

The meeting
will begin in
a few minutes



Energy Efficiency Stakeholder Meeting

September 19, 2024

Agenda

1. Re-cap of Last Meeting
2. New Jersey Energy Efficiency Programs
3. Energy Efficiency Updates
 - NJCEP Updates
 - New Construction Program Update: Workforce Development launch
 - Benchmarking Update
 - Evaluation, Measurement, & Verification Updates
 - Utility Updates
 - Regulatory Updates
 - Triennium 2 Filings Review
4. Guest Presentation: Storage Technologies
5. General Q&A
6. Items of Interest
7. Next Meetings

Recap of Last Month

August Monthly Recap

What we covered:

- ✓ NJCEP Updates
 - ✓ NJCEP New Construction Program
 - ✓ Benchmarking Update
 - ✓ Inflation Reduction Act (IRA) Home Energy Rebates Update
- ✓ Utility Updates
- ✓ Regulatory Updates
 - ✓ Triennium 2 Filings Review
- ✓ Guest Presentation: Community Energy Plan Grants and Implementation Grants
- ✓ Q&A

New Jersey Energy Efficiency Programs

www.NJCleanEnergy.com/EEP

NJBPU and NJCEP Administered Programs



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

* State facilities are also available for utility programs

Utility Administered Programs



- Existing Buildings (residential, commercial, industrial, government)
- Efficiency Products
 - Lighting & Marketplace
 - HVAC
 - Appliance Rebated
 - Appliance Recycling

NJBPU and NJCEP Administered Programs



New Jersey's Clean Energy Program

Energy Efficiency Updates



More NJCEP Information

Quarterly Newsletter:

NJCleanEnergy.com/NEWSLETTER

Clean Energy Program Filings:

NJCleanEnergy.com/FILINGS

Clean Energy Program Monthly Progress to Goal Report:

NJCleanEnergy.com/EE - Meeting Materials Archive

The screenshot shows the NJCEP website interface. The top navigation bar includes links for Home, Energy Efficiency, Electric Vehicles, and Renewable Energy. The main content area is titled "Energy Efficiency Meeting Materials Archive" and features a table of meeting materials. A callout box highlights the "Progress to Goals Report" link in the "Meeting Materials" column for the June 20, 2024 meeting.

Meeting Date	Meeting Agenda	Meeting Materials
June 20, 2024	Agenda	Slide Deck, Webinar Recording & PTG Report
May 16, 2024	Agenda	Slide Deck, Webinar Recording & PTG Report
Apr 18, 2024	Agenda	Slide Deck, Webinar Recording & PTG Report
Mar 21, 2024	Agenda	Slide Deck, Webinar Recording & PTG Report
Feb 15, 2024	Agenda	Slide Deck, Webinar Recording & PTG Report
Jan 18, 2024	Agenda	Slide Deck, Webinar Recording & PTG Report

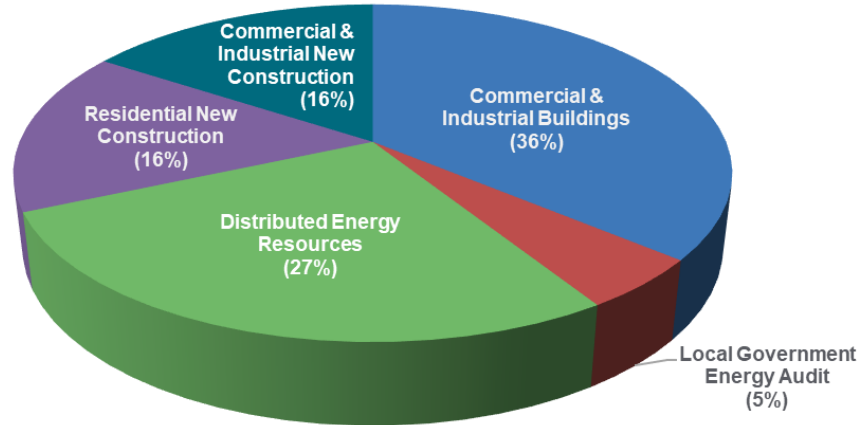
Progress to Goals Report is posted with post-EE Stakeholder Meeting resources following this meeting

Budget Break-down by Program

FY25 TRC Managed Programs

First 6-month Incentive Budget:

\$107,050,446



Energy Efficiency Programs FY25

NJCEP

Closed

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

Closing Out

- C&I Buildings (existing buildings)
 - SmartStart Retrofit EB
 - Pay for Performance EB
- 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

Open

- Comfort Partners



NEW - Workforce Development

Invest in yourself as an energy professional



ABOUT THIS

Offers reimbursement to those who complete **REIMBURSEMENT** courses leading to certifications that support the New Construction Program

WHO IS ELIGIBLE

Applicants must show proof of:

1. Residence in the State of New Jersey; **OR**
2. Principal place of work is in New Jersey; **OR**
3. A connection or link to New Jersey and proof can be provided*

REIMBURSEMENT

Upon successful certification, up to \$2,000 will be reimbursed per person per course with a maximum reimbursement of \$4,000 per fiscal year from July 1 through June 30

* See the User Guide and application for details



Application Steps



How to apply for reimbursement:

- 1. Go to the application portal at www.NJCleanEnergy.com/NCP**

Follow the steps to create a user profile and application, upload documentation, and track your status through the portal

- 2. Receive pre-approval**

Your application will be reviewed for eligibility. If pre-approved, you will receive a letter **prior** to taking the course to be eligible for reimbursement *

- 3. Take the training course**

Take your pre-approved training/certification course and any applicable exam(s)

- 4. Submit proof of completion**

Submit proof of payment and course completion to the application portal

- 5. Receive final approval and reimbursement**

After documentation review, your reimbursement will be issued

* To be eligible for reimbursement, the applicant must gain approval from the New Construction Program before taking the training course and certificate exam; see the User Guide for details

