THE ILLINOIS MANUFACTURER

FOURTH QUARTER 2026

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CHAIRWOMAN
Kara Demirjian Huss

PRESIDENT & CEO
Mark Denzler

EDITOR
Audriana Sherwood

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The Illinois Manufacturer,

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If you have any questions, please contact Audriana Sherwood, Graphic Design Manager and Editor of Publications at:

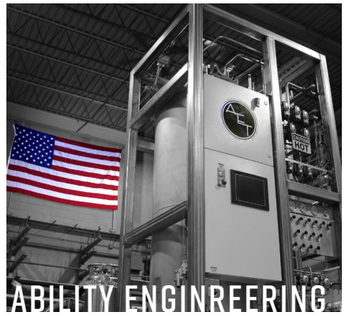
asherwood@ima-net.org, or 217.636.3171

NEWS WITH THE IMA

News information, press releases and articles may be sent to Audriana Sherwood, Graphic Design Manager and Editor of Publications at:

asherwood@ima-net.org, or 217.636.3171





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THE GREAT DATA CENTER DEBATE

At a recent energy summit in Baltimore hosted by IMA partner Constellation, opinion studies showed a troubling trend. Americans hate data centers by nearly 50 percent more than they hate a nearby landfill and twice as much as they dislike neighborhood homeless shelters. The only two things more unpopular than data centers are politicians and getting stuck in traffic. Nearly 3 in 4 Americans currently have an unfavorable view of data centers which are vitally important to the competitiveness of the United States and our manufacturing sector.

It's a fascinating dichotomy because Americans rely on data centers and AI every single day. Most people have an average of 3.6 connected devices including cell phones, laptops, smart appliances, and connected vehicles. Every interaction results in 20 to 500 server requests so when you factor in the average person checks their cell phone 80-150 times per day and engages with 30-100 apps, they are in contact and utilize data centers tens of thousands of times. As a matter of fact, the average person interacts with data centers a whopping 10,000 to 50,000 times every single day.

The world is moving faster and faster every day, relying on AI and data centers for progress. A data center is doing the work every single time you stream your favorite television show, tap your credit card when checking out of the grocery store, back up photographs, send an email or ask AI a question. It's ironic that anti-data center protestors are using AI to design their posters and using cell phones to organize protests for what has grown from a NIMBY (not in my backyard) to a BANANA (build absolutely nothing anywhere near anyone) mentality.

Quite frankly, we have done a bad job of telling the stories of data centers and their importance to the United States, our economy and our geopolitical security. The United States government launched a national initiative by executive order to accelerate scientific discovery using artificial intelligence. The Genesis Mission is designed to build integrated Ai platforms utilizing supercomputers, United States Department of Energy (U.S. DOE) national laboratories including Argonne and Fermilab, private sector, and large-scale datasets. This decadelong mission is intended to double the productivity and impact of American research and development in science, energy, national security, health, space and more.

> "ADVANCES IN AI, ADVANCED COMPUTING, EXPERIMENTATION, AND DATA CAN DRAMATICALLY SHORTEN DISCOVERY TIMELINES, STRENGTHEN U.S. COMPETITIVENESS, AND DELIVER MEASURABLE RESULTS FOR THE AMERICAN PEOPLE," NOTES THE U.S. DOE."



At the same time that American manufacturers are using AI and data centers, we are also powering the construction of these facilities. Caterpillar's natural gas generation platforms are being deployed as core infrastructure for data centers and other power intensive applications while Machesney Park-based Hennig Power Protection designs and builds power generation enclosures and electrical housings. Morton Industries builds precision tubing for data center cooling and Molex designs and manufacturers advanced electronic, electrical and fiber-optic connectivity solutions. The IMA Board of Directors toured G&W Electric in Romeoville in September where they produce critical power distribution, fault isolation, and grid-resiliency solutions as electricity demand surges.

There are clear signs that the data center boom is helping lift the American manufacturing sector. More than 31,000 manufacturing jobs have been added in the first half of this year compared to a loss of 113,000 jobs last year. The Institute of Supply Chain Management showed that U.S. manufacturing activity hit a four-year high in July while Federal Reserve data showed that the manufacturing output index also increased to its highest level in nearly five years.

Opponents would like you to think that data centers have a giant straw in Lake Michigan sucking it dry when in fact most data centers utilize closed-loop technology using less water than a car wash or golf course. DeKalb Mayor Cohen Barnes and Elk Grove Village Mayor Craig Johnson have had data centers in their communities for years which pay huge amounts of property taxes while most have standard decibel measurements of between 40 and 60 dB which often match routine ambient background noise.

Energy is an issue that is being addressed with the data center industry starting to commit to "bringing their own energy" meaning that data centers will secure dedicated or on-site electricity sources rather than relying on the public grid. This is a major challenge as state and federal policies are resulting in the closure of safe, reliable and affordable baseload generation at the same time of the rising demand. The IMA is leading the charge to keep these gas and co-gen facilities operating while adding new electric generation as the Illinois Commerce Commission undertakes an Integrated Resource Planning process.

In the meantime, the United States (including Illinois) cannot give into the doomsayers as we are locked into an escalating technological and economic race for AI dominance fueled by data centers and computing prowess. The nation that wins the AI race will lead global and political leadership around the world. The stakes couldn't be higher. ◆

Mark Denzler is President and Chief Executive Officer of the Illinois Manufacturers' Association.
He may be reached at mdenzler@ima-net.org, or 217.718.3726.

Discovering the Importance of a Stable Natural Gas Supplier in a Volatile Economy

In a dynamic economic environment, energy decisions involve many complex factors that become harder to plan and predict. Changes in market conditions, shifts in natural gas demand and other economic pressures can all influence how businesses think about cost, reliability and long-term planning. When uncertainty increases, it's important to work with an experienced, stable and reliable natural gas provider.

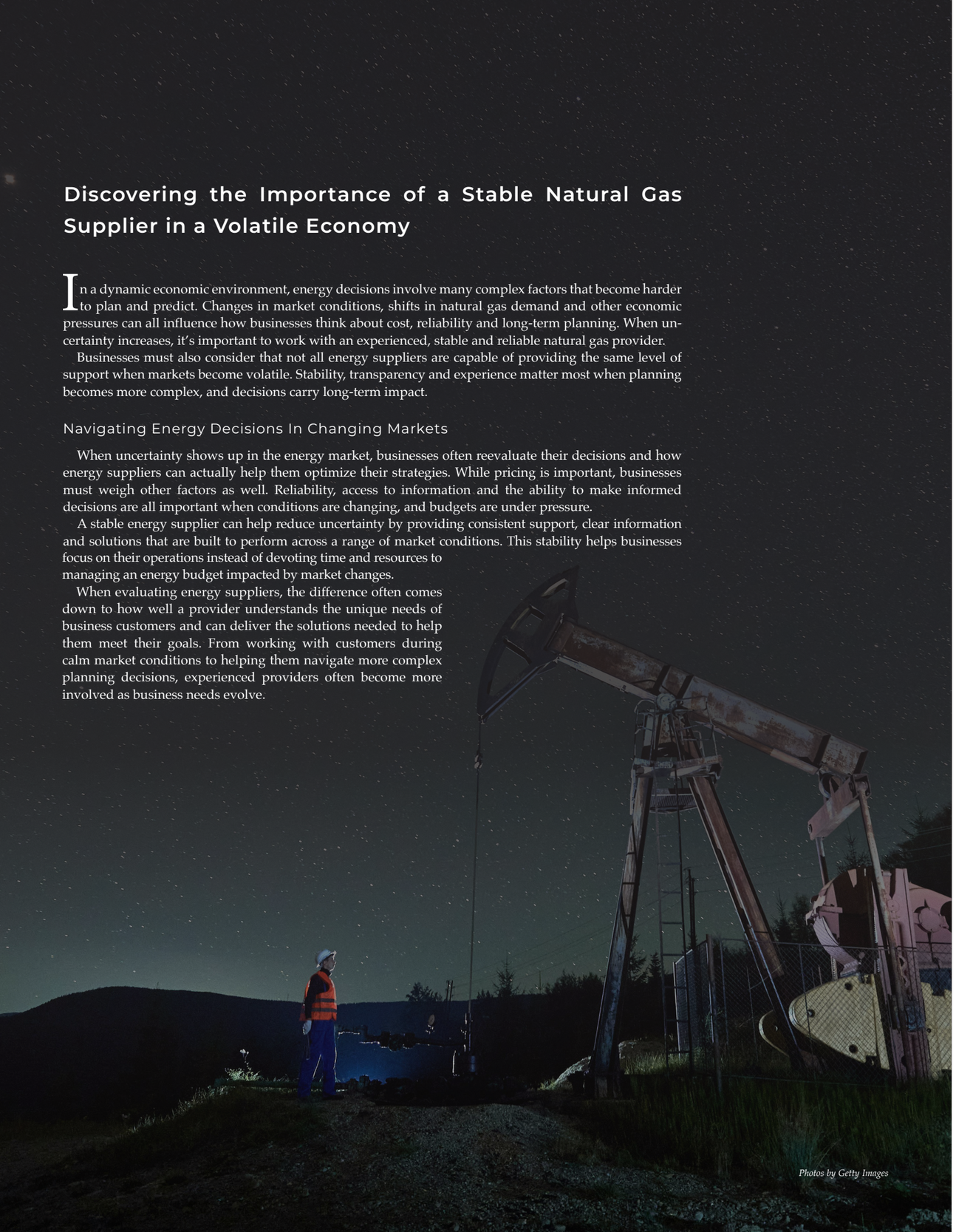
Businesses must also consider that not all energy suppliers are capable of providing the same level of support when markets become volatile. Stability, transparency and experience matter most when planning becomes more complex, and decisions carry long-term impact.

Navigating Energy Decisions In Changing Markets

When uncertainty shows up in the energy market, businesses often reevaluate their decisions and how energy suppliers can actually help them optimize their strategies. While pricing is important, businesses must weigh other factors as well. Reliability, access to information and the ability to make informed decisions are all important when conditions are changing, and budgets are under pressure.

A stable energy supplier can help reduce uncertainty by providing consistent support, clear information and solutions that are built to perform across a range of market conditions. This stability helps businesses focus on their operations instead of devoting time and resources to managing an energy budget impacted by market changes.

When evaluating energy suppliers, the difference often comes down to how well a provider understands the unique needs of business customers and can deliver the solutions needed to help them meet their goals. From working with customers during calm market conditions to helping them navigate more complex planning decisions, experienced providers often become more involved as business needs evolve.



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Knowing What To Look For In An Energy Supplier

With a clearer understanding of what businesses need from an energy provider, the next step is knowing how to evaluate energy suppliers and what makes a provider stand out in a competitive market. It's important to consider whether each provider has the experience, scale, capabilities and solutions to support short- and long-term energy decisions.

As one of the nation's leading suppliers of natural gas with operations across all major U.S. natural gas pipelines, as well as supporting customers behind more than 100 utilities, Constellation brings decades of experience and long-standing operational stability to serve business customers across a wide range of industries. From supplier contract structure to managing risk, consider how suppliers approach real energy decisions, including:

1. **Strong industry presence and experience:** Constellation is a leading supplier of power, natural gas, clean energy solutions and energy management products and services for homes and businesses across the nation. With a range of customers from residential to large-scale commercial and industrial clients, we have the experience, scale and resources needed to deliver reliable energy solutions across diverse business needs.
2. **Products aligned with your risk tolerance**: Constellation offers a comprehensive range of products to meet business goals, as well as fixed, index and managed purchasing strategies that align with how businesses manage energy risk. This range of solutions allows businesses to align energy decisions with their risk tolerance, budget priorities and planning needs.
3. **Contract transparency and clarity:** We ensure our contracts are straightforward and transparent, with a base agreement that defines the buyer-seller relationship and individual purchase transactions confirmed as contract exhibits. For customers participating in managed offerings, separate agreements outline program structure and responsibilities, helping businesses understand how pricing and obligations apply under different market conditions.
4. **Responsiveness during market volatility**: We provide ongoing support during volatile market conditions, including system constraints and operational flow orders, helping customers evaluate options, adjust nominations, and make informed decisions when conditions change.
5. **Energy market insights:** We provide our customers with monthly Energy Market Intel Webinars, delivering timely and relevant insights that help businesses stay informed as market conditions change.
6. **Digital tools for account management:** Customers can manage their energy accounts through Constellation's upgraded online account, with 24/7 access to usage, billing, reporting and account information to help simplify ongoing account management.

Evaluating suppliers with these strengths in mind helps businesses select an experienced provider that can support energy decisions to meet their unique needs and goals.

Providing Reliable Natural Gas Solutions

Energy strategies need to perform as market conditions shift and business needs change. Working with the right natural gas supplier can help you navigate today's energy market with long-term stability. With the scale, resources, and industry experience to serve natural gas customers, Constellation provides solutions you can rely on. Contact us today to learn more about how our solutions can help advance your natural gas strategy. ◆

At Constellation, our Energy Optimization services make participating in demand response programs simple and effective.
Our team can provide insights, automation tools and program options to help your business succeed.
To learn more reach out to Rich Cialabrini at Richard.cialabrini@constellation.com or call at 847.738.2510.

The Greenest Production Order Is the One You Do Not Have to Run Twice

How ERP data can reduce scrap, rework, energy consumption, and avoidable manufacturing costs

ADCIRRUS ERP

When a part is scrapped, the loss goes far beyond material. The manufacturer also loses labor, machine time, electricity, and production capacity. If a replacement must be produced quickly, the consequences can expand to overtime, schedule disruption, additional packaging and expedited freight.

Rework creates a similar resource drain. The original production activity has already consumed resources, and the company must use more of them to correct an issue that should have been right the first time. Viewing scrap and rework merely as quality or accounting problems hides their true environmental and financial impact.

