

Morgan Lewis

THE RISE OF ENERGY STORAGE

**A GLOBAL OPPORTUNITY AND
REGULATORY ROADMAP FOR 2023**



Energy storage: the technology that will cash the checks written by the renewable energy industry.

Energy storage can transform intermittent clean energy—primarily derived from wind and solar—into a reliable source of 24/7 generation. As a result, energy storage has seen tremendous policy support from the public sector, including through federal investment tax credits in the United States, as well as a large influx of capital from private investors seeking environmental, social, and governance (ESG) focused investments.

The global energy storage market will continue its rapid growth, with an estimated 387 gigawatts (GW) of new energy storage capacity expected to be added by 2030—a 15-fold increase in global energy storage capacity compared to the end of 2021.

Our lawyers lay out some important trends in the 2023 energy storage market



ENERGY STORAGE

MARKET OUTLOOK

In the United States, installed storage capacity more than tripled in 2021 and that growth is expected to continue, especially following the enactment of significant new federal income tax incentives for energy storage deployment (and manufacture) under the Inflation Reduction Act of 2022 (IRA). As a result, the annual amount of storage installations in the United States is expected to increase from approximately 4.6 GW in 2021 to more than 27 GW by 2031.

The acceleration of energy storage deployment has led to increasing demand for battery materials, variability in procurement contracts and financing models to reflect the developing market, and evolving global regulations. Uncertainty relating to these and other general market conditions has resulted in headwinds for the industry, including a slowdown in the pace of installations relative to prior projections.

Demand for battery metals in 2022 increased almost 30% over the prior year. The increased demand for batteries from both the utility-scale energy storage industry and the electric vehicle (EV) market has put a strain on the market and increased costs. The dollar-per-kilowatt cost of storage increased from \$1,580 in the first quarter of 2021 to \$1,993 in 2022.

Continued pressure in the supply chain for storage components, including battery metals, has sustained these increased prices and led to production and delivery delays. However, this increased demand will hopefully drive manufacturers to develop economies of scale that could eventually alleviate these pressures. Manufacturing capacity for lithium-ion batteries is expected to increase more than five-fold between 2021 and 2030.



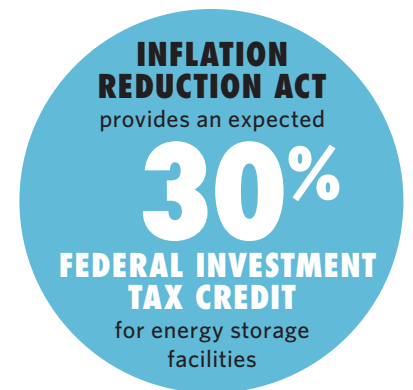
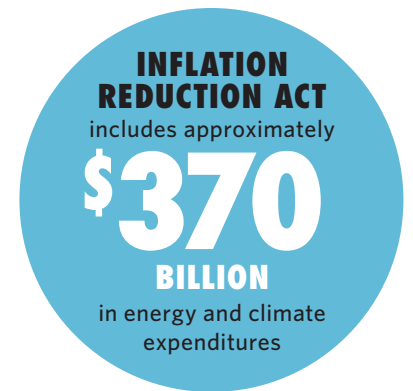
INVESTMENT TAX CREDITS UNDER THE INFLATION REDUCTION ACT

In the United States, the IRA has the potential to revolutionize the manner in which renewable energy and green technology project financing is structured and to expand the investor base for “green” technology industry facilities, including with respect to energy storage. At a high level, the IRA includes approximately \$370 billion in energy and climate expenditures, much of which relates to changes to the federal income tax law that significantly extend and expand tax credit benefits for green technology energy and fuel production, equipment manufacturing, carbon capture, and other technologies.

