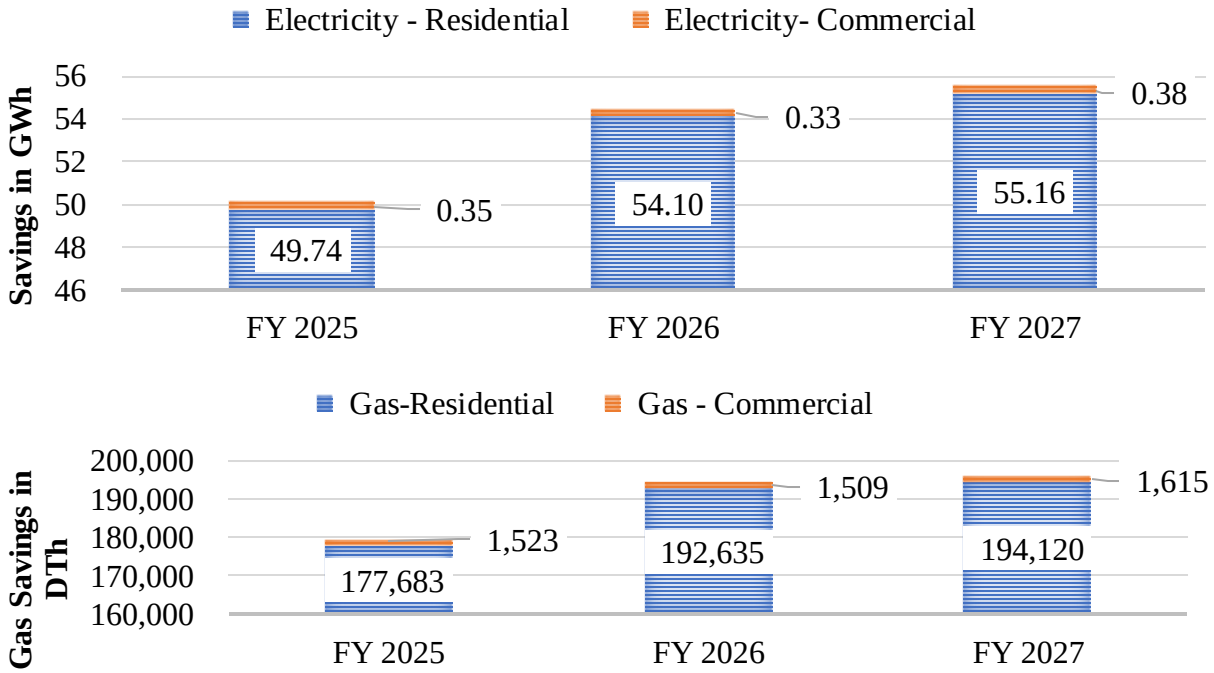
Adjustment to Net to Gross Ratio

Adjusted for **increasing market adoption during** the three years of the study period

In discussion with PNNL (M Rosenberg & M Tyler);
Energy Code Compliance Improvement Program, 2020 for Illinois : Midwest Energy Efficiency Alliance, in collaboration with Resource Innovations;

Q & A

State-wide savings in Gas (DTh) & Electricity (GWh) Consumption for Residential and Commercial Buildings due to adoption of ASHRAE 90.1 2019 and IECC 2021 (New Construction)