Reducing this hidden waste is one of the most practical sustainability opportunities available to small and mid-sized manufacturers. It does not necessarily require a major capital project or new equipment. It starts by using enterprise resource planning, or ERP, data to connect production activity, quality events, material consumption, labor, machine time, and cost so recurring problems can be identified and prevented.

The True Cost Of Running Production Twice

Suppose a production order is completed and 5 percent of the output is rejected. The most visible loss may be the raw material, but every failure creates a hidden wave of resource consumption that does not appear on a simple material invoice.

Energy Drain: Power consumed during cutting, forming, heating, cooling, welding, painting, or assembly cannot be recovered.

Sunk Labor: Employee hours spent producing and inspecting rejected parts have already been consumed.

Lost Capacity: Machine time occupied by defective production reduces the capacity available for acceptable customer orders.

Recovery Costs: Replacement production may require new materials, overtime, schedule changes, additional packaging or expedited freight.

A manufacturer that measures only scrap material cost can therefore underestimate the improvement opportunity. The more useful question is: What resources were consumed before the failure was discovered, and what additional resources were required to recover from it?

An ERP system can bring those costs together. Production orders show what was manufactured and when. Inventory transactions show the materials consumed. Labor and machine records show the time used. Quality records identify rejected quantities and causes. Costing data shows the financial effect. When these records are connected, manufacturers can see the full cost of running production twice instead of treating scrap as an isolated material variance.

Good Decisions Require Better Reason Codes

Recording that scrap occurred is a clerical task. Recording why it occurred is a strategic one. Vague labels such as defective or other become data dead ends because they do not provide enough information to guide corrective action.

Manufacturers should configure specific, practical scrap and rework reason codes within their ERP or connected quality system. Useful categories may include incorrect machine setup, tooling failure, material defect, supplier issue, inaccurate drawing, wrong component, operator error or, damage during handling.

Each reason code should be connected to the production order, item, work center, quantity, and disposition. This allows managers to identify recurring patterns instead of reviewing disconnected incidents. The list should remain short enough for employees to use consistently, but descriptive enough to turn transactions into actionable information.

Look Upstream: BOMs, Routings And Planning

Waste frequently originates before a machine starts. Inaccurate bills of material, or BOMs, can cause incorrect quantities or components to be issued. Outdated routings can send work through the wrong sequence or rely on unrealistic setup and run times. Incorrect specifications and revisions can result in acceptable work being completed against obsolete requirements.

Because BOMs and routings are maintained within the ERP system, their accuracy directly affects material planning, production scheduling, costing, and resource consumption. An incorrect quantity or outdated operation can repeat the same waste across every production order until the underlying master data is corrected.

Planning decisions also affect environmental performance. Small, fragmented runs create excessive setups, cleaning cycles, and machine starts. Runs that are too large can create excess inventory that requires storage, handling, and eventual disposal when demand changes. Better ERP master data, inventory accuracy, and production planning can reduce waste before the first machine cycle begins.

Use ERP To Connect Quality, Production, Energy And Cost

The information needed to understand scrap and rework often exists, but it may be divided among paper forms, spreadsheets, quality systems, maintenance records, and accounting reports. When those records remain disconnected, managers may know that scrap increased without knowing which products, work centers, shifts, suppliers, or causes were responsible.

ERP should serve as the operational connection between quality, production, inventory, and cost. A scrap transaction should not exist as an isolated number. It should be connected to the production order, finished item, component material, work center, quantity, reason code, and disposition.



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Labor and machine time can then be evaluated alongside material cost. If energy information is captured by department, machine or production period, manufacturers can also estimate the energy consumed by rejected production and replacement work.

This does not require perfect energy measurement on the first day. A manufacturer can begin by allocating utility consumption using production hours, machine hours or department usage. More advanced operations can integrate utility data, equipment meters or industrial sensors with ERP reporting.

The objective is to make patterns visible. Directionally accurate ERP information can show whether the greatest source of waste is a supplier problem, inaccurate BOM, outdated routing, equipment issue or training gap.

Five ERP Measures to Review Every Month

Manufacturers do not need dozens of environmental key performance indicators. A simple ERP dashboard can bring production, quality, inventory and cost information into five useful measures:

Scrap Rate: Scrap quantity and cost as a percentage of material issued.

Rework Hours: Labor hours by product, work center and reason.

Top Causes: The five most common scrap and rework reasons.

Repeat Production: Replacement orders or quantities produced.

Recovery Costs: Overtime and expedited freight caused by quality or inventory problems.

Manufacturers with reliable energy information can add energy consumed per production hour or acceptable unit. The word acceptable matters. If a plant uses the same amount of energy but produces fewer good units because of defects, its effective energy intensity has increased.

Each measure should have a clear definition and owner. Operations, quality and finance should agree on how it is calculated so the monthly review focuses on corrective action rather than debating which spreadsheet is correct.

Turn the Monthly Review Into Action

Data matters only when it changes what happens next. The monthly review should identify one or two significant causes, assign an owner and establish a corrective action. Depending on the cause, the action might include revising a BOM, updating a routing, changing an inspection point, repairing equipment, addressing supplier quality or improving employee training.

The team should then verify the result through the same ERP measures. Did first-pass yield improve? Did rework hours fall? Did the reason-code frequency decline? Were fewer replacement orders required? Did overtime or expedited freight decrease? Comparing the same information before and after the change helps determine whether the improvement was sustained.

Operational improvement is sustainability. Reducing scrap and rework prevents materials, labor, machine capacity and energy from being consumed without creating value. It also produces more usable output, more reliable delivery and lower cost.

ERP provides the operational record manufacturers need to identify waste, understand its causes and verify whether corrective actions worked. When production, quality, inventory, energy and cost data are connected, sustainability becomes part of everyday manufacturing management instead of a separate reporting exercise.

The greenest production order is the one the company does not have to run twice. ◆



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Avani Shah, is a Director of People & Digital Experience at AdCirrus ERP.
She may be reached at avani.shah@adcirruserp.com or, 630.863.5464.

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ISO 14001:2026: What the Updated Environmental Standard Means for Manufacturers

Illinois Manufacturing Excellence Center
Dan Hofmann, Interim President and Vice President of Finance and IT

For manufacturers, environmental management is increasingly connected to much more than regulatory compliance. Energy and resource costs, customer and supply chain expectations, waste reduction, operational risk, climate-related disruptions, and corporate sustainability goals are all influencing how manufacturers think about their environmental impact. And for organizations using ISO 14001 to manage those responsibilities, there is now an updated framework to consider.

In April 2026, the International Organization for Standardization (ISO) published ISO 14001:2026, the fourth edition of the internationally recognized standard for environmental management systems (EMS). The revision replaces ISO 14001:2015 and reflects how environmental management, and the business environment surrounding it, has evolved over the past decade.

For manufacturers already certified to ISO 14001, however, the new edition should not be viewed as starting over. The fundamental structure and intent of the standard remain familiar. Instead, ISO 14001:2026 provides clarification, updated guidance, and a stronger connection between environmental management, organizational strategy, and emerging environmental conditions.



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Environmental Management As A Business System

At its core, ISO 14001 provides organizations with a structured system for identifying environmental impacts, meeting compliance obligations, establishing objectives, measuring performance, and continually improving. In manufacturing, those environmental considerations can touch nearly every part of an operation. Energy consumption, water use, raw materials, waste streams, emissions, hazardous materials, transportation, packaging, equipment, and processes can all have environmental implications. Many also have direct financial and operational implications. That connection is important.

Reducing scrap, for example, can reduce both waste and material costs. Improving energy efficiency can reduce environmental impact while lowering operating expenses. Better management of environmental risks can help prevent disruptions, compliance problems, and unexpected costs.

An effective environmental management system therefore should not exist separately from the rest of the business. It should support how an organization evaluates risk, manages processes, makes investments, and plans for the future.

What Has Changed?

ISO 14001:2026 retains the familiar management system framework while refining how organizations are expected to consider environmental issues within their broader business context. One area receiving greater attention is the relationship between an organization and changing environmental conditions.

Manufacturers have traditionally considered how their activities affect the environment. Increasingly, they must also consider the other direction: *How could changes in the environment affect the organization?* The changing world around us can create operational and supply chain risks, such as:

- Climate conditions
- Water availability
- Resource scarcity
- Biodiversity loss
- Severe weather,
- And other environmental changes

The updated guidance makes that relationship clearer and encourages organizations to consider environmental conditions as part of their business context and risk-based thinking.

The revised standard also places environmental management more clearly alongside an organization's purpose and strategic direction. That could mean considering environmental factors when evaluating new equipment, suppliers, materials, facility expansions, production processes, or long-term capital investments.

The objective is not to create an environmental program operating independently from the rest of the company. It is to integrate environmental considerations into how the organization operates and makes decisions.

Climate, Biodiversity, And Resource Efficiency

The environmental conversation has also expanded considerably since ISO 14001 was last fully revised in 2015.

Climate change is one obvious example, but ISO 14001:2026 also provides stronger alignment with issues including biodiversity and resource efficiency. These topics may initially sound removed from the day-to-day concerns of a small or mid-sized manufacturer. In practice, however, they can translate into familiar business questions:

- How much energy does a process consume?
- Could a material be used more efficiently?
- Where is waste being generated?
- Could changing weather patterns disrupt a supplier or facility?
- Does the organization depend on water or another resource that may become more constrained?
- Are customers beginning to request environmental information from suppliers?

Environmental management provides a systematic way to identify those questions, determine which are significant to the organization, and decide how they should be addressed.

What Manufacturers Should Do Now

For manufacturers already certified to ISO 14001:2015, preparation for the new edition can begin with understanding the changes rather than immediately rebuilding the existing environmental management system.

Organizations can review their current EMS and consider where existing processes already address the clarified expectations of ISO 14001:2026. That includes examining organizational context, environmental aspects and impacts, risks and opportunities, compliance obligations, objectives, operational controls, performance measures, and management review processes.

Manufacturers should also look beyond documentation. An environmental management system is most valuable when employees understand how environmental objectives relate to their work and when leadership uses environmental information as part of operational decision-making.

The transition therefore provides an opportunity to ask a larger question: *Is our environmental management system helping us operate better?*

If the answer is yes, the updated standard can help strengthen that system. If the EMS has become primarily a documentation or audit exercise, the revision may provide an opportunity to reconnect it with operational priorities. ◆



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Dan Hofmann is Interim President and Vice President of Finance and IT of the Illinois Manufacturing Excellence Center. He may be reached at dhofmann@imec.org.

2026
ENVIRONMENTAL LEGISLATION

Environmental policy has significant implications for manufacturers. That is why the IMA advocates for environmental legislation in the Illinois General Assembly and works with business groups, environmental advocates, the Illinois EPA, and other stakeholders to ensure manufacturers' perspectives are represented in the policymaking process. From permitting and air monitoring to PFAS and extended producer responsibility, the IMA is at the table. This year was no exception, as lawmakers introduced numerous environmental bills with far-reaching implications for manufacturers and the broader business community. The IMA was involved in the following environmental issues during this session:

Environmental Justice

One issue that reached a turning point in 2026, after nearly a decade of negotiating and efforts from environmental groups, was environmental justice, commonly known as "EJ."

EJ centers on the principle that everyone deserves protection from pollution and a meaningful voice in decisions affecting their environment, regardless of income, race, or background. For manufacturers, EJ connects discussions about facility permitting, operations, and environmental impacts with the concerns of surrounding communities. These principles guide the Illinois EPA's approach to public outreach and can impact permitting requirements and decisions.

In Illinois, the Illinois EPA has long maintained EJ policies that guide its review of construction and operating permit applications for facilities located in EJ areas. The Agency has historically identified these areas using census data related to minority and low-income populations. Through these policies, the Illinois EPA has imposed additional requirements, such as enhanced air monitoring or pollution controls, on facilities located in EJ areas when proposed activities would increase air emissions.

While these policies have been in place for years, they had never been codified into state law. This created uncertainty and inconsistency, as the Illinois EPA could apply its policies differently depending on the permit applicant. As a result, the IMA has long sought to establish reasonable EJ policies in statute to bring greater consistency, predictability, and stability to the permitting process. Unfortunately, environmental groups have historically used the issue to advocate for more onerous regulations. This year, the approach to environmental justice legislation in Springfield looked markedly different from prior years.

Rather than advancing the sweeping proposals typically introduced by environmental advocacy groups, the Illinois EPA, with approval from the Governor's Office, took the lead in drafting the legislation. This shift was particularly significant because the Agency had historically maintained an arm's-length position on EJ issues, generally refraining from taking sides and instead serving in a guidance and advisory role. The Illinois EPA reached out to the IMA for input on the draft it was developing, which ultimately resulted in the filing of SB 3772.

SB 3772 establishes "areas of environmental justice concern" using thirteen environmental indicators and six socioeconomic indicators. It then applies additional requirements to:

- A construction permit for a new source that will require a Clean Air Act Permit Program (CAAPP) permit or a Federally Enforceable State Operating Permit (FESOP);
- A construction permit for an existing source operating under a CAAPP permit or FESOP that will experience an increase in emissions; and
- A construction permit for an existing source seeking an increase in annual permitted emissions that will require a new CAAPP permit or FESOP.

On its surface, SB 3772 represented one of the least objectionable EJ bills introduced in Illinois, leading the IMA and numerous other business groups to take a neutral position on the legislation. While that decision was not made lightly, it was based on several important considerations.

