

eSai Spark

November 2025 Issue



What's the Buzz?

Welcome to eSai's monthly digest! Each month we bring you regional utility developments and highlights from our team, so you have all you need to know about the energy space in the Mid-Atlantic!



Regional Landscape

Panel At the Maryland Climate Forward Forum, 2025:

eSai's Principal, Nandini Mouli, was invited to be a panelist at the Forum in the discussion of features critical to Securing Energy Independence of Maryland. This 10th annual event was led by Howard County wherein the secretaries of the Maryland Energy Administration, Maryland Department of Environment and the Department of Commerce gave their viewpoints about how their agencies are performing to combat the State's climate change goals. Dr. Mouli put forth her ideas about innovative technologies such as Networked Geothermal, batteries and on-site generation resources to be brought on as soon as possible to address the power demand as well as to increase the carbon footprint reduction. She emphasized how the State grants and low-interest loans are necessary on top of utility incentives to bring the cost of installation down in times of reduced federal government subsidies and tax credits. This forum was attended by over 130 invited climate professionals from the government, private companies, non-profits and academia.

eSai's leadership in the Mid-Atlantic Association of Energy Service Professional (AESP) Organization:

eSai's Principal, Nandini Mouli, participated in the discussion of Energy Affordability for low-to-moderate income residents on 11/20/25. She emphasized outreach to the disadvantaged communities by earning their trust and meeting them in places like churches, synagogues, temples and such where the congregation is spending most of their time on weekends and teaching them how to apply through concierge type service. Also, to enable them to understand the utility or state grant incentive application process, she suggested that a committee be formed in the organization to offer services which can encompass territories of several utility geographies in the State. The meeting was attended by over 60 professionals from PA, NY, NJ, MD, DC and VA had a widely different contingencies of utilities and implementation contractors.





Nandini at the Maryland Climate Forward Forum



eSai's attendance at the Maryland's Association of School Board Officials (ASBO):

eSai's Principal, Nandini Mouli, attended the 74th Annual Fall Conference on 11/07/25. Among the sessions, one titled, From Concept to Implementation, Practical Approaches to School Decarbonization, dealt with real-world examples to understand how the carbon reduction goals can be achieved in Maryland's schools. This session gave a spotlight on projects that received MEA's Decarbonizing Public Schools grants and the IAC's Net Zero add-on, showcasing how districts made decisions, prepared applications, and implemented funding to move projects forward. Another session on the Heat Pump Disruption: Are the schools ready for the Electrification era, pushed



attendees to rethink business-as-usual approaches. How delaying electrification could create stranded assets, how legislative changes would make fossil-fuel systems a liability, and how early adoption of heat pumps is reshaping K-12 facility standards were discussed. Through real school examples of Wilde Lake Middle School and Benjamin Banneker HS, the facility leaders saw what “net zero ready” looks like - and what happens if they fail to adapt. There was a good discussion of a framework for phasing in heat pump technology, managing risks, and making smart replacement decisions today that align with tomorrow’s decarbonization goals.

eSai’s webinar: November Technology Spotlight:

eSai’s Principal, Nandini Mouli, presented on 11/18/25, Waste Heat Recovery as an Energy Efficiency Strategy to an audience of end-users and trade allies in the recurring monthly webinar series. She described the benefits of heat recovery and went into the details of how modes such as airside, wastewater, process, flue gas and waterside heat recovery can offer solutions to reducing energy consumption in commercial and industrial facilities. For example, by capturing heat from compressed air and producing useful outputs such as domestic hot water or space heating, a manufacturing facility can reduce as much as 80% of compressor energy consumption. Other subtopics discussed were the technical and economic impacts of heat recovery and how to specify a heat recovery project.

December’s topic, the Financial Implications of Energy Management strategies will be presented on 12/13/25. Please register at the link in the last page if you are interested to attend.



Team Updates:

Consulting for energy efficiency upgrades:

eSai provided consulting support and developed a bin calculation and verified the projected savings against equipment consumption, which is approximately 500,000 kWh annually and a lifetime greenhouse gas reduction of about 1,230 metric tons. Services were provided to a leading medical equipment manufacturer in Elkton, MD as they replaced their aging air handling systems operating at constant speed with energy efficient units paired with Electrically Commutated (EC) motors and Variable Frequency Drives (VFDs). Additionally, two new make-up air handling units with supply fan arrays and VFDs were installed to optimize airflow and reduce energy waste. In recognition of these sustainability efforts, their electric utility presented the manufacturer with a ceremonial check on 11/20/25, highlighting its leadership in carbon reduction and energy efficiency. eSai's Senior Energy Engineer Ven Peruri was present at the event to support & congratulate them as the company reach these milestone accomplishments.