For energy storage, the IRA provides an expected 30% (and potentially 40% or 50% or even greater, depending on the satisfaction of certain tax credit “adder” requirements) federal investment tax credit (ITC) for a broad set of standalone energy storage facilities, including those employing battery, hydrogen, and thermal energy technologies. The energy storage industry had long sought such a tax credit provision specific to energy storage given the restriction for claiming the ITC under pre-IRA law. Prior to the IRA, the ITC was available only for energy storage systems that were paired with another ITC-eligible renewable energy generation source, such as a wind or solar generation facility, and such storage system was subject to certain limitations on its ability to grid-charge during the first five years of operation. The ITC therefore now applies to a broader array of energy storage facilities not deployed at an energy production source, such as grid-stabilizing standalone storage facilities.

The IRA also enacted a special rule permitting regulated utilities to elect out of “public utility property” limitations with respect to energy storage facilities, thereby permitting them to realize the benefit of the ITC on an accelerated basis (rather than spread over the projected life of the facility). Further, the IRA enacts new methods for monetizing green tech tax credits (including the energy storage ITC), consisting of the transfer of credits for cash and the ability of certain types of owners to receive refundable credits.

These new tax benefits for energy storage enacted under the IRA provide potentially market-moving economic benefits. Critically, the tax credits and new monetization opportunities are expected to lead to new and increasing sources of outside capital available to fund new storage projects. For example, it is expected that standalone energy storage facilities can accommodate traditional tax equity investment (and investors), which in turn will drive down the cost of capital for project developers for both typical debt construction financing and long-term project financing. Credit transfer-for-cash structures could also be deployed by developers in the absence of available tax equity investment. As a result, the IRA is expected to provide a long-awaited boost to the United States’ energy storage portfolio.



CHANGES IN CONTRACTS

The majority of new energy storage installations over the last decade have taken place under procurement contracts between project developers and utilities. These contracts allocate the risks of project development, construction, and performance between the parties and include the price that will be paid by the utility for the resource or energy storage services provided.

There are three main types of procurement contracts: power purchase agreements (PPAs) or energy storage services agreements (which may also take the form of virtual power purchase agreements or shared savings contracts in certain contexts); engineering, procurement, and construction (EPC) agreements; and build-transfer agreements (BTAs). As each type of contract offers different levels of rights and responsibilities, utilities under procurement mandates or requirements to consider storage in integrated resource planning will need to carefully consider the risks of each type of contract.

Delays in the procurement of batteries could lead to utilities failing to comply with regulatory mandates and developers being unable to deliver such projects on time or on cost. Energy storage procurement contracts must also take into account the ever-evolving suite of laws and regulations applicable to energy storage projects.

DEMAND FOR PROJECT FINANCING

The rapid growth in the energy storage market is driving demand for project financing. The general principles of project finance that apply to wind and solar projects also apply to energy storage projects, particularly since standalone energy storage is now eligible for ITCs. Since many solar projects currently under construction include a storage system, lenders in the project finance markets are willing to finance the construction and cashflows of an energy storage project. However, there are certain additional considerations in structuring a project finance transaction for an energy storage project.

- **TECHNOLOGY RISKS:** Lithium-ion batteries remain the most widespread technology used in energy storage systems, but energy storage systems also use hydrogen, compressed air, and other battery technologies. Project finance lenders view all of these newer technologies as having increased risk due to a lack of historical data. As a result, a primary focus for lenders in their due diligence of an energy storage project will be on technology risks.
- **CONSTRUCTION RISKS:** It is fairly common to see multiple equipment supply, construction, and installation contracts rather than one turnkey EPC contract for energy storage projects. Lenders tend to prefer fixed-price turnkey EPC contracts so that there is a single contractor, which shifts some of the construction risk from the project company to the EPC contractor.
- **OPERATING RISKS:** As a general matter, lenders will conduct diligence to understand the energy storage project's operating limitations and operation and maintenance (O&M) costs. Lenders will look for an O&M agreement for the project with an experienced operator that will ensure that the project will be operated within the project's operating limitations.

US REGULATORY FOCUS

In recent years, the United States has enacted significant legislation (the 2021 Infrastructure Investment and Jobs Act and the IRA) that will spur greater development of domestic renewable energy resources. In addition, President Joseph Biden has also set a number of goals relating to renewable energy development, such as reducing 2030 emissions by 50% from 2005 levels, achieving a federal light-duty vehicle fleet that is 100% zero emissions by 2027, and procuring 100% carbon pollution-free electricity for federal agencies by 2030.