1. First, given Illinois' political landscape, EJ legislation was likely to pass in the immediate or near future, particularly after the Pritzker Administration signaled its support for the Illinois EPA's efforts to advance an EJ bill, so having a manageable bill was important.
2. Second, SB 3772 aligned directly with the Illinois EPA's existing environmental justice policies and the 2024 agreement between the U.S. EPA and the Illinois EPA. The legislation provided a clear and established framework that was already being applied to construction permits in Illinois. Codifying these policies into law created greater consistency and predictability for permit applicants while reducing the risk of uneven or discretionary application.
3. Finally, with federal EJ policy in flux, legislators and environmental advocates were poised to pursue more comprehensive changes and restrictions affecting permits in EJ areas. Advancing SB 3772 helped prevent the enactment of more expansive, costly, and less workable EJ mandates in the future.



SB 3772 passed both chambers of the Illinois General Assembly and was signed into law by Governor Pritzker, establishing Illinois' first environmental justice law of its kind. Because the law largely codifies policies already being implemented by the Illinois EPA, and because the number of areas designated for EJ consideration has generally decreased under the new law, most companies are unlikely to notice a meaningful difference in their permitting processes.

Extended Producer Responsibility

Extended Producer Responsibility (EPR) remains a major environmental policy concern for manufacturers and businesses throughout Illinois and across the country. Under an EPR framework, producers assume greater responsibility for managing products after they reach the end of their useful lives. This can include financing or overseeing collection, recycling, and disposal programs traditionally managed by local governments and waste agencies. As a result, EPR requirements can impose substantial costs, compliance obligations, and operational challenges across manufacturing supply chains.



Photo by Jenya Shportak on Unsplash

For years, groups have been pushing a paper and packaging EPR program in Illinois that would mirror action taken in other states, such as Washington and Colorado, and require any company that produces or uses paper and packaging to pay into a system to ensure it gets recycled. The IMA led efforts to prevent legislation from being fully considered until a full needs assessment could be completed in order to get a better understanding of the need for such a program in Illinois, reviewing markets, infrastructure, and current waste systems for paper and packaging.

Illinois is currently conducting a statewide needs assessment for paper and packaging materials, which is expected to be completed by the end of 2026. As a result, paper and packaging EPR legislation has stalled for the time being, though the issue will almost certainly return to the forefront in 2027.

The other major EPR proposal involves household hazardous waste (HHW). Building on an initiative from 2025, Representative Sharon Chung (D-Bloomington) introduced HB 4546, while Senator Dave Koehler (D-Peoria) introduced the identical SB 3915. The bills would create the Household Hazardous Waste Stewardship Act and require manufacturers to implement an HHW stewardship program beginning January 1, 2028. Manufacturers would be required to establish, finance, and operate a program either independently or collectively through a stewardship organization, subject to specified funding and program requirements.

The IMA met extensively with the legislation's advocates, sponsors, and legislative leaders to explain the concerns surrounding these proposals. Among the most significant issues were the need to properly define household hazardous waste and the substantial costs the proposed programs could impose on both the state and private companies. Vermont is the only state to have enacted an HHW EPR law. However, the law was signed in mid-2023 and has yet to be fully implemented. No organization came forward to administer the program, ultimately forcing the state to assume responsibility for its operation and associated costs.

The IMA's advocacy, combined with growing concerns about the legislation's substantial cost, prevented either proposal from gaining traction among lawmakers focused on fiscal responsibility. Neither HB 4546 nor SB 3915 advanced or received consideration in committee. Although supporters are expected to revive the proposal next session, the HHW initiative may have to compete for legislative attention with renewed efforts to establish a broader paper and packaging EPR program once the state completes its needs assessment.

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Federal Backstop

Federal efforts to roll back certain environmental protections prompted Senator Laura Ellman (D-Naperville), chair of the Senate Environment and Conservation Committee, and Representative Ann Williams (D-Chicago), chair of the House Executive Committee, to sponsor SB 3556 and HB 5070, respectively. The legislation would create a state-level "backstop," preventing the Illinois Pollution Control Board (IPCB) from adopting federal standards that are weaker than regulations already in place in Illinois.

The IMA raised concerns that this approach would limit the IPCB's discretion to update regulations as scientific understanding, technology, and economic circumstances change. By requiring Illinois to retain its existing standards regardless of later developments, the bills could preserve obsolete requirements that impose costs without delivering corresponding environmental benefits.

The IMA worked alongside a targeted group of stakeholders to negotiate revisions with the Illinois EPA. Those discussions produced an amendment limiting the legislation to the IIPCB's identical-in-substance rulemaking process.

This specialized process applies when Illinois is required to adopt rules that mirror federal regulations, leaving the state with little or no discretion to alter their substance. Under the amended language, the IPCB would remain free to use its general rulemaking authority to adopt standards consistent with federal regulations, even when those standards are less stringent than existing Illinois requirements.

Ultimately, HB 5070 passed and was signed into law this summer.

Wetlands

For manufacturers, wetland regulations can shape whether, and how quickly, new facilities, expansions, and infrastructure projects move forward. Unclear or inconsistent requirements can extend permitting timelines, increase project costs, and create uncertainty that discourages investment and weakens Illinois' economic competitiveness.

The issue has received greater attention since the U.S. Supreme Court's 2023 decision in Sackett v. EPA, which narrowed the reach of the federal Clean Water Act and reduced the U.S. Environmental Protection Agency's authority over certain waters. As federal jurisdiction has contracted, increased attention has shifted to how states regulate wetlands and waterways no longer covered by federal law.

Since the Sackett decision, environmental advocacy groups have intensified efforts to establish broader wetland protections under state law. Many of these proposals, however, would go beyond the former federal framework by expanding key definitions, increasing regulatory requirements, and imposing additional permitting and compliance obligations. Manufacturers have expressed concern that these measures could discourage economic development, delay infrastructure projects, and restrict business growth.

That same approach was reflected in legislation introduced this session by Representative Anna Moeller (D-Elgin). HB 3596 would establish the Wetlands Protection Act and place certain activities involving state-regulated wetlands under a new permitting program administered by the Illinois Department of Natural Resources (IDNR). Although the proposal excludes federally regulated waters that satisfy federal wetland criteria, questions remain about how state and federal jurisdiction would be distinguished in practice. The bill also granted IDNR rulemaking authority, creates a dedicated Wetlands Protection Fund, and allows penalties of up to $10,000 for each day a violation continues.

The IMA testified against the legislation before the House Energy and Environment Committee, warning that requiring IDNR permits for activities in "jurisdictional wetlands" would add another regulatory layer to site development, while also noting that IDNR is still mapping wetlands across Illinois and that expanding the state's regulatory authority before that work is complete would be premature and could create significant uncertainty for property owners, manufacturers, and developers. After the committee, the bill did not advance, but the issue is sure to continue to percolate in the Illinois General Assembly. ◆

Donovan Griffith is Executive VP and Chief Strategy Officer.
He may be reached at dgriffith@ima-net.org.

The TRUTH about Chiller Capacity

Understanding the Chiller Capacity Triangle

THERMAL CARE

When people hear the term "10-ton chiller," they usually assume the machine will always produce 10 tons of cooling. In reality, that is not how chillers work. A chiller's actual cooling capacity changes depending on the operating conditions. The same machine might produce 10 tons in one application, but only 6 tons in another. Under ideal conditions, it might even produce more than 10 tons. That is why engineers cannot look only at the model number or nameplate. They must also look at the operating conditions.

A simple way to understand this is through what we at Thermal Care call the "Chiller Capacity Triangle." Much like the exposure triangle in photography, three main factors work together to determine how much cooling a chiller can actually provide. These three factors are Saturated Suction Temperature (SST), Saturated Discharge Temperature (SDT), and Process Fluid Flow. Changing one side of the triangle affects the other two, and ultimately changes the chiller's capacity and efficiency.

Saturated Suction Temperature, or SST, is connected to the evaporator side of the refrigeration system. In simple terms, SST is closely related to the leaving fluid temperature coming out of the chiller. If a process requires very cold fluid, such as low-temperature glycol, the SST must also be lower. The lower the SST becomes, the harder the compressor has to work. As compressor workload increases, cooling capacity often decreases and electrical power consumption increases. On the other hand, a higher SST usually allows the compressor to operate more efficiently and deliver better capacity.

Saturated Discharge Temperature, or SDT, is connected to the condenser side of the system. On an air-cooled chiller, SDT is heavily influenced by the outdoor ambient air temperature. On a water-cooled chiller, it is related to the temperature of the condenser water entering the system. A chiller operating on a mild 75°F day will usually perform much better than the same machine operating on a 100°F day. Higher SDT increases the compressor's workload, which reduces efficiency and lowers cooling capacity. Lower SDT generally improves system performance and reduces electrical usage.

The third side of the triangle is process fluid flow. Flow refers to how much water or glycol moves through the system, usually measured in gallons per minute (GPM). Proper flow is important because it allows heat to transfer effectively from the process into the refrigeration system. If flow is too low, heat transfer suffers and cooling performance drops. Properly optimized flow helps stabilize temperatures, improve heat transfer, and maximize available capacity.

Chiller capacity INCREASES:

1. When flow increases while leaving fluid temperature and ambient temperature remain constant.
2. When leaving fluid temperature increases while flow and ambient temperature remain constant.
3. When ambient temperature decreases while flow and leaving fluid temperature remain constant.



Chiller capacity DECREASES:

1. When flow decreases while leaving fluid temperature and ambient temperature remain constant.
2. When leaving fluid temperature decreases while flow and ambient temperature remain constant.
3. When ambient temperature increases while flow and leaving fluid temperature remain constant.



Always Compare Chillers at the Same Conditions

Because all three factors work together, it is very important to compare chillers under the same operating conditions. Two chillers may both be labeled as "10-ton" units, but if one rating is based on 50°F leaving water and the other is based on 65°F water with a lower ambient temperature, the comparison is not equal. The operating conditions completely change how much cooling the machine can provide.

Compressor horsepower is another area that often causes confusion. Many people assume that a 10 HP compressor should automatically produce 10 tons of cooling. In reality, compressor horsepower is only one piece of the puzzle. Two chillers with the same compressor horsepower can produce very different cooling capacities depending on how they are operating. A useful way to think about it is like a car engine. Horsepower matters, but fuel economy, terrain, and driving conditions also affect performance.

Optimization Saves Energy

Optimizing a chiller for its actual operating conditions can result in major energy savings. Selecting the proper SST, designing around realistic ambient temperatures, and maintaining correct process flow can dramatically reduce electrical power consumption. Lower power usage not only reduces operating costs, but also improves long-term reliability and reduces wear on the refrigeration system.

With more than 50 years of experience, Thermal Care has extensive experience optimizing chiller systems for real-world applications. Properly matching a chiller to the operating conditions helps ensure the best combination of capacity, efficiency, and long-term performance. ◆

Mike Shupe is the Vice President of Product Management at Thermal Care.
He may be reached at sales@thermalcare.com or 847.966.2260.



Hedging Your Margins

MILLER COOPER

Factors in combination threaten the margins of Illinois manufacturers. Concerns over labor costs, higher interest rates, and general inflation continue. As to tariffs, although the U.S. Supreme Court invalidated the IEEPA in February, new ones were subsequently imposed under alternate statutory authority. Those under Section 122 of the Trade Act of 1974 lasted for 150 days. At their expiration, Section 301 tariffs commenced, providing a 10% or 12.5% tariff on most imports.

However, the biggest issue for many manufacturers is material costs, not only higher prices but also volatility. The World Bank's "Commodity Markets Outlook" projects that prices overall will increase approximately 16% in 2026. Even greater increases are expected for minerals, energy, and certain metals, among others. The World Bank attributes its outlook to disruption and uncertainty associated with the Middle East conflict.

Manufacturers have seen rapid increases in commodity and input costs occur well before the increases pass through to customers. Purchasing raw materials at the time of the customer order creates significant carrying costs that neither the vendor nor customer choose to bear.

Review The Approaches

Best practices call for identifying emerging cost pressures and acting on that information. Purchasing strategies, customer pricing mechanisms, escalation clauses and, where appropriate, hedging can help protect margins. Without such measures, a sudden increase in input costs can quickly compress margins—and, in extreme cases, eliminate them altogether. As illustrated next, ideas for preserving margins include the following:

1. Explore ways to hedge materials purchases on the public markets or with specific vendors. Hedges may be a good option depending upon their relevance and how they are priced. Sometimes, even when vendors price at delivery, a cap on monthly increases might be negotiated in return for a volume commitment.

2. Adjust selling price lists more frequently for new conditions, using data available to help foresee and prepare for problems. Early warnings of inflation can be monitored in the futures markets for important inputs.

3. Allow initial order prices to customers to float and adjust up to their shipment with reference to a change in an objective index, such as the Producer Price Index (PPI) by the U.S. Bureau of Labor Statistics (BLS). Likewise, for long-term contracts, escalation provisions can protect the manufacturer from having to absorb the costs.

4. Be compensated for risks associated with fixed quotes or price lists. This might be structured as an additional charge or hedge in return for a fixed price at delivery to the customer instead of having prices float. Without it, customers effectively receive a free hedge on their purchases, while the manufacturer absorbs the risk of price increases.

5. Provide transparent surcharges for market fluctuations in freight, energy, and non-temporary tariffs.

Case In Point: Plastic Parts Manufacturer

Middle-market manufacturers of plastic parts face an especially difficult situation when it comes to their raw materials, mainly plastic resin. The manufacturer's vendor prices are based upon the market at shipment. The manufacturer's customer, on the other hand, may obtain fixed pricing for custom orders or buy from price lists that are updated only periodically. This can have disastrous consequences.

