



ADVANCING THE UNITED NATIONS
SUSTAINABLE DEVELOPMENT
GOALS THROUGH PEER

Advancing the United Nations Sustainable Development Goals through PEER

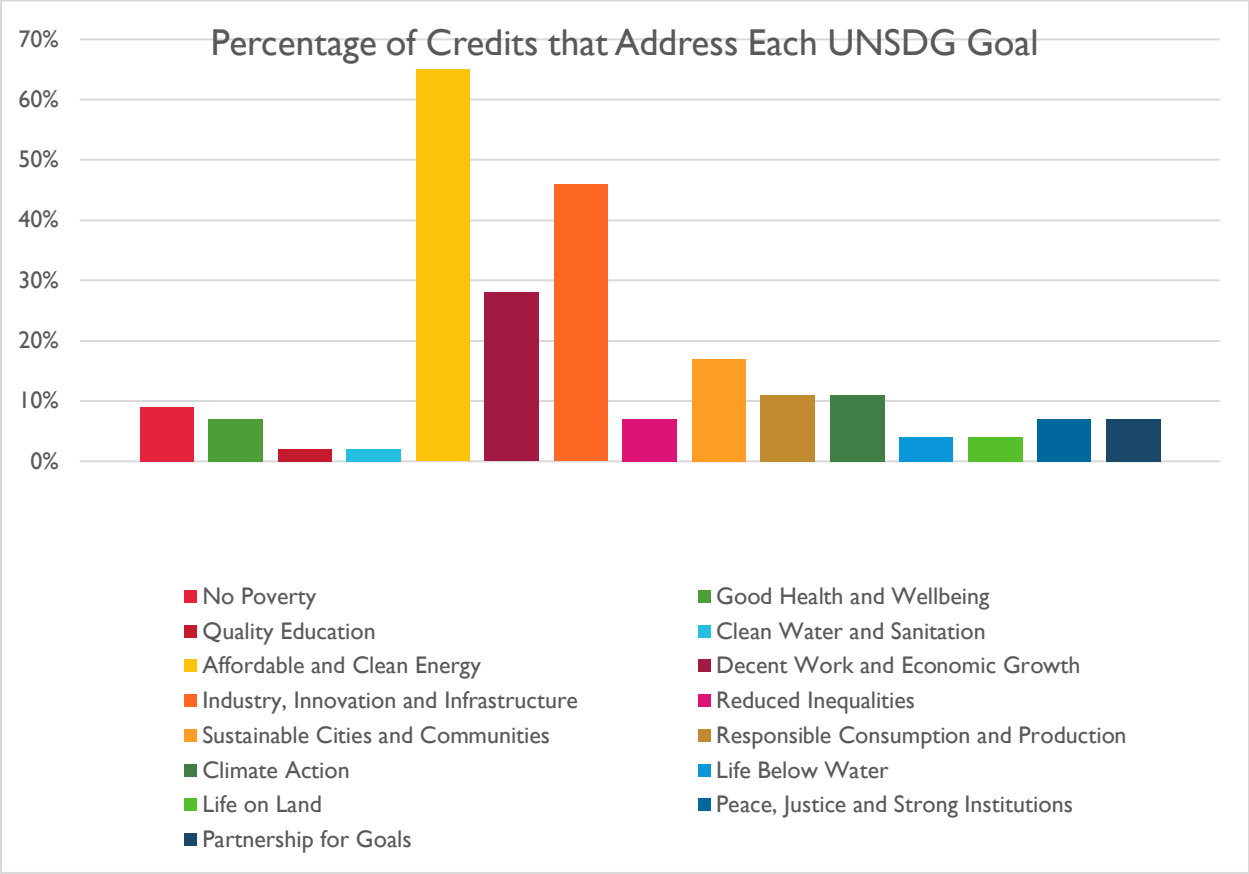
Introduction

The Performance Excellence in Electricity Renewal (PEER) Rating System, introduced by the Green Business Certification Inc (GBCI), measures and improves power system performance and electricity infrastructure. Strategies promoted by PEER drive market transformation in the power and energy sectors in ways that address climate change, protect the environment, and promote access to affordable and reliable energy. This is crucial in improving quality of life, reducing inequality, and elevating resilience across a community.

PEER recognizes the inextricable links of human health, the health of the environment, and the strength of our institutions. There are many synergies between PEER and the United Nations Sustainable Development Goals (SDGs), which were created as a global effort to address the social, economic, and environmental issues facing society today. This resource highlights these synergies while demonstrating the impact of PEER in a global context. It is intended to be used as a tool to identify and target both general and technical-level strategies to achieve specific UN SDGs through PEER certification. It is also a helpful depiction of how GBCI's PEER Rating System is aligned with global efforts to create a more resilient, equitable, and healthier world for all.

The United Nations Sustainable Development Goals

There are [17 Sustainable Development Goals \(SDGs\)](#) dictated by the 2030 Agenda for Sustainable Development, which form a call to action for countries and institutions to commit and work toward together for a more just and flourishing world. The 17 Goals are populated by 169 specific targets that cover social, economic, and environmental issues, ranging from biodiversity to education access.





GOAL 1: NO POVERTY

End poverty in all its forms everywhere.

PEER advances Goal 1 by:

- Building community resilience and reducing susceptibility to climate-related threats that further disadvantage people in poverty through strategies such as protecting critical infrastructure, establishing emergency preparedness and response measures, and ensuring uninterrupted, quality power.
- Improving livelihood and economy through the establishment of reliable, quality, and accessible power for all.

Specific PEER Credits:

- **TARGET 1.5:** Build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate change.
 - RR – Power Surety and Resilience - To ensure power for critical loads and essential services during emergencies and to support community recovery after catastrophic events and power grid outages.
 - OP – Risk Assessment and Mitigation - To evaluate and reduce risks to the project and its functions.
 - RR - Damage and Exposure Prevention - To improve project reliability and power quality by protecting infrastructure from common external threats that may damage equipment, cause malfunctions, or interrupt service.
- **TARGET 1.4:** By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.
 - GS - Supply Choice - To enable and motivate users to choose and invest in preferred generation sources.

Case Study: EPB – Chattanooga | PEER Gold *Chattanooga, Tennessee*



As one of America’s largest publicly owned electric power providers, EPB is committed to improving its customers’ quality of life by ensuring access to reliable energy and resilient infrastructure.

EPB’s advanced self-healing grid system provides equitable and reliable power for nearly 180,000 homes and businesses in Tennessee and northern Georgia, even in the face of climate-related events. Smart meters allow EPB to deliver unparalleled services, including dependable, automated energy as well as the world’s fastest internet to every customer. EPB also provides community-friendly solutions such as renewable energy options to diversify the energy mix, improve the energy system’s resilience, and offset the environmental impact of the energy consumed.