Training Courses & Certifications



AEE's Certified Building Commissioning Professional (CBCP)



LEED Green Associate
LEED AP (BD+C and ID+C only)



ASHRAE Building Energy Modeling Professional (BEMP)



PHI Certified Passive House Designer

PHI Certified Passive House Tradesperson



RESNET HERS Rating Field Inspector (RFI)

RESNET HERS Rater

RESNET HERS Modeler



IGSHPA Accredited Installer (pending approval)

IGSHPA Certified GeoExchange Designer (pending approval)



ENERGY STAR® New Homes or MFNC Rater Certification



PHIUS Certified Consultant (CPHC)

PHIUS Certified Rater

PHIUS Certified Verifier

PHIUS Certified Builder (CPHB)



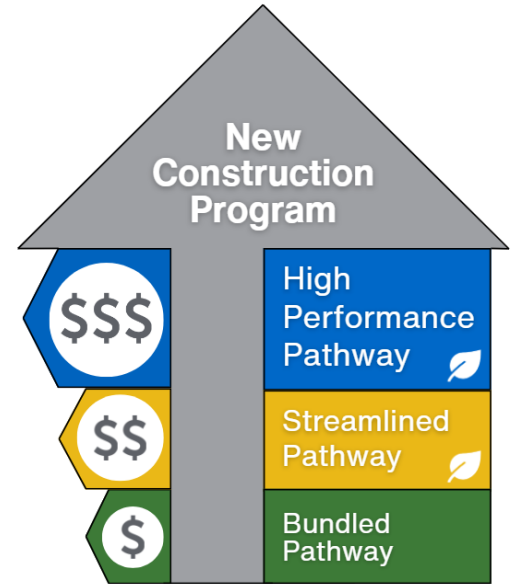
Coming Soon: New Construction Program

ABOUT THE PROGRAM Three pathways to fit your needs to achieve greater energy savings

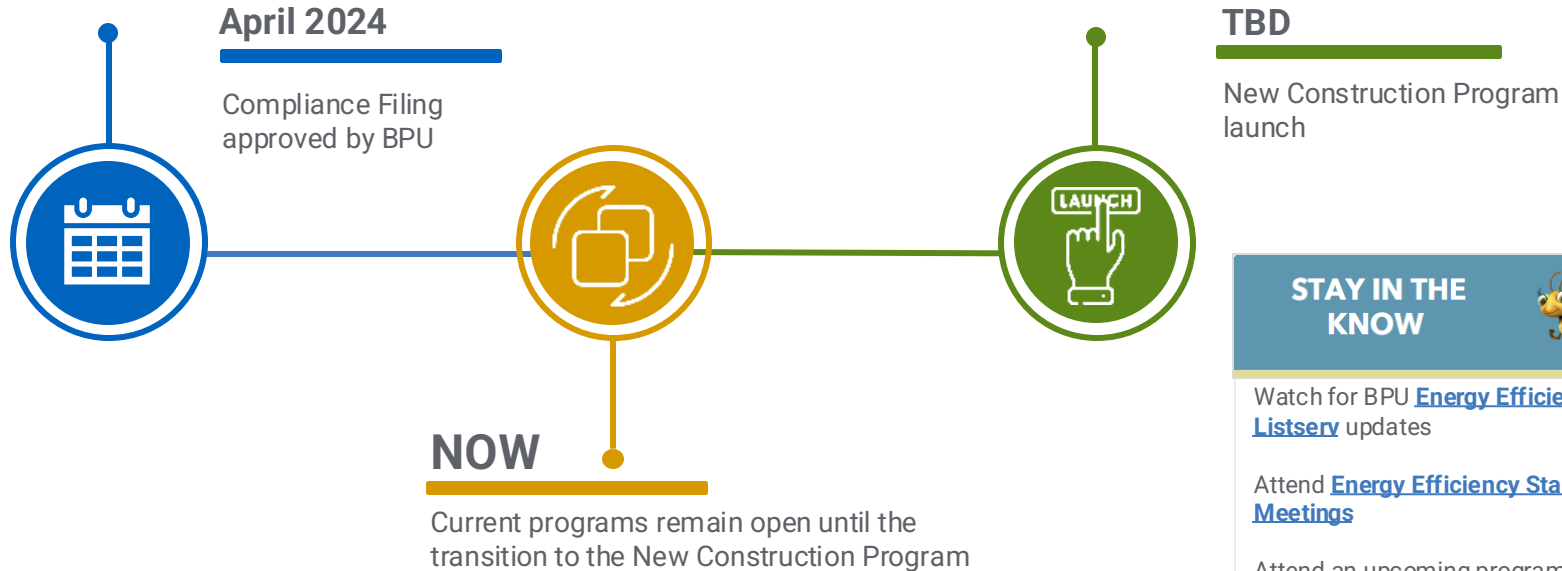
INCENTIVES Based on selected pathways and size

WHO IS ELIGIBLE All new construction buildings or eligible major renovation projects

ADDITIONAL OPPORTUNITIES Incentives for energy efficiency beyond code requirements, encouraging greater energy savings



New Construction Program Timeline



STAY IN THE KNOW



Watch for BPU [Energy Efficiency Listserv](#) updates

Attend [Energy Efficiency Stakeholder Meetings](#)

Attend an upcoming program overview or [trade ally webinar](#) event for details

Benchmarking Update

- The submission deadline was July 1, 2024 for the current reporting year (2023)
- All building owners have a 90-day grace period to report by October 1, 2024
- A Helpdesk is available to answer questions about the benchmarking program and

Portfolio Manager

- To view frequently asked questions, submit a general inquiry or an exemption request, receive instructions for how to report, and obtain training resources and important updates: <https://nj.beam-portal.org/helpdesk/>
- To submit an inquiry to the Helpdesk, please visit: <https://nj.beam-portal.org/helpdesk/> and select "New Ticket"
- To respond to a previously submitted ticket or a received email, please email njbpubenchmarking@beam-portal.org or call 888-533-4571

NJ Stakeholder Group – EM&V Update

Evaluation Plan & TRM Update

SWE Team

Lisa Skumatz Ralph Prahl
Lead, Res & XC Floater / all sectors

Bob Wirtshafter Mike Rufo
Res & XC Impact, GHG

Pete Jacobs Jane Peters
C&I, XC Process, Mkt Res.

