Driving Action:
The ESG 2.0 Playbook

Content

Introduction

"The climate crisis is the single greatest threat, and opportunity, to ever face the real estate industry. Responsible for 40% of all carbon emissions, from both operating and embodied carbon, the real estate industry is facing extraordinary pressure to decarbonize from government, lenders, underwriters, tenants and consumers. And while healthy, green buildings are commanding higher rents, higher occupancy levels and premiums on sale price, for many real estate companies the pathway to decarbonize isn't clear. What we need are specific road maps for real estate companies to follow to put them on the road to Net Zero."

Michael Beckerman,
CEO of CREtech and CREtech Climate

Introduction

The majority of publicly traded commercial real estate portfolios have published GHG reduction goals, as have many private landlords.

This ratio is expected to increase as pressure mounts from investors and the market starts to reward sustainability-minded owners.

A lot of work has gone into goal setting. It is not easy to get reliable benchmark data and set targets that are at once comprehensive, ambitious and feasible.

But technical feasibility and an actual plan to achieve objectives are two very different things.

That's where ESG 2.0 comes in.

ESG 2.0 is the shift from goal setting and "action plans" to real-world execution. This necessitates taking into account the messy realities of operating commercial real estate.

Realities such as engaging operations and maintenance staff in the middle of a labor crisis.

Realities such as the difficulty of adding solutions to a disparate, siloed and legacy technology stack.

Realities such as rising interest rates, tightening budgets and a still uncertain macroeconomic outlook.

In short, commercial real estate portfolios are being forced to set aggressive goals at a particularly difficult time. To achieve these goals, the industry needs to thread the needle. It needs to do more with less.

28%

of carbon emissions come from building operations[1]

59%

of REITs have GHG reduction goals and 27% have net zero goals[2]

All 100%

of the 100 largest REITs are reporting ESG efforts publicly[3]

1. In the business of buildings, net zero becomes a towering target.
2. Hot property: Why the financial sector must lead real estate decarbonization.
3. REIT ESG Dashboard.

Part I: Energy Performance is Derived From Operations and Maintenance

"Creating a realistic roadmap for decarbonization means integrating it with capital planning, tenant fit out, and maintenance processes."

James Dice, Founder of Nexus Labs

Historically, owners and operators of commercial real estate have not had to think about operator engagement.

Building engineers, technicians and property managers had reliably stayed in their roles for years, accumulating an incredible amount of institutional knowledge. Through sheer repetition, they were able to learn how their buildings ran, and keep things relatively on track. Owners and asset managers could safely ignore anything that didn't rise to their attention.

» Times, however, are changing.

Every day, owners are getting blindsided by experienced engineers deciding to retire after decades on the job.

When they go to the market to find a replacement, they are having to pay higher wages to operators with a fraction of the experience. Worse, new operators are more likely to change jobs more often.

This matters a lot for any portfolio that aims to significantly reduce GHG emissions.

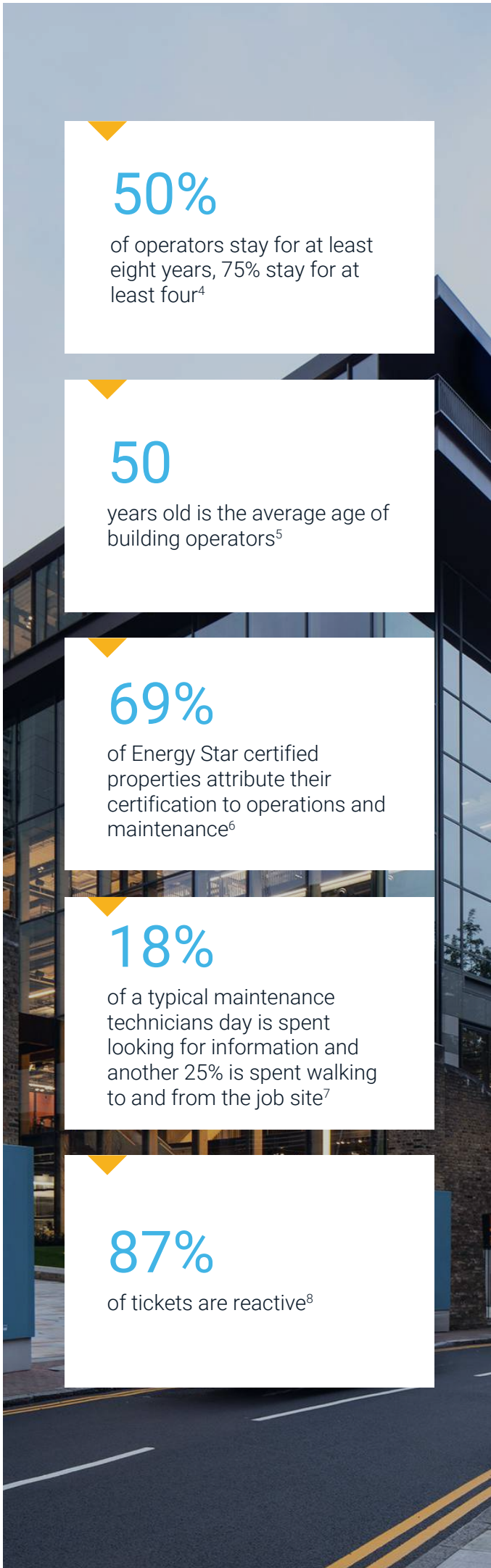
Owners need to ask themselves:

