Sustainability in the Energy & Utilities industry

Point-of-View & Takeaways from Industry CIOs

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Context:

Eleven Chief Information Officers (CIOs) from Energy and Utilities (E&U) companies met to discuss Sustainability-oriented topics for the industry and their businesses.

Topics from the discussion centered on decarbonization, ESG and the energy sector, and sustainability measurements and goals.

We coupled insights from the CIO discussion, with market trends influencing sustainability initiatives for the utility industry, to create this paper.

In this paper, you will learn about:

- **The sustainability catalyst** – United Nations Sustainable Development Goals (UN SDGs), their alignment to Environmental, Social, and Governance (ESG) performance, and the pressure from key stakeholders for organizations to take meaningful action to drive sustainability.
- **Sustainability drivers for utilities** – new regulations driving requirements and the utility industry imperatives to act.
- **Insights from Utility CIOs** – on their sustainability journey, including the challenges and opportunities for leadership and accelerating the Energy Transition for all industries.
- **IBM point-of-view** – on sustainability solutions for utilities as outlined on our roadmap: defining strategy, establishing a data architecture to track performance, and embedding sustainability decision-making into daily operations.

Energy & Utility CIO Roundtable Series from IBM.

The IBM CIO forums provide an opportunity to share leading practices and discuss topics of mutual interest based on an agenda created through advance interviews. If you are interested in participating in the next CIO roundtable, please contact your IBM representative. To access and share whitepapers from IBM on Energy & Utilities, click the links below.

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The sustainability catalyst.

The focus on sustainability among utility businesses is highly influenced by a standardized goal framework, company assessment metrics, and pressure from key stakeholders.

United Nations Sustainable Development Goals (UN SDGs)

The UN SDGs are a collection of interlinked global goals designed to be a "blueprint to achieve a better and more sustainable future for all." The SDGs were established in 2015 by the United Nations General Assembly. Hundreds of nations across the globe adopted the Paris Agreement, an international treaty dedicated to tackling global climate change.

One of the main goals is to limit global temperature from rising more than 1.5 degrees Celsius, as experts say this is the only way to help the world avoid the most severe impacts of climate change. The negative effects include everything from flooding in coastal towns and cities to extreme droughts and other severe weather events.

The UN SDGs are a call for action by all countries in global partnership to tackle climate change while improving health and education, reduce inequality, preserve environmental integrity, and spur economic growth. The 17 SDGs align to three broad areas: People, Planet, and Profit.

Environmental, Social, and Governance (ESG) Framework guides investment decisions and promotes brand

ESG Metrics help investors gauge a company's sustainability performance. Investors look at ESG metrics to identify risks to the economic bottom line and to determine potential sources of economic profit; those with higher ESG indices often perform better than industry averages. Many organizations are beginning to measure and track their ESG performance – and industry-wide best practices are being established and evolving, as companies look to operationalize their data to improve their sustainability performance.

Companies that fail to take ESG into account are at risk of experiencing significant financial impacts. Better ESG scores translate to lower cost of capital and to lower regulatory, environmental, and litigation risks. ESG investments are viewed positively because they align well with long-term thinking, and potential risk reduction for companies, making them better equipped for sudden crises due to this emphasis on sustainability. ESG investments offer the opportunity for long-term value that can manage risk and create opportunities, whilst also contributing towards a more sustainable future.

Investors use ESG criteria to screen investments and evaluate their material risks and growth opportunities.

Category	What is being evaluated?	Evaluation attributes		
Environment (Planet)	How a company performs as a steward of nature.	• Climate change efforts • Deforestation • Energy efficiency • Waste management	• GHG emissions • Water consumption • Pollution • Raw material sourcing	• Biodiversity practices • Animal welfare • Natural resource conservation
Social (People)	How a company manages relationships with employees, suppliers, customers and the communities where it operates.	• Gender & diversity policies • Human rights • Exploitative practices • Labor standards • Data security	• Child labor • Forced labor • Community relations • Customer satisfaction • Data privacy	• Employee relations & engagement: Worker health & safety, Benefits & pay, Workplace conditions
Governance (Profit)	How a company is managed by executive leadership.	• Board composition • Executive compensation • Bribery & corruption policies	• Discrimination & harassment • Financial & accounting transparency • Business ethics	• Diversity & inclusivity • Corporate citizenship • Disaster response • Stakeholder engagement

Key stakeholders drive and act on ESG performance

Companies are acting due to engagement from multiple stakeholder groups, to help tackle challenges, and prioritize sustainability as part of the global decarbonization effort. The primary issue driving this for most enterprises is climate change-related risks and opportunities. Senior leadership teams are under growing pressure to demonstrate an understanding of both risk and opportunity, along with appropriate mitigation, adaptation, and exploitation programs. Enterprises can no longer remain silent or opaque, they must establish an approach to sustainability that is sufficient to meet the expectations of their key stakeholders. They must also be effective at communicating that approach through an effective ESG program, to investors, customers, employees, regulators, and other key external stakeholders.