SWE Speakers:—Lisa Skumatz and Pete Jacobs

September 19, 2024

NJ Stakeholder Group – Update on Evaluation Plan

Lisa Skumatz Ralph Prah
Lead, Res & XC Floater / all sectors

Bob Wirtshafter Mike Rufo
Res & XC Impact, GHG

Pete Jacobs Jane Peters
C&I, XC Process, Mkt Res.

SWE Lead –Lisa Skumatz

September 19, 2024

Evaluation Context

- Activities to analyze performance of programs and measures beyond natural market effects, and provides data-based quantitative & qualitative recommendations
- Numbers improvements to allow savings estimates to reflect market and program changes for truer impacts, effectiveness, cost-effectiveness, performance

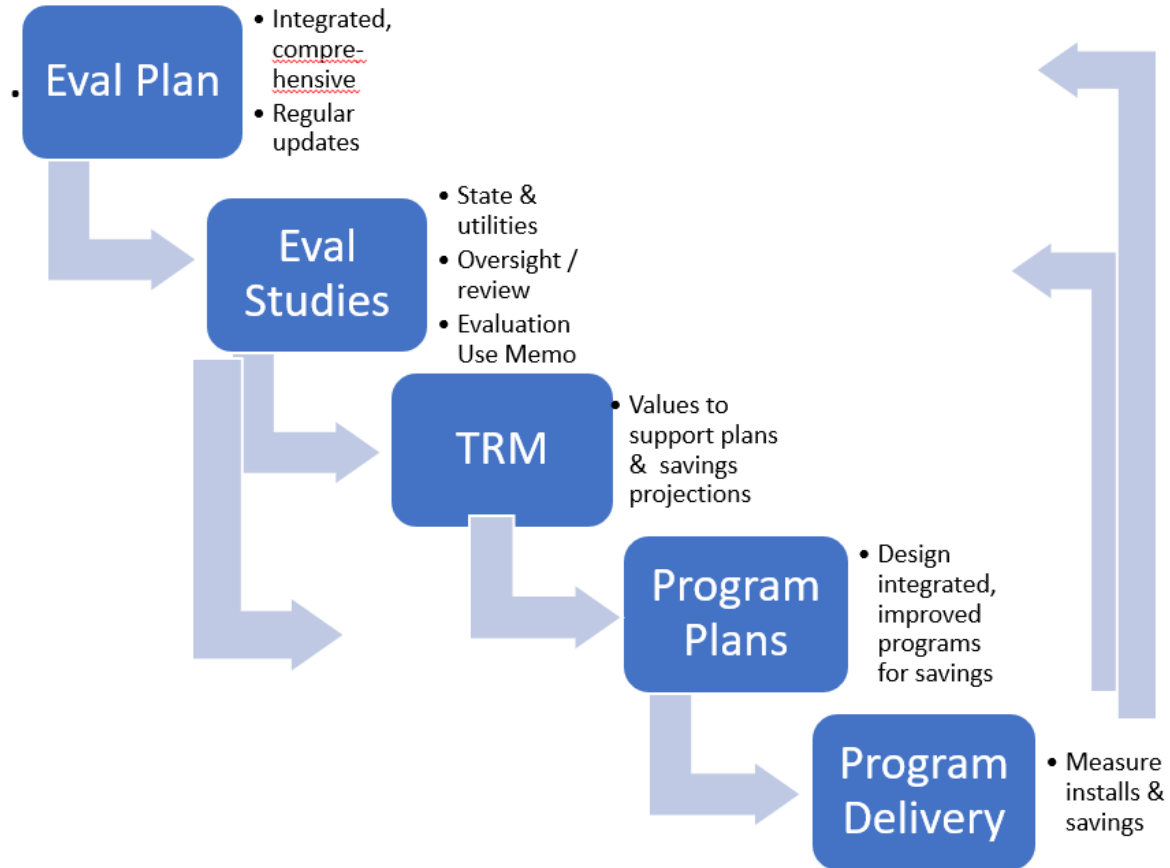
Quantitative

- Defensible estimates of savings, program progress, beyond what would have occurred with out the interventions (beyond *baseline*)
- → Feeds updated TRM values (tracked)
- Market studies and potential
- → Feeds measures, directions, planning for PAs

Qualitative

- Advice toward more effective program design and delivery
- → Improving program design/practices (tracked) for PAs

Evaluation Plan and TRM in Context



FY 2025-27 Evaluation Plan Topic Areas

Process / Impact
Evaluations

(Cadence: ~3-5 yrs, affected by changes / pilots)

Technical
Reference
Manual (TRM)

(Cadence: annual)

Net to Gross
(NTG)

(Cadence: on-going cycle through prioritized measures)

Baseline

(Cadence: ~3-5 yrs)