How do we capture the institutional knowledge of remaining operators?

How do we reduce the ramp up time for new (often less experienced) operators?

How do we engage them on our carbon reduction goals?

The answer lies in understanding what the day-to-day for the average engineer and technician is like.



50%

of operators stay for at least eight years, 75% stay for at least four[4]

50

years old is the average age of building operators[5]

69%

of Energy Star certified properties attribute their certification to operations and maintenance[6]

18%

of a typical maintenance technicians day is spent looking for information and another 25% is spent walking to and from the job site[7]

87%

of tickets are reactive[8]

4. Facility management employees' average tenure in the cleaning/maintenance department in the United States from 2021 to 2022.
5. Facilities Manager Demographics and Statistics in the US.
6. Two Decades of Energy Star: A Retrospective Study of EPA's Energy Star Office Buildings Score and Certification.
7. Technician Productivity: Strategies for Success.
8. 87% of Building Maintenance is STILL Reactive!.

In a recent Operator Spotlight we did with Fernando Salazar, a Facilities Coordinator at STACK Real Estate, he explained why things take so long.

"It's not really about the time it takes in terms of minutes and hours, it's about where the information lives. For example, when I needed to figure out which motor was replaced, I started digging through my emails, but then I'd get a call and need to address an issue. I'd come back later and start looking through the spreadsheet I used to keep track of replacements, but wouldn't find the information I needed before the next emergency. All in all, it would take a week before I got the answer to my question."

Add that to the fact that maintenance technology has historically been based around tenant tickets and work orders. Tenant service is critical, no doubt, and it has the added benefit of being visible to those who ultimately pay the bills.

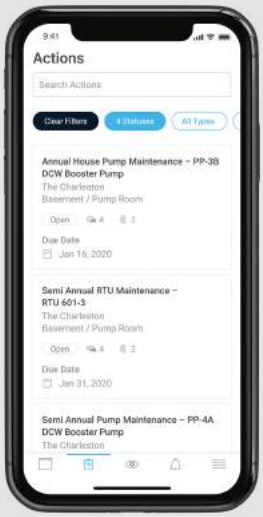
But tenant-based tickets are also inherently reactive.

Meanwhile, inspections are often still being performed on pen and paper (if at all), and there's no transparency into whether third party vendors are doing preventative maintenance (often, they are cutting corners).

Most operators spend their days on their heels, putting out fires and responding to issues. In this state, it's impossible to think about energy performance.

The solution:

1. Digitize everything so information is available in a central repository
2. Ensure maintenance technology is easy-to-use and covers inspections and preventative maintenance, as well as tenant tickets and work orders
3. Integrate real-time monitoring and fault detection into the same mobile app experience, so operators can be proactive rather than reactive