Communicating a company's approach to ESG, now requires high-quality, investment-grade data to back it up and prove meaningful progress to investors. Investors are using ESG criteria to evaluate companies on more than just their balance sheet and allocating more capital towards companies considered more sustainable. At the same time, there is stronger pressure from regulators to meet emissions reduction targets in line with the Paris agreement. There is also pressure from consumers, who are increasingly demanding more sustainable and environmentally friendly products. One source of pressure cited less frequently, but equally important, is the intensifying pressure that companies are receiving from their own employees to act on sustainable operations and public stances. This has also been shown to have a significant impact on a company's ability to recruit and retain employees.

Sustainability drivers for utilities.

Disruptive sustainability forces are reshaping the utility industry. Based on discussions with utility leaders, we have found the following forces to be the most influential:

- **Electricity ecosystems are important to address challenges of energy transition and net zero.** Cross-industry collaborative ecosystems are needed more than ever to enable multi-directional energy flows, greater resiliency, and flexibility, accelerating the energy transition.
- **Massive investments to modernize and expand electric utility infrastructure.** Investment in utility platforms will exceed $180B in the next 3 years and is projected to continue to grow to meet clean electrification targets.
- **Exponential technologies are becoming integrated with electric grids enabling more efficiency and secure operation.** Decentralized assets and advanced IoT sensors, real-time data, advanced analytics, AI, and advanced cybersecurity increase efficiency and reduce risks.
- **Leveraging customer interest in sustainability as a differentiator for new services.** Utilities are prioritizing the usage of innovative zero to low carbon alternatives such as electric transportation, renewables, ecosystem networks, and energy flex platforms.

External drivers have a large influence on sustainability-oriented actions taken by utilities.

Regulatory Drivers

Staying ahead of regulations is imperative to utility companies because regulators and governments are increasingly focused on sustainability.

- Increasing expectations on sustainable operations
- End customer sustainability involvement
- Expected investment in renewable / distributed energy resources (DER) participation
- Grid modernization & resilience measures

Financial & Revenue

Under cost-of-service regulation, utilities have the unique opportunity to earn attractive return on sustainable investment, meaning "going green" can be a core growth strategy.

- Capital investments spread across discrete projects that enable sustainability (e.g., Grid Mod, DER, AMI 2.0)
- Reduced O&M costs via improved asset lifecycle management
- New services and prevention of revenue erosion e.g., DER and facility services

Brand & Reputation

Utilities rely on public perception which impacts access to regular investment; those investors are increasingly concerned about the risks of fossil fuels.

- Sustainable practices lead to greater awareness and stronger reputation
- Positive environmental impact
- Sustainability through corporate social responsibility
- Consumers are factoring in sustainability in their purchasing

Regulations driving requirements.

As a focus on standardization continues to grow, sustainability frameworks are being developed. Companies are seeing increasing regulations require them to disclose sustainability information, and show that they are reducing their environmental impact, addressing social or human rights violations issues, and addressing the same issues across their supply chains. Published statements and vague reports no longer will appease regulators, investors, or consumers. As these regulations expand, companies are increasingly prioritizing their ability to accurately disclose sustainable metrics.

Additionally, there are new proposals already in sight: plastic and packaging taxes to offset impacts; preferential treatment for "green" instruments (that is, financial portfolios with sustainability as a core value); a Carbon Border Adjustment Mechanism aimed to address the risk of carbon leaks caused by asymmetrical climate policies of non-European Union countries; instituting sustainability stress tests; tokenization of sustainability credits in a circular economy model; and more.

Reporting on sustainability metrics is crucial to meeting goals and timelines, yet sustainability reporting is in its infancy. Companies do not have decades of experience in sustainability reporting like they may for financial reporting. Claims that cannot be verified are susceptible to greenwashing accusations, so there is a need for international standards around sustainability so that reporting is comparable across companies and industries.