Ven at the ceremonial check presentation event



Make up Air units



Air handling units

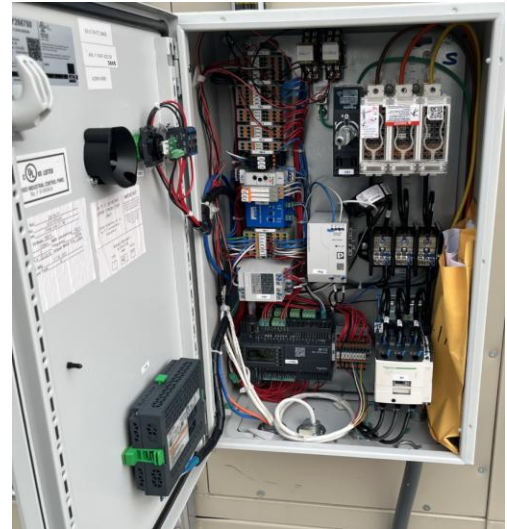


Supply Fan Motor Array



Electrically Commuted (EC) motor array

Make up Air units' control panel



Air Handling Units' Control Panel

Chiller Plant Optimization:

Our senior energy consultant, Tatyana Shine North has been actively involved in Chiller Plant Optimization projects. The goal of a CPO project is to make the client's chiller plant operations more efficient. The Chilled Water Optimization Program (CPO) monitors equipment energy consumption and kW required per ton of cooling. The CPO project is integrated into EMS. Its algorithm sequences chillers, pumps, and cooling towers based on the following factors:

- Actual equipment part-load efficiencies
- Building cooling demand
- Predicted demand based on historical data
- Time of year

The Baseline for the CPO project was based on the output data provided by TRACE 700 for the Chiller Replacement project's Proposed system, for one year of actual trend data is not available (the CPO project followed the Chiller Replacement project). The new Control Sequence was implemented to enable optimized chilled water system control. The controls vendor will use their proprietary energy modeling software to calculate the Baseline and Proposed systems for the CPO project and determine energy savings, which will then be used to calculate the potential incentive at \$0.28 per kWh saved.



Additionally, we will obtain the Proposed system installation costs (Baseline installation cost is \$0.00). The incentive calculation will be based on either **75% (or 50%) of the installation cost** or **\$0.28 per kWh saved**, whichever is lower. The post-installation submission will be based on actual trend data (preferably one year, for accuracy). The actual trend data can then be compared with the energy savings calculated using the control vendor's energy modeling software. If necessary, the vendor's calculations can be calibrated using actual data.

Building tune-up:

eSai engineer Soham Joshi reviewed 38 projects whose applications were submitted to BGE's Building Tune-up and Custom incentive programs. The facilities where these projects have been proposed were of mixed-use, flex-use/R&D, churches, schools, airport campuses, community centers/recreation facilities and library in Anne Arundel County, Baltimore City, Baltimore County, Harford County, Howard County, Prince George's Counties. Majority of the reviewed projects included HVAC operation schedules and temperature setpoints for unoccupied hours. These facilities have their Building Automation Systems (BAS) and thermostats configured with schedules that command the HVAC systems to operate as if the facilities are occupied for 24 hours a day throughout the week or as if they are occupied for more than 12 hours per day. This measure aims to reduce equipment run-times via modified schedules and temperature setpoints (lower for heating and higher for cooling) during periods when the facilities are unoccupied. The electrical savings calculations were based on bin hour calculations & equations in spreadsheets and outputs from energy models developed in software like eQUEST, Carrier HAP 6, Trane Trace 3D Plus.

The other type of ECMs proposed by those projects include optimization of setpoints for: cooling/heating temperatures for unoccupied hours of HVAC operation schedules, indoor CO₂ levels/Demand Control Ventilation (DCV), minimum position of outdoor air dampers during economizer operation, waterside economizer operation, chilled water temperature reset schedule, differential pressure for hot water/chilled water pump loops, duct static pressure for supply air fans, outdoor and indoor air flow, as well as tune-ups of VAVs, indoor/outdoor coils of HVAC units, replacement of filters, thermostats, and evaporator temperature sensor elements for refrigeration & food storage applications.

These projects propose total annual electrical savings of 4,045 MWh (approximately).

B_AHU-4 SF-C	On	Supply Fan Control
B_AHU-4 SF-S	On	Supply Fan Status
B_AHU-4 SF-VSD	56.8 %	Supply Fan Var Spd Drive
B_AHU-4 SASP-SP	1.40 in wc	Sup Static Press Spnt
B_AHU-4 SA-SP	1.39 in wc	Supply Static Pressure
B_AHU-4 RF-C	On	Return Fan 9 Control
B_AHU-4 RF-S	On	Return Fan 9 Status
B_AHU-4 RF-VSD	56.2 %	Return 6 Var Spd Drive
B_AHU-4 RASP-SP	1.40 in wc	Ret Static Press Spnt
B_AHU-4 RA-SP	1.41 in wc	Return Static Pressure

BDCHW-S	On	Bi-Dir Primary Flow (Off=Pri, On
CHWDP-SP	9.7 psi	CHW Differential Pressure Set
NCHW-DP	9.7 psi	North Chill. Water Differential P
SCHW-DP	6.0 psi	South Chill Water Differential P
SCHWP-O	26.3 %	Secondary CHW Pump VSD Ou
CHWBYPV-O	0.0 %	Chilled Water Bypass Valve Ou