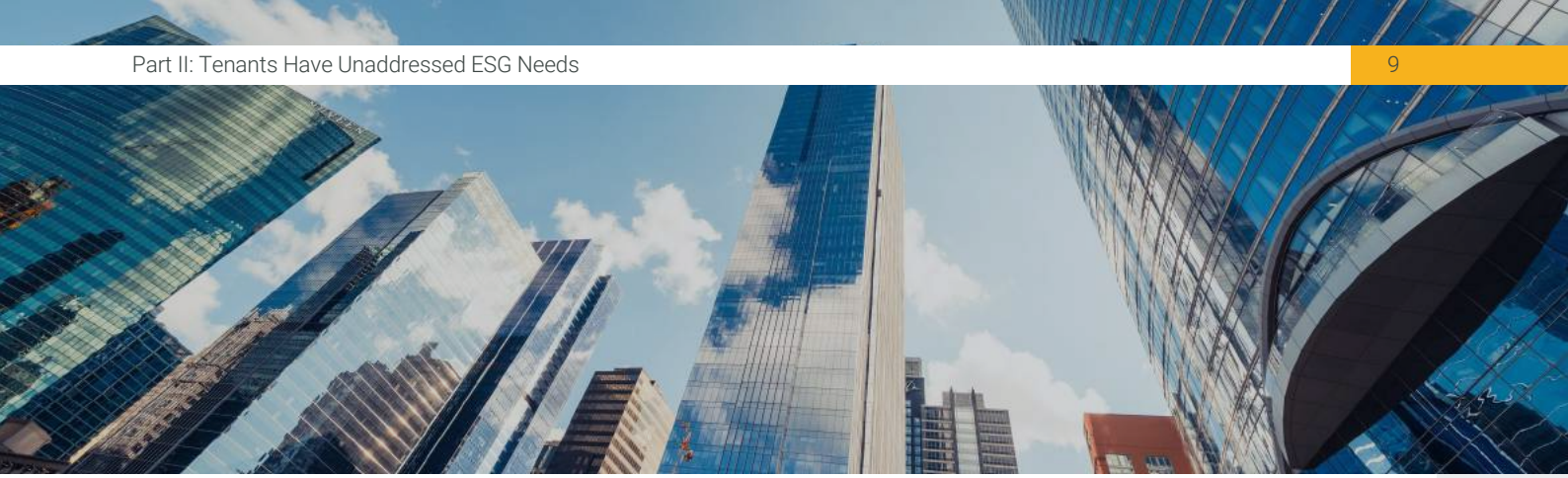
Only after operators have been given their time back can we expect to engage them on the steps necessary to reduce emissions.

Fortunately, there is a strong business case to back this up. JLL did a study across 14 million square feet of mixed property types and found that preventative maintenance delivered a 545% ROI compared to relying on reactive maintenance.

Part II: Tenants Have Unaddressed ESG Needs

"We're being approached because our tenants have their own sustainability goals. We want to help them achieve that. We now help our tenants understand what they're consuming, what that equates to in concepts they'll understand, and how they rank within that building. It's created a partnership, which is a tremendous advantage."

Ron Becker, SVP of Operations and Sustainability at Brandywine Realty Trust



20% lower overall building consumption when tenants are submetered[9]

Every month, an energy-related workflow plays out in many commercial real estate portfolios that is completely overlooked as a piece to the net zero puzzle.

That is tenant submetering & utility billing.

Unlike most apartments and single-family homes, many commercial properties receive one utility bill for the entire building and it is up to the landlord to divide the costs among tenants.

This involves reading submeters, calculating the appropriate rates, and generating monthly bills.

Often, this process is outsourced to a submetering provider. Historically, owners and property management companies have treated this as a "set it and forget it" type of service. As long as tenants paid the bill, who cares what it looks like or the quality of the service.

However, responding to the same pressures being exerted on landlords, many commercial tenants have their own ESG reporting requirements and sustainability goals.

That means that tenants often have employees compiling, deciphering, and inputting the data from a wide variety of submeter bills into their own reporting systems. With the resulting data gaps, errors and omissions that come with manual data inputs.

While millions of dollars have been spent on tenant engagement perks like ordering coffee and booking yoga classes, the vast majority of owners and operators have been delivering an awful experience in a domain that really matters to tenants.

It's not a stretch to imagine that once tenants see what support for their ESG goals looks like in some properties, it will become an expectation (and factor in leasing decisions).

Moreover, by understanding their needs and providing value before asking for anything (such as green leases), owners and operators can create real partnerships with tenants, while giving tenants a very good reason to lease with them.