From March to May 2026, manufacturers of plastic products faced the highest escalation in raw materials costs in fifty years. For the month ended May 31, the Producer Price Index for plastic resins and materials increased by 14.1%, while for the three months ended the increase was 23.3%. For a plastics manufacturer having material cost of 50% of sales, the impact of the three-month inflation would be to raise its cost of sales to 61.2%, reducing its profit margin by more than 10 points. In a company generating net cash flow at 10% of sales, the higher cost is enough to eliminate its profit completely.

The problem is not apparent on financial statements due to inventory accounting. As replenishment costs rise, the common first-in, first-out method relieves old costs against sales. Margins remain steady as existing inventory is depleted. Even as margins appear normal, true compression at today's costs is unreported.

While many factors contributed to resin inflation, a leading indicator was oil prices as the Middle East war unfolded. The relationship between oil and resin prices is clearest in European and global markets. Unlike in the U.S., where producers rely more heavily on natural gas, oil-derived naphtha is the primary feedstock in Europe for producing ethylene and, in turn, polyethylene. Analyst Paul Hodges compared annual average prices over 35 years and found a very close correlation between the price of North Sea crude oil per barrel and ethylene. This led him to conclude that a $10-per-barrel change in oil prices impacted polyethylene prices by approximately 4 cents per pound.

As oil prices inflate, plastics manufacturers need to be alert for the trailing rise in their raw materials costs. Oil prices flow through to the price of plastic resin, after a lag of approximately six weeks, according to the Independent Commodity Intelligence Service (ICIS). One specific indicator that can be useful is West Texas Intermediate, or WTI, a major benchmark for U.S. crude oil.

Managers can monitor oil-price volatility through indexes such as CVOL, a benchmark widely used in the petroleum industry. Because CVOL is derived from futures market prices, it serves as a forward-looking indicator of expected fluctuations.

Take Action

Plastics manufacturers have options for preserving margins. Financial hedges for plastics commodities, unfortunately, tend to be overly nonspecific. Futures markets may address crude oil or natural gas, but not polyethylene, polypropylene, or other commodities that are several steps downstream. Specific hedges tend to be less liquid and less accessible.

Barring hedging directly with vendors, managers need to reconsider customer pricing. When companies quote and honor firm prices from price lists, customers benefit from price certainty, but the manufacturer absorbs the risk of resin price increases without compensation. If resin prices rise rapidly, as they did in May 2026, fixed selling prices remain unchanged while replacement materials carry greater cost.

Fixed pricing can be retained for short-lead-time orders, but orders with longer lead times are in definite need of resin-index adjustments or the option of a guaranteed fixed price for an additional charge. Often this needs to apply a PPI. Being specific is difficult, considering the various grades of resin as well as the varying weights and quantities of resin used in each part.

One approach is to index or float customer pricing based on published resin price indexes. Customers might choose instead to incur a premium for a fixed price, which could also be characterized as a hedge. For a plastics manufacturer to have fully avoided incurring losses from the 23.3% increase in PPI, the hedging surcharge for a company with resin at 50% of sales would be 11.7%; a $1,000 order would be priced at $1,117. While the company would have preserved its bottom line during the period of rising prices, that amount is likely too conservative for most customers to bear.

In theory, a hedge derives from the resin portion of the selling price multiplied by the expected resin volatility over the lock-in period. That equation would then be varied based on the period over which the customer order requires a lock-in.

For a 90-day price guarantee or lock period, a hedge might be based on an amount sufficient to cover the 95th percentile increase for rolling three-month price changes over the past ten years. Using BLS plastic resins and materials commodity PPI code WPU066, the percentage increase sufficient to cover 95% of the periods is 11.7%. For 50% resin to sales, the hedge is 5.85%; a $1,000 floating price order locks in at $1,059.

That base hedge could be adjusted to reflect anticipated risk. As mentioned earlier, CVOL measures expected future volatility of WTI oil prices. The normal or moderate value is approximately 35. The index reached 98 in March and averaged 55 during the second quarter of 2026. An approximation of a statistical result is to take the square root of the current value divided by 35; so, 1.67 at the peak for March and 1.25 for the second quarter. These factors would be applied to the 5.85% historical volatility, for risk-adjusted percentages of 9.77% and 7.31%, respectively. Conversely, if the CVOL is below 30, the volatility could be factored down by 0.85, to 4.97%.

While no one can control commodity markets, manufacturers can control how they respond. Rising material costs need not erode profitability. Manufacturers that proactively manage purchasing, incorporate pricing flexibility into customer agreements, and recover the cost of fixed-price commitments through hedging charges can protect margins and deliver consistent financial results despite volatile input costs. ◆

Bill Wiersema is an Audit and Transaction Advisory Services Principal with Miller Cooper.
He may be reached at bwiersema@millercooper.com.

Constellation – 24/7 access to billing and energy usage data

Bundling RECs and Carbon Offsets Can Support Your Energy Strategy

NRG ENERGY

If you're managing energy procurement for your organization, you may also be tasked with showing emissions progress while navigating costs, contracts, and reporting nuances — often with limited time and resources.

Renewable Energy Certificates (RECs) and carbon offsets are two tools organizations often use to support emissions goals without overhauling their broader energy strategy. When they are bundled into your power and gas contracts rather than purchased separately, they can be easier to manage, easier to report on, and easier to adjust over time.

To see how that can work in practice, it helps to take a closer look at how these tools work.

RECs & Carbon Offsets Explained

Renewable Energy Certificates → RECs are like receipts showing that renewable electricity was generated and added to the grid. When an organization purchases RECs, it's documenting that renewable electricity was generated to match some or all of its electricity use.

Carbon offsets → Some emissions cannot be eliminated right away. When an organization purchases carbon offsets, it's funding a verified project — such as reforestation or methane capture — that reduces or removes greenhouse gases somewhere else.

How RECs Fit Into the Bigger Picture

A Renewable Energy Certificate represents one MWh of electricity generated from a renewable source such as wind or solar.

When an organization purchases RECs, it's matching some or all of its electricity use with renewable generation. The electricity flowing to a facility still comes from the shared grid, but RECs allow organizations to account for the renewable attributes of that power.

RECs are also flexible. An organization can match a portion of its usage or all of it, and it can adjust volume over time as goals, reporting needs, or budgets change.

If an organization uses 10K MWh of electricity each year and purchases 5K RECs, it is matching 50% of its electricity use with renewable generation.

How Carbon Offsets Can Help Address Harder-To-Reduce Emissions

Carbon offsets support projects like reforestation, methane capture, or carbon sequestration. When an organization or business purchases offsets, it's funding verified emissions reductions or removals elsewhere to help account for emissions it cannot yet eliminate directly — especially those tied to natural gas use or other hard-to-abate operations.

The global voluntary carbon offset market is growing rapidly, with projections putting it on a path from roughly $4 billion in 2024 to as much as $24 billion by 2030.[1] Growth has also brought greater scrutiny around quality. High-rated offsets are now trading at more than three times the price of lower-rated ones, reflecting closer attention to what counts as a credible offset.[2]

What Makes A Carbon Offset High-quality?

Additionality → The project wouldn't have happened without that offset funding.

Verified → The amount of carbon reduced or removed is measured and verified by a third party.

Permanence → The carbon stays out of the atmosphere long term.

No double counting → The same emissions reduction isn't claimed by multiple buyers.

Transparency → Project details, methodology, and verification reports are publicly available.



Photo by Getty Images

The Integrity Council for the Voluntary Carbon Market (ICVCM) has developed the Core Carbon Principles (CCP), a set of standards that serves as a global benchmark for carbon credit quality. When evaluating offsets, asking whether the underlying credits are CCP-aligned can be a helpful starting point.

Offsets do not replace direct emissions reductions. But for emissions that are not yet feasible to eliminate, they can be a practical way to support progress while longer-term changes take shape.

What Are The Benefits Of Bundling RECs And Carbon Offsets?

When RECs and carbon offsets are built into your electricity and/or natural gas contracts rather than managed separately, a few things often become simpler.

Efficient Contracting. Bundling can reduce the number of separate agreements, invoices, and administrative steps your team needs to manage.

Streamlined Reporting. Instead of pulling data from multiple vendors and reconciling different formats, organizations may be able to track energy usage and sustainability actions in the same place. That can decrease administrative work and make progress easier to communicate internally.

More Predictable Costs. When sustainability costs are part of your energy contract, they can be budgeted alongside the rest of your energy spend instead of managed separately.

Easier Adjustments. Regulations change. Goals evolve. Your operations shift. A bundled approach lets you adjust the mix of RECs and offsets as your organization moves forward, without rebuilding the strategy from scratch.

For example, imagine an organization with multiple facilities, such as a manufacturer, school district, or nonprofit network. They might use RECs to help address electricity-related emissions across its footprint, while using offsets for emissions tied to natural gas use that are harder to reduce in the near term. Managing those pieces through a more integrated energy strategy can make the work easier to coordinate and report on.

Progress Over Perfection

RECs and carbon offsets can be useful tools, but they're not a complete sustainability strategy on their own. Both depend on the quality of what's being purchased, and both work best as part of a broader approach that may also include efficiency improvements, operational changes, and, when it makes sense, direct renewable energy investments.

No single tool solves everything on its own, but organizations don't need to wait for a perfect solution to start moving forward. In many cases, credible progress is built step by step through a combination of actions that work together over time.

Sustainability Within Your Strategy

If your organization is evaluating whether bundling makes sense, here are a few useful starting points:

Are sustainability actions and energy contracts managed separately? If so, your team may be spending more time on coordination than necessary.

Can your current approach to emissions reduction be explained clearly and quickly? If you're reliant on multiple vendors, spreadsheets, and reporting formats, consolidation may help.

Is there room to adjust your strategy as needs change? As reporting expectations evolve, a bundled approach may be easier to adapt than a patchwork of separate agreements.

Are you confident in the quality of the RECs and offsets you're purchasing? Not all offsets are created equal, and not all underlying credits meet the same standards.

Finding The Right Fit

Sustainability programs are often easier to manage when they're built into how an organization already buys and manages energy, rather than bolted on as a separate initiative. Bundling RECs and offsets with a power and gas strategy is one way to do that.

The right energy partner understands more than electricity and gas supply alone. They can help evaluate the right energy supply mix for where an organization is today, explain tradeoffs clearly, and adjust the approach as needs change.

Bringing sustainability and energy strategy into the same conversation can be a practical place to start — when was the last time yours were reviewed together?

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Adam Lang is an Account Executive at NRG Business.
He may be reached at adam.lang@nrg.com, or 309.292.0029.

BUILDING AI INFRASTRUCTURE RESPONSIBLY IN ILLINOIS

MICROSOFT

Artificial intelligence (AI) is driving economic growth across Illinois. For manufacturers, AI is already improving productivity, stabilizing supply chains, and helping teams solve problems that once slowed operations. These capabilities depend on datacenters, the infrastructure that delivers the computing power behind modern AI systems.

As new datacenters come online, communities are asking how this growth will affect power costs, water resources, air quality, and local economic development. These questions are especially important for manufacturers, who depend on reliable energy, predictable costs, and strong local infrastructure.

Microsoft announced its Community-First AI Infrastructure initiative in 2026. The framework is built on a simple principle: AI infrastructure should create lasting local benefits while responsibly managing community resources. To guide that work, Microsoft's framework focuses on five commitments. Microsoft will: pay its own way to ensure its datacenters don't increase electricity prices; minimize its water use and replenish more water than what it uses; create local jobs; add to the tax base that funds local hospitals, schools, parks, and libraries; and strengthen the community by investing in local AI training and nonprofits. These principles are shaping how Microsoft approaches growth in Illinois and across the United States.

ENERGY

Protecting Reliability And Cost Stability

For manufacturers, energy is the most immediate concern surrounding AI infrastructure. Illinois businesses depend on reliable, affordable electricity, and communities want confidence that datacenter growth will not come at the expense of affordability or grid reliability.

One principle receiving increased attention is cost responsibility. Microsoft's Community-First AI Infrastructure framework is built on the idea that datacenter operators should fund the infrastructure needed to support their growth rather than shifting those costs to other customers. In Illinois, this includes early planning with utilities, clear load projections, and direct investment in the grid upgrades needed for our facilities. Microsoft contracts for the power it uses and funds the transmission and substation improvements required to serve new development.

At its Hoffman Estates datacenter campus, for example, Microsoft funded a new onsite substation and the transmission infrastructure needed to serve the site. After hearing concerns from community members about the potential visual impact of traditional overhead transmission lines, Microsoft worked with local stakeholders to route the transmission lines underground and funded the additional cost of that approach. The final design reflected both community priorities and the infrastructure requirements needed to support the site, while supporting grid reliability and keeping costs predictable for other utility customers.

Grid upgrades are only part of the equation. Supporting continued growth also requires investment in new energy resources. As electricity demand grows, both manufacturers and datacenter operators depend on a reliable supply of power and continued investment in generation capacity. Across the Midwest, Microsoft has contracted for 7.9 gigawatts of new renewable generation capacity added to the grid, more than double its current electricity consumption.

WATER

Preserving A Shared Resource

Water is emerging as another important infrastructure consideration. As AI infrastructure, advanced manufacturing, and other technology-intensive industries continue to expand, communities and businesses alike are looking for ways to support growth without placing unnecessary demands on local resources.

Microsoft is redesigning datacenter cooling to reduce water use. Next-generation facilities use closed-loop liquid cooling systems that recirculate cooling fluid rather than relying on evaporative cooling. By eliminating the need for ongoing access to potable water in the cooling process, these systems reduce demand on local freshwater resources.

In Illinois, Microsoft will fund the water infrastructure needed to support its operations rather than drawing on existing municipal capacity. The company also invests in watershed restoration projects designed to replenish local water resources and improve long-term resilience. In the Midwest, this includes restoring oxbow wetlands that recharge groundwater, improve water quality, and reduce flood risk. These projects support environmental goals and add long-term resilience for farms, manufacturers, and communities that depend on healthy watersheds.