Pressure from regulators, investors, and customers drive utilities and other industries to act on the SDGs and long-term solutions. Achieving regulatory compliance avoids the costs and financial burdens of non-compliance and falling behind the competition.

Proactively addressing regulatory compliance provides for companies to leverage financial incentives as early adopters, and to make investments in an optimal strategic manner rather than simply along a linear or reactive path of planned asset turnover.

As utility companies formalize their ESG reporting and set science-based targets to contribute to global goals of avoiding the worst effects of climate change by the end of the century, they are not only reducing their own environmental impacts but also enabling other industries to achieve their own environmental targets. Implementing strategies to mitigate carbon emissions by investing in renewable energy generation assets must be accompanied by adapting to current climate stress by modernizing transmission and distribution infrastructure and building increased resilience of grid assets.

Utility leaders are recognizing that capital investments in grid modernization and AMI are not only helping reduce the growth of operational expenses but are creating new revenue streams and business models that deliver significant ROI. It is becoming commonplace for utility executives to embrace sustainability as a catalyst for growth. In the IBM Institute for Business Value (IBV) 2022 C-Suite Study, 51% of Energy & Resources CEOs see sustainability as a business opportunity that will drive growth, but 58% most frequently identify sustainability as their greatest challenge. These utility CEOs face pressure, urgency, and uncertainty as they pivot to action on sustainability. Effective execution requires conviction, a strong technology and data foundation, and open innovation. Ultimately, integrating sustainability and digital transformation drives stronger business performance.

Regulations are driving bold requirements for sustainability.

Companies are seeing increasing regulations requiring them to disclose sustainability information—shown below are some of the leading reporting frameworks.

Regulation	GRI (Global Reporting Initiative index)	CDP (formerly known as the Carbon Disclosure Project)	IIRC (International Integrated Reporting Framework)	SASB (Sustainability Accounting Standards Board)	TCFD (Task Force on Climate-related Financial Disclosures)
Geographic scope	Global	Global	Global	U.S.	Global
Launch year	1997	2000	2010	2012	2017
Target reporters	All companies	Companies, cities, states, regions	Public companies	Public companies in U.S. exchanges	All companies
Where to report	Corporate Sustainability Report	CDPs online reporting platform	Stand-alone integrated report	SEC Form 10-K, 20-F filings	Annual financial filings
Audience	Broad set of stakeholders	Investors, buyers, other stakeholders	Investors	Investors	Investors, lenders, insurers
Website	globalreporting.org/	cdp.net	integratedreporting.org	sasb.org/	fsb-tcfd.org
Purpose	Help organizations report on economic, environmental and social impacts considering a wide range of interests	Capture environmental performance data related to GHG emissions, water, forests, and supply chain	Establish guiding principles and content elements allowing companies to produce "integrated reports"	Facilitate disclosure of material sustainability information in SEC filings	Encourage firms to align climate-risk disclosures with investors needs
Focus areas	Environment Social Governance	Environment Governance	Environment Social Governance	Environment Social Governance	Environment Governance
			Merged to form the Value Reporting Framework (VRF)		

Insights from Utility CIOs.

Utility CIOs see the opportunity to lead.

Decarbonization is a focal point for energy and utilities leaders as regulations and public pressure push the sector toward cleaner energy sources. One CIO from the exchange shared their point-of-view that the electricity sector has potential to be a leader with decarbonization, as internal combustion vehicles are a clear target in terms of reducing the carbon footprint. However, electric vehicles are currently a niche market, so the carbon footprint will remain high for the time being.

One leader described their company's move away from coal as an energy source. Instead, they are using multiple energy sources, such as hydro-electric, solar, wind, and nuclear. People, planning, and community are the sustainability themes this leader's organization relies on as it pursues its sustainability agenda. Energy companies can develop community relationships that make real the promises of ESG (environmental, sustainability, and corporate governance). One leader discussed their firm's efforts to develop partnerships to adopt alternative fuels in indigenous communities. It's important that any effort be a joint venture—companies need to bring resources and methodologies, while the community should lead on owning the investment.

How utility CIOs view reporting and goals.

Making improvements in data and analytics requires a proper and standardized data foundation, establishing clear governance practices throughout the organization, and automating reporting processes when possible. One CIO noted that their data scientists spend up to two-thirds of their time pulling data from disparate, repetitive, non-standardized sources in order to do analytics. These tasks mis-use data scientists' time taking focus away from higher value work. Leaders are looking to articulate a solid and succinct business case to put strong data underpinnings in place.