9. Making the Case for Energy Metering.

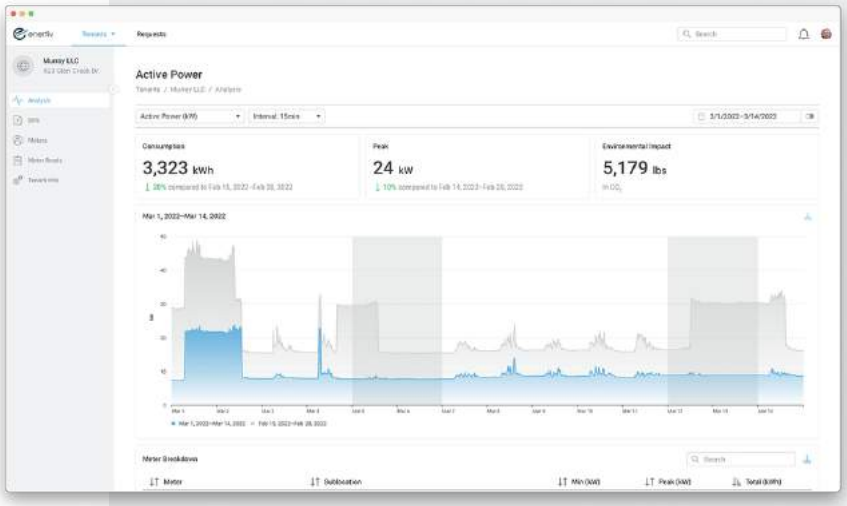
This tenant is paying $5.28 more per square foot than the average tenant! Engaging them could have just as big of an impact on overall consumption as a major equipment upgrade or LED lighting project.

Instead of providing all tenants with generic recommendations that even the most sustainability-minded teams ignore, landlords can come to specific tenants with empirical data about their usage.

The solution:

1

Provide tenants with a portal through which they can easily export their consumption and GHG data for ESG reporting purposes



2

Deliver easy-to-understand bills that have normalized rankings and comparisons with other tenants in the building

3

Engage a bill provider that carefully audits data and billing methodologies*

Just as importantly, because submetering providers have historically been operating below the level of scrutiny, many have been delivering inaccurate bills for years.

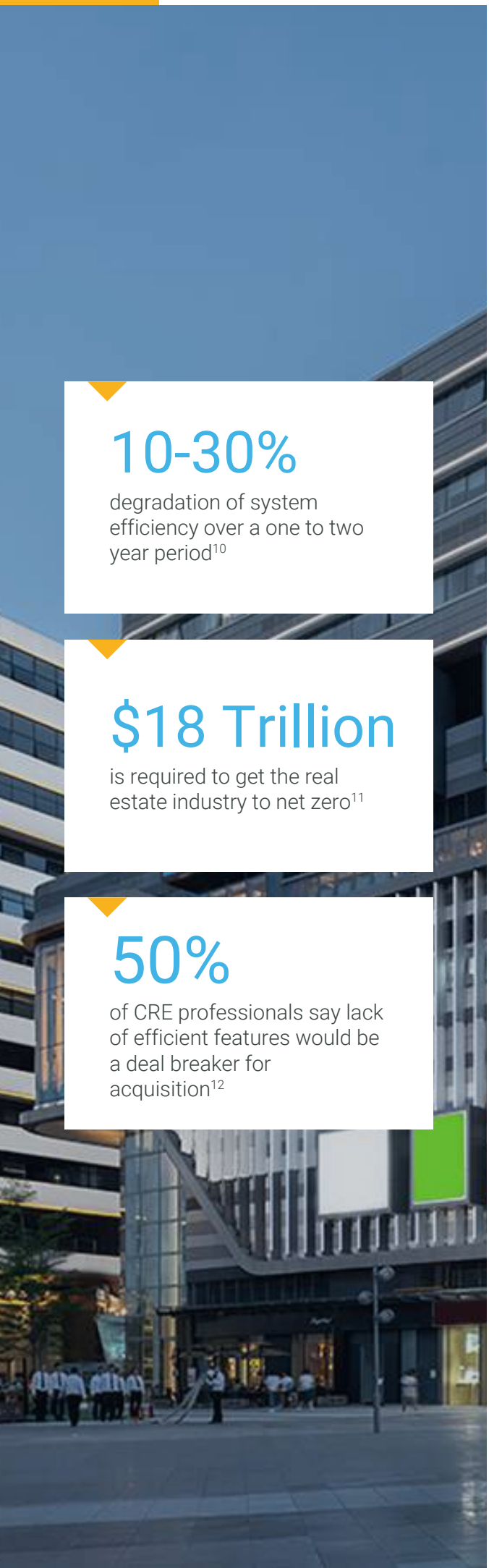
In one example, a careful audit of submetering billing methodologies at an 11-building asset uncovered that landlords had been underbilling tenants by over $1 million per year. In a time when every dollar of revenue matters, the tenant submetering process cannot be overlooked.