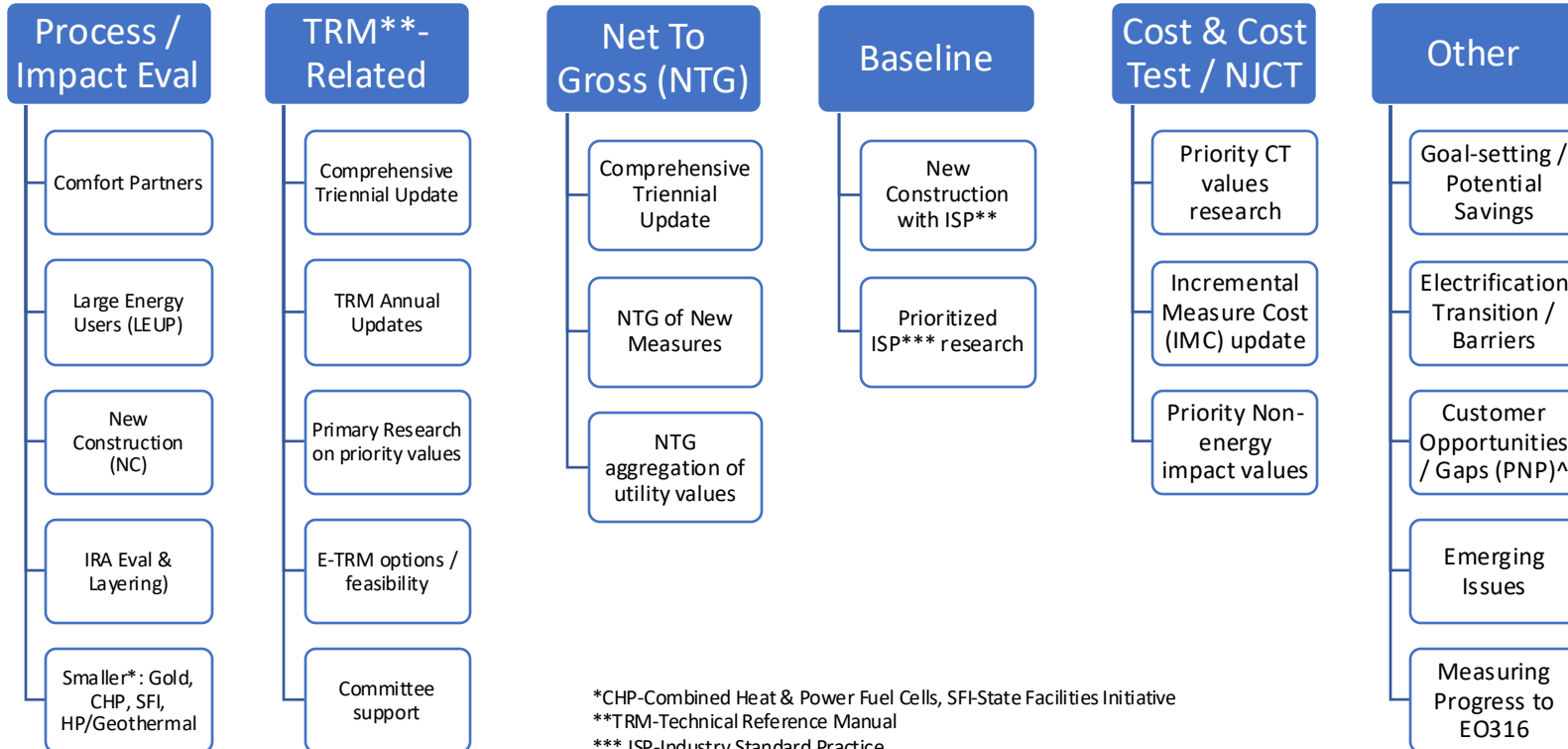
Cost / New Jersey
Cost Test (NJCT)

Cadence: on-going cycle
prioritizing values)

Other (including
Goal-setting)

(Goal: 3 years, others TBD)

FY 2025-27 State Evaluation Studies Plan



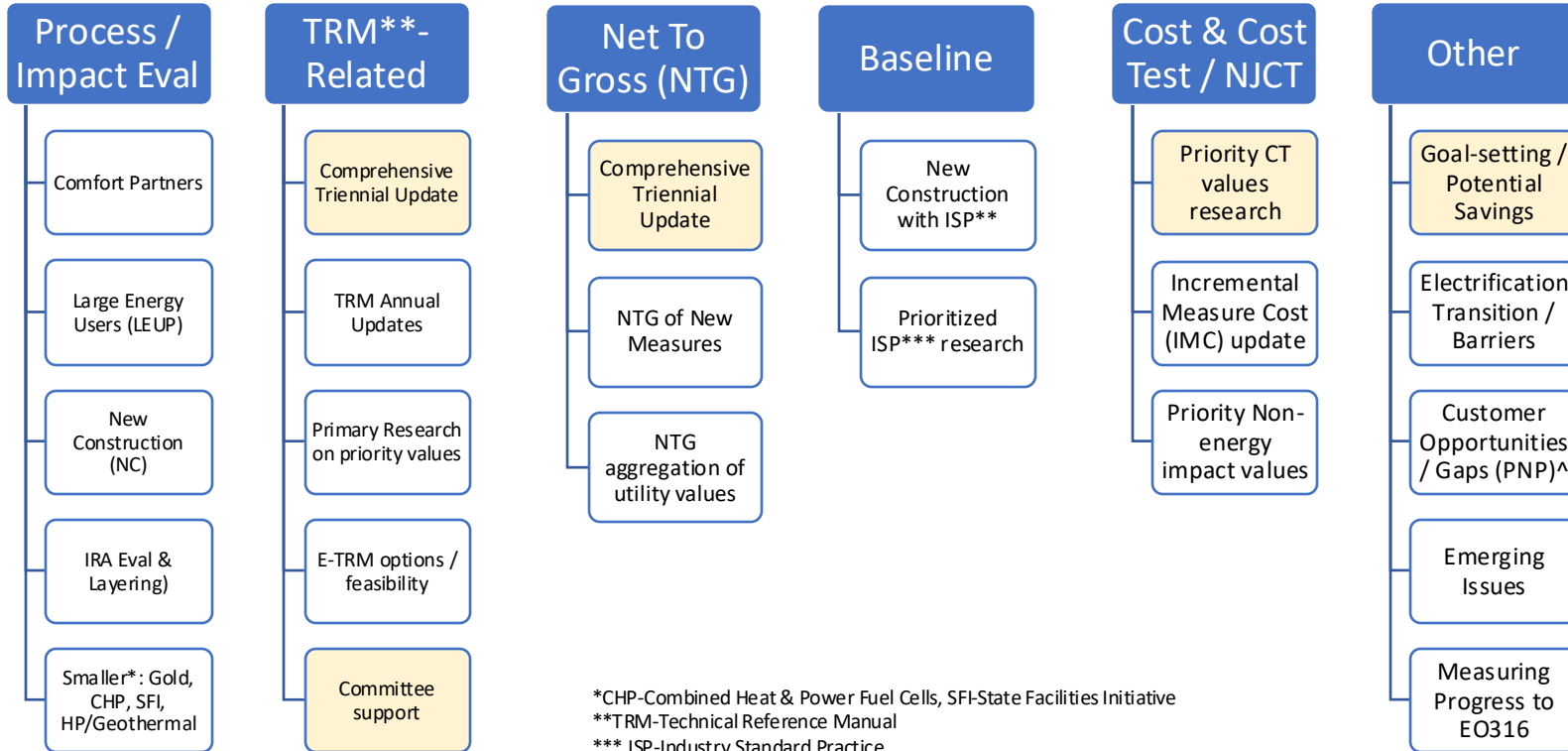
*CHP-Combined Heat & Power Fuel Cells, SFI-State Facilities Initiative

