

KENTUCKY METALS INDUSTRY

CED.KY.GOV



METALS
INNOVATION
INITIATIVE

TEAM
KENTUCKY[®]

CABINET FOR
ECONOMIC DEVELOPMENT



CONTENTS

03 The Kentucky Effect

06 Kentucky Made Metals

07 Kentucky Metals Life Cycle

08 An Industry of Sustainability

10 A Growing Industry

12 Why Kentucky?

14 A Manufacturing Powerhouse

15 Lowering the Cost of Doing Business

16 Supply Kentucky

18 Kentucky's Global Reach

20 Leading the Charge

21 Logistics Lead the Way

22 A Foundation for Continued Growth

24 The International Story

26 The Metals Innovation Initiative

28 Factory of the Future

30 An Ecosystem of Support

34 A Skilled and Available Workforce

THE KENTUCKY EFFECT

Kentucky is where a tradition of success meets innovation for future growth. The result is a vast array of growing industries – from automotive and aerospace to food and beverage and manufacturing. But one thing almost every sector has in common is a reliance on a thriving metals industry. And the commonwealth has the resources needed to support the industry's sustained growth.

The State of Metals in Kentucky

The size and impact of Kentucky's metals industry is dramatic. Kentucky offers a wealth of primary metals-related facilities, including aluminum, copper and steel. Those facilities provide materials and fabrication services for hundreds of products around the globe.

Data from the Kentucky Cabinet for Economic Development show its impact on Kentucky's overall economy, wages and workforce.



This has long been the best-kept secret about Kentucky: Most people haven't traditionally known us as a leader in the metals industry. We are seeing that begin to change now.

–Vijay Kamineni, Metals Innovation Initiative

KENTUCKY MADE METALS

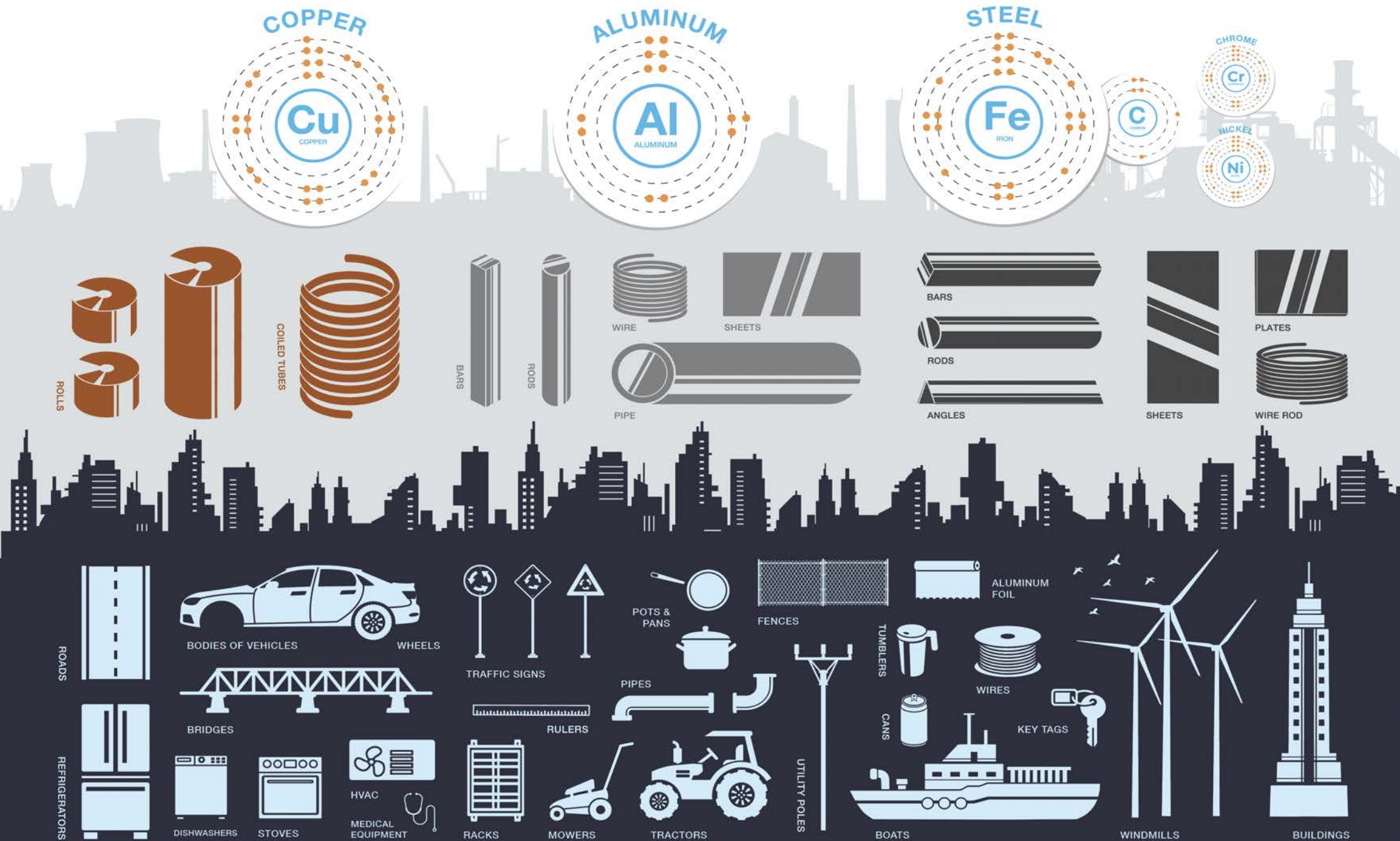
Since 2019, more than 80 metals-related announcements have contributed to over **\$4 billion** in investments and approximately **4,000 full-time jobs** in Kentucky.

Kentucky has a skilled workforce experienced in metals production, with more than **14%** of the state's manufacturing workforce employed in the metals sector.

Kentucky's metals industry includes more than **250 facilities**, employing more than **36,000 people statewide**.