Multiple leaders see their organizations taking on aggressive sustainability and net-zero goals over the next three to five years. And while ambitious goals are necessary, sustainability leaders are asking for technology and services to help them accelerate.

What utility CIOs do to align to regulations.

For companies with a global footprint, sustainability efforts can be complex. One company that is working to retire coal power plants in countries that have active coal excavation and generation shared that they are actively working to leverage alternative fuel sources. They shared that they recently had a celebration of decommissioning a coal-fired power plant while opening a solar farm next door. These solutions were welcomed by the community for their positive contributions to local health and to the environment.

While some energy companies focus on generation and moving to renewables, others are fully integrated utilities, with generation, distribution, and transmission. In some markets, however, delivering the lowest-cost energy might be the most important goal. In a recent discussion with utility leaders, many mentioned matching the energy generation to the local need. One leader described taking over distribution in Puerto Rico and working to promote rooftop solar panels for customers. When working with a community that may be underserved or underprivileged, leadership should work as if they will be there forever, find ways to promote sustainability, and establish new business models that work for the local population.

The global energy industry is dynamic. While some places like Central Europe are moving quickly to Energy Transition, other regions have different priorities. Some governments may promote going green and moving towards renewables, while other governments desperately look for energy no matter the source.

Utility companies decarbonize their operations that are critical to broad Energy Transition.

Imperative	Opportunity	Actions	Details
Energy Transition and Renewable Generation	Achieve emission reductions through transition to renewables, natural gas, & nuclear power plants.	Increasing renewable energy capacity	➢ Investment in large-scale wind farms and solar panels to capture carbon free energy
		Retiring coal-fueled power plants	➢ Coal-fueled power plants are being retired and replaced with other forms of power plants with less carbon emissions
		Using natural gas as a transition fuel	➢ While natural gas is not free of carbon, it is an economically -viable option that plays a fundamental role in transitioning from coal fired power plants
Customer Operations	Invest in EV infrastructure and systems to help customers transition to EV from gas powered cars.	Engaging the customer	➢ Consumers, both individual and corporate, are increasingly expecting utilities to set, achieve, and/or enable others to achieve emissions reductions and clean energy usage
Grid Resilience	Modernize the grid, increase transmission & distribution capacity and improve grid resiliency against physical risks from climate change and increased utilization of renewables (transmission, distribution assets, and energy storage).	Supporting EV infrastructure investment	➢ Utilities are supporting the accelerating adoption of EVs, while also planning for grid modernization to support the increased load and stress they will have on the grid
		Modernizing the grid	➢ Utilities are leveraging massive investments in grid modernization projects for customer benefit, for resilience against the physical risks from climate change, and for increased utilization of renewables
			➢ As utilities move from a conventional, centralized, and fixed system to one that leverages renewables, decentralization, and flexibility – they will take advantage of technologies for demand response and load shedding in lieu of carbon fueled reserve power plants

Quotes from the E&U CIO Roundtable:

Sustainability as a growth opportunity

“Sustainability is actually our biggest growth opportunity because we are connecting an enormous amount of sustainable energy production. We're doing the communications, we're doing mobility, we do all this stuff. This is all been super important.”

Pilot renewable energy sources

“We're really focused on that gas side: How do we tackle that energy transition. We put a lot of energy into hydrogen; we’re currently blending 10% hydrogen in an innovation hub that we're running. It’s not available to all consumers yet, but we've run a really neat project where we've parked a big hydrogen tank on one home’s front lawn. The owner is blending up to 20% in his house, and they say all of their appliances are working and nothing's blown up yet. Hydrogen isn't going to be in every household within 5-10 years, but it requires our investment right now.”

Establish a standard reporting approach

“The challenge is not a rejection of solutions: it's the ability to systemize reporting. Often, it's a single point of contact that has the knowledge. So, if you want integrity and reporting with carbon emissions or output of renewable energy, then folks will take that quite seriously. The challenge you've got is that it's typically maybe one or one and a half people that really know how to do that well that the organization trusts. So, the challenge is how to systemize what's in their head, and all those different touchpoints to do it.”