* If acquiring accurate utility and GHG benchmarking data is still an issue, providers that have the infrastructure in place to audit and verify data for bill generation purposes can help remove many of the errors common in other software-based utility reporting.

Part III: The Net Zero Infrastructure

"Leaders across the real estate industry are clearly positioning themselves for the evolution underway from 'what are you doing' to 'how are you doing?' GRESB is seeing record numbers of real estate organizations increasingly offering advanced ESG-based programs as the pressure to show real improvement is critical to long term success. Institutional investors can only improve that which is measured, so naturally acquiring metrics is an important first step, but is certainly not the end game. Consistent year-on-year progress is what the industry is focused on."

Tom Idzal, Head of Americas at GRESB



10-30%

degradation of system efficiency over a one to two year period[10]

$18 Trillion

is required to get the real estate industry to net zero[11]

50%

of CRE professionals say lack of efficient features would be a deal breaker for acquisition[12]

The classic energy efficiency playbook in commercial real estate is to perform energy audits, put together a list of energy conservation measures, and then execute on the projects that met an acceptable payback period for the owner.

The problem with this approach is that the messy real world comes back to degrade these efficiencies relatively quickly.

This could be because a tenant requests overtime HVAC one night and the schedule is never changed back, or because a fire alarm went off that reset the configurations of equipment, or because of a lack of maintenance and the resulting clogged filters, or a particularly hot or cold forced operators to ditch air side economization and the benefits are lost going forward.

This causes "performance drift" which negates many of the gains from the energy audit and undercuts owners' ability to continuously drive reductions.

It was briefly mentioned earlier that real-time monitoring helps operators detect the highest priority issues and how to fix them so they can save time and avoid larger issues.

There is a rabbit hole of complexity with real-time monitoring, networking and integration that is beyond the scope of this white paper.

Suffice to say that the building management system itself is not an energy analytics tool. Likewise, any asset, regardless of property type, can affordably monitor critical equipment through a BMS integration, sensor deployment or hybrid approach.

In addition to fault detection, real-time monitoring (or continuous commissioning) enables software to identify the small variances that would end up degrading efficiency in real time, so they can be corrected immediately.

Likewise, daily efficiencies can be implemented, such as optimizing the startup time based on occupancy patterns and weather conditions, or staggering equipment ramp up to avoid peak demand changes.

The energy savings for real-time monitoring depend greatly on the state of operations before monitoring was implemented, but can be as high as 30% of the energy bill, and is often around 12%. Rarely is there not a return on investment for the monitoring service itself.

10. Combating Commercial Building Energy Drift.
11. Fifth Wall.
12 Here's What CRE Pros Say Really Matters with ESG Investment.

However, no amount of optimization of existing systems will be sufficient to reach aggressive GHG reduction goals.

That's because every year, budgets are being put together that included like-for-like replacements of existing equipment.

Every time this happens, the portfolio has taken a step back. This is due to "committed carbon," or the sum of the emissions that piece of equipment will emit in its lifetime, which is often 20 years or more.

In order to hit aggressive carbon reduction targets, every single capital decision must be made through the lens of ESG 2.0. LED lighting must be installed, every new pump, chiller, fan and other AC unit must be high efficiency, and the building envelope (windows, walls, roof, etc.) cannot be replaced without efficiency in mind.

One nice side benefit of starting with real-time monitoring is that measurement & verification is essentially automated, rather than requiring another (relatively expensive) analysis after the fact.

More than that, the only way that the world has figured out to fully decarbonize is to electrify everything.

As James Dice succinctly put it in Why Energy Efficiency Thinking is Outdated:
"The practical reality is every time any of our machines fails or needs to be replaced or gets upgraded for any reason, we need to replace it with a zero carbon option. And the only real zero-carbon option that has emerged is electrification."