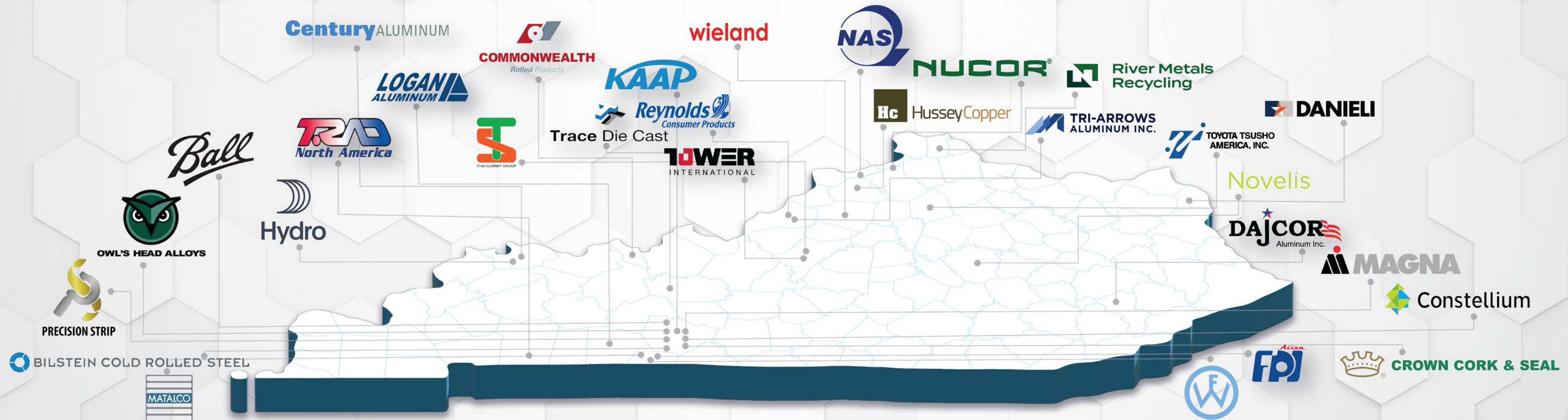
Kentucky metals companies play a vital role in the supply chain of several key industries, such as automotive/EV, aerospace, agritech and food & beverage. A few examples of the commonwealth's diverse metals base include:

- **Logan Aluminum**, a joint venture of **Novelis** and **Tri-Arrows Aluminum**, operates in Russellville and produces more than **2 billion pounds of aluminum annually**. Nearly half of the aluminum cans in North America are made from can sheet out of this Kentucky operation.
- **Bowling Green Metalforming** employs more than **1,400 people** at a **1 million-square-foot facility** in Bowling Green, producing truck frame assemblies, engine cradles and suspension links for parent company Magna International.
- **Stephens Pipe & Steel** in Russell Springs has grown from a small service shop to the largest American-owned fence distributor and manufacturer, with **16 locations** servicing more than **5,000 customers worldwide**.
- **Reynolds Consumer Products** produces its iconic aluminum foil in Louisville. The company has a presence in **95% of U.S. households**.



KENTUCKY METALS METAMORPHOSIS: THE DIVERSE ARRAY OF TRANSFORMED PRODUCTS

METALS INVESTMENT IN KENTUCKY



KENTUCKY METALS LIFE CYCLE

This graphic illustrates how KY metals move through a circular economy driven by recycling.

While it references specific companies that contribute to each step of the process, many of KY's innovative metals companies work across multiple stages of the cycle.

When a product has reached the end of its life cycle, the company or customer looks at how to recycle it. Some KY companies provide technologies that assist in that process.

RUBICON
recyclaps

KY recycling companies collect scrap/discarded metals products from B2B clients and consumers, including discarded metals from metals product formation and final product creation, and help separate the scrap into different metals types, removing non-metals materials.

River Metals Recycling

SA Recycling

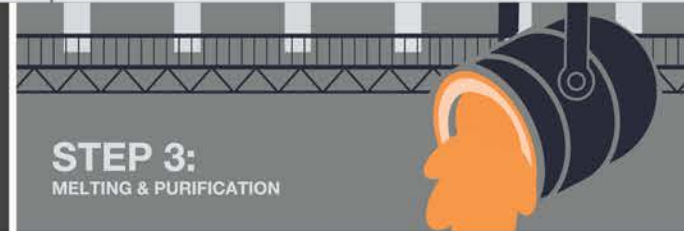
AUDUBON METALS

Various KY factories use high heat to transform that shredded scrap into molten metal, which can easily form new products. An electrolysis system is used to remove further contaminants or impurities.

Century ALUMINUM

OWL'S HEAD ALLOYS

wieland



Scrap metals are shredded into smaller pieces at several KY facilities, so they can be more easily melted, providing further opportunity to remove contaminants.

Novelis

NUCOR

TRI-ARROWS ALUMINUM INC.

Molten metal is shaped into pieces called ingots by multiple KY plants. Metals in ingot form are more easily manipulated into shapes.

COMMONWEALTH Rolled Products

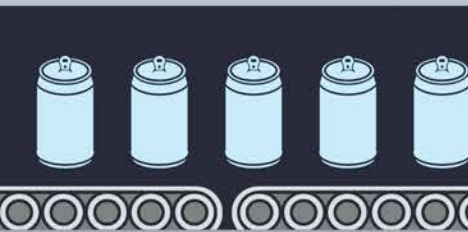
LOGAN ALUMINUM

NAS

STEP 9:
END USER READY TO RECYCLE A PRODUCT



STEP 7:
FINAL B2B/ B2C PRODUCT



These products are ultimately sold to a customer, who puts these products in use. All of us can look around us and see how metals shape every facet of our lives—many likely having come through KY at some point in their formation.

Many KY companies take these readied components and create finalized products, ready for market.

Ball

Reynolds Consumer Products

STEPHENS PIPE & STEEL

Many KY facilities turn these primary metals products into ready-to-use components—for instance, automotive parts for a range of American automakers.

AISIN

CMWA

FPI

Gibbs

HIGHLANDS OVERSIZED SERVICES

KAAP

QuaLex

TOWER INTERNATIONAL

Trace De Cast

TRB

Ingots from recycled metals are used alongside ingots from first-use metals that have been mined outside Kentucky and brought into the supply chain.

Across KY metals, roughly 2/3 of metals supply comes from recycled metals

BILSTEIN

PRECISION STRIP

Constellium

SUSTAINABILITY

Kentucky and its metals industry are deeply committed to championing sustainability excellence within our commonwealth. Each day, our metals companies dedicate themselves to enhancing the efficiency and clean energy future of metals operations across our state, making a positive global impact.



Throughout two decades in this industry, I have seen firsthand how deeply recycling has been a core focus for all our metals companies. Our Sustainability Strategy Group at the Metals Innovation Initiative builds on that core commitment—identifying and tackling additional significant sustainability opportunities and challenges.”
**Andy Ishmael, Tri-Arrows Aluminum;
Metals Leadership Council Member,
Metals Innovation Initiative**

Kentucky’s vision extends beyond its borders, aiming to become an international leader in collaborative sustainability efforts. We are proud to showcase a variety of impactful programs that underscore this commitment. By bringing together the concerted efforts of government, higher education and industry, Kentucky’s metals companies are establishing a fresh standard for responsible practices.