To reduce energy costs for their customers, EPB launched several energy conservation programs which provide energy efficiency incentives such as home energy renovations at no charge for economically challenged home owners and incentives for developers to build energy-efficient homes.

3 GOOD HEALTH AND WELL-BEING



GOAL 3: GOOD HEALTH AND WELL-BEING

Ensure healthy lives and promote well-being for all at all ages.

PEER advances Goal 3 by:

- Reducing hazardous chemicals and air, water, and soil pollution and contamination associated with energy generation, transmission, and distribution through local renewable energies and reduced fossil fuel consumption.
- Designing and building energy infrastructure that minimizes air pollution, which increases the likelihood of respiratory diseases, cancer, and other illnesses.

Specific PEER Credits:

- **TARGET 3.9:** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
 - EE - Distributed Energy Resources - To reduce environmental impacts and minimize losses associated with energy transmission by promoting local renewable generation, distributed generation, energy storage, and district energy systems.
 - EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance.
 - EE - System Energy Efficiency Coefficient Improvement - To reduce fossil fuel consumption and encourage investments that capture waste energy, improve efficiency, and lower operating costs.

Case Study: Delhi Metro Rail Corporation (DMRC) – Line 6 | PEER Gold

Delhi, National Capital Region, India



Credit: Image courtesy of the Government of the National Capital Territory of Delhi and Tata Co. Ltd.

The city of Delhi has seen increasingly dangerous levels of air pollution in recent years, so many organizations are reducing their emissions in order to create a safer and healthier environment for all. To contribute to this effort, DMRC used the PEER Rating System as a guide to reduce their greenhouse gas emissions. The rail corporation began procuring renewable energy from the [Rewa Ultra Mega Solar Power Project \(Rewa UMSP\)](#), which is the largest power project in Asia and the first in India to supply power to an interstate open access customer, DMRC. This solar energy procurement meets almost 90% of DMRC's daytime power consumption and mitigates approximately 10 kilo tons of CO₂ emitted per year by DRMC's Line 6. As another piece of its PEER certification, Line 6 also installed a 5.2 MW capacity of solar PV panels on their station rooftops, which mitigates 5.6 kilo tons of CO₂ emissions. From these implementations, DMRC's Line 6 generates around 25 million units of green energy and mitigates approximately 16 kilo tons of CO₂ emissions, thus reducing the critical impact of air pollution in the city of Delhi.

4 QUALITY EDUCATION



GOAL 4: QUALITY EDUCATION

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

PEER advances Goal 4 by:

- Providing accessible, low-cost education courses about topics such as renewable energies, smart grid concepts, and system resilience for energy professionals, students, and others through the USGBC Education Portal.
- Teaching about energy-related topics to increase the number of people who have relevant technical, vocational, and marketable skills for employment.
- Utilizing universal design strategies to promote resilient academic facilities that ensure education is not disrupted by power outages.

Specific PEER Credits:

- **TARGET 4.3:** By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university
 - IN - PEER Education - To give project team members and consultants a fundamental understanding of the PEER rating system and smart grid concepts.
 - *While not a PEERv2 credit, available PEER courses and PEER-related resources on USGBC education portal fulfill this target
- **TARGET 4.4:** By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
 - IN - PEER Education - To give project team members and consultants a fundamental understanding of the PEER rating system and smart grid concepts
 - *While not a PEERv2 credit, available PEER courses and PEER-related resources on USGBC education portal fulfill this target
- **TARGET 4.7:** By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality,

promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

- IN - PEER Education - To give project team members and consultants a fundamental understanding of the PEER rating system and smart grid concepts.
- *While not a PEERv2 credit, available PEER courses and PEER-related resources on USGBC education portal fulfill this target
- **TARGET 4.a:** Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all

Case Study: Chatham University Eden Hall Campus | PEER Silver Pittsburgh, Pennsylvania



Credit: Image courtesy of Chatham University

Chatham University's PEER certification demonstrates the importance of microgrids and their usefulness to future generations. Chatham University is the first of its kind to involve students in the PEER certification process. By gathering data, analyzing results, and identifying key measures for the project, students gained professional training and knowledge of smart grids and their practical applications. Chatham University's PEER certification increased the facility's sustainability and prepared the facility to remain resilient through power outages and ensure education is not interrupted.

Several students achieved the PEER Pro badge which is awarded to anyone who has completed PEER educational courses on smart grid concepts. PEER has educated more than 1,500 students across 12 different institutions, including at Chatham University, through webinars, workshops, and courses on the USGBC Education platform.

6 CLEAN WATER AND SANITATION



GOAL 6: CLEAN WATER AND SANITATION

Ensure availability and sustainable management of water and sanitation for all.

PEER advances Goal 6 by:

- Reducing consumption of clean water through efficient technologies in electricity generation.

Specific PEER Credits:

- **TARGET 6.4:** By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
 - EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance.

Case Study: University of Texas at Austin | PEER Platinum Austin, Texas



Credit: Image courtesy of the University of Texas

Water is a critical resource for power system operations. With one of the largest microgrids in the United States, UT Austin features the Carl J. Eckhardt Combined Heat and Power (CHP) Plant which uses natural gas to act as the independent utility system for the entire campus. A key benefit of the CHP system is that it recaptures water from nearly all HVAC equipment and utilizes it to offset the cooling tower makeup. The plant also uses purchased reclaimed water, offsetting over 1.2 billion gallons of municipal water use since 2006. The CHP power complex provides 100% of campus electricity and heating, and [satisfies](#) the cooling requirements in over 160 campus buildings that total 22 million square feet and serve 74,000 faculty, students, and staff. It is vital that we reduce the amount of water needed to produce energy, so that potable water remains available for human use and consumption. As the UT Austin campus grows, it vows to continue to actively reduce its water consumption to preserve this valuable and finite resource.

7 AFFORDABLE AND CLEAN ENERGY



GOAL 7: AFFORDABLE AND CLEAN ENERGY

Ensure access to affordable, reliable, sustainable and modern energy for all.

PEER advances Goal 7 by:

- Reducing user energy costs through strategies such as improving energy efficiency, lowering operating costs, and providing users with data and information on how to reduce energy consumption through smart grid technologies.
- Improving reliability of energy systems against environmental, economic, and social shocks through the creation of multiple distribution pathways and alternative electricity sources.
- Promoting local, renewable energies and reducing fossil fuel consumption through loss minimization associated with energy transmission and encouraging energy efficiency.