Numbers might not add up to total due to rounding off

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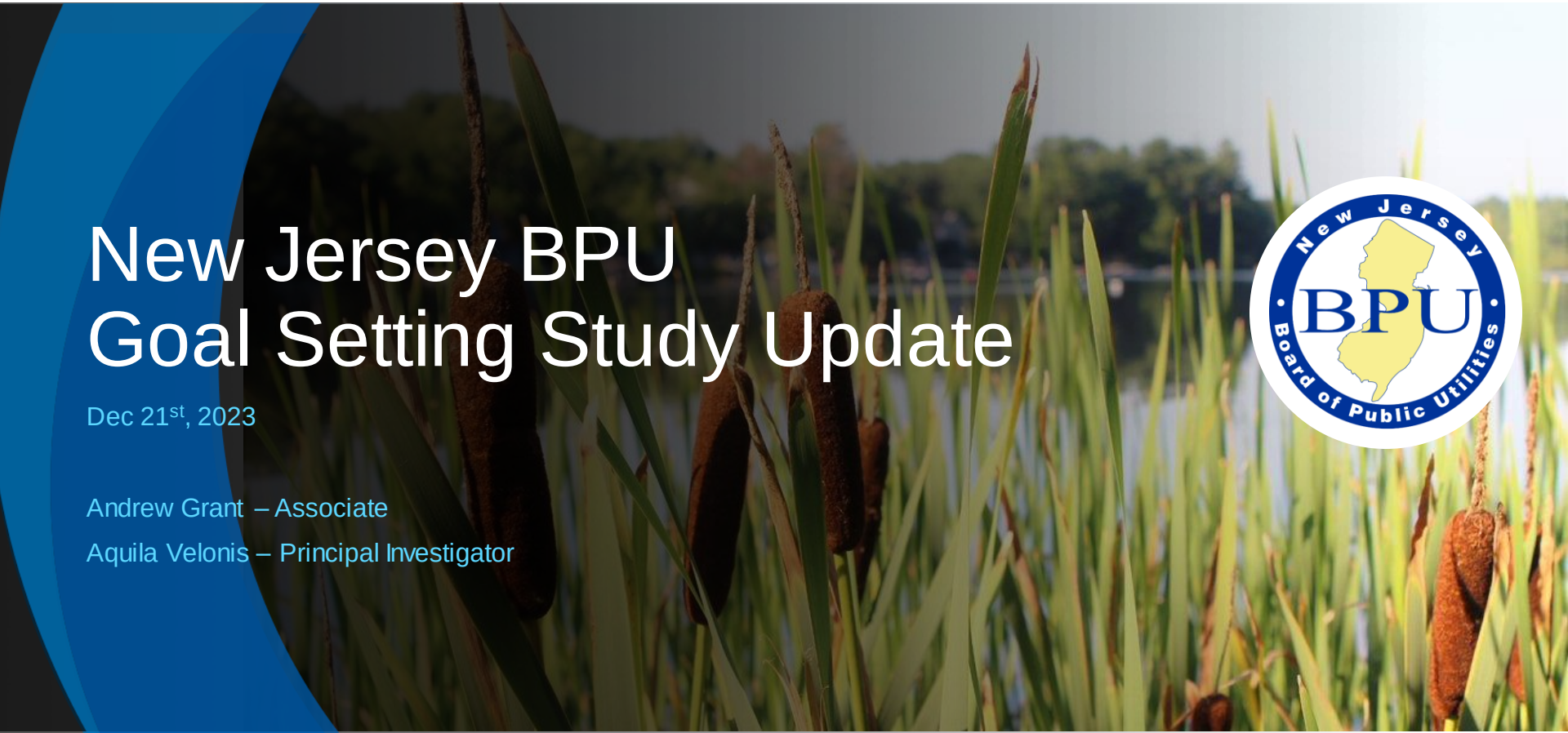
For Internal Circulation Only

RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY



New Jersey BPU Goal Setting Study Update

Dec 21st, 2023

Andrew Grant – Associate

Aquila Velonis – Principal Investigator

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Incorporating WAP, A5160, and Code savings

	GWh			DThm (=MMBtu)		
	FY25	**FY26**	**FY27**	**FY25**	**FY26**	**FY27**
A) A5160	114.7	114.7	114.7	393,600	390,400	387,000
B) WAP	2.3	2.3	2.3	27,963	27,963	27,963
C) Codes	50.0	54.4	55.5	179,205	194,144	195,734
Total (A+B+C)	**167.0**	**171.4**	**172.5**	**600,768**	**612,507**	**610,697**

Updates to the Full Compliance Scenario

- Adding rows to analysis to incorporate WAP, A5160, and Code Savings
  - Breaking savings out between Residential and Commercial/Industrial for detailed reporting
  - Review of potential measure savings to avoid double counting

- Assuming no associated program costs from inclusion of these additional savings

- Split additional savings between State vs Utility-administrated savings targets
  - Based on ratio of original full compliance savings targets between state vs utility targets

Savings Target Updates

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Savings Target Updates – Electric Breakout

- **Full Compliance with WAP, A5160, and Codes**

		State-Administered Reduction Target (%)		All Utility-Administered Reduction Target (%)
Fiscal Year	Overall Reduction Target (%)	From Programs	From WAP, A5160, and Codes	From Programs
2024	1.31%	0.11%	0.22%	0.98%
2025	1.66%	0.15%	0.23%	1.28%
2026	2.00%	0.20%	0.23%	1.57%
2027	2.00%	0.21%	0.23%	1.56%