Photo by Kevin Ortiz on Unsplash

Strengthening The Skilled Workforce

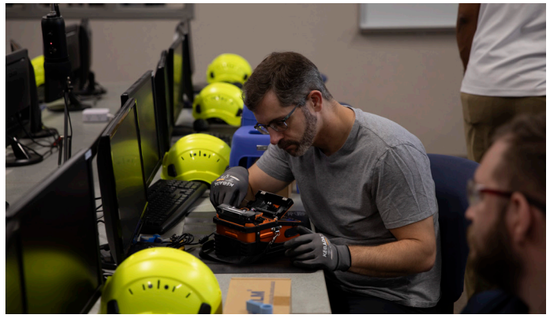
Workforce development is a growing concern for manufacturers across Illinois. Many companies are competing for electricians, HVAC technicians, welders, engineers, and other skilled professionals needed to support growth and modernization.

Major infrastructure projects can help expand that talent pipeline. Datacenter construction and operations create demand for many of the same skilled trades and technical roles that support manufacturing facilities, including electrical work, construction management, facility operations, information technology, and engineering.

Since establishing its datacenter presence in Illinois, Microsoft has created technology, operations, and skilled trades positions across the state. As of 2025, Microsoft's Illinois datacenters employed approximately 200 people, while new development projects are expected to support more than 510 construction jobs and approximately 2.1 million work hours during peak construction activity.

Workforce development is also a key component of the company's Community-First AI Infrastructure framework. The Microsoft Datacenter Academy program works with community colleges and vocational programs to prepare students for careers in datacenter operations, while partnerships with skilled trades organizations help strengthen apprenticeship opportunities in regions where new facilities are being developed.

While these programs are designed to support the technology sector, the benefits extend more broadly. Expanding the pool of trained electricians, HVAC technicians, and other skilled workers helps strengthen the workforce available to manufacturers and other industries throughout Illinois.



Building Community Partnership

Long-term infrastructure projects are most successful when communities share in their benefits. For manufacturers and technology companies alike, long-term growth depends on strong local relationships, public trust, and investments that strengthen the communities where facilities operate.

Datacenters contribute to local economies in several ways, including employment, purchases from local suppliers, and property tax revenue. In turn, that revenue helps fund schools, libraries, parks, public safety, and other community services. These investments can help communities accommodate growth while maintaining the infrastructure and services that residents rely on.

Community partnerships also help connect technology investments with local priorities. In Illinois, Microsoft supports programs through the Illinois Science & Technology Coalition that promote STEM education, mentorship, and career awareness for students. These initiatives help strengthen connections among schools, employers, and community organizations while expanding opportunities for the next generation.

Transparency also plays an important role in responsible infrastructure development. Communities increasingly expect clear information about resource use, project timelines, and local impacts. Open communication during planning and construction can help address concerns early, build trust, and support more informed decision-making[TC1.1]. In response to community calls for transparency, Microsoft stopped using non-disclosure agreements with local governments regarding its datacenter projects. The company also committed to sharing information about its plans as openly as possible to support dialogue and build trust with local communities.

Ultimately, successful infrastructure development depends on more than engineering and investment. It also requires collaboration among businesses, local leaders, utilities, and residents to ensure that growth reflects community priorities and creates long-term value.

Looking Ahead

AI infrastructure is becoming part of Illinois's industrial landscape. Manufacturers will increasingly feel its effects through energy markets, workforce pipelines, local infrastructure, and regional economic development. The discussion is no longer simply whether Illinois should support AI growth, but how that growth can occur in a way that creates broad and lasting benefits.

Illinois has a long history of building infrastructure that powers economic progress. Today, AI infrastructure represents the next generation of that legacy. As AI infrastructure becomes a larger part of the state's economy, questions about energy, water, workforce development, and community impact will become increasingly important. For manufacturers, these discussions are not separate from economic growth. They are part of ensuring that growth is sustainable, competitive, and broadly beneficial.

Microsoft's Community-First AI Infrastructure initiative is one example of how technology companies are approaching these challenges. While specific approaches may differ, companies, communities, and policymakers share a common objective: supporting innovation while protecting the resources, infrastructure, and communities that make long-term growth possible. ◆

PART ONE

Building the Infrastructure Behind Fusion Energy: The Prototype Challenge

ABILITY ENGINEERING

The AI boom and the push for broader electrification are placing increasing strain on the U.S. power grid, forcing a serious look at future generation capacity. Fusion energy is one of the technologies being explored as part of that future energy mix.

But while public discussion tends to focus on the physics of the reaction itself, the reality of getting fusion programs off the ground is much more rooted in heavy industry. Before many experiments can run, they depend on cryogenic piping, vacuum vessels, pressure equipment, gas handling systems, controls, and a wide range of supporting infrastructure. For manufacturers, this is not science fiction. It is an emerging supply chain built on capabilities that already exist today.

Fusion as a Manufacturing Challenge

Ability Engineering Technology's involvement in fusion did not start with a boardroom decision to become a "fusion company." It evolved naturally from work AET was already performing in cryogenic, vacuum, and specialty process equipment.

In some cases, engineers and technical personnel entering fusion programs were already familiar with AET through previous work in other industries. As those people moved into a new market, many of the equipment requirements moved with them. The application was brand new. The manufacturing requirements were not.

As AET President Eugene Botsoe notes, "It grew out of capabilities we had already developed. As fusion programs expanded, those same skills became applicable to a new market."

Today, AET supports fusion programs through vacuum systems, cryogenic integration, gas handling systems, and custom process equipment. These systems often have to operate under demanding conditions while still allowing for continued modification and expansion as the underlying research evolves.

That flexibility is important because prototype manufacturing is fundamentally different from conventional production work.

The Prototype Reality

In conventional manufacturing, once a design is established, the process can be optimized. Tooling improves, suppliers become standardized, work instructions mature, and production becomes increasingly repeatable. Prototype work demands something different.

A fusion program may only need one system, or a very small number of components. Interfaces may change mid-project. Equipment may need to leave room for future expansion before the details of that expansion are fully defined. In some cases, the system being fabricated is only one part of a much larger experiment that is still changing around it. None of that reduces the technical requirements.

A vacuum chamber still has to maintain the required operating condition. Pressure-containing equipment still has to meet its design requirements. Cryogenic piping still has to manage extremely low temperatures, thermal contraction, and heat leak. Weld quality, cleanliness, documentation, inspection, and testing remain important even if the manufacturer may never build an identical unit again.

> "THE EQUIPMENT MAY ONLY BE BUILT ONCE, BUT IT STILL HAS TO MEET DEMANDING ENGINEERING AND TESTING REQUIREMENTS," EXPLAINS MICHAEL MAURISAK, AET'S TECHNICAL DIRECTOR. "THE CHALLENGE IS OFTEN FINDING SUPPLIERS THAT HAVE THE EXPERIENCE AND FLEXIBILITY TO DEVELOP SOMETHING NEW RATHER THAN APPLY A STANDARD PRODUCTION APPROACH."

That is one of the less visible challenges facing fusion developers. Cryogenic and vacuum equipment are already specialized markets. There are only so many manufacturers with meaningful experience in those environments, and fewer still that are structured around highly engineered, low-volume prototype work.

A production-oriented supplier may be very good at making the same part hundreds or thousands of times. That does not necessarily mean the same organization is comfortable with a design that may still change, requires unusually close engineering coordination, or needs a custom testing approach before it leaves the floor.

The challenge is not simply whether the equipment can be built. It is whether it can be built, tested, modified, and supported while the program itself is still moving.



The Hardware Supporting the Science

The hardware surrounding a fusion experiment can be extensive.AET's work has included cryogenic piping, vacuum chambers and vessels, pressure vessels, jacketed vessels, specialized piping components, high-specification cable tray supports, and helium purification systems. More broadly, the same type of infrastructure can include tanks and vessels, valves, bayonets, cold boxes, single- and multi-line jacketed piping, flexible hose, bellows, gas purifiers, and controls.

At first glance, much of that equipment can look familiar. A vessel is still a vessel. Piping is still piping. A support is still a support. The operating conditions are what change the problem. A vessel may need to perform under vacuum. Piping may carry fluids at extremely low cryogenic temperatures. Components may have to account for thermal contraction, stringent cleanliness requirements, or restrictive leak criteria. Even support structures and cable systems can become specialized once thermal movement, installation constraints, load requirements, or facility integration are considered.

This is one reason experience from other high-specification industries transfers so well. Manufacturers that have spent years working in aerospace, industrial gases, semiconductor processing, scientific research, or other demanding environments may already understand many of the individual problems involved. Fusion does not necessarily require every supplier to invent a new manufacturing discipline. In many cases, it requires established disciplines to be applied in a new combination.

Building first-of-a-kind systems also changes the relationship between engineering and manufacturing. In Part 2, we will look at how that development work happens on the shop floor, why secondary systems become more important as programs mature, and what commercialization could mean for Illinois manufacturers. ◆



PART TWO

Building the Infrastructure Behind Fusion Energy: Scaling The Supply Chain

ABILITY ENGINEERING

Fusion systems depend on much more than the central experiment. Vacuum equipment, cryogenic piping, pressure systems, controls, gas handling, and other supporting infrastructure all have to be engineered, fabricated, tested, and integrated. As fusion programs mature, the manufacturing challenge begins to change. The question is no longer only whether specialized equipment can be built. It becomes how that equipment can eventually be built more reliably, repeatedly, and economically. For manufacturers entering 2027, that shift is worth watching.

Where Engineering Meets the Shop Floor

When a system is first-of-a-kind, the wall between engineering and manufacturing tends to become much thinner. For a mature product, the design is largely settled before it reaches fabrication. With prototype equipment, questions discovered on the shop floor may require immediate engineering input. A weld sequence may affect distortion. A component may need to be repositioned because of an interface issue. Testing may expose a condition that was not obvious in the original design.

That means testing is not always just the final quality-control step. It can become part of the development cycle. AET's in-house capabilities include engineering and design, machining and fabrication, controls and instrumentation, hydrostatic testing, pneumatic testing, helium mass-spectrometer testing, and cold-shock testing. The company supports both build-to-print and design-and-build work. Keeping those functions closely connected can be especially useful during prototype development.

A fabrication question can be addressed directly by engineering. Testing can be used to validate assumptions before the equipment ships. Controls and instrumentation can evolve along with the mechanical system. If a change is needed, the people designing, building, and testing the system are already working within the same process. In that environment, manufacturing becomes part of the R&D effort rather than simply the final step after development is complete.

That is an important distinction for emerging technologies. The manufacturer is not always being asked only to make a part. In some cases, the manufacturer is being asked to help determine how the part should be made, how it should be tested, and how it should accommodate whatever comes next.

Secondary Systems Become More Important

Helium purification is a good example of the importance of secondary infrastructure.

It is not the part of a fusion facility that usually receives public attention, but helium is expensive and important in many cryogenic applications. Storage, distribution, purification, and reuse can become meaningful operating considerations for facilities using significant quantities. AET has supplied helium purification equipment as part of its broader cryogenic and fusion-related work.

The same general principle applies to many systems surrounding the experiment. Vacuum equipment, gas handling, controls, cryogenic distribution, purification, and support infrastructure may not be the central technology, but their performance affects how reliably and efficiently the facility can operate.

As fusion programs become larger and more complex, these systems start to matter more, not less. A one-off research installation may be able to tolerate unusual operating practices, manual intervention, or higher maintenance effort. A larger or more commercial facility will place much greater emphasis on uptime, operating cost, repeatability, and serviceability. That is where secondary systems become part of the economics of the overall technology.

From Prototype to Production

If fusion proves commercially viable, the manufacturing problem will eventually change in a very practical way. Today, much of the work is centered around questions like: Can this be designed? Can it be built? Can it be tested? Can it survive the operating condition? Commercial deployment introduces a different set of questions.

Can it be built repeatedly?

Can multiple suppliers produce it to the same standard?

Can the testing process be standardized?

Can lead times come down?

Can the design be simplified without compromising performance?

Can the equipment be serviced efficiently once it is installed?

That transition requires more than engineering capability. It requires qualified suppliers, repeatable fabrication processes, standardized testing, reliable material availability, documentation systems, and an experienced workforce.

Early systems are often custom. Designs evolve quickly. Quantities are low. Engineers and manufacturers work closely together because the product itself is still being defined.

As the market matures, the focus shifts. Designs become more repeatable. Suppliers become more specialized. Production volume increases. Cost, delivery, maintainability, and standardization become much more important.

The prototype work taking place now therefore does more than support an individual experiment. It also develops the manufacturing knowledge that may be needed if fusion grows into a larger industry.

What Scaling Requires

Scaling advanced-energy hardware will require more than simply increasing production volume. The supply chain itself has to mature.Qualified suppliers need to be identified and developed. Inspection and testing methods have to become repeatable. Designs need to become easier to manufacture where possible. Materials have to be available in the quantities and lead times required. Documentation and configuration control become more important as more units are produced.

Workforce capability matters as well. Prototype work can rely heavily on a relatively small number of experienced engineers, welders, machinists, technicians, and inspectors who understand the application in detail. Larger-scale production requires that knowledge to become more transferable and more repeatable across teams. That transition can be difficult.

A process that works well when one experienced person is closely involved with every unit may not scale well when production volume increases. Commercialization therefore depends not only on proving that the technology works, but also on turning specialized knowledge into reliable manufacturing systems.

The Illinois Opportunity

The broader lesson for Illinois manufacturers is relatively simple: participating in an emerging industry does not always require a company to reinvent itself. Cryogenic piping was not invented for fusion. Neither were pressure vessels, specialty welding, vacuum chambers, precision machining, electrical controls, or structural fabrication. The application changed, but the physics of fabrication did not.