FEDERAL

Federal regulators also remain active and continue to shape energy storage policies. The Federal Energy Regulatory Commission (FERC) issued a pair of landmark wholesale market reforms in recent years. Order No. 841 requires grid operators to implement storage-specific reforms in wholesale capacity, energy, and ancillary service markets, and Order No. 2222 requires grid operators to facilitate the participation of distributed energy resource aggregations, which can include storage resources, in wholesale markets. The growth of energy storage is also raising novel regulatory policy issues before FERC related to, among other things, cost allocation and grid reliability.

STATE

On a state level, approximately 15 states have adopted some form of energy storage policy including procurement targets, regulatory adaption, demonstration programs, financial incentives, and/or consumer protections. In recent years, certain states have also required that utility resource plans include energy storage. Even so, incorporating storage into integrated resource plans can be a challenge because storage is different from conventional electricity generators and demand-side resources.



GLOBAL FOCUS

EUROPEAN UNION

Europe is a leader in renewable fuels, batteries, and storage technologies, and storage and system integration are key elements of clean energy technologies and solutions. Energy storage also plays an important role in the European Green Deal and the Fit for 55 green transition package, a set of policy initiatives aimed at ensuring the EU gradually becomes climate neutral. The Green Deal envisages that the regulatory framework should foster the deployment of innovative technologies with energy storage.

There is no unified regulation on energy storage so companies are required to understand and implement their energy storage strategies around a number of regulatory acts (most of which require implementing at the level of the EU member states).

In brief, the energy storage regulation in the EU focuses on the following:

- Public support, strategy, and other policy aspects
- Permitting
- Effectiveness of energy markets and capacity mechanisms, including establishment of the European entity of distribution system operators (EU DSO)
- Grid aspects
- Tariffs, in particular, requiring the EU member state not to discriminate against energy storage projects in its tariffs' regulations
- Batteries: “[G]iven the important role they play in the roll-out of zero-emission mobility and the storage of intermittent renewable energy, batteries are a crucial element in the EU’s transition to a climate neutral economy”

The implementation practices and policy approaches in respect of current EU regulation still vary among the EU member states. Further development of energy storage regulation at the EU level is likely to be in line with its energy security and energy transition goals. One might also expect that such further developments will be in a spirit of solidarity demonstrated by the EU in respect of its gas storage amid the energy crisis, which would imply a greater alignment among member states.



TÜRKIYE

A number of amendments have recently been made to the Electricity Markets Law and applicable regulations in Türkiye to allow existing license holders of wind and solar power plants to establish electricity storage units within their generation facilities, and for investors to apply for preliminary licenses to establish new wind and solar power plants with storage units.

The relevant amendments introduced a number of notable changes:

- For greenfield projects, a single pre-license/ license (issued by the Energy Market Regulatory Authority (EMRA)) will be sufficient for wind and solar power plants with electricity storage units to conduct both electricity generation and storage activities.
- Brownfield projects may apply for a capacity increase under their existing pre-license/license up to the installed power of the associated electricity storage unit(s).
- For greenfield projects, electricity storage plant developers are able to apply for a pre-license to develop new solar or wind power projects within their project site without participating in grid connection competitions organized by TEİAŞ.

Importantly, wind and solar projects with storage units will continue to be entitled to receive the feed-in tariff (Renewable Energy Support Mechanism or YEKDEM). Under the Renewable Energy Support Mechanism, renewable power plants commissioned between July 2021 and December 2025 will benefit from guaranteed price support.



UNITED KINGDOM

The UK legislative arsenal does not include a specific framework for energy storage. The Electricity Act 1989 is the main piece of legislation governing electricity in Great Britain, which defines “energy storage.” Ofgem, the Great Britain energy regulator, clarified in 2020 that electricity storage is deemed to be electricity generation for the purposes of the Electricity Act 1989. As such, any energy storage operator would require a generation license, unless an exemption applies.

In the yet to be adopted Energy Bill 2022-2023, there is a proposal to amend the Electricity Act 1989 to clarify that electricity storage is a distinct subset of generation and is defined as “energy that was converted from electricity and is stored for the purpose of its future reconversion into electricity.”

