ENERGY STORAGE – FOLLOW THE MONEY

Energy storage has become a critical component of the renewable energy infrastructure and general electric power markets in recent years. Energy storage is seen as the answer to the problems associated with intermittent energy production by renewable sources and grid reliability issues. By **JANE KANG**, *partner,* **MORGAN LEWIS**.

As a result, the global energy storage markets have experienced rapid growth, which is anticipated to continue with an estimated 387GW of new energy storage capacity expected to be added globally from 2022 to 2030.[1] That would represent a 15-times increase in global energy storage capacity, compared with the end of 2021.[2]

Capital support from the public sector and investors has also fuelled the industry's growth. This includes large influxes of capital from private investors that are seeking environmental, social, and governance (ESG) focused investments. Total corporate funding (including venture capital funding, public market, and debt financing) in the energy storage sector in 2022 was US$26.4bn, which represents a 55% increase compared with 2021.[3] There has been a large influx of capital from private investors that are seeking ESG-focused investments. In addition, with the passage of the Inflation Reduction Act of 2022 (IRA), the US government made the federal investment tax credit (ITC) available for the first time for stand-alone energy storage systems.

There are great opportunities in the energy storage sector today, but there are challenges facing the industry as well. Some of the key trends present in the energy storage sector today include increased construction costs, structuring debt financing transactions for energy storage systems and understanding the implications of the IRA.

INCREASED CONSTRUCTION COSTS

The continued interest and growth in the energy storage sector does face some challenges. Energy storage systems consisting of batteries, particularly lithium-ion batteries, have become more expensive to build. Demand for battery metals in 2022 increased almost 30% over the prior year.[4] This demand is only driven in part by the utility-scale energy storage industry.

Analysts, policymakers, and market participants project continued EV penetration into US markets, which drives up the demand for battery storage systems at EV charging stations. Prices have increased accordingly, with the dollar-per-kilowatt cost of storage increasing from US$1,580 in the first quarter of 2021 to US$1,993 in 2022.[5] In addition, the continued pressure in the supply chain for storage components has led to production and delivery delays, which drives up overall construction costs.

In the end, however, one benefit resulting from this increased demand is that it creates incentives for manufacturers to develop economies of scale, which would eventually increase supply and alleviate some of the pressures confronting developers today.

PROJECT FINANCING CHALLENGES

As the industry ramps up its development and construction of energy storage systems, there is increased demand from developers to finance the related capital costs from the debt markets. Fortunately, since the majority of solar projects under construction today also include a storage system, lenders in the project finance markets are willing to finance the construction and cashflows of an energy storage project. However, while many of the energy storage projects are structured under the same general principles that apply to the financing of solar projects and wind projects, there are a few considerations and trends that are specific to energy storage projects.

First, there is greater attention paid to technology risks during the lenders' diligence process. While energy storage projects rely primarily on lithium-ion batteries, developers are also working with hydrogen, compressed air, and other battery technologies. Since many of these energy sources are just now seeing broader market adoption, there are little to no historical safety or long-term operational data, and project finance lenders are taking more caution on evaluating their risks on an energy storage financing.

As a result, lenders will often rely on independent engineer reports to evaluate the technology risks and the likelihood that a project will meet minimum performance requirements safely. For example, before financing an energy storage project utilising lithium-ion batteries, lenders will expect a robust review from the independent engineer on capacity degradation and safety issues tied to overheating. Project companies can mitigate degradation concerns by securing a performance guarantee or equipment warranties, which would spread the risk to the technology vendors and provide assurance to the lenders on the reliability of the equipment.

Second, lenders will spend more time during their diligence to understand the energy storage project's operating limitations and operation and maintenance (O&M) costs. In particular, experienced operators will be in high demand as lenders will want to confirm that O&M

arrangements have been put in place with an experienced O&M service provider for energy storage projects to ensure that the project will be operated within the project's operating limitations. In addition, lenders will look for confirmation that the project company has sufficient rights to the system's software and any other intellectual property rights, which are critical to the daily operations of the energy storage.