Illinois already has a deep industrial base with companies experienced in machining, welding, pressure equipment, automation, controls, structural fabrication, instrumentation, testing, and specialized process systems. Those skills were developed for existing industries, but they may also have value in advanced-energy markets The opportunity is not necessarily to become a "fusion company."

It may simply be to recognize where an existing capability solves a problem that fusion developers now need solved. That is how AET entered the market. The company did not abandon its existing capabilities and start over. Fusion became another application for experience that had been built over many years in cryogenic, vacuum, and process equipment. The same path may exist for other manufacturers.

A Manufacturing Opportunity Worth Watching

The beginning of a new year is often when manufacturers evaluate where future growth may come from. Fusion remains an emerging market, and its commercial path is not guaranteed. But the manufacturing activity surrounding it is already real.

For Illinois manufacturers, the opportunity is less about predicting exactly when fusion will become commercial and more about understanding where existing capabilities may fit into the supply chain as the technology develops. Advanced technologies still depend on physical infrastructure, and physical infrastructure still has to be designed, fabricated, tested, installed, and supported.

If fusion continues to scale, the companies that eventually support commercial deployment will not appear overnight. Many of them will be manufacturers that began by solving difficult prototype problems years earlier. ◆



Michael Maurisak is Technical Director at Ability Engineering Technology.
He may be reached at michaelmaurisak@abilityengineering.com

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CHARGING AHEAD

What Illinois Manufacturers Need to Know About Employee Expense

BARNES & THORNBURG LLP

Your company just committed to electrifying half its fleet by 2028. The new EV charging stations are going in at corporate headquarters, sales reps are plugging in at home, and field technicians are buying arc-rated gloves rated for high-voltage battery systems. Everyone is excited until someone in HR asks the question nobody planned for: *Who's paying for all of this?*

For Illinois manufacturers riding the clean energy wave, that question carries real legal weight. The state's expense reimbursement law is broad, relatively untested, and increasingly relevant as sustainability programs shift new costs onto employees.

Illinois' "Necessary Expense" Standard: A Quick Primer

Start with the basics. Illinois takes an expansive approach to expense reimbursement. Under Section 9.5 of the Illinois Wage Payment and Collection Act (IWPCA), employers must reimburse employees for all necessary expenditures incurred within the scope of employment and directly related to services performed for the employer's primary benefit. Unlike states that only require reimbursement of specifically authorized expenses, Illinois casts a wider net: if the expense was reasonable, necessary, and primarily benefited the employer, it may be reimbursable even if the employer never explicitly approved it in advance.

There is an important statutory shield, however. An employer that maintains a written expense reimbursement policy clearly defining what qualifies as a reimbursable expense can limit its exposure to claims falling outside that policy. But the policy must be substantive. A zero-reimbursement or token-reimbursement approach will not hold up. Employees must submit expenses with supporting documentation within 30 calendar days, or longer if the employer's written policy provides additional time. Employers are not liable for losses caused by the employee's own negligence, normal wear, or theft (unless the theft resulted from the employer's negligence).

The IDOL's Five-Factor "Primary Benefit" Test

In April 2023, the Illinois Department of Labor (IDOL) finalized regulations that significantly reshape the reimbursement landscape. The most consequential change was a new five-factor balancing test for determining whether an expense was incurred "to the primary benefit of the employer":

1. Whether the employee has any expectation of reimbursement.
2. Whether the expense is required or necessary to perform the employee's job duties.
3. Whether the employer is receiving a value it would otherwise need to pay for.
4. How long the employer is receiving the benefit.
5. Whether the expense is required of the job.

No single factor is dispositive; the overall analysis focuses on "the extent to which the expense benefits the employer and its business and business model." The regulations also established that an employer's failure to respond to a reimbursement request is treated as a denial, immediately opening the door to an IWPCA claim. And employers must now maintain expense-related records for three years, including policies, requests, approvals or denials, and documentation of actual reimbursement payments.

One provision deserves special attention from manufacturers. If an employer's practice exceeds its written policy (for example, by routinely reimbursing costs the policy does not technically cover), it becomes liable for full reimbursement of those expenses going forward. Informal generosity can quietly harden into a binding obligation.

Where Energy And Environment Meets Expense Reimbursement

Here is where theory meets the factory floor. The clean energy transition is generating entirely new categories of employee-facing costs, and the IWPCA's "necessary expense" standard is broad enough to capture them.

Consider EV charging at home. As manufacturers transition fleets to electric vehicles, employees driving company EVs or using personal EVs for business travel are plugging in at home. Home electricity costs for charging, which can be significant for sales teams, field engineers, and delivery drivers, may constitute reimbursable expenses when the charging primarily benefits the employer. Illinois does not yet have case law squarely addressing this, but the five-factor test strongly favors the employee when a company-directed program requires home charging.

Remote work utility costs present a related challenge. Manufacturing companies with hybrid-remote engineering, design, or administrative staff should recognize that home electricity, heating, cooling, and internet costs may be reimbursable. In a "necessary expense" state like Illinois, these claims become especially plausible when the employer no longer provides a centralized workplace for those functions.

Specialized safety gear is another growing category. Technicians working on EV battery systems, solar installations, or high-voltage equipment often need specialized personal protective equipment, including arc-flash-rated clothing, insulated tools, and specialized respirators. When employers direct employees to perform this work, the cost of necessary safety equipment that primarily benefits the employer's operations is almost certainly reimbursable.

Finally, corporate sustainability commitments can translate into employee-level costs: green-certified lodging during travel, carbon offsets, lower-carbon transportation options, and energy-efficient home office equipment mandated by company policy. Under the five-factor test, these costs look reimbursable when the employer's sustainability program drives the expenditure.

Compliance Risks Manufacturers Should Not Ignore

The penalty landscape has teeth. The recent amended regulations increased the allowable penalty assessment against employers who fail to provide timely wages, final compensation, or wage supplements (including expense reimbursements) from two percent to five percent of amounts owed per month. That escalation makes even modest unresolved reimbursement claims expensive if left to compound.

Class action exposure adds another dimension. While such disputes have not yet become common, the breadth of the IWPCA's "necessary expense" standard, combined with the lack of substantive court decisions interpreting Section 9.5, means the legal landscape could shift quickly. A single class action challenging a manufacturer's failure to reimburse, say, home EV charging costs across a fleet of 200 sales reps, could generate substantial liability overnight.

On the enforcement side, the IDOL launched a pilot triage program in November 2025 to manage its high volume of wage claims, a signal that the agency is sharpening its focus on the claims it does pursue.

Practical Steps For Illinois Manufacturers

The good news: these risks are manageable with deliberate planning. Start by auditing your sustainability programs for hidden reimbursement obligations. Identify every employee-facing cost your EV fleet transition, remote work policies, or green mandates create. If employees are spending money that primarily benefits the company's environmental commitments, the IWPCA likely requires reimbursement.

Next, adopt or update a written expense reimbursement policy. The statutory shield only works if the policy is substantive, specific, and actually maintained. Generic boilerplate will not suffice. Address EV charging, remote work utilities, specialized PPE, and sustainability-driven costs expressly. Before an employee files a claim, run each new category of expense through the IDOL's five-factor analysis and document your reasoning. If the answer is close, err toward reimbursement. The penalty for under-reimbursing far exceeds the cost of paying legitimate claims.

Operationally, create a workflow that guarantees timely, documented responses to every reimbursement request. Under the amended regulations, silence equals denial, and denial means immediate claim eligibility. Maintain all expense-related records (policies, requests, decisions, and payment documentation) for at least three years, and build this into your document management systems before an audit request arrives.

Finally, ensure internal consistency. If you have been informally reimbursing costs that your written policy does not cover, you may have already created a binding obligation. Align your written policy with your actual practice. Train managers so that everyone administering the policy understands both the rules and the consequences of ad hoc approvals or ignored submissions.

Looking Ahead

The policy tailwinds are only strengthening. The Reimagining Energy and Vehicles (REV) Act, the Climate and Equitable Jobs Act (CEJA), and hundreds of millions in electrification infrastructure funding are accelerating the manufacturing sector's green transition. That momentum can be good news for the industry, but it means the gap between sustainability ambition and expense reimbursement compliance will only widen for employers who do not plan ahead.

The manufacturers who thrive in this environment will be the ones who treat expense reimbursement not as a back-office afterthought but as a core component of their clean energy strategy. Map the costs, write the policies, and build the systems now, while the legal landscape is still taking shape. The alternative is finding out what your obligations are after someone else defines them for you. ◆

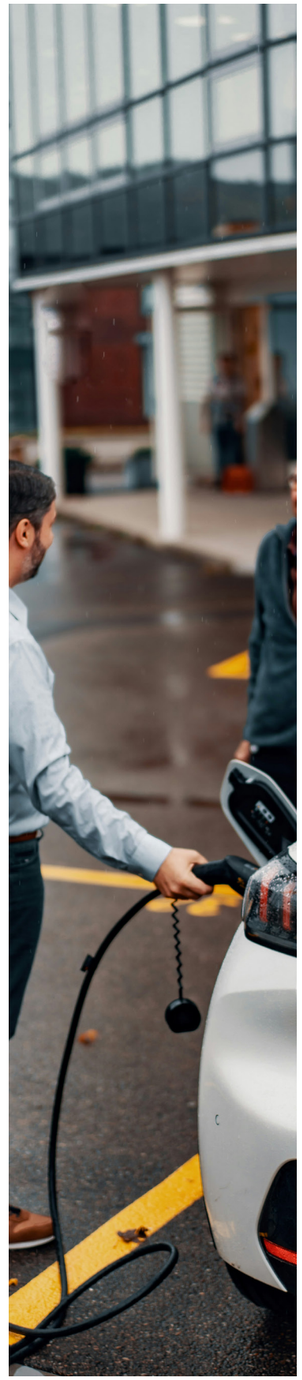


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This article was written by Anthony Molina, Charity Seaborn, Caroline MacNeill of Barnes & Thornburg LLP.
They may be reached at Anthony.Molina@btlaw.com and Charity.Seaborn@btlaw.com.

How Do You Do Sustainability, ***Sustainably***?

G&W ELECTRIC

Developing a new program can feel daunting, regardless of topic. This is especially true for programs that can't really follow the crawl-walk-run model. For manufacturers in the beginning phases of starting a sustainability program, the balance between supporting your customers at their "run" phase without burning out the internal teams working towards your organization's "crawl" phase can feel difficult to find.

Some of our largest customers have run mature sustainability programs for a decade or more, and they come to us with detailed, specific requests built on years of their own data and infrastructure. Before we began standardizing our sustainability program, knowing where to start with these requests took significant time and resources. After 2 years of deliberate growth, however, we have many of the pieces in place: real data on several fronts, and a plan for building out the rest.

This is a position many Illinois manufacturers are in right now. Maybe your biggest customer just asked for a product carbon footprint or wants to know your labor practices before they renew a contract, and you are wondering where to even start. I've been there, and I want to share with you what has worked for us.

Sustainability Is Bigger Than Emissions

A common misconception is that sustainability means carbon and energy and not much else. Emissions get the headlines, but sustainability more holistically looks at the intersection of people, profit, and planet. It shows up as diversity and labor practices, governance and certifications, human rights in the supply chain, circularity, and waste reduction and so much more.

My advice for tackling these varying angles is to think of sustainability as a lens to do business through rather than a standalone entity. If your team is already tracking safety incidents, cutting scraps or being intentional about how you treat your people, you're further along than you think.

Start By Learning Your Own Landscape

Before you can respond to anyone else's expectations, you need a clear picture of your own. For us, that meant three things happening at once. First, understanding our regulatory exposure, which is particularly interesting for US-based multinational manufacturers. As global sustainability pressures rise, so do the expectations for suppliers to international markets too. That is why I recommend doing a preliminary applicability review of several EU regulations (e.g., CSRD, CBAM, PPWR), even if you're headquartered domestically.

Navigating sustainability regulations in the United States is trickier than you'd expect as there is no single federal standard. Instead, there is a growing patchwork of state requirements that often look similar but are not identical (e.g., PFAS, EPR); it's crucial to not assume that compliance with one state automatically puts you in compliance with another. Another important note: environmental and sustainability regulations are typically categorized separately; an effective environmental compliance tracker may need additional search terms to capture relevant sustainability regulations.

Second, benchmarking against what other companies publicly report and which standards or frameworks they're using (e.g., ISSB, GRI, TCFD). Comparing that with our own practices gave us a solid read on what matters most in our industry, the kind of grounding that a formal, from-scratch, double materiality assessment would eventually confirm in more depth. It won't be perfect, but it gives you a place to start.

Developing a solid understanding of greenhouse gas accounting is an essential first step in this process. Scope 1 covers what you "burn", things like natural gas for your own equipment or leaks from onsite systems. Scope 2 covers what you "buy", mainly purchased electricity and heat. Scope 3 covers everything else; comprised of 15 categories, from purchased materials to business travel to how your product is used after it leaves your dock and is typically the largest share of a company's footprint. CDP, the global disclosure nonprofit, puts the average around three-quarters of total emissions, with some sectors averaging higher. That is worth knowing because it explains why your larger customers, once they have tackled reductions in their own operations, start looking at their suppliers next. Every company's Scope 1 and 2 is someone else's Scope 3. It's all connected.

For manufacturers like G&W Electric, who work with specialized materials in electrical equipment, this gets specific fast. Some of the gases used for insulation in our industry, such as SF6, have an outsized climate impact relative to their volume, so even a small leak can carry real weight. Knowing which of your own materials and processes carry that kind of weight is all a part of learning your landscape.