Energy Transition requires an agile approach

“When we talk about ESG, I still have the feeling that there’s room to improve the standardization measurements. There’s no one way to do it, and companies are approaching it differently. I think we are extremely aware where our value is found, and ESG is a crucial part of those elements. Our strategy is green energy, so when we make investments and select partners and suppliers it’s crucial. It’s not selection criteria at the moment but will be over the next three years. Right now, maybe some politicians are opposed to green revolution and the climate situation. But for us, the train has already left. Nobody can stop the change. The new generations working with us on clean energy are clear on what they’re looking for. We might not be winning all the battles, but we push on.”

Distributed Energy Resources and automation impact the grid

“Certainly, distributed energy resources are a component of that electrification transportation. How we plug that in. So vehicle to grid comes into play down the road. These are three years and five years out, but not today. And then we look at new products and services that tie to the customer at the edge. So, in terms of technology, it’s AI, and UM & ML at the edge, machine learning and artificial intelligence. We’re looking at autonomic systems at the edge, so think of drones, things like that, how we might operate and support it once we put it in. The list just goes on to pretty much everything. We’re calling it the bread and butter of our business. We’re revamping it all, so it’s on top of what we already have.”

Increased regulation raises challenges in reporting and technology deployment

“We can make the reporting easier through an IT tool, but the most important things are where you’re going, and how you’re planning to get there. Things like the actual strategy. We think about “are we taking action, and not just writing stuff on paper?” Hydrogen doesn’t just happen because we want it to happen. There must be regulatory changes, and we have to get certain types of equipment approved. Energy transmission is an industry wide issue, and it requires government policy, regulatory oversight, and all those other things. The accountants upstairs know how to count, and their spreadsheets can be turned into a small tool. Are they educated in the subject matter? Yes, yes, and yes.”

IBM point-of-view.

To turn sustainability ambition into action.

Climate technologies have proven their role in reducing greenhouse gas emissions and building resilience to the impacts of climate change. They play an integral role in mitigating its effects, but many companies struggle with where to start. How can they adopt technology that will make them more efficient and sustainable at the same time? IBM believes in taking a data-driven approach, adding that linking and integrating sustainable actions into the company's everyday business operations is essential to turning sustainability ambition into action.

IBM strives to leverage the same technology that is promoted to clients. For example, the Envizi ESG suite allows IBM to collect data from various facilities, to provide a comprehensive view on energy consumption, enabling specific actions to be taken to achieve the 2030 goal of having 90% of IBM's energy coming from renewable sources. Envizi ESG suite combines data from various sources, runs analytics to identify higher consumption areas, so solutions can be addressed.

For organizations of any industry to succeed in achieving their goals, and to thrive in a sustainable world, business leaders must:

- **Define** their sustainability goals and strategy
- **Establish** an architecture to track ongoing performance
- **Operationalize** sustainability in business decision-making

Define sustainability goals and strategy.

In this first step, utilities develop a sustainability strategy and roadmap. It starts by defining that sustainability goals being able to demonstrate progress and really engage employees to make them feel part of the journey. Co-creating a sustainability agenda and pathways towards delivering corporate social impact and business value. Central to success is an aligned strategy that defines outcomes and sets clear goals. These goals can be as focused as determining what your emissions are today or as involved as committing to a net zero target.

An IBM CEO study shows that a digital reinvention strategy drives hardened benefits in both sustainability objectives and overall financial performance. It can also serve to help attract and retain talent – especially the next generation who wants to be part of a purpose-driven enterprise. The next generation of talent want to be connected to something bigger than themselves - to make an impact in the world we share.

IBM experts, strengthened by strategic alliances and partnerships, are helping clients embed sustainability into the fabric of their business to increase operational efficiencies, expose innovation opportunities, and drive competitive differentiation. IBM Expert Services for Sustainability can provide an end-to-end model for accelerating digital transformation. Through an approach of co-creation, it can help to generate innovative ideas, while simultaneously equipping clients with the experts, practices, and technologies they need to rapidly turn those ideas into business value.

Framework for turning sustainability ambition into action with solutions from IBM.

Establish an architecture to track performance.

The next step is creating a single system of record for ESG data and insights to measure, report, operationalize and achieve your sustainability roadmap. Underpinning every sustainability-oriented goal is the need to establish a clear baseline, with ESG data, reporting and climate risk management. This requires a business to create a system of record with which to operationalize sustainability goals and environmental intelligence.