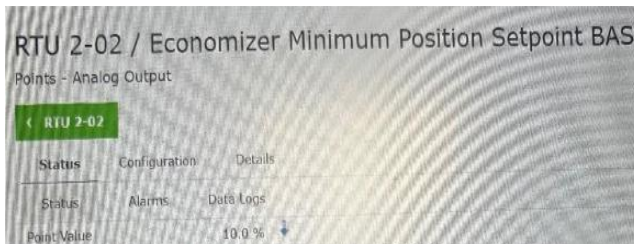


Tuneup (cleaning) of a HVAC unit's coils

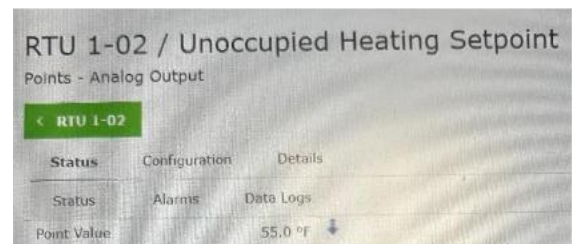
Setpoints of static & differential Pressures in a Fan & a CW pump Loop

IAQ Econo Override Pos	100 %	IAQDVPOS
Diff Air Quality LoLimit	100	DAQ_LOW
Diff Air Quality HiLimit	700	DAQ_HIGH
DAQ PPM Fan Off Setpoint	600	DAQFNOFF
DAQ PPM Fan On Setpoint	800	DAQFNON
Diff. AQ Responsiveness	0	IAQREACT
DAQ Lockout Value	0	DAQLOCK
User determined DAQ	400	DAQ_USER
IAQ Low Reference	0	IAQREFL
IAQ High Reference	2000	IAQREFH
DAQ Low Reference	0	DAQREFL
DAQ High Reference	2000	DAQREFH

Indoor Air Quality setpoints for CO2 levels requiring ventilation



Setpoint for position of outdoor air dampers during economizer operation



Heating temperature setpoint for unoccupied hours

Professional Development

eSai team's new member Kirtivardhan Singh has begun his first month with enthusiasm and a strong drive to learn. He quickly immersed himself in training and has taken a leading role in several new projects. As part of his onboarding, he has been actively exploring the full suite of platforms and resources used by our team, as well as developing a solid working knowledge of major energy-modeling tools such as **TRACE 3D Plus, TRACE 700, and eQUEST**. In addition, he has completed specialized training sessions by Carrier on **Electrified Heating for Air-Source Equipment**, as well as **Load Design and Advanced Modeling concepts for Commercial Buildings using HAP v6 3D**. He has earned certifications for all three trainings, accumulating a total of **13 Professional Development Hours (PDH)**.

According to Kirtivardhan, "Modern building systems are rapidly shifting toward higher efficiency, sustainability, and electrification. Accurate load calculations and advanced building modeling are essential to optimize HVAC performance, reduce operational cost, and ensure occupant comfort. Similarly, Air-to-Water Heat Pumps and other air-source heating technologies are becoming key solutions in the move toward low-carbon, future-ready building infrastructure. Their ability to operate efficiently across a wide temperature range enhances overall system reliability and sustainability. These topics are not just relevant, they are central



to the next generation of smart, energy-efficient building design. I can't wait to learn more about these resources and start applying them in my upcoming projects."



Inspection at a Medical Facility:

November really flew by! Inspections for Dominion Energy take the inspectors to fun places—sometimes we're up on a rooftop 10 stories high, other times we're on the manufacturing floor of a soap factory, and sometimes we get to see the VIP areas of hospitals.

Here, Hannah Aiken in full on medical PPE garb to inspect the new LED lighting installed in the surgical suites at one of the major hospitals in the area. Last year she had her appendix taken out at the same hospital, so she appreciated the opportunity to see the surgical suites in a **brighter**, more positive light.



Hannah Aiken in full-on PPE for an inspection at a medical facility in VA.



Business Development for Healthcare Sector:

With limited inspections in November, Allison focused her energy on outreach to healthcare facilities that would qualify under the Healthcare custom and prescriptive programs. Allison



reached out to local businesses, including dentistry offices, medical office buildings, and pediatric services. On November 5th-7th, Allison attended the Virginia Hospital and Healthcare Association (VHHA) Leaders Summit on behalf of Dominion Energy. The opportunity to talk to hospital leaders across the state and inform them of the funding available through the Energy Solutions program for their renovations proved to be fruitful! Allison is continuing to talk with leaders from

Chesapeake Hospital Authority, VCU Health, Bon Secours, and other regional players to bring more projects into the Dominion Program

Allison Sacamano at the VHHA Summit

eSai's Webinar for December 2025

Mark your calendars!

3rd Tuesday!
12/16

Registration

Financial Solutions using Utility Incentives for Cost-effective Energy Projects