CONCLUSION

The renewable energy industry continues to view energy storage as the answer to its problem of how to maintain grid reliability with only intermittent energy production.

The market for energy storage has grown on the coattails of the growth of renewable energy. But increasing costs, supply chain strain, competition with the EV market, and production delays may cause complications for the growing market. That said, these near-term issues will be resolved and the industry will continue to grow exponentially.



LEARN MORE ABOUT OUR PRACTICE

ENERGY STORAGE

With more than 100 energy and project finance lawyers, Morgan Lewis is a leading provider of legal services in the energy industry. We have advised on the development, financing, acquisition, and construction of numerous electric energy storage projects, including flow and lithium-ion batteries, pumped-hydro storage, behind-the-meter, and in-front-of-the-meter energy storage, as well as standalone energy storage and energy storage coupled with solar, wind, or gas-fired generation

Our practice includes some of the most knowledgeable lawyers in the industry who understand energy storage on technical, commercial, and business levels. We know how expanding markets for energy storage are creating new opportunities in the United States and globally. Our global team of lawyers assists clients with all aspects of energy storage development, construction, and financing, as well as the acquisition and disposition of storage companies and assets.

SELECT MATTERS HANDLED BY OUR LAWYERS

- Represented a utility in the development of its form of procurement agreement for solar-plus-storage projects and the negotiation of such form in connection with new projects
- Represented a leading energy storage company in the development of two energy storage projects in San Diego, one of which was the largest lithium-ion battery project in the world, related to the California Public Utilities Commission's (PUC's) resolution for an emergency energy storage solicitation
- Represented a 1300-megawatt pumped-storage project in regulatory proceedings before the California PUC and FERC relating to procurement, market rules, and interconnection-related issues
- Represented a developer in establishing its hybrid electric building program in California
- Represented a lender in one of the first-ever project financings for a battery energy storage project
- Represented a leading energy storage developer in the development of a storage-plus-solar project
- Prepared a combined natural gas and storage power purchase agreement for a project developer
- Represented multiple developers in their bids into requests for offers for energy storage projects from each of the three major California investor-owned utilities (IOUs)
- Represented a strategic investor in a potential investment into an energy storage project that uses a novel energy storage technology and has an offtake contract with a California IOU
- Represented a power company in the development of behind-the-meter energy storage projects for a major grocery chain
- Represented the purchaser of a 10-megawatt battery storage project in the PJM market, including negotiating an EPC agreement and supplier warranties
- Represented a developer in the construction of energy storage and efficiency systems in US Department of Defense housing
- Represented a leading energy storage developer in connection with the development of an energy storage project across from a Midwestern utility
- Represented a Midwest utility in connection with the negotiation of a PPA for a first-of-its-kind 50-megawatt solar-fueled battery

RECENT ACCOLADES

RANKED
Energy: Electricity
(Finance),
Nationwide,
Chambers USA
(2021, 2022)

TIER 1,
ENERGY:
Renewable &
Alternative Power,
The Legal 500 US
(2021)
Recommended
since 2018

A-LIST
LAW
FIRM
The American Lawyer
(2022)

RANKED
Energy: Electricity
(Regulatory & Litigation
and Transactions);
Energy: Oil & Gas
(Regulatory & Litigation);
Projects: Power; and
Projects: Renewables &
Alternative Energy,
Nationwide,
Chambers USA
(2019-2022)

18
PARTNERS
RANKED,
Energy,
Chambers USA
(2022)

TIER 1,
ENERGY
LAW,
*US News/
Best Lawyers -
Best Law Firms*
(2016-2022)

Recommended,
Energy Litigation:
Oil & Gas;
Energy Regulation:
Oil & Gas;
Energy Litigation:
Conventional Power;
Energy Transactions:
Conventional Power; and
Energy Transactions:
Oil & Gas,
The Legal 500 US
(2019-2022)

400+
LAWYERS
RECOGNIZED
Chambers & Partners
(2022)

CLIENT
SERVICE 30
BTI Client Service
A-Team
(2002-2022)

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