Build A Consistent Voice Before You Build A Public One

Once you understand your exposure, the next step is making sure we're all speaking the same language. Sustainability is so specific, and it's common for terms to mean entirely different things to different departments (looking at you, life cycle assessment vs. life cycle testing). Which leads to our third foundational step: listening closely to what our customers were asking and making sure we were answering in kind.

Early on, we were fielding hundreds of similar but not quite identical questions from customers, and different people across the company were answering them differently because there was no shared reference point. We turned the previous two years of customer questions into a shared guide so that our sales and engineering teams could answer confidently without routing every question through the sustainability team. That consistency work is foundational. You cannot build credibility externally if your own people are not aligned internally.

Set A Roadmap, And Expect Detours

We built a three-year strategy based on that early landscape work, and eight months in, it already looks different than our original roadmap. We've achieved items we didn't think we'd be able to touch for years, and we extended others originally scheduled for year one into year three or four once we saw what would move the needle. Some items we removed entirely, and others we pulled forward to be better partners to our customers. That is normal. Think of the strategy less like a fixed path and more like the bumpers in a bowling lane. It keeps you moving in a forward direction, but the ball is still going to bounce around on its way to the goal.

Celebrate Small, Celebrate Often

Throughout my sustainability career, some of the most interesting project ideas have come directly from the heart of a business: technicians and operators. It's common for sustainability programs to start simply because existing employees put their time, energy, and passion behind filling an observed need. Sustainability goes nowhere without people. Don't let yourself get so lost in driving progress you forget to celebrate the wins as they come. Change is hard, and successful programs rely on momentum. There is so much joy to be found in progress. Sharing that joy gives people the chance to rest, connect and recharge.

Don't Let Perfect Get In The Way of Good

If there is one idea I would want every manufacturer early in this journey to hold onto, it's that perfect is not the standard, and waiting for it will only cost you time you do not have. Our baseline emissions data will keep improving as our systems and processes mature, and that is expected. A baseline is meant to represent a normal year of operation, and ours will get revisited again soon, simply because our footprint keeps changing as we grow. Instead of holding up progress to chase a number that will be outdated in two years, we used what we had to set real commitments now, and we treat the ongoing data work as exactly that: ongoing.

It is important to get comfortable with imperfection, with the gray area. Sustainability work is iterative by nature. You get a data point, you act on it, you refine it, and the cycle continues. Manufacturers who treat their first baseline or first policy as something that must be airtight before they can move will stay stuck at the starting line while their customers keep asking for more.

You Are Not Doing This Alone

One of the best things about the sustainability field is how collaborative it is. Sustainability practitioners are generally happy to compare notes, and free resources exist specifically to help companies get oriented, such as the Supply Chain Sustainability School, which offers on-demand learning modules built for exactly this kind of ramp-up. Local peer networks, industry groups, and even your more advanced customers can also be a resource. Asking a customer or competitor for help is far more common, and far better received, than people expect.

If you are early in this process and are feeling behind, don't. The manufacturers who get the furthest are the ones who start today with a working baseline, a real commitment, and keep building from there. In short, start where you are. The rest will follow. ◆



Photo by Getty Images

Dison Puntillo is a Sustainability Engineer with G&W Electric.
She may be reached at dpuntillo@gwelec.com.

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FROM INSIGHT TO ACTION

The Next Stage of AI for Illinois Manufacturers

QXIPMACT

The first stage of the artificial intelligence journey is bringing financial, production, inventory, quality, sales, and supply chain data together in real time. Once that foundation is established, dashboards monitor performance, predictive analytics anticipate outcomes, and Generative AI lets employees ask questions of company data and receive answers within seconds.But better visibility is not the final destination. For Illinois manufacturers, the next stage is turning intelligence into action. This is where Agentic AI can change how companies identify risks, make decisions, and respond to changing business conditions.



Photo by Getty Images

What Is Agentic AI?

Generative AI and Agentic AI are related, but they serve different purposes.

Generative AI responds to a request. A manufacturing leader might ask, "Which customer orders are at risk of missing delivery?" The technology analyzes the relevant information and provides an answer.

Agentic AI goes further. It continuously monitors the business, detects emerging problems, identifies contributing factors, alerts the appropriate people, and may recommend the best next action.

The distinction is straightforward: Generative AI helps manufacturers find answers faster, while Agentic AI helps them recognize and address issues proactively. Agentic AI can operate within defined boundaries, with employees reviewing and approving recommendations before action is taken.

Closing The Gap Between Information And Action

Many Illinois manufacturers already have ERP systems, dashboards, and reports. Still, someone must review the information, recognize a problem, investigate its cause, determine a response, and communicate it. This creates a gap between the moment a problem begins and the moment the organization responds.

Consider an order that may miss delivery. The information might exist across the ERP, production schedule, inventory system, and supplier records, yet remain unnoticed until someone manually reviews several reports.

Agentic AI can continuously evaluate those data points. It could detect that a critical component will arrive late, determine how the delay affects production, identify the customer orders involved, and notify the appropriate employees. Instead of reporting a late order after it occurs, the system helps the manufacturer intervene while options remain available.

Practical Applications Across Manufacturing

Agentic AI can support several areas of a manufacturing organization. In production, it can monitor schedules, labor availability, machine performance, and material requirements to flag at-risk orders. When a supply chain shortage emerges, it can identify affected jobs and recommend alternative suppliers, expedited purchases, or changes to production priorities.

For inventory management, Agentic AI can recognize excess and slow-moving materials, anticipate shortages, and recommend adjustments based on demand, production plans, and supplier lead times. This can improve product availability while reducing working capital tied up in inventory.

Finance teams can use Agentic AI to monitor profitability by product, customer, job, or order. When material, labor, freight, or production costs begin eroding margins, the system can flag the change, explain its likely cause, and identify where corrective action may be needed. Quality teams can use it to monitor scrap, rework, warranty claims, and inspection results, identifying unusual patterns before they become larger and more expensive problems. These capabilities can be valuable for small and midsize Illinois manufacturers. Agentic AI lets their teams focus on issues requiring judgment and action instead of gathering and reconciling information.

Keeping People At The Center

Manufacturers do not need to begin with fully autonomous systems. A practical approach is to start with an advisory model. The AI monitors performance, identifies issues, and recommends actions, while an employee reviews and approves those recommendations. As confidence grows, repetitive and lower-risk activities can become automated. The system might distribute an alert, create a follow-up task, prepare a report, or initiate an established workflow. Higher-impact decisions, such as changing a production schedule, selecting a supplier, or issuing a purchase order, can continue to require human approval. The goal is not to remove people from decision-making. It is to give them earlier warnings, better information, and more time to make effective decisions.

Building On The Right Foundation

Agentic AI depends on trusted and connected data. If production, financial, inventory, and supplier information remain isolated, the technology cannot understand the complete situation or provide reliable recommendations. Illinois manufacturers should begin with one measurable business problem, such as late orders, excess inventory, supplier performance, downtime, or declining margins. They can then connect the necessary data, establish performance benchmarks, and define the decisions the AI should support. Starting with a focused use case allows a manufacturer to demonstrate value, build confidence, and expand gradually without replacing its existing systems.

Illinois manufacturers face rising costs, workforce constraints, supply chain uncertainty, and demanding customer expectations. The companies that lead the next decade will recognize risks sooner, make decisions faster, and act before problems affect their customers or profitability. Agentic AI provides a practical path forward by transforming connected data into continuous intelligence, and continuous intelligence into timely action. ◆

Michael Bigda is Vice President of Business Development for QX Impact.
He may be reached at michael.bigda@qximpact.com or (773) 407-4375.

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A New Tool to Help Build Illinois' Manufacturing Workforce

Manufacturers across Illinois continue to tell us the same thing: finding and developing a skilled workforce remains one of their biggest challenges. There isn't one solution to that challenge, but a new federal program beginning in 2027 could give manufacturers another tool to help build the talent pipeline.

The new Federal Scholarship Tax Credit will allow individuals to receive a dollar-for-dollar federal tax credit of up to $1,700 for donations to qualified Scholarship Granting Organizations, or SGOs. Those organizations then use the donations to provide scholarships for eligible K-12 students. What makes this especially interesting for manufacturers is that the program isn't just about private school tuition. Scholarship dollars can also support eligible expenses for students attending public schools, including expenses connected to CTE and other career-focused programs.

That's Where I Think Manufacturers Should Pay Attention.

Our industry already invests heavily in education and workforce development. Manufacturers donate equipment to schools, host plant tours, support robotics teams, provide internships and apprenticeships, participate in work-based learning and spend countless hours working with local educators. We do all of this because we know we have to reach students earlier and give them a better understanding of the careers available in manufacturing.

This Program Could Give Manufacturers another Way To Support That Work.

Manufacturers that already have a 501(c)(3) foundation or charitable organization should start looking at whether that organization could qualify as an SGO. There are requirements that come with that designation, including requirements around how scholarship dollars are distributed and used, but manufacturers with an existing charitable structure may already have a good starting point.

There is also a real need to think about how this program can work for public school students. Much of the existing SGO infrastructure has traditionally been focused on private school scholarships. That means there is room for manufacturers, education foundations and other organizations to help develop SGOs that focus on public school students and career pathways.

For manufacturing, that could mean helping students with eligible costs associated with CTE and manufacturing programs—things like equipment, supplies, technology and other educational expenses that can sometimes stand between a student and an opportunity. There is still work to be done before this becomes available in Illinois. States must elect to participate in the program and identify qualifying SGOs. The IMA supports Illinois opting into the program so our students, families and employers have access to this new federal resource.

In the meantime, manufacturers don't have to wait to start looking at it. If your company already has a 501(c)(3), talk with your team about whether becoming an SGO could make sense. Talk with your local schools and CTE programs about where students need help. And think about whether this could complement the workforce investments your company is already making.

We all know there isn't a silver bullet for the manufacturing workforce shortage. But if there is a new tool that can help more students get into CTE programs, learn technical skills and ultimately find their way into manufacturing careers, we should make sure Illinois manufacturers understand how to use it. ◆





Photos by Getty Images

Sarah Hartwick is Senior VP and Corporate Board Secretary of the Illinois Manufacturers Association.
She may be reached at shartwick@ima-net.org.

THE HUMAN PREMIUM

Why AI Makes People More Valuable, Not Less

THE OVERTURE GROUP & MOVE MARKETING

Note

Ask a recruiter what's changing in 2026, and you'll hear about AI screening resumes and coaching first-time managers. Ask a marketer, and you'll hear about AI rewriting how buyers research and self-qualify before a single sales call ever happens. Both are right. Neither has the whole picture. This is co-authored by two firms looking at the same shift from opposite ends of the business:

The Overture Group, a retained executive search and compensation firm, and Move Marketing, a B2B marketing agency specializing in complex industrial, science, and technology businesses. Neither firm's perspective is complete on its own — talent and go-to-market strategy are two halves of the same growth equation, and AI is reshaping both at the same time. The Overture Group's perspective focuses on human capital: how AI is reshaping how companies recruit, develop, and retain talent. Move's perspective focuses on how AI is changing buyer behavior, and what that means for how industrial companies market and position themselves. Both lenses are essential. Together, they reveal a complete picture for mid-market manufacturers navigating the AI era.

Many leaders still view artificial intelligence through a narrow lens: cost reduction, automation, or workforce replacement. That view is understandable, but it misses the larger opportunity. Used well, AI strengthens recruiting, leadership decisions, employee development, productivity, and marketing. As routine analysis becomes faster and cheaper, scarce human capabilities such as judgment, creativity, empathy, trust-building, and strategic thinking become more valuable.

The same shift is changing how buyers evaluate complex products. Research commonly indicates that roughly 80% of the B2B buying journey is now self-directed and digital before a prospect engages a salesperson[1]. AI accelerates that behavior by helping buyers find, summarize, and compare information. Marketing that works when Sales is not in the room is therefore no longer optional.

The connecting idea is simple: technology processes information, but people create enterprise value. On the talent side, AI frees employees to do judgment-intensive work. On the market side, it frees buyers to conduct research on their own terms. In both cases, winning organizations use AI to build capability and trust, not to erase the human presence employees and customers are ultimately choosing. That principle applies across six connected dimensions: talent acquisition and workforce planning; leadership decision support; learning and employee development; productivity and culture; ethical governance and human oversight; and marketing for an AI-enabled buyer journey. Companies that integrate these areas responsibly will outperform those that treat AI as either a threat or a shortcut.

From Automation to Augmentation

Every major technological wave has created anxiety. Mechanization, computers, and robotics changed the tasks people performed, but also created new forms of skilled work. AI is likely to follow the same pattern. Its greatest value often comes not from replacing people, but from helping them perform at a higher level.

A 2023 Stanford University and MIT study found that generative AI increased customer-service productivity by 14%, with the greatest gains among less-experienced employees[2].

The result suggests that AI can codify some of the practices of top performers and make them available across an organization. It can raise the performance floor while allowing experts to move faster. The risk is not simply that AI replaces good people; it is that capable people using AI outperform competitors that have not learned to deploy it.

In practice, augmentation lets recruiters spend less time screening and more time evaluating and building relationships. Managers can detect problems earlier, employees can automate repetitive administration, executives can test more scenarios before committing capital, and sales leaders can use analytics without allowing a dashboard to replace a customer relationship.

The shift applies equally to go-to-market work. Ten years ago, many buyers depended on sales representatives to explain specifications, pricing logic, and competing options. Today, technical buyers often arrive at the first conversation with a shortlist, requirements, and a view they want the supplier to confirm. Content quality has become part of sales effectiveness, and a poor digital experience can eliminate a company without producing a visible lost opportunity.