As a testament to our dedication, take a moment to explore a few of the ongoing sustainability projects among Kentucky metals companies. These initiatives encapsulate our shared goals and aspirations, demonstrating how collaboration and innovation are driving us toward a greener future.



Nucor

North America's **#1 recycler** entered a new Power Purchase agreement with NextEra Energy Resources LLC to receive **250 MW of renewable energy** from Sebree Solar LLC in Henderson County in 2023. The company also opened a new steel mill in Brandenburg at the end of 2022, creating the first domestic supply chain of sustainable steel for U.S. offshore wind energy, a **\$1.7 billion** capital investment. This comes on top of its 2021 announcement of a **\$164 million** investment in a tube mill at its facilities in Ghent to further supply its expansion in industries like renewable energy.

River Metals Recycling

Kentucky's largest scrap metal company, with nine locations in the commonwealth that span from Paducah to Ashland. On average, they shred more than **40,000 tons** of cars and appliances a month to supply steel to parent company Nucor.

Tri-Arrows Aluminum

Louisville facility invested more than **\$150 million** in its recycling capabilities in recent years to ensure that its supply chain leverages aluminum's infinite recyclability.

Novelis

Invested **\$365 million** in 2022 to open its advanced recycling center for automotive in Guthrie, expected to reduce the company's carbon emissions by more than **1 million tons** a year.

Wieland North America

Invested **\$100 million** in its copper and copper alloy recycling center in Shelbyville, which leverages new circular economy technologies to increase the company's commitment to recycling leadership and carbon neutrality.

Kobe Aluminum Automotive Products

Bowling Green facilities have been honored in the past year for their work on reducing carbon emissions by the Tennessee Valley Authority, the Bowling Green Area Chamber of Commerce and Kentucky's "Business for Good" nonprofit Canopy.

Gibbs Die Casting

Henderson facility committed to reducing waste and eliminating single-use packaging throughout their shipping practice, with almost **100%** of their products now shipped in returnable dunnage.

Commonwealth Rolled Products

Operates a GreenCircle-certified production facility in Lewisport, indicating a dedication to preserving and protecting the environment; finding new ways to reduce their operational footprint; and increasing the use of recycled content in their products.

T.RAD North America

Facility located in Hopkinsville is focused on contributing to the global environment and a sustainable society through providing thermal energy conversion technology via its product portfolio, which includes powertrain and occupant heating and cooling components

Trace Die Cast

Bowling Green facility has been a key supply chain provider for the growing EV industry, producing a range of manufacturing parts and such as battery trays for customers like Ford, General Motors and Rivian—with 40% of its parts focused on the EV market in 2023 and an expectation for that ratio to increase to 50% by 2024.

A GROWING INDUSTRY

Southern Coil Solutions

Announced a **\$27 million** fully automated steel coil warehouse distribution and logistics center in July 2023

Matalco

Announced first Kentucky location with a **\$53.5 million** investment producing alloyed ingots from recycled aluminum in March 2021

Hydro Aluminum

Announced a **\$15 million** investment across two projects to increase production of advanced alloys using recycled metals in July 2022



To put it audaciously, we want Kentucky to compete and win on a global scale in creating jobs and companies of the future. We're excited to embrace this journey, and we look forward to welcoming new members that share our values, our vision and our passion to build a thriving ecosystem that makes Kentucky the destination for metals innovation.

–Zak Chehab, Novelis;
Board Member, Metals
Innovation Initiative

Flash Steelworks

Broke ground on a **\$12.1 million** steel manufacturing facility in Middlesboro in Southeastern Kentucky in October 2022

Ball Corp.

Announced **\$305 million** investment to produce recyclable aluminum ends for beverage can customers in January 2021

LOTTE Aluminum

Announced a **\$238.7 million** aluminum foil manufacturing facility in Elizabethtown to serve the EV sector in August 2022

North American Stainless

Announced a **\$244 million** expansion at 4.4 million-square-foot facility, increasing capacity by **200,000** tons in January 2023

We are proud to lead America's stainless steel economy, support our national security with our production and create great jobs for our region. Our latest expansion will bring more clean, sustainable and American-made stainless to consumers and directly compete with the subsidized imports of stainless. NAS appreciates the steadfast partnership of Kentucky's federal, state and local leaders, including Governor Andy Beshear and Senator Mitch McConnell. Our parent company Acerinox—one of the largest producers of stainless in the world—was eager to further invest in Kentucky to demonstrate its commitment to our customers and the U.S. market and because our workforce meets and exceeds all goals every year.

Cristobal Fuentes, NAS CEO
Board Member, Metals Innovation Initiative

WHY KENTUCKY

One of Kentucky's most undeniable assets is its ideal geographic location. Whether it's to another state or another continent, Kentucky has the capability to move products efficiently.

Located within a day's drive of more than two-thirds of the U.S. population, the commonwealth provides businesses with superb access to markets and suppliers. Kentucky-made products can travel along 20 interstates and major highways, running through the heart of the Eastern U.S.



Kentucky is located within a
**DAY'S DRIVE OF
2/3 OF THE
U.S. POPULATION**



Many of the nation's
LARGEST CITIES
are located within a
TWO-HOUR FLIGHT
of Kentucky



Kentucky is located at the
**CENTER OF A 34-STATE
DISTRIBUTION AREA**
in the Eastern U.S.



A MANUFACTURING POWERHOUSE

Kentucky's expertise, workforce, innovation ecosystem and personalized services are major reasons we are a national manufacturing force. In addition to our multitude of other assets, Kentucky's low business costs help company profits skyrocket.

Global companies have discovered the value of locating in Kentucky. Currently, more than 500 Kentucky manufacturing, service and technology-related businesses are internationally owned, representing 33 countries.

Kentucky ranks among the top manufacturing states in the nation in multiple categories, including share of overall GDP and share of workforce employed in the sector. Overall, 12.5% percent of the workforce is engaged in manufacturing , compared to 8.1% nationally.



