



LS Power ELCC CIR Proposals Overview

Dec 6, 2022

LS Power Group Overview

LS Power is at the leading edge of the industry's transition to low-carbon energy by commercializing new technologies and developing new markets

- LS Power is a **development, investment and operating company** focused on North American power and energy infrastructure
- Founded in 1990, LS Power has over 300 employees across offices in New York, New Jersey, Missouri, Texas and California
- In total, LS Power has developed, constructed, managed and acquired more than **45,000 MW** of competitive (conventional & renewable) power generation and over **660 miles of high voltage transmission** infrastructure, raising over **\$48 billion** in debt and equity financing to invest in North American infrastructure
- Highlights include **Gateway, the world's largest battery** when energized in Aug 2020, utility-scale solar projects in AZ and CA, **2.6 GW operating portfolio of renewable generation and energy storage**, and flexible, deployable generation resources critical to grid reliability
- LS Power's approach to the energy transition is deliberately **focused on investments that will likely yield long-term reductions in greenhouse gas (GHG) emissions at the system level**

2021 Avoided GHG Emissions

(assets under LS Power control)

80,670,100

metric tons CO₂e avoided

EQUALS

17,550,629

passenger vehicles taken off the road for one year

on

14,658,563

homes' electricity use for a year

on

186,837,560

barrels of oil not consumed

on

27,448,980

tons of waste recycled instead of landfilled

on

98,871,825

acres of forest sequestering carbon for a year

Please see [LS Power Sustainability](#) for additional details including GHG emission avoidance calculation methodology.

LS Power Energy Transition Platforms

National Leaders in Distributed Energy, Electric Vehicle Charging, Energy Storage and Renewable Generation/Fuels



■ **CPower Energy Management is the leading demand-side energy management solutions provider in the U.S.**, that helps nearly 2,000 commercial, industrial and government organizations save on energy costs, earn revenue through energy curtailment, enhance their sustainability efforts, and support the decarbonization and reliability of the electric grid.



■ **REV Renewables is an industry leader in the development, acquisition and operation of renewables and energy storage.** REV's 2.6 GW operating portfolio includes 25 solar projects, 1 wind projects, and several battery projects including Gateway, the world's largest battery when energized in Aug 2020. REV represents one of the nation's largest non-utility portfolios of renewables and energy storage.



■ **Primary Renewable Fuels partners with the Landfill Group, a leader in the Landfill Gas to Energy Industry.** With over 30 years of experience, the Landfill Group was created to answer a need expressed by the landfill gas market – the ability to build a project where all vendors come together and seamlessly connect all the parts by providing complete solutions from development, operations, construction, equipment manufacturing, and ownership of landfill gas projects to municipal and private landfill owners across the U.S.



■ **BluSail Renewable Fuels represents a JV with BioStar Renewables and ARM Energy to develop, build, own and operate waste to energy projects.** BluSail uses anaerobic digestion (AD) to break down waste, isolating by-products such as ammonia and methane, to be converted into Renewable Natural Gas or Renewable Electricity. Through its AD Waste to Energy solutions, BluSail reduces Greenhouse Gas Emissions, provides Renewable Energy, and diverts waste from landfills to support farming and other government, commercial and industrial users with their waste management needs.



■ **Rise Light & Power is a regional manager and developer of energy assets** which provides more than 20% of New York City's generating capacity and is making significant investments to enable the state to reach its clean energy goals. From modernizing facilities to investing in large-scale renewable energy projects, Rise Light & Power is working to light the future.

514,814

metric tons of CO₂e collectively avoided
across LS Power's Energy Transition Platforms in 2021

Please see [LS Power Sustainability](#) for additional details including GHG emission avoidance calculation methodology.

LS Power Project Portfolio

Extensive development/operating experience across multiple markets and technologies

- With over **\$48 billion** in equity and debt raised, LS Power has developed and acquired **over 100 Power Generation projects** (renewable and conventional), 7 Transmission projects, and 7 Battery Energy Storage projects
- LS Power's **Energy Transition Platforms** include CPower Energy Management, Endurant Energy, EVgo, Rise Light & Power, REV Renewables and Waste-to-Energy initiatives through joint ventures with The Landfill Group and BluSail Renewables



