

# BEHIND-THE-METER ENERGY STORAGE IN 2025



What is behind the Meter (BTM) energy storage? es on grid-scale front-of-the-meter (FTM) storage projects. However,the behind-the-meter (BTM) market is also one with important potential for the energy storage sector,particularly as corporates seek to reduc their own emissions to achieve their sustainability goals. BTM installations includes customer-sited stationary storage systemsfor comme



What is a behind-the-meter battery storage system? A behind-the-meter battery storage system connects home energy with rooftop solar panels. Photo courtesy of iStock The Storage Futures Study (SFS) was launched in 2020 by the National Renewable Energy Laboratory and is supported by the U.S. Department of Energy's (DOE's) Energy Storage Grand Challenge.



Is battery energy storage a cost effective new-build technology? ogies being replaced or retained only for smaller projects. Yet as battery costs continue to reduce,battery energy storage has already become cost effective new-build technologyfor ???peaking??? services,particularly in natural gas-importing areas or regions where new-build gas



How will battery energy storage impact the energy transition? As energy storage is pivotal in enabling the energy transition across sectors, working effectively across stakeholder groups to help realize the full potential battery energy storage technology offers, will unlock significant growth not just in the next few years but lay the foundation for a long-term acceleration in deployment.



Is energy storage a good choice for the transport sector? ery well suitedto energy storage for the transport sector. These characteristics are of course helpful for stationary applications,such as those used to provide ???peaking??? services where electricity needs to be capable of being discharged from the batteries almost instantaneously,but high energy density is less important for stationary

# BEHIND-THE-METER ENERGY STORAGE IN 2025



Can energy storage meet peak demand? energy storage that can dispatch power to meet peak demand. But while federal agencies have set the scene with the removal of regulatory barriers (see below), it has been the clean power ambitions of state governments and utilities that have really



The power sector in the US is undergoing a significant transformation, driven by ambitious decarbonisation goals and substantial investments in renewable energy and grid modernisation. This shift is leading to increased adoption of utility-scale renewables, including solar, wind, and battery storage, along with the proliferation of behind-the-meter distributed ???



a) "Behind-the-meter," on the customer side of the meter b) Interconnected to the utility distribution system, on the utility side of the meter 2. Utility-scale generation is interconnected to the utility transmission system. What is Behind-the-Meter Power Generation? Generating power closer to the load avoids transmission and

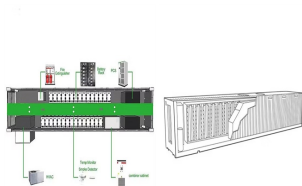


The smarter E AWARD 2025: Applications Are Now Open. November 04, 2024. One award, five categories, 15 winners and an abundance of innovative and intelligent ideas, products, services and projects: Speaker. Behind-the-meter (BTM) energy storage, on the other hand, is installed on the consumer's side of the meter and optimizes the self



The market is primarily divided into Front-of-the-Meter (FTM) and Behind-the-Meter (BTM) applications. Front-of-the-Meter (FTM) Utility-Scale Installations. FTM applications comprise battery storage systems in electric power systems, such as utility-scale generation and energy storage facilities, as well as transmission and distribution lines.

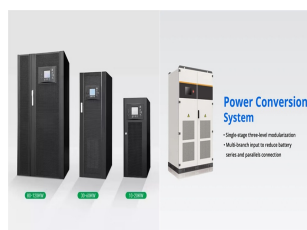
# BEHIND-THE-METER ENERGY STORAGE IN 2025



By end use, behind-the-meter (BTM) battery energy storage can be briefly classified as residential, commercial and industrial (C& I). global EV sales will share 23% of total car sales in 2025



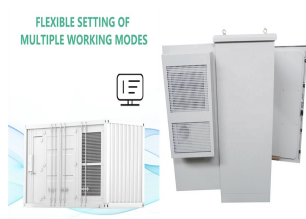
The distributed solar and behind-the-meter energy storage system linked to a utility's distribution network can meet a consumers energy needs, Recently, the Ministry of Power (MoP) announced the introduction of time-of-day tariffs (ToD) for all consumers by 2025 through an amendment to the Electricity (Rights of Consumers) Rules, 2020. This



of energy storage by 2025 on a path toward a 2030 energy storage goal that the Public Service Commission will establish later this year. To this end, NYSERDA is funding pilot projects, technical assistance, and resources that systems are those typically injecting energy into the distribution system behind a meter where there is no customer



Behind-the-Meter Storage Overview Anthony Burrell September 30th 2025. ??? Percent complete: 40% ??? Development of stationary storage systems to enable extreme fast charging of EVs and energy efficient grid interactive buildings The potential safety risks of large-scale energy storage within buildings must be addressed by the BTMS design.



Benefits of Behind the Meter (BTM) Solutions: Decentralised Energy Generation: BTM systems promote decentralised energy generation, reducing the reliance on centralised power plants and transmission infrastructure. An added benefit is that the electricity system becomes more efficient because transmission and distribution losses, which are ???

# BEHIND-THE-METER ENERGY STORAGE IN 2025



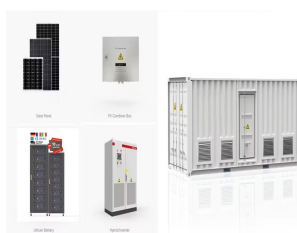
**Large-Scale Energy Storage:** These systems, such as utility-scale battery storage or pumped hydro storage, store excess energy and release it when demand on the grid is high or the energy supply is low. They are crucial for grid stability and for integrating intermittent renewable energy sources like wind and solar.