**TRM-Technical Reference Manual

*** ISP-Industry Standard Practice

^PNP-participant / non-participant research

Priority Studies Starting Soon / Needed for Tri3 Planning



*CHP-Combined Heat & Power Fuel Cells, SFI-State Facilities Initiative

**TRM-Technical Reference Manual

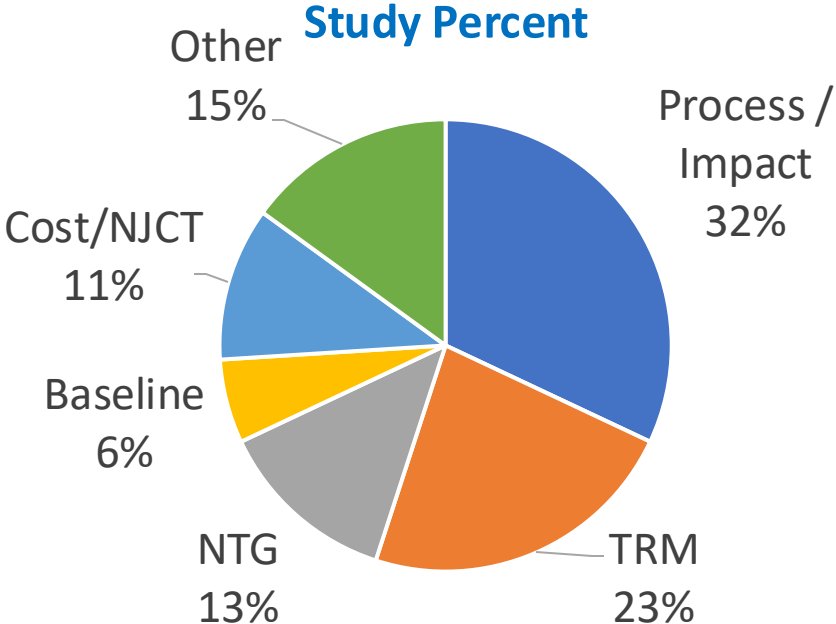
*** ISP-Industry Standard Practice

^PNP-participant / non-participant research

On-going / recently completed studies

- Impact or Process Evaluation:
 - Comfort Partners Impact and Process
 - Large Energy Users
 - Local Government Energy Assistance / Audit (LGEA)
- TRM:
 - Full Load Hours and Operating Hours (Commercial)
 - TRM Update
- NTG: Methods for Upstream Programs
- Baseline Study:
 - New Construction Industry Standard Practice
 - Commercial / Industrial
 - Residential Appliance Saturation Study
- NJCT / Cost: Incremental Measure Cost (IMC) In-depth Research / Values
- Other: Heat Pump (HP) / Electrification Potential & Challenges:
 - Residential
 - Commercial
 - Heat Pump Water Heaters (HPWH)

State Evaluation Portfolio Shares



FY 2025-27 Utility Evaluation Plans

- Each utility develops program evaluation plans
- Guidelines guide minimum content, methods, and cadence.
 - decisions on level of evaluation for programs, including enhanced evaluations
 - activities and sample sizes / reliability requirements
 - analytical requirements and elements (impact, process, NTG, surveys)
 - TRM and other outputs, evaluation products
 - Guidelines are structured to be forward-looking
- Processes for SWE and utility oversight, independence, evaluation use documentation, incorporation into TRM
- More than 65 Utility Evaluations for PY3

Summary

- 3 Year Evaluation Plan – with Annual Updates
- Guides logical progression to assure programs are evaluated for effectiveness / progress, and planning values are updated / not missed
- State and Utility Evaluations are covered, have oversight
- Evaluations help assure appropriate spending of public funds.

THANK YOU!

Questions??

2024 TRM Update

SWE Team

Lisa Skumatz [Ralph Prah](#)
Lead, Res & XC Floater / all sectors

Bob Wirtshafter Mike Rufo
Res & XC Impact, [GHG](#)

Pete Jacobs Jane Peters
C&I, XC Process, Mkt Res.