Third, when structuring debt financing arrangements, lenders are confirming that sufficient reserves have been included when assessing the project construction budget in order to offset potential construction risks, particularly equipment cost increases and delivery delays.

Fourth, as in all project finance transactions, project companies must show that the project can support a steady and reliable stream of cashflows. Long-term offtake agreements, which can cover payments for delivered energy, capacity, ancillary services, or a combination of the foregoing, have long-term predictable revenue streams that are more attractive to project finance lenders. However, lenders may, and do, finance merchant cashflows, but with less leverage and subject to detailed market studies and cash sweeps.

Finally, renewable energy projects in the United States (particularly wind and solar) are eligible for tax benefits, including the investment tax credit (ITC) and the production tax credit (PTC). These tax credits have been financed in the non-recourse project finance markets, often utilising construction bridge debt that is fully repaid once the tax equity investment is made after the project is placed in service (as defined by the IRS).

Historically, in the energy storage space, tax credits have been available only for energy storage systems that are paired with renewable energy generation projects. However, with the passage of the IRA, tax credits are now available for stand-alone energy storage systems, and thus lenders may be willing to provide bridge capital that is underwritten based upon the receipt of proceeds from an anticipated tax equity investment, similar to renewable energy projects.

IMPLICATIONS OF THE IRA

The IRA is a key component of the Biden administration's support for clean energy projects and has the potential to drastically change how renewable energy and green technology project financing is structured. By changing how green tax credits are accessed and providing a significant portion of new funding for energy storage projects, the IRA is poised to expand the investor base for green technology industry facilities.

While it is designed to be broad and far-reaching, at a high level the IRA includes some US$370bn in energy and climate expenditure, 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. The IRA would extend, with modifications and expansions, the current general framework for renewable energy tax credits for projects that "begin construction" before 2025. The IRA would also remove the current ITC and PTC sunset and step-down provisions for renewable energy facilities placed in service after 2021.

The energy storage industry had long sought a tax-credit provision specific to energy storage, as there historically have been significant restrictions for claiming ITC for energy storage projects. 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. Now, the IRA provides a 30%–50% federal ITC for a broad set of stand-alone energy storage facilities, including those employing battery, hydrogen, and thermal energy technologies. This expands ITC eligibility to a broader array of energy storage facilities, such as grid-stabilising stand-alone 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 realise the benefit of the ITC on an accelerated basis (rather than spread over the projected life of the facility). But it didn't stop there. The IRA also enacts new methods for monetising green tech tax credits that allow for the transfer of credits for cash and the ability of certain types of owners to receive refundable credits, even if they aren't developing the projects themselves.

The IRA would permit those persons not eligible to elect for refundable credits – in general, taxable persons – to elect to sell all or a portion of refundable energy, carbon capture, manufacturing, and fuel production tax credits and investment tax credits for tax years after 2022 for facilities placed in service after 2022.

These provisions will no doubt revolutionise the way green technology project financing is structured and documented. Critically, the tax credits and new monetisation opportunities are expected to lead to new and increasing sources of outside capital available to fund new storage projects. However, market practice will no doubt take time to develop around the documentation and structures to utilise the benefits under the IRA, and there remain numerous technical questions that will need to be addressed by the Treasury and the IRS in implementing regulations and/or guidance for these transactions in order for a robust credit marketplace to develop.

The IRA looks poised to accelerate the growth of energy storage in the United States, and, despite some of the challenges facing the industry, the future growth of global energy storage sector looks promising. ■

FOOTNOTES

1 - Global Energy Storage Market to Grow 15-Fold by 2030, BloombergNEF (Oct. 2022).

2 - Id.

3 - Mercom Capital Group, llc, Annual and Q4 2022 Funding and M&A Report on Energy Storage, Smart Grid, and Efficiency (Jan. 2023).

4 - Battery Prices to Rise for First Time Since 2010, Slowing EV Adoption: BNEF, Utility Dive (July 2022).

5 - Wood Mackenzie Power & Renewables/American Clean Power Association, US Storage Energy Monitor, p. 4 (Sept. 2022).