Specific PEER Credits:

- **TARGET 7.1:** By 2030, ensure universal access to affordable, reliable and modern energy services
 - RR - Reliability Performance Monitoring - To ensure data collection, monitoring, and reporting of power interruptions.
 - RR - Reliability Performance Assessment - To give operators and customers greater transparency on interruption duration and frequency.
 - RR - Momentary Interruption Tracking - To support effective grid management and identify opportunities to improve reliability by tracking momentary interruptions
 - RR - Damage and Exposure Prevention - To improve project reliability and power quality by protecting infrastructure from common external threats that may damage equipment, cause malfunctions, or interrupt service.
 - RR - Distribution Redundancy and Auto Restoration - To improve reliability and resilience by ensuring that grid power can be supplied via multiple distribution pathways.
 - RR - Alternative Source of Supply - To improve reliability and resilience by providing an alternative source of electricity supply and transfer controls.

- RR - Power Surety and Resilience - To ensure power for critical loads and essential services during emergencies and to support community recovery after catastrophic events and power grid outages.
- RR - Power Quality Capabilities - To assess and mitigate poor power quality events through detection, prevention, and corrective actions.
- OP - Advanced Metering Infrastructure - To enhance grid performance and customers' ability to manage their energy use through smart grid infrastructure.
- OP - Master Controller - To promote adaptability through operational changes that optimize the electricity system in real time.
- OP - Energy Management System - To encourage the use of energy management systems coordinated with the project's master controller or project operator
- GS - Customer and Load Survey - To assess customers' attitudes about service quality and performance and analyze demand characteristics of project loads.
- GS - Customer Engagement - To encourage customers to leverage tools and services that improve system operation
- GS - Data Privacy and Cybersecurity - To build public confidence in grid modernization by protecting customers' private electricity usage data and protecting smart grid technologies from threats
- GS - Access to Energy Usage Data - To encourage conservation and investments in home energy systems by giving customers energy usage feedback.
- GS - Supply Choice - To enable and motivate users to choose and invest in preferred generation sources.
- GS - Demand Side Management - To achieve permanent reductions in energy demand and consumption through load management and conservation
- GS – Demand Response - To promote demand-response (DR) strategies that improve performance and reliability
- GS - Streamlined Interconnection and Net Metering policies - To encourage users' adoption of local electricity generation and storage that is interconnected and leveraged by the electricity system.
- GS - Aggregation - To enable customers to aggregate their loads, lower costs, improve efficiency, promote local clean energy, and generate jobs.
- GS - Advanced External Interface - To encourage use of automated technologies that coordinate loads and generation services to meet the needs of the larger grid.
- OP - Risk Assessment and Mitigation - To evaluate and reduce risks to the project and its functions.
- **TARGET 7.2:** By 2030, increase substantially the share of renewable energy in the global energy mix
 - EE – Environmental Performance Disclosure - To measure and make public the environmental consequences of power generation, transmission, and distribution.

- EE – Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance.
- EE – Renewable Energy and Carbon Offset - To reduce greenhouse gas emissions by encouraging development and adoption of renewable energy technologies at a large scale.
- EE – Distributed Energy Resources - To reduce environmental impacts and minimize losses associated with energy transmission by promoting local renewable generation, distributed generation, energy storage, and district energy systems.
- GS - Supply Choice - To enable and motivate users to choose and invest in preferred generation sources.
- GS - Demand Side Management - To achieve permanent reductions in energy demand and consumption through load management and conservation
- GS - Demand Response - To promote demand-response (DR) strategies that improve performance and reliability
- GS - Streamlined Interconnection and Net Metering Policies - To encourage users' adoption of local electricity generation and storage that is interconnected and leveraged by the electricity system.
- GS - Aggregation - To enable customers to aggregate their loads, lower costs, improve efficiency, promote local clean energy, and generate jobs.
- EE - System Energy Efficiency Coefficient Improvement - To reduce fossil fuel consumption and encourage investments that capture waste energy, improve efficiency, and lower operating costs.
- **TARGET 7.3:** By 2030, double the global rate of improvement in energy efficiency
 - EE - System Energy Efficiency Coefficient Disclosure - To quantify and make public the energy system's conversion efficiency
 - EE - System Energy Efficiency Coefficient Improvement - To reduce fossil fuel consumption and encourage investments that capture waste energy, improve efficiency, and lower operating costs
 - GS - Customer and Load Survey - To assess customers' attitudes about service quality and performance and analyze demand characteristics of project loads.
 - GS - Customer Engagement - To encourage customers to leverage tools and services that improve system operation
 - GS - Demand-Side Management - To achieve permanent reductions in energy demand and consumption through load management and conservation.
 - GS - Other Tools and Financial Incentives - To encourage users to invest in energy use reduction and electricity system improvements and to promote third-party tools and services.
- **TARGET 7.a:** By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology

- RR - Reliability Performance Monitoring - To ensure data collection, monitoring, and reporting of power interruptions.
- RR - Alternate Sources of Supply - To improve reliability and resilience by providing an alternative source of electricity supply and transfer controls
- RR - Power surety and Resilience - To ensure power for critical loads and essential services during emergencies and to support community recovery after catastrophic events and power grid outages.
- EE - Environmental Performance Disclosure - To measure and make public the environmental consequences of power generation, transmission, and distribution
- EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance
- EE - Renewable Energy and Carbon Offsets - To reduce greenhouse gas emissions by encouraging development and adoption of renewable energy technologies at a large scale.
- EE - Distributed Energy Resources - To reduce environmental impacts and minimize losses associated with energy transmission by promoting local renewable generation, distributed generation, energy storage, and district energy systems.
- OP - Master Controller - To promote adaptability through operational changes that optimize the electricity system in real time
- OP - Energy Management System - To encourage the use of energy management systems coordinated with the project's master controller or project operator
- GS - Supply Choice - To enable and motivate users to choose and invest in preferred generation sources.
- GS - Demand Side Management - To achieve permanent reductions in energy demand and consumption through load management and conservation
- GS - Demand Response - To promote demand-response (DR) strategies that improve performance and reliability
- GS - Streamlined Interconnection and Net Metering Policies - To encourage users' adoption of local electricity generation and storage that is interconnected and leveraged by the electricity system.
- GS - Aggregation - To enable customers to aggregate their loads, lower costs, improve efficiency, promote local clean energy, and generate jobs.
- GS - Advanced External Interface - To encourage use of automated technologies that coordinate loads and generation services to meet the needs of the larger grid.
- EE - System Energy Efficiency Coefficient Improvement - To reduce fossil fuel consumption and encourage investments that capture waste energy, improve efficiency, and lower operating costs.
- GS - Load Duration Curve Optimization - To encourage investments that optimize hourly demand loads and reduce both project costs and environmental impacts.