SWE Lead - Pete Jacobs

2024 Annual TRM Update

- Draft 2024 Annual TRM Update has been completed
- Document currently under review by the EM&V Working Group and BPU Staff
- Watch for forthcoming announcement about the Stakeholder Review process
- I'll be presenting on this in your next meeting

Utility Updates

Energy Efficiency Updates



Utility Updates

NJ Energy Efficiency Stakeholder Meeting

Jasmine Huff, Atlantic City Electric

on Behalf of The NJ Joint Utilities – September 19, 2024



Antitrust Statement

- The New Jersey Utilities are committed to full compliance with all laws and regulations as well as maintaining the highest ethical standards. We adhere to all federal and state antitrust laws.
- Coordination of Energy Efficiency programs by the utilities is in response to BPU requirements set forth in the 1st and 2nd triennium EE Framework Orders.
- The utilities do not engage in price fixing or any other anticompetitive behavior.

Utility Updates

- **All utilities submitted their filings for the Second Triennium (1/1/2025-6/30/2027)**
 - All utilities continue to work with the parties toward settlement
- **Status of the Extension Requests for the First Triennium (to cover 7/1/2024-12/31/2024)**
 - Extensions were approved for all Utilities.
- **Joint Utility Contractor Calls**
 - Next Residential HPwES contractor call scheduled for October 17
 - Next HVAC contractor call to be held in the fall
- **Appliance Recycling**
 - Utilities are restarting the appliance recycling program; some utilities have restarted the programs, and others will have the program up and running soon
 - PSE&G relaunched its Appliance Recycling program on July 22, 2024
- **Community Events**
 - ACE community events scheduled for September:
 - Annual Veteran's Picnic on 9/7
 - Winslow Township Community Day on 9/7
 - Gloucester County Senior Picnic on 9/18
 - Cumberland County Business Expo and Job Fair on 9/19
 - JCPL is participating in the following community events:
 - Olde Suckasunny Day in Roxbury on 9/7
 - Washington Festival in the Borough on 9/21
 - The Highlands Green Fair and EV Car show on 9/28
 - Table events at OBC community centers in Hackettstown and Phillipsburg on 9/5 and 9/12 respectively
 - New Jersey Natural Gas (NJNG) will participate in the following community:
 - Speaking at Community Leaders Forum on October 10 (Ocean & Monmouth County) and October 17 (Morris County)
 - Speaking with NJ School Board Association with Sustainable Jersey on October 22
 - NJ Lead Event in Wall, NJ regarding Energy Assistance and Energy Efficiency Programs for NJ residents on October 22
- **Trade Ally Events**
 - PSE&G to host trade ally breakfast for HPwES and HVAC trade allies on October 10th at 8am

Utility Updates

Current Campaigns

- PSE&G
 - External communications promoting the various smart thermostat sales on the PSE&G Marketplace
 - Bill inserts, MyEnergy Postcard , MyEnergy Challenge Email, PSEG.com Homepage Banner, Social media on PSEG's Facebook and Instagram
- NJNG
 - Omnichannel marketing approach communicating promotion to residential customers using historical marketplace purchase data and propensity modeling for further personalization and segmentation.
 - Primary channels: marketplace banner, direct mail postcard, social ads, social posts, drip emails and customer newsletter
- ETG, and SJG are offering promotions on their Efficient Products marketplaces
 - www.elizabethtowngasmarketplace.com
 - www.southjerseygasmarketplace.com
- JCPL
 - Multiple marketing initiatives being implemented with a focus on all electric customers for the extension period only

New Jersey Natural Gas Primary Updates

Quick Home Energy Checkup+ (QHEC+) \$1 Promotion

- From June 12 through **Sept. 30, 2024**, NJNG customers can schedule a QHEC+ for \$1.
- Promotional channels:
 - Email
 - Bill insert and door hangers
 - Direct mail
 - Social media ads
 - Publication advertising

Bonus Incentive:

Customers can take advantage of smart thermostat deals and have their new device installed for free during their QHEC+.

NJNG Updates

Annual Energy Assistance Days

- 20 Event Dates remain of local events throughout our service territory in September and October to help customers apply for Energy Assistance programs, Comfort Partners and the Moderate-Income Weatherization Program.
 - Representatives from NJNG and state-designated agencies guide customers through the eligibility and application process
- Events spread out through Monmouth, Ocean and Morris County. Specific dates, locations and times can be found [here](#) or follow NJNG on social media for more information and for posts that can be shared.



Regulatory - State & Federal

Energy Efficiency Updates



Triennium 2 Filings Review (Docket No. QO23030150)

- February 26, 2024 – Presiding Commissioners’ Orders
 - Summaries of proposed utility programs, budgets, cost recovery mechanisms
 - Rulings on motions to intervene and participate
- **New Jersey Natural Gas Company (QO23120868)**
 - Intervenors: EEA-NJ, NJLEUC, NRDC, NJPEEC, Sierra Club
 - Participants: Uplight, Joint Utilities
- **Elizabethtown Gas Company (QO23120869)**
 - Intervenors: EEA-NJ, NJLEUC
 - Participant: Uplight, Joint Utilities
- **South Jersey Gas Company (QO23120870)**
 - Intervenors: EEA-NJ, NJLEUC
 - Participant: Uplight, Joint Utilities
- **Atlantic City Electric Company (QO23120871)**
 - Intervenors: EEA-NJ, NJLEUC
 - Participants: Convergent, CPower, Google, Uplight, Joint Utilities
- **Jersey Central Power & Light Company (QO23120872)**
 - Intervenors: EEA-NJ, NJLEUC
 - Participants: Convergent, CPower, Google, Joint Utilities
- **Public Service Electric & Gas Company (QO23120874)**
 - Intervenors: EEA-NJ, NJLEUC, NRDC, NJPEEC, Sierra Club
 - Participants: Convergent, CPower, Google, United, Uplight, Joint Utilities
- **Rockland Electric Company (QO23120875)**
 - Intervenor: EEA-NJ
 - Participant: CPower, Joint Utilities