**3 NREL - Behind-The-Meter Battery Energy Storage . What Benefits can Behind-the-Meter Storage Offer?** There are several benefits that BtM can offer customers, each of which is discussed below. CAP 2023 now sets a key target for Demand Side Flexibility of 15%-20% by 2025 increasing to 20%-30% by 2030. The overall plan continues to set out how



**Behind-the-meter Batteries** These batteries connect to industrial, commercial, or residential meters. They can be a cost-effective option for managing electricity bills and practicing "peak shaving". By storing energy when it is cheaper or more abundant and using it during peak demand periods, behind-the-meter batteries help reduce energy costs.



Behind-the-meter batteries can only reduce host sites' loads to zero, not inject stored energy back into the grid, and they face baselining complications that reduce their demand response value



Grid edge is a leading area of the electricity evolution, where electricity changes from being a one-way grid to a two-way grid with homeowners and business owners storing and transmitting energy from behind-the-meter. To have a smooth energy transition, the many new and emerging components of the grid must work together.

# BEHIND-THE-METER ENERGY STORAGE IN 2025



Energy storage systems (ESSs) can help make the most of the opportunities and mitigate the potential challenges. Hence, the installed capacity of ESSs is rapidly increasing, both in front-of-the-meter and behind-the-meter (BTM), accelerated by ???



Batteries account for 90% of the increase in storage in the Net Zero Emissions by 2050 (NZE) Scenario, rising 14-fold to 1 200 GW by 2030. This includes both utility-scale and behind-the ???



California Energy Commission Behind-The-Meter Storage Profile Updates  
Presenters: Alex Lonsdale, DG Forecast Supervisor & Mark Palmere, DG Forecast Lead. Date: 11/15/2023. 2025. 2028. 2031. 2034. 2037. 2040 \$/KW. Residential. Non-Residential. Source: CEC Staff. 9: Electricity Rates ??? Electricity rates in our



behind-the-meter (BTM) commercial and industrial (C& I) in the United States and Canada will total more than USD 24 billion between 2021 and 2025. This explosive growth follows a ???



Modeling behind-the-meter (BTM) battery energy storage systems in NEMS: some initial thoughts ???Focus on residential sector first, and battery storage paired with solar PV (rather than standalone batteries) ???  
New versus retrofit battery system installations ??? S& P Global  
Grid-Connected Energy Storage Market Tracker: H2 2023???about 80% of BTM

# BEHIND-THE-METER ENERGY STORAGE IN 2025



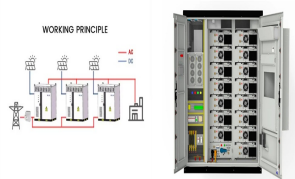
Energy Storage EXPLAINER in California with no more than 25% of that capacity being behind the meter storage. AB 33 (2016) Directed the CPUC and California Energy Commission (SGIP) and made \$830 million of funding available for behind the meter storage technologies through 2025. SGIP, as the name suggests, provides financial incentives



Behind the Meter: Battery Energy Storage Concepts, Requirements, and Applications. By Sifat Amin and Mehrdad Boloorch. Battery energy storage systems (BESS) are emerging in all areas of electricity sectors including generation services, ancillary services, transmission services, distribution services, and consumers' energy management services.



A schematic diagram of a behind-the-meter energy system. Schematic diagram of a BTM PV plus ESS. ESS connection point can either be at the DC-link or the point of common coupling (PCC).



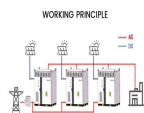
3. Energy storage ??? vital for managing fluctuations in energy generation and demand. While decentralised energy storage, encompassing behind-the-meter storage and electric vehicles, presents a readily available and swift solution, the underestimated utility-scale potential of residential energy storage demands closer consideration.



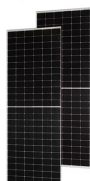
What's more, solar generation and energy storage are increasingly friendly, with a third of new behind-the-meter solar systems installed by 2025 expected to incorporate energy storage. Overall, \$110 billion is expected to be invested in DERs by 2025. DERs can provide energy at a lower price than what the grid typically offers.



# BEHIND-THE-METER ENERGY STORAGE IN 2025



Behind-The-Meter (BTM) energy storage involves integrating energy storage systems, such as batteries, allowing users to store excess electricity for future use. This approach, highlighted in emerging markets like data centres, aims to address peak demand costs, enhance grid stability, and provide backup power during outages in regions with unreliable power grids.



??? Massachusetts became the first state to allow behind-the-meter (BTM) energy storage to qualify for energy efficiency incentives; ratcheted up the target to its current level of 1,000 MWh by 2025; ??? Massachusetts includes storage as an eligible resource for the state's solar incentive



Modelling the impact of both behind-the-meter (BTM) customer-sited energy storage and front-of-the-meter (FTM) utility-scale storage, the authors recommended that the state set a short-term target for 1,000MW of FTM energy storage by 2025.



With declining battery storage costs, customers are starting to pair batteries with distributed solar. Behind-the-meter battery capacity totaled almost 1 gigawatt in the United ???



The new law requires the Maryland Public Service Commission to establish the Maryland Energy Storage Program by July 1, 2025 and provides for incentives for the development of energy storage. Behind-the-meter storage resources will be compensated based on the successful injection of power into the distribution system. The proposal also

# BEHIND-THE-METER ENERGY STORAGE IN 2025



Materials Development for Behind-the-Meter Storage . Kyusung Park .  
National Renewable Energy Laboratory (NREL) 6/22/2021. 9/30/2025  
??? Percent complete: 33% Budget ??? Funding for FY 2020: \$500,000  
Energy Storage Mater. 38 ???



implementation for 2025 IEPR ??? Shift from using historical weather  
Sector Energy Demand. Behind-the-Meter Distributed Generation and  
Storage and Storage. Additional Achievable Energy Efficiency and Fuel  
Substitution. ???