This is unlikely to be achieved if the capital planning process continues to live in spreadsheets, rely on institutional knowledge, and be siloed from carbon reduction goals.

On the other hand, bringing the capital planning process into software and connecting it to energy monitoring data allows for a concept of carbon, and especially committed carbon, to be proliferated on site.

Additional benefits include tying in maintenance history and runtime hour data to potentially delay unnecessary capital expenditures, and more accurately forecast end of useful life.

Not only that, but software is particularly good at rolling up data in a way that spreadsheets cannot, allowing for bulk purchases and more intelligent investing the capital necessary for decarbonization.

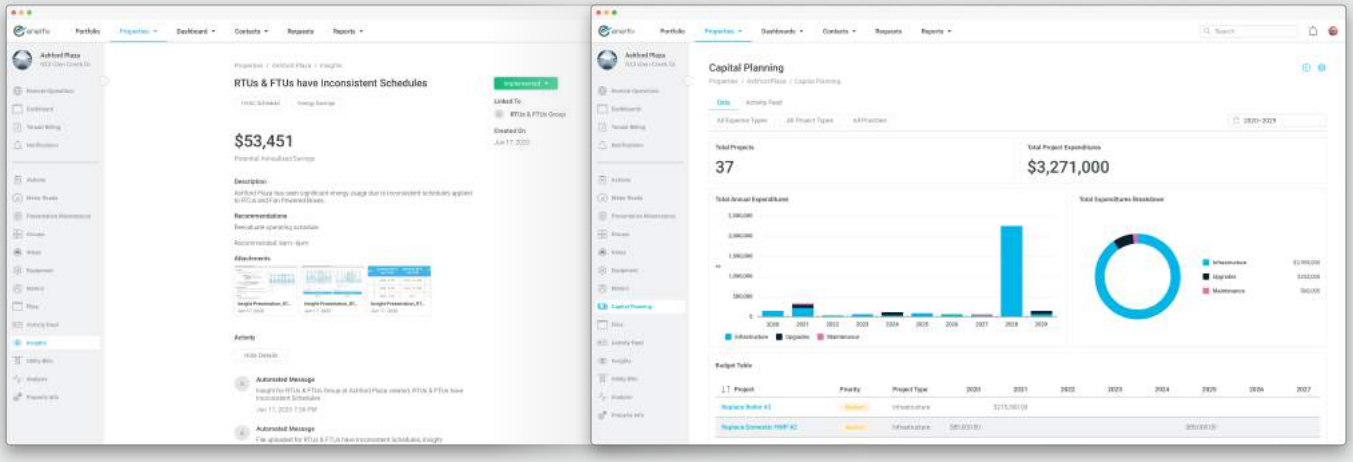
The solution:

1

Invest in real-time monitoring to avoid performance drift and identify optimizations

2

Bring the capital planning process into software and ensure every repair and replacement is made with efficiency and electrification in mind



Conclusion

Gathering reliable ESG reporting data and creating action plans was difficult enough. ESG 2.0 will be a significant step up from there. Fortunately, technology solutions exist and have been proven through portfolio-scale deployments. The only last step is to tie everything together.

ESG 2.0 will require a thorough digitization of every asset and piece of information. It will require breaking away from legacy maintenance solutions that don't lend themselves to proactive management of a property.

It will require taking a hard look at tenant utility billing, supporting their ESG needs and creating genuine partnerships based on providing upfront value and transparency.

It will require up-leveling traditional energy management practices to account for performance drift and the need to infuse emission considerations into capital planning rather than having a separate list of energy conservation measures.

In the process, owners and operators have a unique opportunity to consolidate their tech stacks. ESG 2.0 is much less likely to succeed if portfolios adopt a separate software for equipment tracking, maintenance, ESG reporting, tenant submetering, real-time monitoring and capital planning.

Transition from legacy "point solutions" to more comprehensive platforms also provides greater visibility into operations generally.

When performance data is spread out across multiple systems, owners and asset managers do not pay attention. When it is consolidated and contextualized, visibility leads to insights, which lead to better decision making and resource allocation.

More generally, ESG 2.0 can lay the foundation on which the business evolves. It promises to connect daily workflows to high-minded ideals, and foster a culture of continuous improvement.

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