Triennium 2 Filings Review (Docket No. QO23030150)

- Further commissioner orders suspending procedural schedules during settlement: <https://www.nj.gov/bpu/agenda/presidingcommissionerorders.html>
- Settlement conferences (March–September 2024) – budgets, programs, incentives
- Public hearings (May–June 2024)
- Board action (October 2024)
- Triennium 2 starts January 1, 2025

Guest Presenter

Storage Technologies

Saverio Grosso - Opt-In Consultants



Storage Systems

Thermal & Solar Battery



Importance of Storage (Thermal & Solar Battery)

- Peak Demand Management
- Energy Efficiency
- Renewable Energy Integration





Introduction to Thermal Storage

- Thermal storage is a technology that allows heat or cold to be stored for later use, helping to balance energy supply and demand.
- Thermal storage can help reduce energy costs, improve energy efficiency, and integrate renewable energy sources



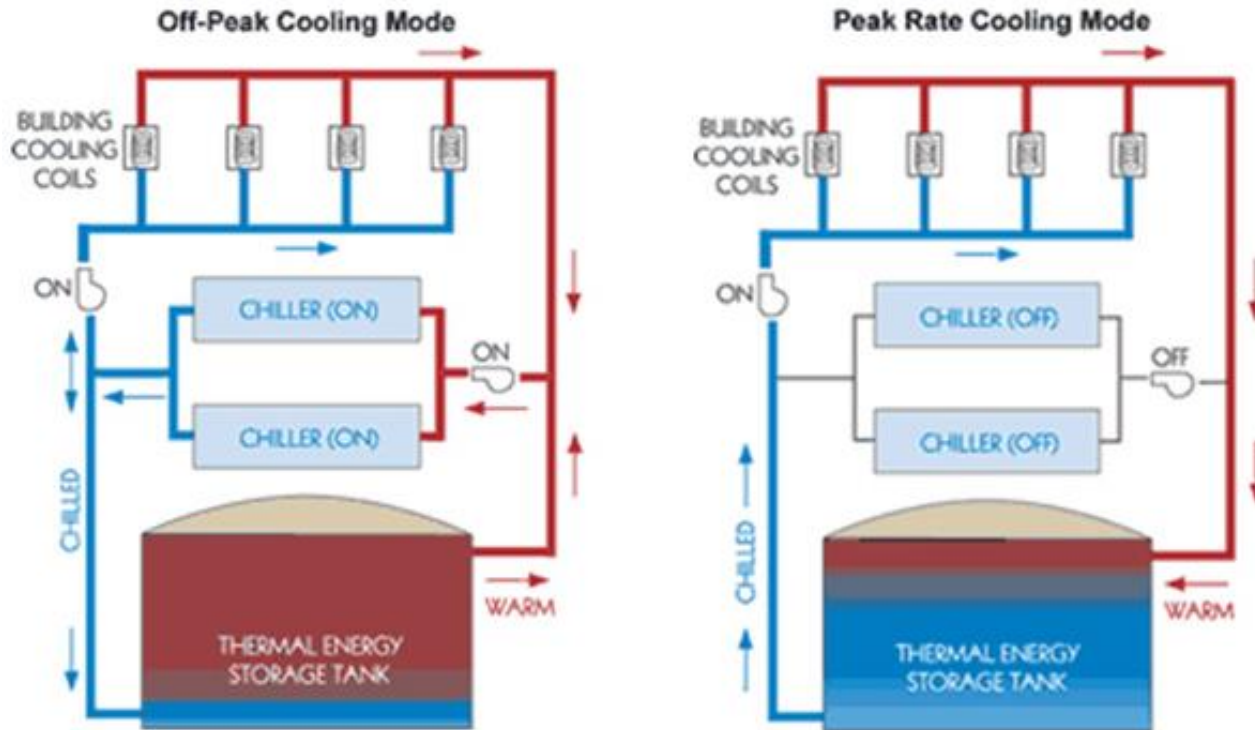


Types of Thermal Storage - Sensible

- Stores heat in a material that changes temperature as heat is absorbed or released:
 - Hot Water Tanks
 - Chilled Water Tanks
 - Less Common Applications:
 - Concrete Thermal Mass
 - Molten Salt Tanks
 - Rock Bed Heat Storage



Most Common: Water Storage System





Types of Thermal Storage - Latent

- Stores heat by changing the phase of a material, such as from solid to liquid:
 - Ice Thermal Storage
 - Less Common Applications:
 - Phase Change Materials (PCMs)
 - Molten Salt Thermal Storage
 - Hydrated Salt Systems



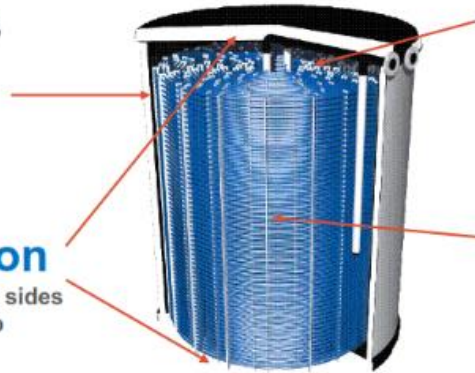
Ice Storage System

Tank

Tank is 10% polyethylene tubing,
80% tap water, and 10%
expansion space

Insulation

3" (R-9) around sides
6" (R-24) on top



Expansion Chamber

6" of space above tubing

Polyethylene Heat Exchanger

½" inside diameter tubing

Tanks are 7.5' in diameter, 8.5' tall

Roughly 150 ton-hours per unit

Once poured in, water never leaves the tank again. Only glycol circulates

No moving parts inside the tank



Types of Storage - Thermochemical

- Stores heat through a reversible chemical reaction that releases or absorbs heat - for applications requiring high-temperature heat storage
 - Sorption Heat Storage
 - Hydrogenation/Dehydrogenation Reactions
 - Thermochemical Heat Pump
 - Carbonation/Decarbonation of Minerals