RANKED 5TH

Nationally in
manufacturing GDP
as a share of total
GDP by state



\$8.28 BILLION

Manufacturing
projects announced
in 2022



250,000

Kentuckians
employed at **5,000**
facilities



12.5%

Of Kentucky's
workforce employed
in manufacturing



65%

Of 2022 projects in
manufacturing



8,930

Manufacturing jobs
announced in 2022

LOWERING THE COST OF DOING BUSINESS

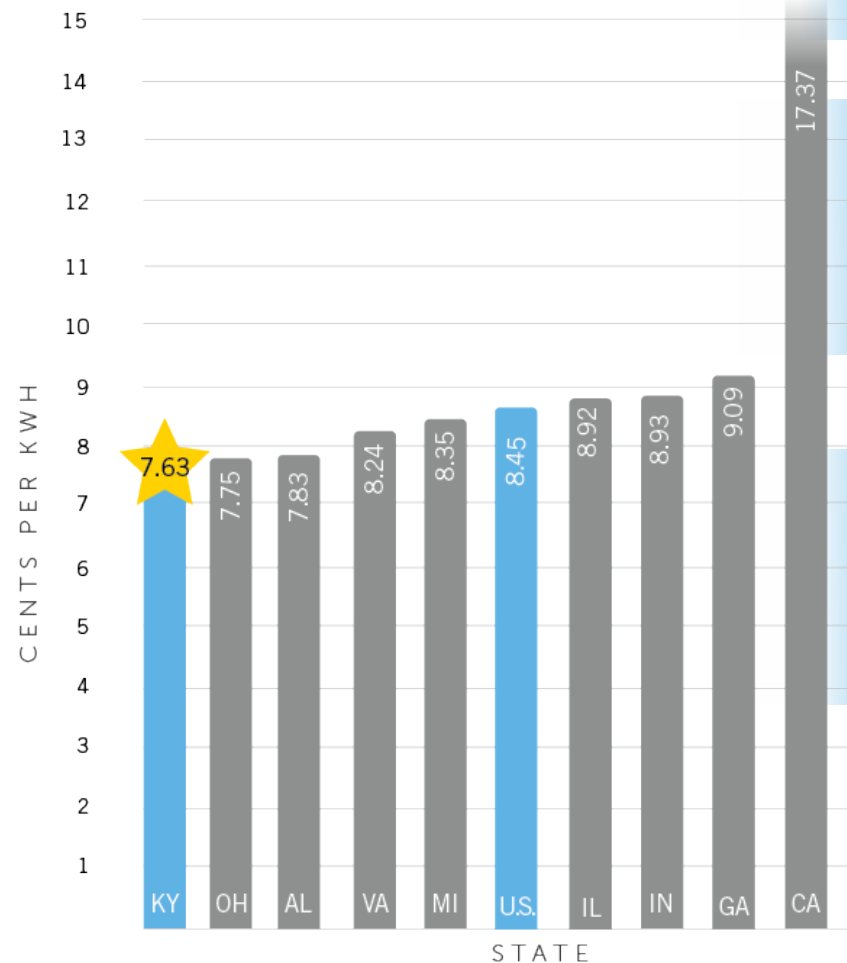
The commonwealth has consistently offered one of the lowest overall costs of doing business in the United States.

- Top 10 in the U.S. in cost of doing business (CNBC's Top States for Business, 2023)
- Kentucky's central location advantage facilitates the distribution of goods and materials to a massive industrial and consumer market
- Labor costs are 16.5% below the U.S. average (JobsEQ, Data as of 2023 Q1)

A Powerful Comparison

- Kentucky's power costs also play a significant role in corporate growth. Our industrial electricity rates are among the lowest in the country.

INDUSTRIAL ELECTRICITY AVERAGE PRICE
Energy Information Admin., average price by state, released 2023



"A" GRADE

Kentucky gets an "A" grade in manufacturing and logistics health (Center for Business and Economic Research)

TOP 20

State Business Tax Climate Ranking (Source: Tax Foundation, 2022)

COST OF LIVING

Kentucky's cost of living is 9.8% lower than the U.S. average (Source: JobsEQ)

SUPPLY KENTUCKY MOVING THE INDUSTRY FORWARD



Kentucky is building on its record economic momentum and taking steps to ensure its manufacturing supply chain is more connected than ever. In March, Gov. Andy Beshear announced the “Supply Kentucky” initiative, a renewed effort to boost job growth, reduce operational costs and provide more security for the supply chains of Kentucky manufacturers.

Supply Kentucky aligns the commonwealth and Kentucky Association of Manufacturers (KAM) to coordinate marketing efforts, provide resources related to workforce and connect Kentucky companies to suppliers throughout the country, as well as foster growth of diverse-owned businesses.

At the center of the Supply Kentucky initiative is the rollout of CONNEX Kentucky, a new online platform established through a partnership between the Cabinet for Economic Development and KAM that provides a searchable supply chain database for manufacturers throughout the state.

CONNEX Kentucky is part of the CONNEX Marketplace, a nationwide platform developed by i5 Services to connect the U.S. manufacturing supply chain. Manufacturers and suppliers are now using it across the country to connect with one another and find new business opportunities based on deep data such as equipment, certifications, SBA designations, processes, capabilities and other criteria.

The commonwealth has long had all the ingredients for its manufacturers to achieve long-term success, and with CONNEX Kentucky and the Supply Kentucky initiative, they're now more connected than ever.

Learn more at [KAM.US.COM](https://kam.us.com)

FOR PRIMES/OEMs



- Post RFPs/RFQs/RFIs & send to matching suppliers
- **Find qualified alternate U.S. suppliers (mfgs only - no service providers)**
- **View all supplier data in one location**
- **Filter suppliers by:** location, certifications, SBA designations, materials, equipment, processes & more
- Blacklisted supplier alerts
- Supply chain risk visualization
- Communicate with potential suppliers directly in the platform

FOR SUPPLIERS



- Receive RFPs/RFQs/RFIs directly from buyers (no broker listings!)
- Find alternate sourcing for parts & materials
- **Discover new contract opportunities within new industries**
- **Showcase all of your capabilities, certifications, SBA designations, equipment, and more in one location for buyers to see**
- Connect and respond directly with OEM/Prime buyers within the platform
- Your data is never sold or shared

PARTNERS/AFFILIATES



KENTUCKY'S GLOBAL REACH

Kentucky also provides an alternative for international shippers that have limited access to overly crowded ports on the east and west coasts. Bordered by three important commercially navigable rivers (the Ohio, Mississippi and Big Sandy), and providing access to nine public riverport facilities, Kentucky offers an expedient two-way route between the inland markets of America's heartland and major ports on the Gulf of Mexico.



INFRASTRUCTURE FACTS

HIGHWAYS & BYWAYS

28 highways and
state parkways

GLOBAL SHIPPING HUBS

UPS, DHL and
Amazon Air

AIRPORTS

6 commercial, including
2 international and 50+
general aviation

WATERWAYS

Over 1,000 miles
of commercially
navigable waterways
9 active/developing
riverports

RAILROADS

Over 2,400
miles of freight rail

PUBLIC ROADS

80,000 miles
of public roads



The infrastructure that is getting built in Kentucky is growing immensely. I give credit to the government for supporting us in a very bipartisan way and encouraging us to continue to invest in Kentucky.