- **TARGET 7.b:** By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support
 - RR - Power Surety and Resilience - To ensure power for critical loads and essential services during emergencies and to support community recovery after catastrophic events and power grid outages.
 - OP - Master Controller - To promote adaptability through operational changes that optimize the electricity system in real time.
 - OP - Energy Management System - To encourage the use of energy management systems coordinated with the project's master controller or project operator
 - GS - Supply Choice - To enable and motivate users to choose and invest in preferred generation sources.
 - GS - Demand Side Management - To achieve permanent reductions in energy demand and consumption through load management and conservation
 - GS - Demand Response - To promote demand-response (DR) strategies that improve performance and reliability
 - GS - Streamlined Interconnection and Net Metering Policies - To encourage users' adoption of local electricity generation and storage that is interconnected and leveraged by the electricity system.
 - GS - Other tools and Financial Incentives - To encourage users to invest in energy use reduction and electricity system improvements and to promote third-party tools and services.
 - GS - Aggregation - To enable customers to aggregate their loads, lower costs, improve efficiency, promote local clean energy, and generate jobs.
 - GS - Advanced External Interface - To encourage use of automated technologies that coordinate loads and generation services to meet the needs of the larger grid.
 - EE - System Energy Efficiency Coefficient Improvement - To reduce fossil fuel consumption and encourage investments that capture waste energy, improve efficiency, and lower operating costs.
 - EE - Renewable Energy and Carbon Offsets - To reduce greenhouse gas emissions by encouraging development and adoption of renewable energy technologies at a large scale.

Case Study: Tata Power Delhi Distribution Limited (DDL) | PEER Gold Delhi, National Capital Region, India



Tata Power DDL distributes reliable, affordable, and quality electricity to 1.64 million consumers across an area of 510 square kilometers in Northern parts of Delhi. This is accomplished through resilient, sustainable infrastructure and customer friendly programs and policies that reduce energy costs.

To reduce interruption and build the system for resilience, 50% of its cables are undergrounded and all electrical infrastructure prone to flooding was identified and elevated. Additionally, Tata Power DDL promotes renewable energy, with a special focus on solar rooftop solutions. Through the Tata Power DDL rooftop solar program, consumers can have solar panels built on their own roofs to access affordable, clean energy for their daily consumption. Any excess electricity produced by consumers' rooftop solar panels is sold back to the utility company, leading to even lower energy bills. To date, Tata Power DDL has implemented 124 Rooftop solar plants under net metering with a cumulative capacity of 15 MWp.

Since its inception, Tata Power DDL has been widely known for its customer friendly initiatives and proactive programs and policies that provide energy efficient products in order to further promote energy conservation and reduce consumer energy costs. Through the rebate-based air conditioner replacement program, "5-Star AC Scheme", Tata Power DDL consumers can purchase new 1.5 Ton BEE 5-star rated windows or inverter split air conditioners and avail a discount of up to 51% on the maximum retail price (MRP) for various models. Consumers can also [sell back](#) their old air conditioners for a price of Rs. 2,500. TATA Power DDL also promotes the Unnat Jyoti by Affordable LEDS for All (UJALA) program to increase the utilization of energy efficient LED lighting products and ceiling fans among its customer base. The rebate-based AC replacement program and UJALA scheme saw energy savings of 5.20 and 21.00 million units respectively.

8 DECENT WORK AND ECONOMIC GROWTH



GOAL 8: DECENT WORK AND ECONOMIC GROWTH

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

PEER advances Goal 8 by:

- Generating job opportunities and economic growth through updates to aging energy infrastructure and promotion of modern, renewable energies.
- Quantifying the economic, social, and environmental benefits of high-performing electricity systems to identify future financially viable investment opportunities.
- Implementing financial incentives for residential, commercial, industrial, and other customer classes to pursue sustainability through financing that meets comprehensive criteria.
- Incorporating workplace safety principles into design and operating standards related to energy generation.

Specific PEER Credits:

- **TARGET 8.2:** Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sectors
 - EE - Renewable Energy and Carbon Offsets - To reduce greenhouse gas emissions by encouraging development and adoption of renewable energy technologies at a large scale.
 - EE - System Energy Efficiency Coefficient Improvement - To reduce fossil fuel consumption and encourage investments that capture waste energy, improve efficiency, and lower operating costs.
 - GS - Advanced External Interface - To encourage use of automated technologies that coordinate loads and generation services to meet the needs of the larger grid.

- GS - Other tools and Financial Incentives - To encourage users to invest in energy use reduction and electricity system improvements and to promote third-party tools and services.
- GS - Aggregation - To enable customers to aggregate their loads, lower costs, improve efficiency, promote local clean energy, and generate jobs.
- GS - Streamlined Interconnection and Net Metering Policies - To encourage users' adoption of local electricity generation and storage that is interconnected and leveraged by the electricity system.
- GS - Demand Response - To promote demand-response (DR) strategies that improve performance and reliability
- GS - Demand Side Management - To achieve permanent reductions in energy demand and consumption through load management and conservation
- OP - Master Controller - To promote adaptability through operational changes that optimize the electricity system in real time.
- OP - Energy Management System - To encourage the use of energy management systems coordinated with the project's master controller or project operator
- **TARGET 8.4:** Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead
 - OP – Triple Bottom Line Analysis - To quantify the triple-bottom-line benefits associated with high performance and assess opportunities for future improvements.
 - GS - Other tools and Financial Incentives - To encourage users to invest in energy use reduction and electricity system improvements and to promote third-party tools and services.
 - GS - Aggregation - To enable customers to aggregate their loads, lower costs, improve efficiency, promote local clean energy, and generate jobs.
 - GS - Demand Response - To promote demand-response (DR) strategies that improve performance and reliability
 - GS - Demand Side Management - To achieve permanent reductions in energy demand and consumption through load management and conservation
 - EE – Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance.
- **TARGET 8.8:** Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment
 - OP – Safety Review Process - To ensure that the distribution and generation systems are built and operated safely.

Case Study: Delhi Metro Rail Corporation (DMRC) – Lines 2, 6 & 7 | PEER Gold

Delhi, National Capital Region, India



Credit: Image courtesy of DMRC

The DMRC metro network consists of roughly 400 kilometers of rail with 285 stations. The Operations & Management department is responsible for maintaining cantilevers, which are a crucial mechanical part of overhead electric lines. Any shortcuts or improper procedures in this maintenance may lead to major failures and safety issues.

The DMRC issued a “Standard Maintenance Instruction (SMI) for Cantilever Maintenance” to guide proper maintenance procedures. Previously, staff knowledge on this topic was restricted to only a few specific models of cantilevers. After the SMI was issued, staff obtained an enhanced, holistic knowledge about maintaining all types of cantilevers installed in the DMRC network. The SMI also standardized the number of staff and time required for maintenance, creating an efficient workplace and saving time and labor. These measures enabled staff to improve their industry knowledge and skills while leading to better work-life balances and safer work environments.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



GOAL 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

PEER advances Goal 9 by:

- Helping utilities solve aging infrastructure, find cost savings, and share best practices.
- Establishing effective grid management through advanced data collection, monitoring, and reporting of power interruption and frequency.
- Ensuring power is maintained for critical loads and essential services through strategies such as supplying grid power via multiple pathways and providing alternative sources of electricity supply and transfer controls.
- Managing loads and investing in technologies that capture waste energy, improve efficiency, and lower operating costs, thereby reducing fossil fuel consumption and energy demand.
- Promoting market instruments such as carbon credits, renewable energy certificates, and energy efficiency incentives that foster innovation and growth.