- **Comparison from Previous to Updated Program Percentage of Target**

	State-Administered Reduction Target (%)		All Utility-Administered Reduction Target (%)	
Fiscal Year	Previous From Programs	Update From Programs	Previous From Programs	Update From Programs
2024	0.13%	0.11%	1.18%	0.98%
2025	0.18%	0.15%	1.48%	1.28%
2026	0.23%	0.20%	1.77%	1.57%
2027	0.23%	0.21%	1.77%	1.56%

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Savings Target Updates - Natural Gas Breakout

- **Full Compliance with WAP, A5160, and Codes**

		State-Administered Reduction Target (%)		All Utility-Administered Reduction Target (%)
Fiscal Year	Overall Reduction Target (%)	From Programs	From WAP, A5160, and Codes	From Programs
2024	0.61%	0.05%	0.13%	0.43%
2025	0.68%	0.06%	0.13%	0.49%
2026	0.75%	0.07%	0.13%	0.55%
2027	0.75%	0.07%	0.13%	0.55%

- **Comparison from Previous to Updated Program Percentage of Target**

	State-Administered Reduction Target (%)		All Utility-Administered Reduction Target (%)	
Fiscal Year	Previous From Programs	Update From Programs	Previous From Programs	Update From Programs
2024	0.07%	0.05%	0.55%	0.43%
2025	0.08%	0.06%	0.61%	0.49%
2026	0.08%	0.07%	0.67%	0.55%
2027	0.08%	0.07%	0.67%	0.55%

Budget Estimate Updates

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Budget Estimate Updates – Electric and Gas

- **$(000) - Nominal Dollars**

Scenario Version	Fiscal Year	State-Administered Budget	All Utility Budget	Total Budget
Original Full Compliance	**2024**	$239,631	$923,603	**$1,163,234**
	2025	$297,408	$1,193,038	**$1,490,447**
	2026	$366,909	$1,498,722	**$1,865,631**
	2027	$383,005	$1,586,069	**$1,969,074**
Full Compliance with WAP, A5160, and Codes	**2024**	$221,266	$706,395	**$927,662**
	2025	$276,084	$961,428	**$1,237,512**
	2026	$342,742	$1,256,075	**$1,598,816**
	2027	$358,020	$1,332,140	**$1,690,161**

Budget Estimate Updates – Electric

- **$(000) - Nominal Dollars**

Scenario Version	Fiscal Year	State-Administered Budget	All Utility Budget	Total Budget
Original Full Compliance	**2024**	$91,678	$515,678	**$607,355**
	2025	$124,781	$710,139	**$834,921**
	2026	$166,519	$936,234	**$1,102,753**
	2027	$177,738	$999,214	**$1,176,952**
Full Compliance with WAP, A5160, and Codes	**2024**	$84,901	$410,939	**$495,840**
	2025	$116,489	$596,429	**$712,917**
	2026	$156,757	$813,958	**$970,716**
	2027	$167,486	$869,180	**$1,036,667**

Budget Estimate Updates – Natural Gas

- **$(000) - Nominal Dollars**

Scenario Version	Fiscal Year	State-Administered Budget	All Utility Budget	Total Budget
Original Full Compliance	**2024**	$147,953	$407,925	**$555,878**
	2025	$172,627	$482,899	**$655,526**
	2026	$200,390	$562,489	**$762,878**
	2027	$205,267	$586,855	**$792,122**
Full Compliance with WAP, A5160, and Codes	**2024**	$136,365	$295,456	**$431,822**
	2025	$159,595	$365,000	**$524,595**
	2026	$185,985	$442,116	**$628,101**
	2027	$190,534	$462,960	**$653,494**

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Guest Presentation:

NJCEP Year In Review

Michael Ambrosio Director of Policy and Planning, TRC

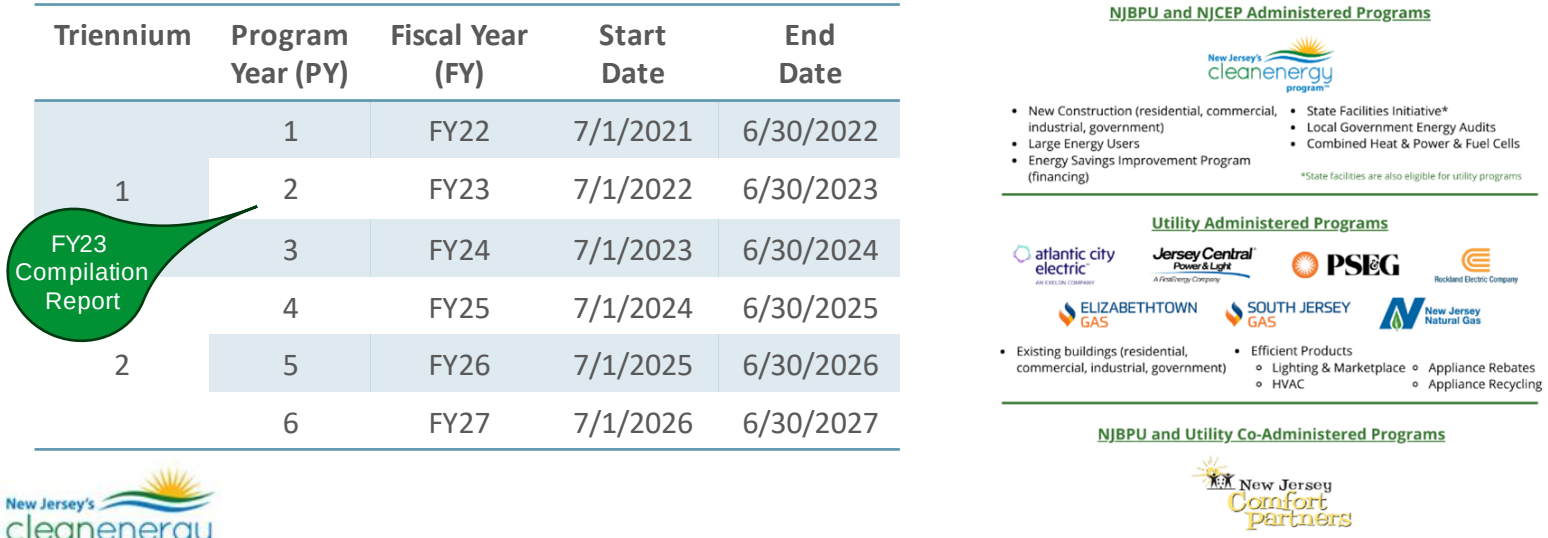
Recap of Energy Mandate

NJ's Clean Energy Act of 2018 mandated:

- Electric must achieve at least **2% annual energy reduction** by Program Year 5
- Gas must achieve at least **0.75% annual energy reduction** by Program Year 5

Triennium	Program Year (PY)	Fiscal Year (FY)	Start Date	End Date
	1	FY22	7/1/2021	6/30/2022
1	2	FY23	7/1/2022	6/30/2023
	3	FY24	7/1/2023	6/30/2024
	4	FY25	7/1/2024	6/30/2025
2	5	FY26	7/1/2025	6/30/2026
	6	FY27	7/1/2026	6/30/2027

FY23 Compilation Report



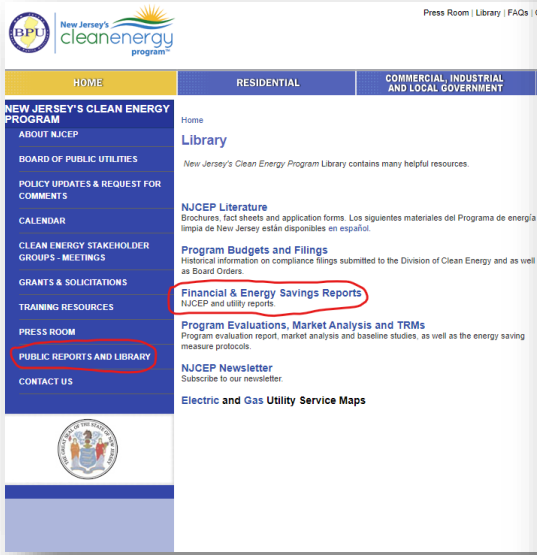
FY23 Statewide Compilation Report
7/1/2022 – 6/30/2023