Addressing a Reliability Issue Identified by PJM

- PJM Feb 9, 2021:
 - “Resource adequacy performance and accredited UCAP may be overstated unless CIRs are considered”
- PJM Aug 26, 2021:
 - “The purpose of this change is to address concerns that the status quo approach does not adequately ensure the UCAP for Variable Resources is deliverable...”
- PJM Feb 15th, 2022
 - “Outputs above the deliverability level included in UCAP calculations”
- PJM Feb 2022
 - “Outputs above the current deliverability level are still included in the ELCC AUCAP calculation (just like in the methodology used before the ELCC implementation)
 - The transmission system has not been tested for injections above a resource’s current deliverability level
 - PJM believes it will be important that the transmission system is tested for all meaningful injection levels accounted for in the ELCC accreditation process”

LS Power Package E

- Remains the same as when first introduced Nov 23, 2021
- LS Power introduced Package E in response to PJM withdrawing Package A (along with Packages B and C) and introducing PJM Package D on Oct 21, 2021 and Nov 8, 2021
 - LS Power identified flaws of PJM Package D at the Nov 8, 2021 Special Session
- Package E is basically PJM’s Package A, which was first introduced by PJM Aug 26, 2021
 - Difference was implementation schedule
 - Package A was to be implemented with the 24/25 DY
 - LS Power initial Package E implementation was 23/24 DY
- Package E simply reaffirms the tariff/RAA provisions that energy output above the CIRs is not to be used in calculating accredited UCAP for Variable Resources
 - Accreditation for Variable Resources will be calculated using energy output capped at the current CIR limits (e.g., for wind, 13% of MFO CIR limit)
- Variable Resource owners desiring an increase in CIRS and corresponding increase in accreditation need to submit interconnection requests for the increase and will be processed in accordance with the interconnection rules

LS Power New Package K

- This new Package K is in response to PJM's Package I
- Package I is a very good compromise package
 - It eliminates the potential of load and interconnection queue customers being exposed to >\$2 billion of network upgrade costs
 - It codifies using transmission system headroom on a temporary year to year basis to accredit all eligible resources, including Variable Resources', UCAP until the permanent increase is in service
 - It is non-discriminatory – all Generation Capacity Resources are eligible to participate if they meet certain non-discriminatory criteria
 - It eliminates the over accreditation that is currently taking place and requires generator paid upgrades and additional CIRs based on normal queue practices to increase accreditation if desired (short open window period)

LS Power New Package K

- However, a major shortfall of Package I is what happens to existing Variable Resources' accreditation if:
 - i. Stakeholders don't approve any Package with a 2/3 supermajority
 - ii. Stakeholders approve Package I but FERC rejects Package I
 - iii. Package I is approved by FERC but cannot be implemented in time for the June 2023 BRA
- LS Power Package K addresses these issues by accepting Package I but also including an additional filing by PJM to address the three, Package I issues identified at the top of this slide
- In approving Package K, the Members will approve Package I and also indicate to the PJM staff and the PJM Board their preference and desire for PJM to submit this additional, independent Section 205 filing
- If the Members do not approve Package I with this additional independent Section 205 filing, LS Power will request a separate vote be taken on the independent Section 205 filing

LS Power New Package K

- PJM, with PJM Board approval, will submit as soon as possible in a separate Section 205 filing with FERC to remove Energy Resource energy (energy above the CIRs) from the accreditation process
- This separate filing will be independent of whether or not the members approve the Section 205 filing reflecting Package I
- This separate filing will revise/clarify RAA Section 9.1 establishing CIRs as an hourly upper limit for the UCAP accreditation (AUCAP) commencing with the June 2023 BRA for 25/26 Delivery Year
 - i.e., hourly energy output above CIRs will not be used in calculating the accredited UCAP for Variable Resources, the ELCC portfolio, or the ELCC Class Values
- This will not require stakeholder approval since the RAA is under the exclusive purview of the PJM Board and the PJM Board has exclusive Section 205 rights over the RAA
- PJM will also submit tariff changes in a separate filing if Package K is approved by stakeholders

Package D is Fundamentally Flawed

- LS Power raised these concerns at the 11/18/21 Special PC meeting
- Unduly Discriminatory and Preferential treatment of certain resources
- End-Run Around Commission rejection of grandfathering for existing ELCC projects
- Violates the Tariff and Interconnection Procedures
- SPECIFICALLY:
 - Socializes ~ \$100MM costs of unit specific interconnection upgrades and rights
 - Contemplates allowing these resources to “jump the queue” to get quick resolution
 - FERC denied special treatment to grandfather existing resources impacted by the implementation of ELCC
 - The ELCC is a capacity accreditation rule that did not amend the Tariff provisions regarding the interconnection process for generation units