Specific PEER Credits:

- **TARGET 9.1:** Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
 - RR - Reliability Performance Monitoring - To ensure data collection, monitoring, and reporting of power interruptions
 - RR - Reliability Performance Assessment - To give operators and customers greater transparency on interruption duration and frequency.
 - RR - Momentary Interruption Tracking - To support effective grid management and identify opportunities to improve reliability by tracking momentary interruptions.

- RR - Damage and Exposure Prevention - To improve project reliability and power quality by protecting infrastructure from common external threats that may damage equipment, cause malfunctions, or interrupt service.
- RR - Distribution Redundancy and Auto Restoration - To improve reliability and resilience by ensuring that grid power can be supplied via multiple distribution pathways.
- RR - Alternative Sources of Supply - To improve reliability and resilience by providing an alternative source of electricity supply and transfer controls.
- RR - Power Surety and Resilience - To ensure power for critical loads and essential services during emergencies and to support community recovery after catastrophic events and power grid outages.
- RR - Power Quality Capabilities - To assess and mitigate poor power quality events through detection, prevention, and corrective actions.
- **TARGET 9.4:** By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
 - EE - System Energy Efficiency Coefficient Disclosure - To quantify and make public the energy system's conversion efficiency.
 - EE - System Energy Efficiency Coefficient Improvement - To reduce fossil fuel consumption and encourage investments that capture waste energy, improve efficiency, and lower operating costs.
 - OP – Triple Bottom Line Analysis - To quantify the triple-bottom-line benefits associated with high performance and assess opportunities for future improvements.
 - GS – Load Duration Curve Optimization - To encourage investments that optimize hourly demand loads and reduce both project costs and environmental impacts.
 - GS - Data Privacy and Cyber Security - To build public confidence in grid modernization by protecting customers' private electricity usage data and protecting smart grid technologies from threats.
 - GS - Supply Choice - To enable and motivate users to choose and invest in preferred generation sources.
 - GS - Demand Side Management - To achieve permanent reductions in energy demand and consumption through load management and conservation.
 - GS - Demand Response - To promote demand-response (DR) strategies that improve performance and reliability.
 - GS - Streamlined Interconnection and Net Metering Policies - To encourage users' adoption of local electricity generation and storage that is interconnected and leveraged by the electricity system.
 - GS - Aggregation - To enable customers to aggregate their loads, lower costs, improve efficiency, promote local clean energy, and generate jobs.
- **TARGET 9.a:** Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to

African countries, least developed countries, landlocked developing countries and small island developing States

- OP – Communications Network and Information Processing - To promote power reliability and quality through advanced communication, data collection, monitoring, and control infrastructure.
- GS – Load Duration Curve Optimization - To encourage investments that optimize hourly demand loads and reduce both project costs and environmental impacts.
- GS – Advanced External Interface - To encourage use of automated technologies that coordinate loads and generation services to meet the needs of the larger grid.
- **TARGET 9.b:** Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities
 - OP – Operational Processes - To reduce operating costs by implementing continual improvement processes.
 - GS – Advanced External Interface - To encourage use of automated technologies that coordinate loads and generation services to meet the needs of the larger grid.
- **TARGET 9.c:** Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020
 - OP – Communications Network and Information Processing - To promote power reliability and quality through advanced communication, data collection, monitoring, and control infrastructure.
 - GS – Advanced External Interface - To encourage use of automated technologies that coordinate loads and generation services to meet the needs of the larger grid.

Case Study: Montgomery County Public Safety Headquarters (PSHQ) | PEER Platinum

Gaithersburg, Maryland



Montgomery County had a vision to bring reliable electricity to critical buildings, upgrade an aging electrical infrastructure, and work toward sustainability goals, all while staying within budget constraints. In order to achieve this, the county installed an advanced microgrid at their Public Safety Headquarters (PSHQ). This microgrid strengthens resilience, reduces emissions, and enhances sustainability in the state of Maryland.

The project includes multiple clean energy technologies that are integrated to operate seamlessly, reducing greenhouse gas emissions by 5,900 metric tons annually, the equivalent of taking more than 1,200 cars off the road. The project also includes 2 megawatts (MW) of solar photovoltaic canopies mounted over the existing parking lot, an 800 KW Combined Heat and Power (CHP) system, electric vehicle charging stations, and a cyber security system.

Another excellent aspect of the PSHQ microgrid is the Schneider Electric's StruxureWare™ Power Monitoring Expert, which is a complete, interoperable, and scalable power management software solution. This enables the facility to optimize their power distribution infrastructure, maximize operational efficiency, and improve their bottom-line performance. The software also provides the facility with automated power quality reports and waveform analysis tools. This implementation helps PSHQ maximize facility uptime and reliability, examine and mitigate power quality related issues, and track energy consumption to uncover savings opportunities.

10 REDUCED INEQUALITIES



GOAL 10: REDUCED INEQUALITIES

Reduce inequality within and among countries.

PEER advances Goal 10 by:

- Empowering customers to provide input into their energy systems through surveys and feedback forms that enable all energy users to communicate their needs.
- Allowing users to choose preferred generation sources and smart management strategies, fostering inclusion in efficient energy systems.

Specific PEER Credits:

- **TARGET 10.2:** By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status
 - GS – Customer and Load Survey - To assess customers' attitudes about service quality and performance and analyze demand characteristics of project loads.
 - OP - Advanced Metering Infrastructure - To enhance grid performance and customers' ability to manage their energy use through smart grid infrastructure.
 - GS - Supply Choice - To enable and motivate users to choose and invest in preferred generation sources.

Case Study: EPB – City of Chattanooga | PEER Gold Chattanooga, Tennessee



Image credit: Image courtesy of EPB

In an effort to stay connected and in touch with consumers and their needs, EPB conducts an annual research assessment of customer opinions, attitudes, and experiences. The survey found that overall customer satisfaction with EPB energy services increased year over year. Specifically, ratings for customer service and restoring lost power are highly favorable. The survey also found that customers tend to like services and trust information they receive from EPB, especially information related to traditional topics associated with electric utilities, such as conserving power, restoring power, and paying bills.