Matt Bedingfield,
Wieland North America;
Board Chair, Metals
Innovation Initiative

LOGISTICS LEAD THE WAY

Did you know Kentucky ranks No. 2 nationally for air cargo by volume? Kentucky hosts global shipping hubs for three logistics giants – DHL, UPS and Amazon Air – plus several FedEx ground facilities. In addition, our extensive shipping network of interstates, rail and waterways guarantees fast shipping anywhere in the U.S.

Amazon



100

daily flights



1.5M

packages
delivered daily

DHL



100

flights arrive &
land daily



90%

of DHL shipments
entering the U.S. are
handled in Northern
Kentucky

UPS



300

flights arrive &
land daily



2M

packages
processed daily



KENTUCKY LEADING THE CHARGE

Since June 2020, new and existing companies in Kentucky have announced **roughly \$11 billion in EV-related investment** which are creating **well over 10,000 full-time jobs** for residents across the state.

The prominence of Kentucky's primary and fabricated metals industries is one of the key factors that make Kentucky the premier location in the United States to manufacture electric vehicles and their parts. From motors to batteries to recycling, Kentucky's metals industry plays a key supply chain role in driving EV production. Kentucky also offers the ability to ship products anywhere in the country around the globe quickly and efficiently; competitive energy pricing; ample land with the ideal geographic location; and a knowledgeable workforce. That all adds up to a winning combination that positions the commonwealth as an EV industry leader.

As the nation's leading producer of light vehicles per capita, Kentucky is a particularly great fit for automotive-related businesses. These companies benefit not only from Kentucky's best-in-class cost of doing business and supportive corporate environment, but their employees also enjoy shorter commute times, lower cost of living and numerous other advantages that lead to a higher quality of life.



- Kentucky is the #1 producer of cars, light trucks and SUVs per capita
- 550+ automotive-related facilities in Kentucky
- Kentucky is home to four major assembly plants: Ford (two plants), General Motors and Toyota
- \$22.6 billion announced investments by automotive-related facilities since 2014
- 1 out of every 18 workers in the U.S. automotive industry work in Kentucky
- 100,000 individuals employed in automotive-related Kentucky facilities
- An Electric Future:
 - \$10.8 billion in new investment from EV-related projects
 - More than 10,000 full-time jobs announced for Kentuckians
 - The two largest economic development projects in the state's history
 - BlueOval SK Battery Park (Ford and SK On) - \$5.8 billion investment creating 5,000 full-time jobs in Hardin County
 - AESC - \$2 billion investment creating 2,000 full-time jobs in Warren County
 - Kentucky is already establishing an expansive supplier network to serve the EV market, including both existing and new companies to the commonwealth.
 - EV-related products being produced or announced in Kentucky include: motors, battery components, structural products, assemblies, air springs and nanomaterials, among others.



"Ford is very excited to make this historic investment in the great state of Kentucky.

Kentucky has been an incredible partner to Ford for more than 100 years and is home to Louisville Assembly Plant and Kentucky Truck Plant. With this announcement, Kentucky will play an essential role as Ford fulfills its commitment to lead the electric vehicle revolution and create thousands of jobs in the commonwealth, and we look forward to working with Kentuckians to create the future together."

Lisa Drake,
Chief Operating Officer at
Ford North America

A FOUNDATION FOR CONTINUED GROWTH

Finding the perfect location in Kentucky to start, relocate or grow a business is easy. From existing buildings to greenfield sites to megasites, we can accommodate companies of all shapes and sizes—and on any timetable. Need a pad, spec building or an existing facility? Kentucky has plenty of options all across the state from which to choose. Here are a few of Kentucky's special features:

Select Kentucky

Kentucky has a simple tool that allows site selectors to search for a building, a site or more detailed information about potential locations. Select Kentucky, powered by Zoom Prospector, provides community profiles, workforce patterns, demographic information and other data for any area in Kentucky. Check out all of Kentucky's available properties at [SelectKentucky.com](https://www.selectkentucky.com).

Kentucky Product Development Initiative (KPDI)

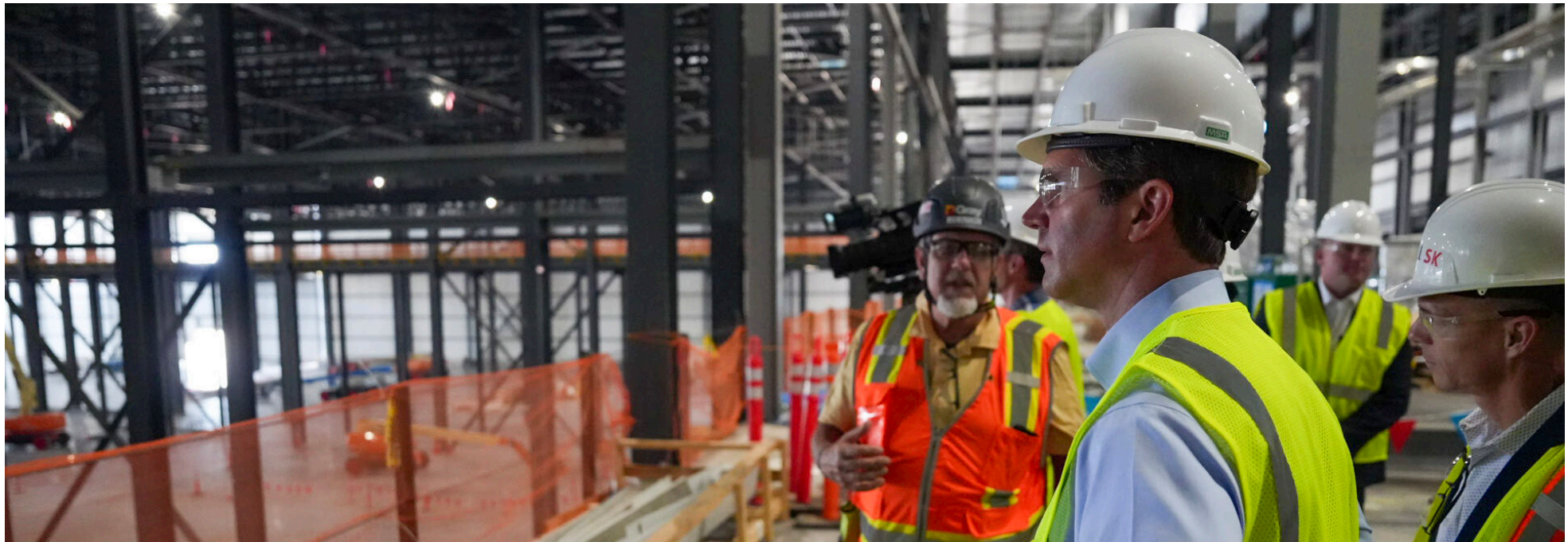
KPDI is a statewide effort to support upgrades at industrial sites throughout the commonwealth and position Kentucky for continued economic growth. This collaboration between the Kentucky Cabinet for Economic Development and the Kentucky Association for Economic Development (KAED) includes \$100 million in state funding toward upgrades of sites and buildings across the state. KPDI applicants, such



as local governments and economic development organizations, may seek funding assistance for transformative site and infrastructure improvement projects that will generate increased economic development opportunities throughout the state. **Visit [KPDI.ky.gov](https://www.kpdi.ky.gov).**

