Ireland ESS

Introduction



Hanwha Energy, the international energy development arm of the Hanwha Group for development of energy projects across the world has achieved financial close for 2 x 100 MW Energy Storage System (ESS) project at Shannonbrige and Lumcloon, Ireland ("Project"). The Export-Import Bank of Korea has acted as the lead arranger and provided the required debt financing for the Project. Hanwha Energy has been supported by **Synergy Consulting** as the exclusive financial advisor.

Ireland's DS3 Program

Ireland is rapidly increasing its share of renewable energy, mainly, its wind power generation which has increased from 16% in 2010 to 38% in June 2020. Ireland under its Renewable Electricity Support Scheme (RESS), targets to increase its share of renewable energy capacity to 70% by 2030.

Increasing renewable power generation caused grid stability issues as these units irregularly alternate between ramping up and down the installed capacity. Grid stability has been maintained at the cost of events of wind farm curtailment. To maintain grid stability with numerous non-synchronous electricity generators more efficiently, EirGrid, the Irish Transmission System Operator seeks frequency response services using Energy Storage System ("ESS") under the DS3 (Delivering a Secure, Sustainable Electricity System) Program. Similar ancillary service projects are successfully implemented in larger TSO systems such as PJM (USA) and National Grid (UK)

The DS3 Program was launched in August 2011 by Ireland, to meet the challenges of operating the electricity system in a secured manner with increasing levels of variable non-synchronous renewable generation. DS3 System Services refer to ancillary services of the Irish Single Electricity Market wherein two types of contracts are offered: Volume Uncapped ("VU") Regulated Arrangements and

Volume Capped ("VC") Arrangement and Hanwha Energy is pursuing VU Regulated Arrangements for the Project. Under this arrangement, the Project will provide specific System Services by responding to EirGrid's request on a real-time basis.

Investment Rationale

Ireland Renewables Market Growth

Ireland is committed to achieving an ambitious renewables energy capacity target of 70% by 2030. Given that a large part of this target would be achieved with commissioning of solar PV and wind power plants, demand for frequency response services for grid stabilization is expected to increase substantially. By being a part of this opportunity by providing System Services under DS3 Regulated Arrangement, Sponsors wish to continue their efforts related to environmentally sustainable business.

Credit Worthy Offtaker

EirGrid would be responsible for remuneration to the Project company for the System Services. EirGrid is an Irish state-owned entity with majority shares being held by Minister for Public Expenditure and Reform. Considering the high investment-grade sovereign credit of Ireland (A2 by Moody's, AA- by S&P and A+ by Fitch), risk of non-payment of undisputed invoiced amounts is minimal.

Multiple Areas to Create Value

Sponsors are targeting only Volume Uncapped Regulated Arrangement. Once the VU Regulated Arrangement ends, the Projects can utilize other options for supplying their services to EirGrid. These markets are well structured and has matured auction market. Volume Capped Arrangements (also known as Fixed Contracts) which are auction-based (price fixed for the duration of the contract) and service volume capped remuneration arrangement for six years.

Project Description

The Project comprises greenfield development of two battery energy storage system (BESS) assets, each being a 100 MW BESS project, one at Lumcloon and Shannonbridge in County of Offaly, Ireland (the Project). The Project is being developed for providing frequency response services to EirGrid for ensuring grid stability with numerous non-synchronous electricity generators under the VU Regulated Arrangements within Ireland's DS3 (Delivering a Secure, Sustainable Electricity System) Program. By addressing grid stability challenges due to connection of multiple non-synchronous renewable energy power plants, this Project plays a crucial role in enabling Ireland in achieving its renewable energy target.

HEC Europe, a subsidiary of Hanwha Energy Corporation, the international arm of Hanwha Group for development of energy projects across the world own a stake of 80% in the project companies while the remaining 20% is owned by local partner, Javah Energy Holdings Limited. Hanwha Energy is

responsible for EPC, and O&M, with Korean companies supplying key equipment for the Project. Commercial operation of the Project is expected in the year 2021.

EirGrid would be the concession grantor for the Project and will be remunerating the SPVs for the frequency response services. The DS3 concession agreements with EirGrid would be signed upon successful completion of acceptance testing of the plants. The base DS3 concession agreement will be valid till April 2023. EirGrid retains the option for extending the contract twice for 18 months period each. Post the expiry of the concession agreement with DS3, the SPV would be earning revenue through operating in the free / merchant market.

The tariff structure for the Project would be based on available capacity (MW) and timely response to dispatch order. Tariff under volume uncapped structure has 2 parts:

- **Base tariff :** Proceeds calculated per each MW of capacity made available
- **Other scalar tariffs** : Scalars for each System Services in particular are designed to incentivize provision of System Services when the need is at its peak. These system services tariffs are approved by regulatory agency

Financing Concerns

Achieving financial close on this Project was no mean feat given the projects' contractual structure. It presented some unique financing challenges to the Project which are among the first set of BESS projects in Ireland under this regime. Some of the key challenges are listed as follows:

(a) No Concession Agreement in place at financial close – Concession agreement will be signed only after plant acceptance testing is completed successfully. This implied that there would be no concession agreement in place during the construction period. Thus, it was difficult for lenders to drive comfort from a concession agreement with the offtaker which is already in place prior to debt disbursement.