EPB's Home Uplift Program (HUP) program helps economically challenged homeowners with high energy bills by providing them with a home energy renovation at no charge. [The program](#) is made possible by grants from the Tennessee Department of Energy and Conservation and Tennessee Valley Authority, as well as additional funding from EPB itself. Energy renovations [include](#) HVAC repair or replacement, insulation, weather stripping, energy efficient lighting, and more. EPB Energy Pros work with homeowners to identify the most cost-effective strategies to reduce monthly power bills through energy efficiency. Participants save over \$400 annually on average and many report health benefits and greater comfort.

11 SUSTAINABLE CITIES AND COMMUNITIES



GOAL 11: SUSTAINABLE CITIES AND COMMUNITIES

Make cities and human settlements inclusive, safe, resilient and sustainable.

PEER advances Goal 11 by:

- Protecting critical and essential infrastructure such as fire services, sewage, transportation, education, and medical care from climate-related threats and providing power, safety, and shelter to communities in emergencies.
- Installing distributed energy resources that reduce the environmental consequences of energy generation, transmission, and distribution.

Specific PEER Credits:

- **TARGET 11.2:** By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
 - While not a PEERv2 credit, Case Studies would provide sufficient connection to this goal (ex. DMRC Yellow Line and Blue Line, Delhi International Airport)
 - RR - Damage and Exposure Prevention - To improve project reliability and power quality by protecting infrastructure from common external threats that may damage equipment, cause malfunctions, or interrupt service.
 - OP – Emergency Response Planning - To ensure that the project can respond to emergency situations during power interruptions.
 - OP – Safety Review Process - To ensure that the distribution and generation systems are built and operated safely.
 - EE - Environmental Performance Disclosure - To measure and make public the environmental consequences of power generation, transmission, and distribution
 - EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance

- EE – Distributed Energy Resources - To reduce environmental impacts and minimize losses associated with energy transmission by promoting local renewable generation, distributed generation, energy storage, and district energy systems.
- OP – Risk Assessment and Mitigation - To evaluate and reduce risks to the project and its functions.
- **TARGET 11.5:** By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations
 - RR - Damage and Exposure Prevention - To improve project reliability and power quality by protecting infrastructure from common external threats that may damage equipment, cause malfunctions, or interrupt service.
 - OP – Emergency Response Planning - To ensure that the project can respond to emergency situations during power interruptions.
 - OP – Safety Review Process - To ensure that the distribution and generation systems are built and operated safely.
- **TARGET 11.6:** By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
 - EE - Environmental Performance Disclosure - To measure and make public the environmental consequences of power generation, transmission, and distribution
 - EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance
- **TARGET 11.a:** Support positive economic, social and environmental links between urban, per-urban and rural areas by strengthening national and regional development planning
 - OP – Triple Bottom Line Analysis - To quantify the triple-bottom-line benefits associated with high performance and assess opportunities for future improvements.
- **TARGET 11.b:** By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels
 - EE – Distributed Energy Resources - To reduce environmental impacts and minimize losses associated with energy transmission by promoting local renewable generation, distributed generation, energy storage, and district energy systems.
 - OP – Risk Assessment and Mitigation - To evaluate and reduce risks to the project and its functions.

Case Study: Three PEER projects:
Tata Power Delhi Distribution Ltd. | PEER Gold
Delhi International Airport Ltd. (DIAL) Terminal 3 (T3) | PEER Platinum
Delhi Metro Rail Corporation | PEER Gold
Delhi, National Capital Region, India



Credit: Image courtesy of Delhi International Airport Ltd.

In Delhi, three PEER certified projects, Tata Power Delhi Distribution Ltd., Delhi International Airport (DIAL) Terminal 3 (T3), and Delhi Metro Rail Corporation, come together to make the city more inclusive, safe, resilient, and sustainable.

As a leading power distribution utility, Tata Power DDL has worked towards enhancing energy efficiency and system reliability across their distribution network. All of their systems are technologically integrated, ensuring non-stop quality power supply to a population of 7 million people in India's National Capital Region. Through net metering, energy conservation initiatives, and clean energy production, Tata Power DDL is dramatically reducing carbon emissions in Delhi.

DIAL is a leader in airport energy management, reliability, and sustainability. In addition to its PEER certification, DIAL T3 previously earned LEED Gold certification to showcase its leadership in green building, environmental management, and sustainable development. DIAL has proactively taken steps towards carbon emission reductions by adopting airport carbon accreditation, procuring off-site renewable power, and installing on-site solar PV.

As a fixture of Delhi transportation, the redundant power systems of the DMRC ensure reliable and resilient transportation. To cater to the city's increasing energy consumption while protecting the environment, DMRC has initiated multiple solar strategies. They are the first metro in India to sign a power purchase agreement (PPA) to procure green energy from the

Rewa Ultra Mega Solar Power Project (Rewa UMSPP) at Madhya Pradesh for the entire DMRC network. DMRC also installed an on-site rooftop solar PV system across their transit network.

Together, these projects transform the power infrastructure landscape of Delhi, making the city and its communities more sustainable and resilient.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



GOAL 12: RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns.

PEER advances Goal 12 by:

- Disclosing environmental performance of energy systems and measures enacted to improve performance.
- Ensuring efficient demand-side management through metering infrastructure, load shifting, and peak demand period reduction.
- Providing customers with data and information on how to use smart grid technologies to reduce energy consumption.

Specific PEER Credits:

- **TARGET 12.2:** By 2030, achieve the sustainable management and efficient use of natural resources
 - EE - Environmental Performance Disclosure - To measure and make public the environmental consequences of power generation, transmission, and distribution
 - EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance
 - EE – Distributed Energy Resources - To reduce environmental impacts and minimize losses associated with energy transmission by promoting local renewable generation, distributed generation, energy storage, and district energy systems.
 - GS - Demand Side Management - To achieve permanent reductions in energy demand and consumption through load management and conservation.
 - GS - Demand Response - To promote demand-response (DR) strategies that improve performance and reliability.
- **TARGET 12.4:** By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

- EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance.
- **TARGET 12.8:** By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature
 - EE - Environmental Performance Disclosure - To measure and make public the environmental consequences of power generation, transmission, and distribution
 - EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance

Case Study: Hood Cogeneration Plant in | PEER Certified *Winchester, Virginia*

HP Hood produces over 150 million gallons of milk per month and consumes nearly 100,000 MMBtu (Million British Thermal Units) of thermal energy, making it one of the largest electrical energy users in Virginia's Shenandoah Valley. To ensure sustainable consumption, the facility installed a Combined Heat and Power (CHP) system, also known as a Cogeneration Plant. This system simultaneously produces electricity, steam, and chilled water to meet the energy needs of the entire farm.

The company's Winchester unit has a Realtime Economic Dispatch (RED) controller to enable export of power when the grid is stressed and when electricity prices are high. RED automatically receives energy service request signals from the utility, aggregator, or Independent Service Operators (ISOs) through a dedicated VPN. When the facility receives an energy request, the generation of the on-site CHP system is increased as per the requested energy demand, and the excess power is fed to the ISOs through the utility feeder lines. Through the installation of RED, the facility can determine and report its own generation capacity, can bid or propose generation, and reduce the energy load based on the requested demand. Additionally, the system can support information exchange regarding electricity pricing.