Applications

HVAC SYSTEMS

- Chilled Water Storage
- Ice Storage
- Heat Recovery

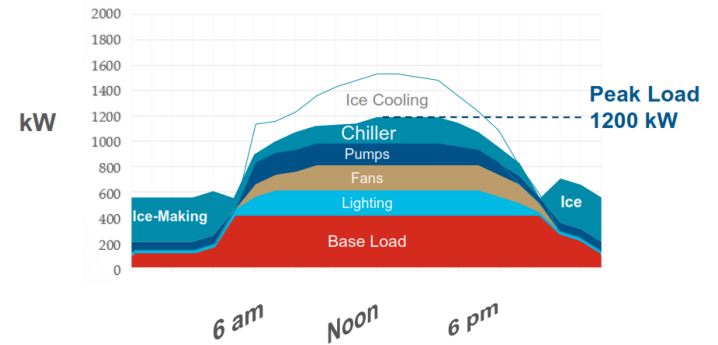
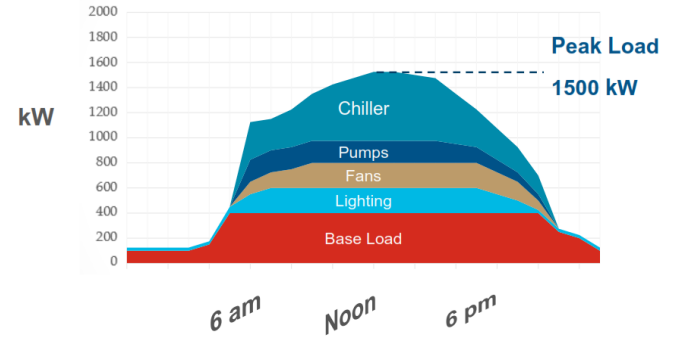
RE Integration

- Battery Storage
- Pumped Hydro Storage
- Thermal Energy Storage
- Hydrogen Storage
- Compressed Air Energy Storage



Benefits of Thermal Storage

- Energy savings
- Demand management
- Environmental impact reduction
- Optimizing new designs





Challenges of Thermal Storage

- High Initial Costs
- Energy Losses
- Limited Storage Capacity
- Compatibility and Integration
- Maintenance and Reliability
- Environmental Impact
- Regulatory and Permitting Challenges



Considerations for Implementation

- Energy economics need to be very detailed and consider multiple factors!
 - System sizing and capacity
 - Integration with existing infrastructure
 - Economic and regulatory factors



Introduction to Solar Battery Storage

- Solar Energy Basics
- Intermittency of Solar Power
- Role of battery storage
- Importance of energy storage in renewable energy systems
 - Addressing Intermittency
 - Enhancing Grid Stability
 - Energy Independence & Reliability
 - Support for Growth



How Solar Battery Storage Works

- Overview of the basic components:
 - Solar Panels, Inverters, Batteries, Controls System
- Energy capture, conversion, and storage processes
- Types of batteries used in solar storage
 - Lithium-ion, Nickel-Cadmium
 - Lead-acid
 - Emerging Technologies – Flow. Solid State Batteries



Benefits of Solar Battery Storage

- Energy Independence and Backup Power During Outages
- Demand Response, Cost Savings and Peak Shaving
- Environmental Impact
- Contribution to Grid Stability



Challenges and Considerations

- Initial Costs and Return On Investment.
- Battery Lifespan
- Maintenance Requirements
- Integration Challenges
 - Existing solar systems
 - Local regulations



Future Trends and Innovations

- Emerging technologies
- Market Expansion
- Impact of policy and incentives on adoption rates



Conclusion and Q&A

- Thermal storage can be utilized for various reasons and provide benefits for peak demand management, energy efficiency and integrate into renewable energy strategies
 - Several approaches can be considered for implementation
 - Study needs to occur to determine the best and most economically feasible approach
- Solar battery storage is essential for maximizing the benefits of solar energy, providing energy independence, cost savings, and environmental benefits.
- Emerging technologies and favorable policies are driving growth in the solar battery storage market.
 - Understanding the challenges and considerations, such as costs, battery lifespan, and integration, is crucial for successful implementation.

General Q&A

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



Items of Interest



Combining NJBPU Incentives with Direct Pay

Direct Pay (Elective Pay), part of Inflation Reduction Act (IRA), allows tax-exempt entities, including municipalities and school districts, to receive tax credits for clean energy projects.

About Direct Pay

- All eligible projects receive tax credits (not competitive)
- Currently authorized for 10 years
- Projects completed in 2023 are eligible for tax credits until Nov 15
For local governments filing on a calendar year, fiscal year deadline is May 15

Eligible Projects Include

- Renewables – solar, geothermal, wind, etc.
- Electric vehicles
- Electric vehicle charging infrastructure (*limited*)
- Combined heat and power; Electric storage

Full list of Direct Pay eligible tax credits at irs.gov/pub/irs-pdf/p5817q.pdf

Direct Pay can be used in combination with other funding sources like NJBPU incentives.

Example

Lightweight EV	\$24,000
NJBPU Clean Fleet Grant	-\$4,000
Direct Pay Tax Credit	-\$7,500
Total cost to entity	\$12,500

Note: Total incentive can not exceed total project cost.

For more information, visit Sustainable Jersey's [Direct Pay Tax Credits page](#) or [register](#) for the Sustainable Jersey September 24th webinar on Direct Pay.

Next Meeting

Energy Efficiency Stakeholder Meetings

www.NJCleanEnergy.com/EE



3rd Thursday of the Month, 1:00 - 2:30 pm

- ✓ **October 17, 2024**
- ✓ (No November meeting)
- ✓ December 19, 2024

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