Build-Ready

When a site is certified Build-Ready, it guarantees construction can bypass the red tape and break ground almost immediately. Communities that participate in the program already have a pad prepared and have taken care of such details as zoning, road surveys, geotechnical studies, permitting and cost and time estimates. Build-Ready drastically reduces the time it takes for a company to be operational and also allows communities to incorporate the specific needs of the company. For the latest list of Build-Ready sites, **visit ced.ky.gov/buildready.**



THE INTERNATIONAL STORY

A major contributor to our success in building a diverse manufacturing base in Kentucky has been our commitment to a global approach, including Cabinet for Economic Development offices based in Hamburg, Germany and Tokyo, Japan.

In fact, the commonwealth ranks in the top 5 nationally in the percentage of workers employed by international companies.

The result is a Kentucky metals industry with many top global companies investing here, including metals plants in Kentucky operated by manufacturers based in Canada, France, Germany, India, Italy, Japan, Norway, Spain, Thailand, the United Kingdom and elsewhere.

Acerinox, Bilstein, Constellium, Danieli, Fritz Winter, Magna, Hydro, Kobelco, Thai Summit, Wieland and many other international companies see Kentucky as a key location for their operations in North America.

Kentucky-made metals are being distributed across the globe as well, with more than \$2 billion primary metal and fabricated metal products exported from the commonwealth in 2022 alone.





TOP COUNTRIES FOR METALS EXPORTS

- | | | |
|-------------|--------------------------|---------------|
| 1. Canada | 6. United Kingdom | 11. India |
| 2. Mexico | 7. France | 12. China |
| 3. Belgium | 8. Austria | 13. Germany |
| 4. Brazil | 9. Japan | 14. Singapore |
| 5. Malaysia | 10. United Arab Emirates | 15. Italy |

THE METALS INNOVATION INITIATIVE



Through hard work and collaboration, MI2 can create an ecosystem for the metals industry in Kentucky, that not only has a strong business footprint, but also provides great rewards and opportunities for the men and women who work in the metals industry.

Chris Boggs, Kobe Aluminum,
Metals Leadership Council Member,
Metals Innovation Initiative

The Metals Innovation Initiative (MI2) is a Kentucky-based nonprofit that provides collaborative, industry-led executive leadership to attract and promote advanced research, sustainability, commercialization and talent development in Kentucky's metals industry—and, ultimately, for Kentucky to be seen as the preeminent destination for metals innovation.

The organization was formed in 2022 with support from eight Kentucky metals companies—Kobe Aluminum Automotive Products, Logan Aluminum, North American Stainless, Novelis, Nucor, River Metals Recycling, Tri-Arrows Aluminum and Wieland—and a commitment from the Kentucky Governor and the Cabinet for Economic Development for support, administered through the Kentucky Science and Technology Corporation, as well as many ecosystem partners.

Since its launch, MI2 has added Ball Corporation, ElectraMet, Hitachi Vantara and Trace Die Cast to its membership ranks.

MI2's mission is to bring Kentucky together to make the Commonwealth the destination for metals innovation. In its first year, those activities included:

- An MI2 annual conference, with the inaugural edition focused on “The Factory of the Future”
- A nationwide search for metals innovations from corporate, entrepreneur, academic and subject matter expert innovators, in partnership with Konexons
- A concentrated focus on better telling the story of the Kentucky metals industry to key audiences, inside and beyond the borders of Kentucky
- Foundational research and pilot projects on talent and workforce and sustainability challenges and opportunities for the Kentucky metals industry
- A focused look at federal grant and funding opportunities relevant for Kentucky's metals industry
- A concentrated focus on bringing Kentucky metals companies together with ecosystem partners to pursue projects together



In 2017, I became part of the Kentucky metals ecosystem when I joined Logan Aluminum as President and CEO. It was impressive just how powerful this state has become on a global stage in metals production. But I also couldn't help but think how much more potential there was for Kentucky's role to grow if we connected the dots across the innovation work being done in our state. It has been gratifying to join seven of my industry peers to get the Metals Innovation Initiative off the ground. It is especially satisfying to see so many stakeholders whose work supports innovation here in Kentucky believe in MI2.

–Mike Buckentin, Logan Aluminum; Board Member, Metals Innovation Initiative

FACTORY OF THE FUTURE

The Metals Innovation Initiative Annual Conference is helping to bring partners in Kentucky and around the U.S. together to make the state the destination for metals innovation—which is MI2’s mission. The inaugural conference was held in September 2023, focused on “The Factory of the Future.” It brought together around 200 influential figures, innovators, and forward-thinking individuals from diverse sectors, all converging to delve into the latest advancements in manufacturing and the concept of the smart factory. This included featured talks from Kentucky Cabinet for Economic Development Secretary Jeff Noel; MIT VP for Research Maria Zuber, who is co-chair of the U.S. President’s Council of Advisors on Science and Technology; and leaders from General Electric, Intertape Polymer Group, Hitachi Vantara, and McKinsey. It also included sessions from experts at Logan Aluminum, North American Stainless, Nucor, Wieland, University of Kentucky, University of Louisville, AccelerateKY, Sheltoewe Network, Danieli Taranis, Deloitte, SMS Group, and elsewhere. The inaugural event also held the finals of MI2’s Metals Innovation Search, a nationwide call for transformative ideas that can shape the future of the metals industry in areas like environmental sustainability and talent and workforce needs. The 2024 MI2 Annual Conference will focus on “The Workforce of the Future.”