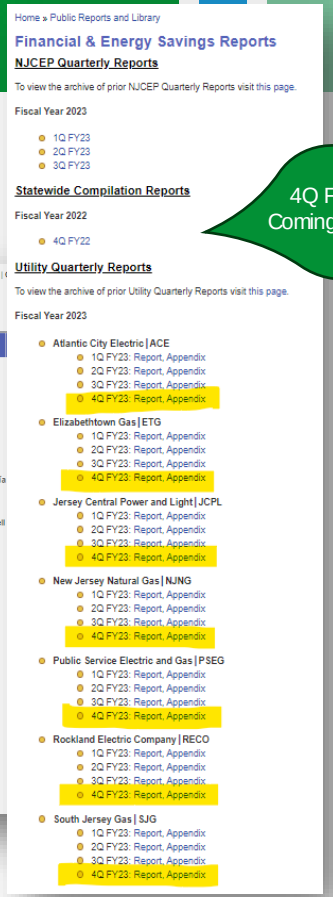
Where the report will be posted:

- www.NJCleanEnergy.com/LIBRARY
- Financial & Energy Savings Reports

What the report contains:

- Budget and expenses
- Energy savings
- Participation rates
- Emission reductions





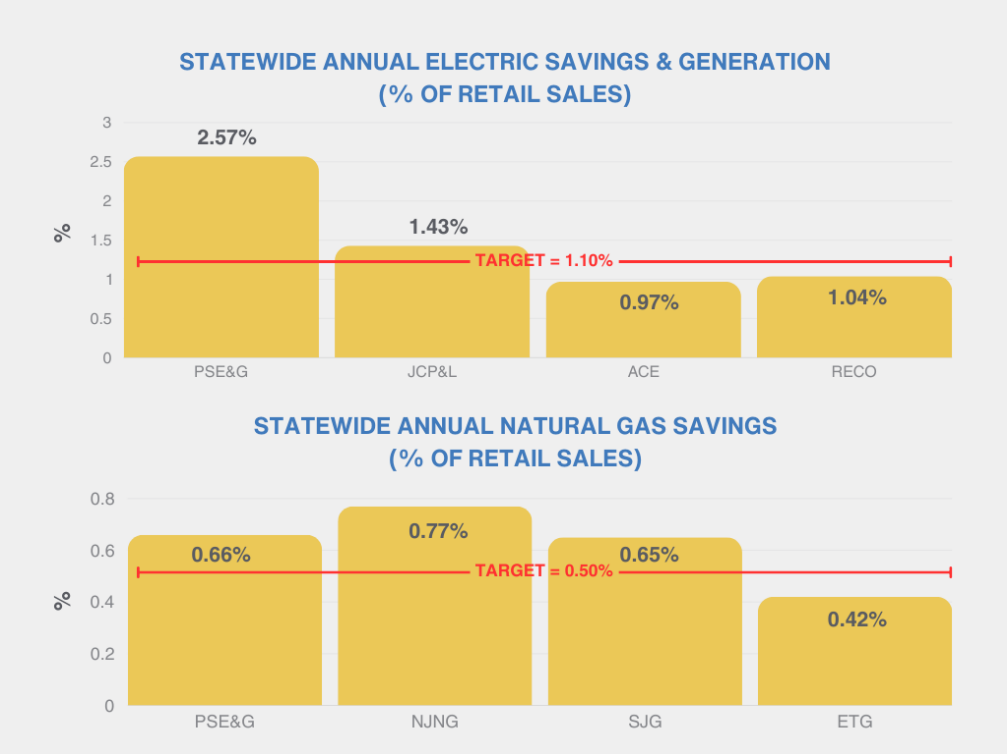
4Q FY23 Coming Soon

FY23 Statewide Compilation Report
7/1/2022 – 6/30/2023

How are we doing in the clean energy transition?
DRAFT – subject to change

As of FY23/PY2, there is still much to do to achieve the state mandates by PY5

NOTE:
The current Technical Reference Manual (TRM) reports on **gross savings**. The revised TRM approved for Triennium-2 will count **net savings** toward the state mandate, increasing the current levels by approximately 20% to reflect the change from gross to net savings



General Q&A

To submit questions in advance for next month:
EnergyEfficiency@bpu.nj.gov

Items of Interest

Next Meetings

Energy Efficiency Stakeholder Meetings

NJCleanEnergy.com/EE

3rd Thursday of the Month, 1-2:30pm

Take the survey for the Clean Energy Technology Series of presenters for February onward!

January Guest Presenter:

Dr. Rachel Shwom

The Social Science of Climate Change in NJ

Chair of Human Dimensions of Environmental Change

Rutgers University

January 18, 2024
February 15, 2024
March 21, 2024
April 18, 2024
May 16, 2024
June 20, 2024
July 18, 2024
August 15, 2024
September 19, 2024
October 17, 2024
(no November meeting)
December 19, 2024

More Information

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THANK YOU