Smarter Hiring, More Human Hiring

Talent remains a competitive advantage, yet inconsistent screening, scheduling, and communication often slow hiring. AI can match skills and transferable experience, streamline interview workflows, forecast hiring needs, and keep candidates informed. These uses reduce friction and give recruiters and executives more time to select the right people.

Better matching can surface candidates whose titles don't match the job posting but whose experience does. Automated scheduling can reduce days of email exchanges to minutes. Workforce models can give leaders an earlier warning about turnover or expansion needs, creating more time to source hard-to-fill roles. Timely, personalized updates can also keep qualified candidates engaged while they wait.

The final judgments remain human. Character, values alignment, coachability, executive presence, leadership maturity, and cultural contribution require interaction and discernment. Algorithms trained on historical data can also reproduce historical bias. Strong organizations treat AI as a research assistant to the hiring manager, not as the hiring manager. They use efficiency to create more meaningful human touchpoints, not fewer.

Better Leadership and Scalable Development

Leaders face labor shortages, cost pressure, supply-chain disruption, and rapid competitive shifts. AI can consolidate fragmented data, identify turnover or productivity patterns, summarize meetings, track commitments, and model staffing, pricing, or market scenarios. It can turn weeks of information gathering into an afternoon of focused analysis.

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These applications are most valuable when they improve decision quality and speed without obscuring assumptions. Scenario models should make tradeoffs visible; organizational diagnostics should prompt investigation rather than label a person or team; and meeting tools should clarify ownership rather than create another archive no one reviews.

But AI cannot supply courage, accountability, or moral authority. A dashboard may show that a plant is underperforming; it cannot weigh every human consequence, stand before the team, or own the decision. Data informs leadership. It does not assume leadership's responsibility.

AI also makes individualized development more affordable. Organizations can tailor learning paths to roles and skill gaps, coach first-time supervisors, provide writing assistance, simulate difficult conversations, and connect employees to internal career opportunities. For a 200-person manufacturer, that can make development once reserved for large enterprises broadly accessible. The test is whether the experience is genuinely useful and personal, rather than generic training with an AI label.

This matters for retention as well as performance. Employees increasingly expect a credible path to grow, and the absence of one often prompts strong contributors to look elsewhere. AI can make internal opportunities and next-step skills more visible, but managers still need to provide encouragement, context, and honest feedback.

Productivity Without Burnout

Employees spend substantial time formatting reports, searching for information, scheduling meetings, and summarizing notes. McKinsey estimates that generative AI could automate activities consuming 60-70% of employee time, though not entire jobs[3].

That distinction matters: jobs are collections of tasks. A plant supervisor may walk the floor, coach employees, solve operating problems, and complete compliance paperwork; AI suits some of those tasks better than others. Used wisely, it returns time to customers, innovation, problem-solving, collaboration, and strategy.

Used poorly, AI can accelerate work in the wrong direction or create a new form of burnout, with employees expected to review and own more generated output than they can responsibly check. Productivity gains must be paired with realistic expectations, quality controls, and clear accountability.

Governance Keeps People Accountable

AI in the workplace creates real risks: bias, privacy violations, opacity, overreliance, and mistrust. Industrial and manufacturing employers should require human review of hiring, promotion, and termination decisions; recurring bias testing; clear disclosure of where AI is used; strong protection of workforce data; employee training; and a named executive accountable for outcomes.

Oversight should match the stakes. A drafting assistant may need ordinary review, while a system influencing employment, safety, or compensation decisions requires documented controls and escalation paths. In every case, an employee, candidate, or customer should be able to understand when AI materially shaped an outcome and who is responsible for reviewing it.

Trust is the currency of a healthy organization. Employees and candidates who believe a system is unfair will route around it, disengage from it, or leave. Governance is therefore not a brake on adoption. It is the foundation for adoption that lasts.

The Mid-Market Opportunity

Mid-market organizations may benefit more than global enterprises because they operate leanly, have shorter distances between leadership and the front line, and often make decisions faster. AI can help them compete for talent, professionalize HR processes, improve planning, strengthen first-time managers, and scale without unnecessary overhead. Roughly 98-99% of U.S. manufacturing firms have fewer than 500 employees[4].

These small-to-mid-sized manufacturers are expected to operate like modern, data-driven enterprises while often relying on lean administrative teams and limited analytics resources. They face workforce, cost, supply-chain, capital, technology, and cyber pressures, along with marketing challenges such as technical depth, long sales cycles, weak attribution, and limited budgets.

Their size can be an advantage. With fewer legacy systems and less distance between executives and operating teams, a focused pilot can move quickly from concept to feedback. The right starting point is a recurring, measurable problem: candidate response time, manager preparation, technical-content retrieval, lead qualification, or reporting. Judge results by business outcomes and human experience, not by the volume of AI output.

AI can narrow the capability gap, but tools do not fix unclear strategy; they amplify it. A poorly targeted campaign automated at scale simply creates waste faster. The force multiplier appears only when technology is paired with capable people, clear priorities, and systems designed for how employees and buyers behave.

Marketing for the AI-Enabled Buyer

The buying system for complex B2B products has changed. Discovery has expanded beyond trade shows and representative relationships to search, video, peer communities, and AI-assisted research. Evaluation is self-directed and evidence-driven. Specifications must be searchable, comparable, and easy to share. Buying committees increasingly expect evidence on total cost, uptime, compliance, and sustainability, not just unit price.

Sales is moving from information gatekeeper to late-stage consultant. Marketing now handles much of the education sales once did early in the journey. A weak website or poor technical content can disqualify a supplier before its sales team knows a prospect was looking.

Marketing That Works When Sales Is Not in the Room

High-performing manufacturers treat marketing as a knowledge-capture and trust-building system. AI can tailor content to different roles and buying stages, analyze competitive positioning, improve digital experiences, optimize multichannel campaigns, and create measurement loops that leadership can evaluate. The goal is not more content for its own sake; it is timely, credible evidence that helps a buyer evaluate risk and move forward.

That requires a strategic foundation. A plant engineer, procurement leader, and finance executive may need different evidence, but each should encounter the same clear positioning. Subject-matter experts must validate technical claims, and performance data should show whether buyers find, use, and act on the material. AI can scale a sound system; it cannot decide what the company truly stands for.

The same principle supports employer branding. Candidates research employers much as buyers research suppliers, forming impressions before any conversation. AI can help tailor recruitment campaigns, improve career pages, analyze sentiment, personalize outreach, and identify feedback trends. Yet authenticity remains decisive. A tool can assist the message; only people can create the culture and credibility behind it.

In Closing

AI does not reduce the value of people; it raises the premium on what machines cannot reliably supply: judgment, empathy, resilience, ethics, persuasion, leadership, and trust. In the marketplace, it similarly raises the value of genuine technical expertise, useful thought leadership, and trusted relationships. Credibility cannot be automated.

The future workplace is not AI versus people, but AI with people. The future marketplace is AI powering strong marketing rather than substituting for it. The most important questions are not, "How many jobs can we eliminate?" or "How much can we cut from marketing?" They are: "How can AI make our people more capable and strategic?" and "How can our marketing earn trust and create pipeline when sales is elsewhere?" Organizations that answer both questions well will combine machine intelligence with human capital, and marketing systems with commercial results. They will not merely adapt to the AI era. They will set the pace. ◆

Referemces

1 Gartner research on B2B buying behavior has found that buyers spend the substantial majority of their purchasing journey in self-directed digital research — commonly cited at roughly 80% — before engaging directly with a sales representative. See Gartner, "The New B2B Buying Journey," and Gartner Sales Survey findings on rep-free buying preferences, gartner.com, 2025–2026.

2 Erik Brynjolfsson, Danielle Li, and Lindsey R. Raymond, Generative AI at Work, Stanford Digital Economy Lab / MIT, 2023.

3 McKinsey Global Institute, The Economic Potential of Generative AI: The Next Productivity Frontier, 2023.

4 U.S. Census Bureau data on manufacturing establishment size, as reported by The Manufacturer and the U.S. Small Business Administration Office of Advocacy, indicate that roughly 98–99% of U.S. manufacturing firms have fewer than 500 employees, 2025.

Alex Cairns is Founder & CEO of Move Marketing. He may be reached at alex@movemarketing.us.
William Wright is Managing Director of The Overture Group. He may be reached at BWright@TheOvertureGroup.com.

Coca-Cola: 140 Years of Impact in America

Coca-Cola System Generates $5 Billion in Economic Activity Across Illinois. The Coca-Cola system is highlighting its economic and community impact across the United States, with Illinois playing a significant role. According to the company's newly released U.S. Economic and Community Impact data, Coca-Cola's operations and broader value chain generated approximately $5 billion in economic activity in Illinois.

The impact extends well beyond Coca-Cola's direct operations. The company reports purchasing approximately $4 billion in goods and services from Illinois suppliers, while supporting more than 40,000 jobs across the state. Nationally, the Coca-Cola system supports approximately nine additional jobs for every direct system job, illustrating the broader employment impact created throughout its supply chain and related businesses.

Illinois is also home to one of Coca-Cola's largest metropolitan economic footprints. In the Chicago area, the Coca-Cola system generates approximately $4 billion in economic activity**, purchases another $4 billion in goods and services and supports more than 33,000 jobs.

Beyond economic activity and employment, Coca-Cola reports investing approximately $2 million in Illinois community programs, with support from The Coca-Cola Foundation and Coca-Cola Scholars Foundation. The company's impact map provides a state-by-state and metropolitan-area look at how its network of employees, suppliers, businesses and community partners contributes to local economies across the country.

Ameren Recognized for Driving Investment and Jobs Across Illinois and Missouri

Ameren Corporation has been named among Site Selection Magazine's Top Utilities in Economic Development for 2026, recognizing the company's role in helping attract business investment and create jobs across Illinois and Missouri. In 2025, Ameren-supported economic development projects generated $3.6 billion in capital investment and created more than 3,700 jobs across its two-state service territory.

The recognition highlights Ameren's partnerships with businesses, site selectors, community leaders and economic development organizations to support regional growth. In Illinois, businesses across Ameren's service territory invested approximately $2 billion and created more than 1,450 new jobs during the year.

Among those projects was Manner Polymers' $54 million expansion in Mount Vernon, Illinois. The Texas-based manufacturer of custom PVC materials for the agriculture, appliance and automotive industries is investing in a new 100,000-square-foot facility and plans to create 60 high-wage jobs. In Missouri, Ameren-supported projects represented $1.6 billion in investment and 2,270 new jobs, including IKO's more than $120 million manufacturing facility in Bismarck.

Ameren's economic development efforts focus on helping communities compete for new business investment while providing companies with the infrastructure and energy resources needed to grow. The company's recognition by Site Selection Magazine reflects the role utilities and regional partnerships can play in supporting long-term economic development across Illinois and Missouri.

G&W Electric Expands Manufacturing Footprint in Romeoville

G&W Electric has expanded its manufacturing footprint with the opening of a nearly 300,000-square-foot manufacturing facility in Romeoville, Illinois. The expansion increases the company's production capacity while supporting growing customer demand for technologies designed to improve reliability, resiliency and power quality across modern electric grids.

The new facility provides additional space to streamline manufacturing operations and improve overall workflow. The expanded footprint is expected to help G&W Electric accommodate continued growth while strengthening its ability to serve customers and meet demand for its grid modernization technologies.

The facility includes approximately 30,000 square feet of office space along with dedicated manufacturing areas for several of the company's products, including its Viper® and Viper®-HV solutions. These technologies are part of G&W Electric's portfolio of equipment supporting the reliability and resilience of electrical distribution systems.

The Romeoville expansion represents another investment in Illinois manufacturing and reflects the continued need for advanced electrical infrastructure as power systems evolve. The company marked the opening with a ribbon-cutting ceremony, celebrating the addition of new manufacturing capacity and its continued growth in the state.



Pictured at the ribbon cutting from left to right:

- Kent Adams, Fire Chief, Village of Romeoville
- Daniel Zakula Jr., Deputy Police Chief, Village of Romeoville
- Dave Gizewicz, Chief Operating Officer, G&W Electric
- Christina Knowles, VP North America Operations, G&W Electric
- Mike Gilliam, Director of Maintenance & Facilities, G&W Electric
- John Noak, Mayor, Village of Romeoville
- Josh Potter, Community Development Director, Village of Romeoville
- Dawn Caldwell, Village Manager, Village of Romeoville
- Kelly Rajzer, Director of Parks & Recreation, Village of Romeoville

S&C Electric and Argonne Expand Grid Technology Research

S&C Electric Company and the U.S. Department of Energy's Argonne National Laboratory are expanding their collaboration through a new umbrella Cooperative Research and Development Agreement (CRADA) focused on advancing technologies for a more resilient, reliable and modern electric grid. The agreement establishes a framework for joint research and development in areas including grid modernization, resilience, power reliability, electrification and emerging grid technologies.

The partnership brings together Argonne's scientific research capabilities with S&C's expertise in designing and manufacturing distribution-grid technologies. As electricity demand increases, infrastructure ages and extreme weather places additional stress on the grid, the collaboration aims to help move promising technologies from laboratory research toward real-world applications that can improve reliability and strengthen grid resilience.

The expanded agreement builds on existing work between the two organizations, including research through the Department of Energy's Transformer Resilience and Advanced Composite (TRAC) program. The teams are developing advanced ceramic-polymer insulation materials for medium- and high-voltage grid equipment, exploring materials that can withstand higher temperatures and electrical stress while potentially extending equipment lifetimes.

The umbrella CRADA will allow S&C and Argonne to broaden their research into additional areas of mutual interest and accelerate the development of grid technologies. The collaboration reflects the growing role of industry and national laboratories in developing solutions to meet changing energy demands while supporting the reliability, resilience and security of the U.S. electric power system.

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