Kentucky Metals Factories of the Future...and Present:

Kentucky's metals industry facilities utilize the latest technologies to enable efficient, effective, and reliable metals production. This includes:



Artificial Intelligence



Robotics



Data Analysis



Extended Reality



Automation



Internet of Things



Edge Computing



Digital Twinning



I am excited to see industry leaders collaborate to solve shared problems and challenge the notion that tech sector jobs overshadow the rewarding and innovative nature of a career in the metals industry.”
-Scott Laurenti, Nucor; Metals Leadership Council Member, Metals Innovation Initiative



Many are unaware of the transformative advancements and cutting-edge technologies that have revolutionized the sector. It is our goal to change the narrative of metals in Kentucky to reflect the vast opportunities that exist in our sector.
-Bob Eviston, River Metals Recycling; Board Member, Metals Innovation Initiative

AN ECOSYSTEM OF SUPPORT

Kentucky's support organizations in research and development and in economic, talent and workforce development are deeply focused on Kentucky's metals industry, highlighted by many partners' deep participation in the Metals Innovation Initiative (MI2). Here are just some examples of that:

AccelerateKY

Kentucky was the first U.S. mainland region accepted to MIT's Regional Entrepreneurship Acceleration Program (MIT REAP), with support from the Kentucky Cabinet for Economic Development and many other ecosystem partners, including Logan Aluminum—leading to the formation of this innovation nonprofit. AccelerateKY created the concept paper for what became MI2 and is now working on other models for pilot solutions with the metals industry.

Eastern Kentucky University

In 2023, EKU created a new manufacturing engineering Bachelor's program. In order to ensure the program is serving the metals industry, MI2 serves on the new program's industry advisory board.

GAME Change

Kentucky and Tennessee industry, research, and economic development entities have partnered for the Generate Advanced Manufacturing Excellence for Change (GAME Change) in the Southeastern Commerce Corridor initiative, which is being supported by a National Science Foundation award to advance carbon-centric circular economy technologies for advanced manufacturing solutions. The Kentucky metals industry is deeply involved, with MI2 leading speed-to-market strategy for the initiative.

Kentucky Association of Manufacturers

KAM is working directly with MI2 to support metals industry initiatives and to ensure that Kentucky has a collaborative environment for metals companies and metals companies' customers to develop innovative, scalable solutions.

Kentucky Chamber of Commerce

In partnership with MI2, the Kentucky Chamber of Commerce has focused on how its Talent Pipeline Management initiatives—such as its Bus to Business program to get high school and college classes out to Kentucky businesses—can be focused on the commonwealth's metals industry.

Kentucky Science and Technology Corporation

KSTC operates, both independently and in partnership with the Cabinet for Economic Development, a variety of programs in the state, like KYVALOR (recruiting military families into open Kentucky jobs), Kentucky Commercialization Ventures (helping translate research from academic institutions into market-ready products and services) and the KY Innovation Hubs network (assisting potential high-growth startups throughout the state). KSTC is directly managing the state's investment in MI2 and ensuring these programs have high relevance to Kentucky's metals industry.

Kentucky Workforce Innovation Board

Along with EV battery company BlueOvalSK, KentuckianaWorks, the Kentucky State Building and Construction Trades Council and MI2, KWIB is leading a Job Quality Academy initiative with the U.S. Department of Labor, one of only 16 such teams selected for this federal program in 2023 with a focus on metals and other advanced manufacturing in Kentucky.

SECAT

Kentucky is home to this metallurgical research laboratory in Lexington, specializing in aluminum technology. SECAT assists companies with materials testing, failure analysis, alloy development and the enhancement of processes and properties, as well as a variety of other services and trainings.

University of Kentucky

In 2023, the University of Kentucky founded a new Research Priority Area focused on Materials Science Research, with a specialized focus on the Kentucky metals industry. UK has focused on the metals industry in initiatives like its Kentucky Innovators Challenge events and are focusing significant research and grant initiatives on the metals industry, including its leadership of the GAME CHANGE initiative.

University of Louisville

UofL's Center for Organizational Readiness toward Enterprise 4.0 (CORE4.0) and the UofL Louisville Automation and Robotics Research Institute (LARRI) are both working directly with the metals industry through MI2 on readiness for Factories of the Future. This is strengthened by MI2 representing the metals industry in Greater Louisville Inc.'s Advanced Manufacturing & Logistics Fellowship Program, launched in 2023.

Western Kentucky University

The WKU Innovation Campus HQ in Bowling Green provides the home for MI2's offices. WKU's Workforce Participation Innovation Lab is working with MI2 on numerous projects, working with partners like the Bowling Green Area Chamber of Commerce and South Central Workforce Development Board, and MI2 is a partner in WKU's new Sustainability Innovation Lab.



A SKILLED AND AVAILABLE WORKFORCE

A highly skilled and available workforce is the engine that drives Kentucky’s economy. Our statewide system of colleges and universities educates and trains our young people to enter the workforce more prepared than ever.

An abundance of engineering degree programs are available at Kentucky’s colleges and universities, including specialized chemical, electrical, industrial, mechanical and materials engineering bachelor’s and master’s programs, as well as an engineering physics bachelor’s program. Nine colleges and universities in Kentucky offer undergraduate engineering degrees and three also provide graduate programs, including an individualized engineering program. The University of Kentucky and University of Louisville also offer doctorate programs.

8
PUBLIC
UNIVERSITIES
126,826
Total enrollment

18
PRIVATE COLLEGES
& UNIVERSITIES
44,489
Total enrollment

16
COMMUNITY &
TECHNICAL COLLEGES
77,680
Total enrollment

56
COMMUNITY &
TECHNICAL COLLEGE
BRANCHES

SKILLED WORKERS IN KENTUCKY

Title	Jobs
Assemblers and Fabricators	46,365
General and Operations Managers	42,076
Supervisors of Production Workers	12,703
Inspectors, Testers, etc.	10,342
Electricians	9,990
Welders, Cutters, Solderers and Brazers	7,537
Machinists	5,292
Production Workers/All other	4,458
Mechanical Engineers	3,782
Industrial Production Managers	4,320
Tool and Die Makers	1,935

Source: JobsEQ, Employment Data as of Fourth Quarter of 1Q 2023

Engineering Education at Kentucky's Public Universities

- University of Kentucky – College of Engineering
- University of Louisville – J.B. Speed School of Engineering
- Western Kentucky University – School of Engineering and Applied Sciences
- Murray State University – School of Engineering
- Eastern Kentucky University – Department of Applied Engineering and Technology
- Kentucky State University – School of Science, Technology, Engineering and Mathematics
- Northern Kentucky University – Mechanical, Mechatronics, Electronics and Manufacturing Engineering Technology
- Morehead State University – School of Engineering and Computer Science

3,600 Engineering and Engineering-related Technologies degrees awarded during the 2021-2022 academic year (Source: JobsEQ)