GOAL 13: CLIMATE ACTION

Take urgent action to combat climate change and its impacts.

PEER advances Goal 13 by:

- Hardening power systems against flooding, storms, and other extreme climate events through the implementation of preventative measures and design considerations such as emergency response plans for short-term and extended power interruptions.
- Supporting carbon neutrality goals through scaleable renewable energy technology and clean energy policy and management.
- Inspiring engagement with certification programs of industry leading rating systems addressing sustainability, resilience, and reliability in communities and the built environment.

Specific PEER Credits:

- **TARGET 13.1:** Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
 - RR - Damage and Exposure Prevention - To improve project reliability and power quality by protecting infrastructure from common external threats that may damage equipment, cause malfunctions, or interrupt service.
 - OP – Emergency Response Planning - To ensure that the project can respond to emergency situations during power interruptions.
- **TARGET 13.2:** Integrate climate change measures into national policies, strategies and planning
 - EE - Renewable Energy and Carbon Offsets - To reduce greenhouse gas emissions by encouraging development and adoption of renewable energy technologies at a large scale.
 - EE – Distributed Energy Resources - To reduce environmental impacts and minimize losses associated with energy transmission by promoting local renewable generation, distributed generation, energy storage, and district energy systems.
 - OP – Emergency Response Planning - To ensure that the project can respond to emergency situations during power interruptions.

- **TARGET 13.3:** Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
 - IN - PEER Education - To give project team members and consultants a fundamental understanding of the PEER rating system and smart grid concepts.
 - *While not a PEERv2 credit, available PEER courses and PEER-related resources on USGBC education portal fulfill this target

Case Study: Bangalore International Airport Ltd. (BIAL) | PEER Platinum

Bangalore, India



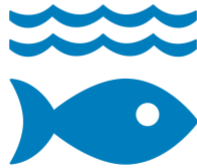
Credit: Image courtesy of BIAL

In FY 2020-2021, BIAL achieved its ambitious goal of net energy neutrality by undertaking numerous initiatives, including the implementation of renewable energy generation systems, off-site renewable power procurement, and energy conservation strategies.

BIAL's rooftop and ground-mounted solar PV installations have a total capacity of 6.8 MW. These installations, combined with Power Purchase Agreements (PPA) for 40 million units of solar energy and 3 million units of wind energy, helped BIAL meet almost 65% of its energy requirement in 2019 and 2020 through renewable energy. These strategies mitigate about 42 kilotons of CO₂ emissions annually. In the following year, BIAL increased their renewable energy procurements to achieve their goal of net carbon neutrality.

BIAL has also implemented energy conservation programs to achieve permanent reductions in their energy demand and consumption. All fluorescent lamps and halogen lights were replaced with LED fixtures, and a Programmable Logic Controller based Terminal Light Automation System was installed to monitor and minimize the energy consumption of terminal lights. Additionally, a Chiller Plant Optimizer was installed to monitor the operation of the chiller plant and optimize its performance under various loads, thus reducing energy use and cutting emissions. With these energy conservation measures, BIAL achieves energy savings of 4.7 million kWh and mitigates about 4 kilotons of CO₂ emissions annually.

14 LIFE BELOW WATER



GOAL 14: LIFE BELOW WATER

Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

PEER advances Goal 14 by:

- Protecting water-related ecosystems from pollution, over-exploitation, degradation, and acidification through renewable energy technologies and improved source energy, air emissions, water use, and solid waste performance.

Specific PEER Credits:

- **TARGET 14.1:** By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
 - EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance.
 - EE - Renewable Energy and Carbon Offsets - To reduce greenhouse gas emissions by encouraging development and adoption of renewable energy technologies at a large scale.
- **TARGET 14.3:** Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels
 - EE - Renewable Energy and Carbon Offsets - To reduce greenhouse gas emissions by encouraging development and adoption of renewable energy technologies at a large scale.

Case Study: Mainetti India Pvt. Ltd. Sriperumbudur Unit | PEER Platinum

Chennai, India



Credit: Image courtesy of Mainetti

Mainetti India is a wholly-owned subsidiary of the Mainetti Group, the largest manufacturers and suppliers of clothing hangers in the world, which employs more than 5,000 people across 49 countries. Mainetti India's largest manufacturing facility in Sriperumbudur, Chennai is the first of its kind to become PEER Platinum certified under the PEER v2 rating system in India. This facility can produce up to 300 million hangers a year, as well as additional products for the fashion industry such as luxury handmade bags, garment covers, and security tags.

The Sriperumbudur facility is committed to providing its customers with safely produced products that reduce environmental impact through a focus on energy efficiency and emissions reductions. With their strong commitment to sustainability, this facility procures 86% of their electricity needs from off-site renewable power and their own rooftop solar PV of 50 kW capacity. The Sriperumbudur facility achieved cost savings of 12 million INR (\$166,000 USD) and has mitigated 7 kilotons of CO₂ emissions.

Additionally, the facility has 17 sub-meters and 3 advanced energy meters to monitor the energy infrastructure at their site. They use a custom-made software to monitor energy use and power quality data at the facility. This software gives real-time updates on the load factor, connected load, and power quality aspects of the main loads. Real-time monitoring of energy infrastructure helps Mainetti India boost their energy efficiency and further reduce emissions, while yielding large cost savings. By reducing emissions through efficient and renewable energy, the Sriperumbudur facility protects water-related ecosystems from pollution, degradation, and acidification.

15 LIFE ON LAND



GOAL 15: LIFE ON LAND

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

PEER advances Goal 15 by:

- Tracking, recording, and disclosing size and type of land used, trees cut or trimmed, and wildlife disturbed during project construction and operation.
- Determining maximum acceptable noise levels on the property and identifying strategies to reduce them.
- Implementing policies and programs to reduce pollution, harm, and degradation to the environment and to support the growth of pollinator populations onsite.

Specific PEER Credits:

- **TARGET 15.1:** By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements
 - EE – Environmental Impacts Disclosure and Management - To reduce the effects of project construction and operation on site biodiversity, land use, and noise levels.
 - EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance
- **TARGET 15.5:** Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species
 - EE – Environmental Impacts Disclosure and Management - To reduce the effects of project construction and operation on site biodiversity, land use, and noise levels.

- EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance
- **TARGET 15.9:** By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
 - EE – Environmental Impacts Disclosure and Management - To reduce the effects of project construction and operation on site biodiversity, land use, and noise levels.
 - EE - Environmental Performance Improvement - To reduce the environmental consequences of energy generation, transmission, and distribution by improving source energy, air emissions, water use, and solid waste performance

Case Study: Milton S. Hershey Medical Center (PSHMC) | PEER Platinum

Hershey, PA



Credit: Image courtesy of Penn State Health

Milton S. Hershey Medical Center promotes sustainable land use and reduces environmental degradation and biodiversity loss by responsibly maintaining the campus landscape.

The Medical Center's full-time ground management staff maintains the campus landscape in accordance with organizational policies, procedures, programs, and best practices. They have created a Tree Management Plan, manage a Campus Tree Inventory, and follow specifications for the protection, selection, replacement, and installation of landscape improvements. The Medical Center also participates in the Penn State College of Agricultural Sciences Agricultural Research and Cooperative Extension Forest Stewardship Program. This program provides woodland owners with guidance on the proper management of forests to protect them and the wildlife that inhabit them.

PSHMC also conducts noise studies and modeling where there is a concern that projects could result in a nuisance or pose a health and safety risk. These studies are conducted in accordance with applicable methodologies and engineering best practices. As part of the construction of the on-site Combined Heat and Power (CHP) plant, PSHMC completed a noise study that consisted of a Sound Monitoring Report, Sound Modeling Report, and Sound Level Compliance Review.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS



GOAL 16: PEACE, JUSTICE AND STRONG INSTITUTIONS

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

PEER advances Goal 16 by:

- Facilitating collaboration and inclusive development between decision-makers, stakeholders, and all those impacted by a project.
- Promoting participatory and representative decision-making by assessing customers' attitudes about service quality, analyzing demand characteristics, and providing customers with data and information on how to reduce energy consumption.
- Providing reliable energy for cooking, air conditioning, heating, and other basic human needs, reducing conflict.
- Supporting and ensuring cybersecurity and data privacy policies applicable for all customers helping towards peace, safety and security.

Specific PEER Credits:

- **TARGET 16.1:** Significantly reduce all forms of violence and related death rates everywhere
 - *While not a PEERv2 credit, in general PEER provides reliable energy which can be used for cooking, air conditioning, and other basic human needs, reducing conflict that may arise over energy demand or access.
 - GS - Data Privacy and Cybersecurity - To build public confidence in grid modernization by protecting customers' private electricity usage data and protecting smart grid technologies from threats
- **TARGET 16.4:** Combat organized crime and illicit financial and arms flows
 - GS - Data Privacy and Cybersecurity - To build public confidence in grid modernization by protecting customers' private electricity usage data and protecting smart grid technologies from threats

- **TARGET 16.6:** Develop effective, accountable and transparent institutions at all levels
 - RR - Reliability Performance Assessment - To give operators and customers greater transparency on interruption duration and frequency.
- **TARGET 16.7:** Ensure responsive, inclusive and representative decision-making
 - GS – Customer and Load Survey - To assess customers' attitudes about service quality and performance and analyze demand characteristics of project loads.

Case Study: EPB – City of Chattanooga | PEER Gold *Chattanooga, Tennessee*



Image credit: Image courtesy of EPB

EPB is dedicated to providing its customers with continued access to reliable energy for cooking, heating, and other basic human needs. In collaboration with nearly 180,000 homes and businesses in Tennessee and northern Georgia, EPB conducts annual research assessments and offers several affordable, inclusive programs that support energy conservation and renewable energy.

Annual research assessments are conducted to gather customer opinions, attitudes, and experiences and ensure these viewpoints are accounted for in company decision-making processes. The survey found that overall customer satisfaction with EPB energy services increased year over year, with especially favorable ratings for customer services and restoring lost power. Additionally, the survey found that customers tend to trust information they receive from EPB on topics such as conserving power, restoring power, and paying bills.

EPB's Home Uplift Program (HUP) provides low-income homeowners with the opportunity to renovate their homes to be more energy efficient at no charge. [The program](#) is made possible by grants from the Tennessee Department of Energy and Conservation and Tennessee Valley Authority, as well as additional funding from EPB itself. EPB Energy Pros work with homeowners to identify cost-effective upgrades [such as](#) HVAC repair or replacement, insulation, weather stripping, and energy efficient lighting. On average, participants save over \$400 annually and many report health benefits and greater comfort. Another EPB program, Smart Build Home, is the first-of-its-kind and incentivizes local homebuilders to construct new homes that meet energy efficiency standards and are ready for next-generation fiber optic services.

EPB also has renewable energy programs such as “Green Power Switch” for their customers. For as little as an additional \$4 a month, customers can reduce their family’s carbon footprint by supporting renewable energy sources of wind, solar, and biogas. Each \$4 block that a customer buys ensures that 150 kilowatt-hours of clean, renewable energy is added to TVA’s electricity mix. Green Power Switch makes it easy for customers to participate in clean, renewable energy. Further, EPB has laid undergrounding cables and connected every customer with smart meters to improve customer service and enhance grid management.

17 PARTNERSHIPS FOR THE GOALS



GOAL 17: PARTNERSHIP FOR THE GOALS

Strengthen the means of implementation and revitalize the global partnership for sustainable development.

PEER advances Goal 17 by:

- Establishing partnerships with public and private entities to encourage innovative technologies that support sustainable development around the globe.

Specific PEER Credits:

- **TARGET 17.17:** Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships
 - See case study
- **Goal Overall**
 - EE - Renewable Energy and Carbon Offsets - To reduce greenhouse gas emissions by encouraging development and adoption of renewable energy technologies at a large scale.
 - EE – Distributed Energy Resources - To reduce environmental impacts and minimize losses associated with energy transmission by promoting local renewable generation, distributed generation, energy storage, and district energy systems.
 - GS – Advanced External Interface - To encourage use of automated technologies that coordinate loads and generation services to meet the needs of the larger grid.

Case Study: Partnerships among the U.S. Department of Energy, Pennsylvania Department of Environmental Protection (PADEP), and GBCI:

Milton S. Hershey Medical Center (PSHMC) | PEER Platinum

Lafayette College | PEER Silver

Chatham University Eden Hall Campus | PEER Silver

In 2020, Pennsylvania became the second state after Kentucky to partner with GBCI's PEER program to evaluate and modernize their state's power system. Penn State Health Milton S. Hershey Medical Center, Lafayette College, and Chatham University have all earned certification under GBCI's Performance Excellence in Electricity Renewal (PEER) rating system. Each of the three award recipients sought and earned certification through the partnership between GBCI and the Pennsylvania Department of Environmental Protection (PADEP), made possible by investments by the U.S. Department of Energy's State Energy Program and the US Department of Environmental Protection. Through GBCI's third-party verification, the communities of Lafayette College, Chatham University, and Milton S. Hershey Medical Center were able to benchmark and improve their power system performances and now have the reassurance that their power infrastructure is equipped to perform without interruption.