Creating a single system of record is complex. It requires revisiting where this data is being generated, where it has been stored, and ensuring the utility has a comprehensive view of the most meaningful data points. There's a lot of data that utilities can examine—whether it's related to emissions, materials transportation, or a whole array of other activities—there are many different systems that these are built on such as building-level systems, environmental systems, or edge devices. Bringing these systems together, hosting on the right infrastructure and infusing exponential technologies can help surface actionable insights for a utility to meet their sustainability objectives.

Despite this strong focus on data, 44% of CEOs cite a lack of insights from data as a problem. Moreover, a stunning 60-73% of data is never used for analytical purposes. To support the net zero transition by 2050 or before, businesses need an enormous amount of data not previously collected, such as data related to climate risk - the physical risk of assets that organizations finance; data related to the business risks impacting an organization's creditworthiness; and/or data that will allow investment managers to score organizations according to their sustainability characteristics.

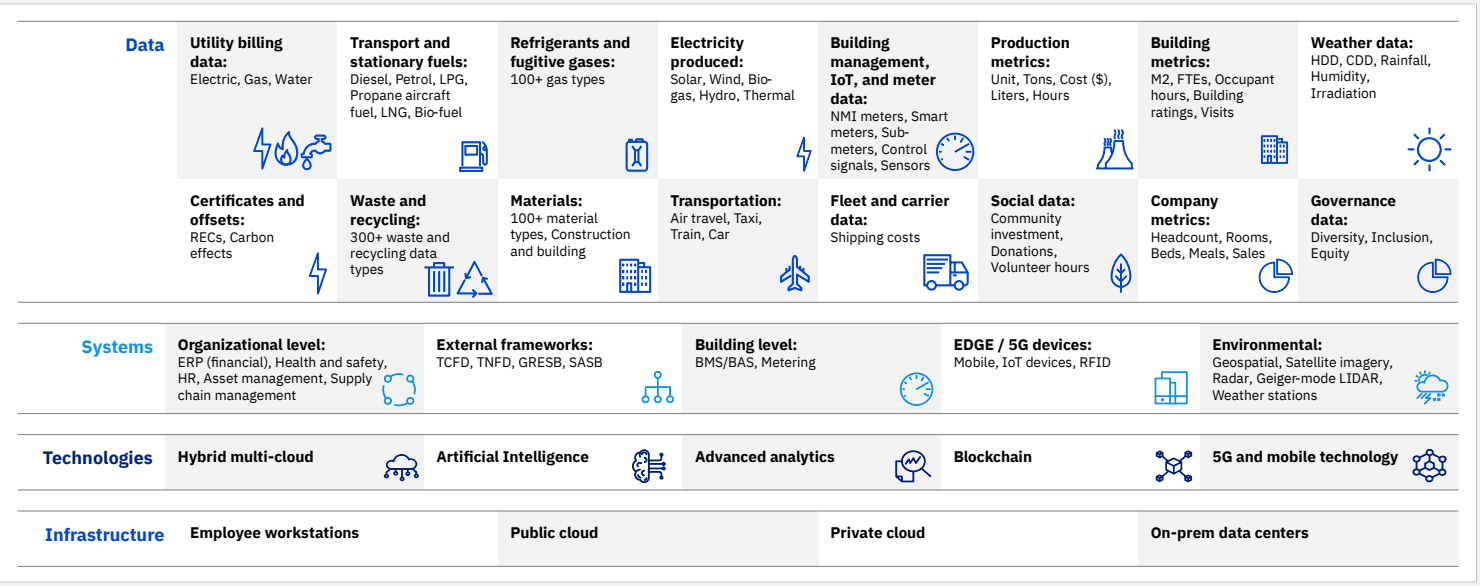
Organizations need data about the carbon footprint of businesses--not only the direct and indirect emissions, but also the emissions associated with all their activities, including supply chain. Technology is the key to making sense of this data. An increasing number of CIOs feel the same way with 42% indicating that sustainability is the place where digital technologies will have the greatest impact over the next three years.

An integrated ESG data solution is the foundation for a utility's environmental sustainability journey. A data and systems architecture will help utilities deliver on their energy and environmental commitments. See below for examples on how utilities leverage a data foundation to drive sustainability impacts.

Initiative	Outcome
Energy data management	Provide a trusted, timely, accessible energy data set that all stakeholders can use to report, track progress against targets, and understand how and where to make the best energy efficiency investments.
Utility spend management	Utilize analytics to validate bills, generate accruals, identify billing and consumption anomalies, and identify maximum demand events.
Comprehensive sustainability reporting	Expand data to include waste & recycling, water, solar and other sustainability data types enabling sustainability performance management.