In addition, the Kentucky Community & Technical College System (KCTCS) offers a variety of manufacturing-specific academic programs that combine classroom instruction with practical experience. These include:

- Advanced Manufacturing Technician
- Computerized Manufacturing Machining
- Computer Engineering Technology
- Engineering and Electronics Technology
- Integrated Engineering Technology
- Welding Technology
- Industrial Maintenance Technology
- Manufacturing Industrial Technology
- Additive Manufacturing
- Manufacturing Electrical Technology

KENTUCKY
Work Ready
COMMUNITIES

44

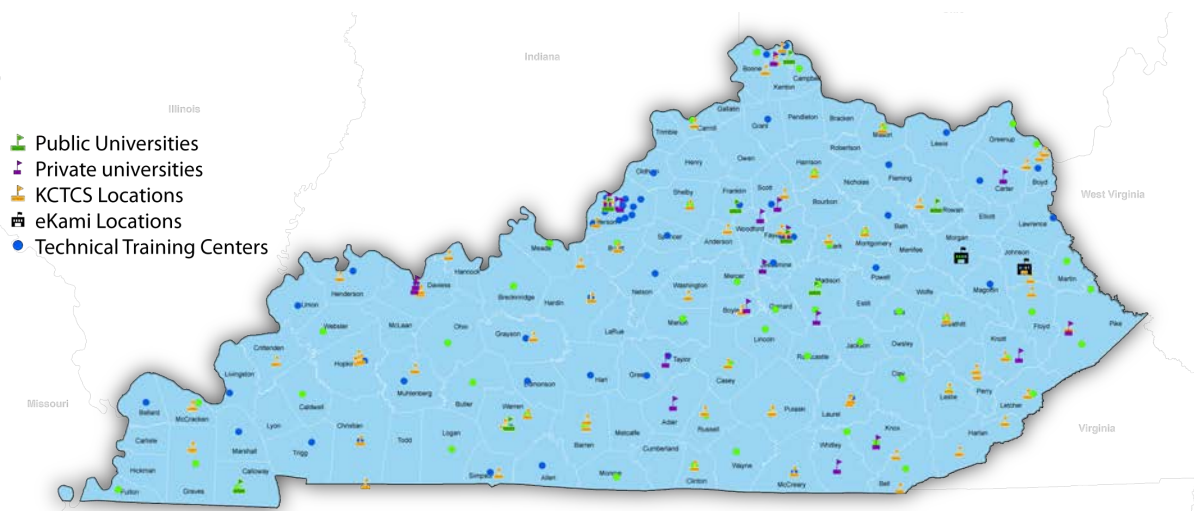
Work Ready
Communities

51

Work Ready in
Progress

25

Communities with
letter of intent or in
formative stage



Bluegrass State Skills Corporation

The Bluegrass State Skills Corporation (BSSC) was established in 1984 to stimulate economic development through customized business and industry-specific skills upgrade and occupational upgrade training. The BSSC approves incentives for qualified companies through a Grant-in-Aid (GIA) program and a Skills Training Investment Credit (STIC). The GIA provides reimbursement dollars to applicants and the STIC provides a tax credit against Kentucky income taxes to companies for approved training activities.

Certifying the Workforce

Kentucky's communities are stepping up to the plate when it comes to demonstrating the quality of their workforce. The state's Work Ready Communities program – the most rigorous workforce certification program in the nation – is inspiring meaningful dialogue and action by community, education, government and business leaders across the commonwealth.

A Kentucky Work Ready Community certification is a measure of a county's workforce quality. It is an assurance to business and industry that the community is committed to providing the highly skilled workforce required in today's competitive global economy. There are two levels of certification – counties can apply to be a Kentucky Work Ready Community or a Kentucky Work Ready Community in Progress.

The certification measures high school graduation rates, National Career Readiness Certification completion, community commitment to workforce development, educational attainment, soft skills development and internet accessibility. This initiative encourages counties to take a credible inventory of the current and future workforce, identify gaps and carry out strategies to achieve a more knowledgeable, trained workforce.

Three-fourths of Kentucky's counties are already certified as either Work Ready or Work Ready in Progress, and the remainder of the state's counties are in some stage of the journey. Kentucky is proving workforce preparedness is not just lip service.

Source: Kentucky Education and Labor Cabinet

Workforce Training: A Program for Industry, by Industry

Imagine being able to train your future workforce while they're still in school. That's the KY FAME model.

The Kentucky Federation for Advanced Manufacturing Education (KY FAME) is an industry-led partnership that includes manufacturers, educational and workforce institutions and the Cabinet for Economic Development to create a pipeline of skilled workers.

KY FAME offers a dual-track, apprenticeship-style training program. Students attend classes two days per week at their local community and technical college and work three days a week for a sponsoring employer. Students completing the program receive an associate degree in applied science and real-world work experience. Armed with this unique skillset, they have the option of choosing to pursue a four-year degree, enter the workforce or continue down both paths.



KENTUCKY'S SUPPORT

Speed to Market

Kentucky knows time is money for growing your business. We pride ourselves on getting you complete information on every facet of your decision-making process ahead of schedule, with site control and entitlements that remove uncertainty. We are with you every step of the way for all permitting needs, whether local, state or federal, and we will exceed timelines from concept to start of construction to certificates of occupancy.

Site & Location Assistance

- \$200M in state funding for site improvements and development
- 400+ sites in our database – 36 sites over 300 acres – 18 sites over 500 acres – 9 sites over 1,000 acres. (Rail, Air, Riverport options available)
- No detail is too small: We deliver on our commitments, including access roads, utilities and site evaluation materials

Financial Incentives

- Comprehensive and designed to drive measurable benefits
- Designed to expand as your company grows
- Coordination of all local and state incentives
- Strong and proven advocacy on your behalf with U.S. Federal agencies

Workforce Assistance

- Comprehensive tailor-made workforce assistance
- \$100M+ being invested in Kentucky's K-12 career and technical schools.
- 70+ career and technical training centers throughout the state
- Powerful state benefits for work-ready programs, including apprenticeships
- 3 U.S. Military Bases in state offer access to spouses and those exiting service

Advocacy

- From the first site visit to obtaining permits through decades of operations, Kentucky offers ongoing concierge service to meet your every business need
- New platform for ease in procuring services and products
- Embedded team with state agencies to assist you with alternative energy needs, workforce, permitting, technical and inspection needs
- Talent in our nation's capital to assist when needed



CABINET FOR
ECONOMIC DEVELOPMENT



Old Capitol Annex • 300 W. Broadway
Frankfort, Kentucky 40601

(800) 626-2930 • CED.ky.gov