(b) Short Term Concession Period – Concession tenure was very short with fixed date of expiry of April'2023. EirGrid retained the sole right to extend the contract, for a maximum 2 times. The SPVs will have to rely on merchant market once the concession period with EirGrid expires. Thus, the Project revenues were subject to significant market risk starting from just 2 years after COD.

(c) Market Risk During Concession Period – Even during the initial concession period, EirGrid has right to review and revise the tariff in case their internal metrics warrant such a revision. Lenders viewed this as an uncertainty on Project revenue even during the concession period and thus a risk to debt servicing capability of the Project.

(d) Termination Right with Offtaker – EirGrid had the contractual right to terminate the contract for convenience (albeit with a notice) with no protection being given to lenders for the outstanding debt amount.

The above listed challenges severely limited lenders interest in the transaction which resulted in a restricted debt liquidity pool available to fund the transaction.

Rigorous Timeline

Construction was initiated by HEC while the financing was being arranged simultaneously. Sponsors funded the construction cost via equity infusion till the time debt financing was arranged. The nature of the project (BESS) warranted for a relatively shorter construction period and thus there was limited time to arrange debt financing. Any delay in arranging debt financing could potentially

result in construction delay as equity infusion was to be limited at certain level. Further, as per the procurement structure, concessions were only offered two times a year. Thus, missing the deadline for COD would result in a ~ 6 months revenue loss which could prove detrimental to both HEC and lenders.

Given the potential impact on construction timelines, arranging financing was the critical path workstream. The timeframe available to HEC and Synergy for the same was very limited given the financing challenges posed by the contractual structure.

Successful Financing

HEC and Synergy conducted detailed focus sessions with potential lenders for structuring a credit support package which would be acceptable to lenders while limiting equity exposure to HEC. The negotiation meetings with the lenders were constrained heavily by the travel restrictions imposed due to Covid-19. Key focus areas which helped in achieving the milestone amidst the constraints and challenges imposed by lockdown were:

- Swift and agile management: Processes and protocols, were quickly put in place to overcome any issues due to travel restrictions and lockdowns. Management decisions were taken in a proactive manner with a well thought out plan, action items and strategy for next steps was put in place and communicated to all stakeholders.

- Diligence: Round the clock availability of team members helped in timely resolution of any outstanding issues and decision on critical path items were arrived at without any delays, which in-turn helped in avoiding any bottle-neck and provided further impetus to the process.

- Technology: Technology and remote working tools like conference call were extensively used. All commercial negotiations with lenders, documentation and finally signing, were successfully undertaken in a timely manner.

As FA to HEC, Synergy engaged in debt structuring, development of credit support package, term sheet and financing document negotiation, coordinating with lenders advisors for due diligence process and related work streams to successfully achieve financial close in a timely manner.

Lenders were supported by WSP (LTA), Arthur Cox (LLA), AFRY (Lenders Market Advisor), PwC (Model Auditor), AJ Gallagher (LIA).

Ending Note

This project is a landmark transaction as this is one of the few BESS projects worldwide that have been financed on a limited recourse basis. Further, the team achieved the primary target of arranging financing within stringent timelines as financing documentation was finalized in a commendable time of ~7 months from start of engagement.

The Export-Import Bank of Korea acted as the lead arranger and provided the required debt financing for the Project. Financial close was achieved at the end of October 2020. With this project K-EXIM has expanded its financial support for green energy businesses and continues cooperating with private energy businesses and the Project will be the first ESS project with K-EXIM financing.

The Project is currently in advanced stages of construction and commercial operation is expected to commence in 2021. Once operational, the Project will provide essential ancillary services to EirGrid, thus enabling Ireland in achieving its renewable energy targets.

This deal also sets exemplary standard of coordination among various stakeholders in these challenging times and provides a glimpse of future PPP projects' development whereby all the approvals, discussions, negotiations, execution and closing may happen remotely as well with parties residing in different parts of the world.



About Hanwha Group:

Hanwha is a Fortune Global 500 company leading internationally in a broad range of businesses. Hanwha's aims for sustainable development for all and aggressively invests in its primary industries (chemical, aerospace, mechatronics, solar energy, and finance). Hanwha Energy has been diversifying its energy business and building businesses overseas in solar power generation, O&M business, system solutions, and more. In addition, Hanwha Energy is expanding its energy system solutions with its smart energy business model. In December 2017, Hanwha had completed a 19MWh solar energy connected Energy Storage System (ESS) in Saemangeum, South Korea. Hanwha plans to implement their energy solutions for distributed energy sources, such as ESS and microgrids in other countries, including Japan, the US, and in Europe.

About Synergy

Synergy is one of the leading Infrastructure Advisory firms, offering financial advisory, bid advisory, financial modelling, financial model audit, contract analysis, debt and equity raising and structuring, M&A advisory and training programs to private sponsors as well as government entities. Synergy is at the forefront of Financial Advisory today, leveraging on its experience with numerous Project Finance based deals including renewable energy, conventional power - IPP / IWPP / IWSPP, water, wastewater, transportation and district cooling among others.