Utilities establish a data and systems architecture to track ongoing performance.

Hundreds of data sources plug into enterprise systems where exponential technologies built on foundational infrastructure, reveal insights and drive decision-making.



**Note: chart is illustrative, not comprehensive*

Operationalize sustainability in business decision-making.

Once the systems of record for ESG data management are connected to the underlying systems that run operations across all departments and business units, the full benefit can then be achieved. These linkages, when properly tuned, generate continuous feedback loops, that enable insight-driven actions, to drive transformation through intelligent facilities and assets, resilient IT Infrastructure, and circular supply chains.

Connect your ESG data management with the systems that run operations to drive transformation. Intelligent assets, facilities and infrastructure provide operational insights to drive the clean energy transition, effective waste management and decarbonization. Responsible computing and green IT to enable sustainable IT and drive social impact. Sustainable supply chains and circularity with Intelligent Workflows for equitable, transparent, and carbon regenerative supply chains.

Operationalizing the sustainability goals: IBM has built a comprehensive portfolio of capabilities in collaboration with its extensive network of partners. IBM helps utilities to realize sustainable transformation by leveraging the connections between their ESG data and their daily operations. See more on where companies are focusing to build sustainable operations in the chart below.

IBM has developed a framework to turn sustainability ambition into action.

In the **"Define"** phase, utilities create a sustainability agenda and identify pathways to drive material corporate social impact and business value.

In the **"Establish"** phase, utilities put into place a system of record for Environmental, Social and Governance (ESG) data and insights to measure, report, operationalize, and achieve contextualized sustainability roadmaps.

In the **"Operationalize"** phase, three key areas can drive impact:

- **Intelligent assets, facilities, and infrastructure:** Monitoring and recording operational data from an organization's physical assets and real estate facilities is a good place to start. The data that is collected can fuel insights to drive significant energy savings, optimize waste management, and provide predictive maintenance data to help reduce unplanned downtime.
- **Responsible computing and Green IT:** Data centers provide multiple opportunities for improving a company's environmental footprint. Upgrading IT infrastructure with newer, more energy-efficient equipment can help to reduce energy consumption and eliminate wasteful, outdated hardware. What's more, the same steps taken to improve business resiliency across the organization can also help to improve customer experiences and productivity.
- **Sustainable supply chains and circularity:** Encouraging reuse and providing customers with transparent sourcing data for the products they buy is something more consumers are demanding. Deploying intelligent workflows and taking advantage of automation opportunities not only reduces waste, but also optimizes fulfillment and delivery paths with lower carbon footprints. Solutions powered by artificial intelligence (AI) and backed by blockchain can help to progress toward a net zero supply chain.

Companies are focusing on the following areas to build sustainable operations.

What systems that underpin your ESG goals, are required to build sustainable operations for your business?

Companies with a...	Network of Physical Assets	Large IT Infrastructure	Complex Supply Chain
	Such as energy and utilities, manufacturing, telecommunications, and other industries with critical infrastructure assets	Such as utilities, computer services, financial, and other highly regulated industries with a large data center footprint	Such as the distribution sector, manufacturing, retail, and other industries with a highly complex supply chain
Focus on the following opportunities...	• Longer asset life • Asset failure prediction • Minimize outage and downtime • Regulatory compliance • Reduce emissions • Asset failure prediction • Minimize outage and downtime	• Lower cost of IT • Regulatory compliance • Improved power utilization • Regulatory compliance • Responsible computing	• Lower product carbon footprints • Deliver sustainable sourcing • Scope 3 emissions • Regulatory compliance
To achieve sustainability improvements...	Increased productivity 20%–30%	Reduced cloud and data center consumption 30% in 6 months	Reduction in expedited freight costs by 52%

In Closing:

Sustainability is top-of-mind for Energy and Utility industry leaders. Digital transformation will enable and accelerate the Energy Transition for utilities – and for all other industries. Driving decarbonization and sustainable outcomes will require an integrated and automated data foundation so enterprises can swiftly adapt to climate change and mitigate negative environmental impacts in their operations – all while ensuring positive business outcomes.

IBM CIO Roundtables provide a forum for E&U leaders to address various topics around digital technologies that transform and power their businesses—such as automation, security and data.

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