



In FY 2021, Congress provided funds to the Office of Energy Efficiency and Renewable Energy (EERE) at the U.S. Department of Energy to support the development and demonstration of an energysched management system. In the report Energysched Framework: Defining and Designing the Fundamental Land Unit of Renewable Energy, John C.



City energyscheds and renewable energy in the United States Article 15 April 2019. Techno-Economic Assessment of Renewable Energy Potential in Cities: Case Studies of Solar Photovoltaic, Waste-to-Energy and Wind Energy Cambridge, United Kingdom and New York, NY, USA. Google Scholar IRENA (2016) Renewable energy in cities, Abu Dhabi



# CITY ENERGYSHEDS AND RENEWABLE ENERGY IN THE UNITED STATES



Spatially explicit land-energy-water future scenarios for cities: Guiding infrastructure transitions for urban sustainability. Renewable and Sustainable Energy Reviews 112: 880-900; DeRolph, C.R., R.A. McManamay, A.M. Morton, S. Surendran Nair. 2019. City energysheds and renewable energy in the United States. Nature Sustainability 2: 412-420

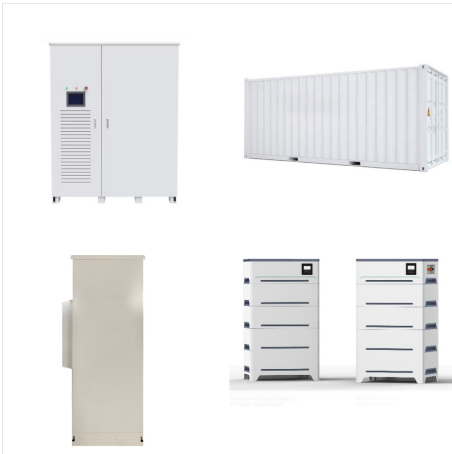


Renewable energy generates about 20% of all electricity in the USA a percentage that is continually growing, according to the Office of Energy Efficiency and Renewable Energy. Looking at energy generation, 9.2% can be attributed to wind, 6.3% to hydropower, 2.8% to solar, 1.3% to biomass and 0.4% to geothermal.

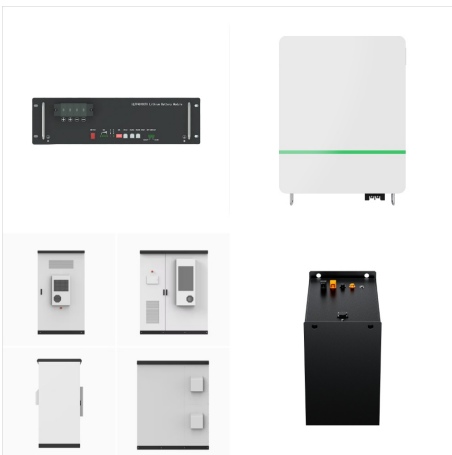


We estimate that the utilization of all available wastes and biomass residues in the contiguous US can generate 3.1-3.8 EJ of renewable energy but deliver only 2.4-3.2 EJ of net energy gain if

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The approach to this study was three-fold???(1) generate energysheds for a subset of cities with a pledge to achieve 100% renewable energy, (2) predict and summarize energy mixes using modeled allocation data for powerplants constructed after 2010 and in planning post 2021, and (3) summarize best case scenarios for a subset of cities assuming



Energysheds and renewable energy can help communities increase resilience???the ability to rapidly recover from power disruptions. EERE's Solar Energy Technologies Office (SETO) awarded the Electric Power Research Institute \$1 million in November 2022 to develop a community-focused planning framework using distributed energy ???

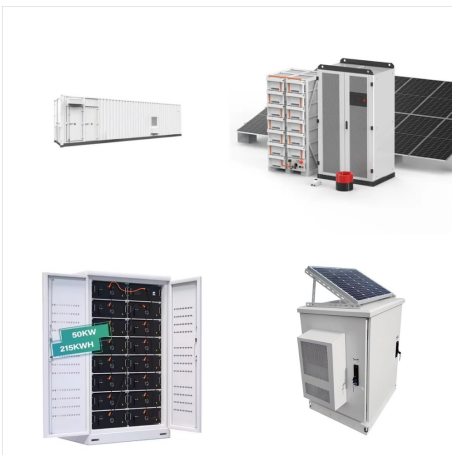


In 2022, annual U.S. renewable energy generation surpassed coal for the first time in history. By 2025, domestic solar energy generation is expected to increase by 75%, and wind by 11%. The United States is a resource-rich country with enough renewable energy resources to generate more than 100 times the amount of electricity Americans use each

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The power plant???city links revealed by energysheds allow for estimations of a city's energy mix and environmental footprint from electricity consumption, and provide urban areas with insights



For instance, in the United States, renewable energy additions have been underway for several years [17,18]. These additions have helped in developing protocol, baseline policy, operational standards, and systemic troubleshooting of renewable energy and energy storage integration [17]. City Energysheds and Renewable Energy in the United



This is a list of U.S. states by total electricity generation, percent of generation that is renewable, total renewable generation, percent of total domestic renewable generation, [1] and carbon intensity in 2022. [2]The largest renewable electricity ???



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[1] In contrast, a large portion of electricity using renewable sources is derived from other locations. EERE is looking at how locally generated renewable energy sources can offer communities energy independence, security, and resilience. To better understand an energys shed, consider a watershed.



City energys heds and renewable energy in the United States. Nature Sustainability (2019) E. Doxsey-Whitfield et al. Over 200 communities in the United States (states, counties, cities, and townships) have made public pledges to achieve a 100 % renewable energy (or electricity) transition. However, there is still uncertainty in how the



In 2020, renewable energy sources (including wind, hydroelectric, solar, biomass, and geothermal energy) generated a record 834 billion kilowatthours (kWh) of electricity, or about 21% of all the electricity generated in the United States. Only natural gas (1,617 billion kWh) produced more electricity than renewables in the United States in 2020. . Renewables ???

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Many policy analysts believe that once electricity from renewable energy becomes less expensive than electricity from fossil fuel, new renewable energy facilities will be built quickly across the United States. Cost-effective renewable energy has largely been achieved, but there appear to be substantial barriers to building new renewable energy



City energysheds and renewable energy in the United States rapidly replacing fossil infrastructure with increased renewable energy sources has become a key policy goal. Unlike coal, gas, and other fossil fuels, many renewable sources are best generated in dispersed, non-centralized locations, requiring new generation and distribution grid



SQS is the path of least resistance for achieving decarbonization targets but is insensitive to energy democracy ideals and reinforces large energysheds as the dominant form of energy systems. From 2006 to 2016, the share of global energy consumption met by renewable energy sources rose by 0.8% [71].

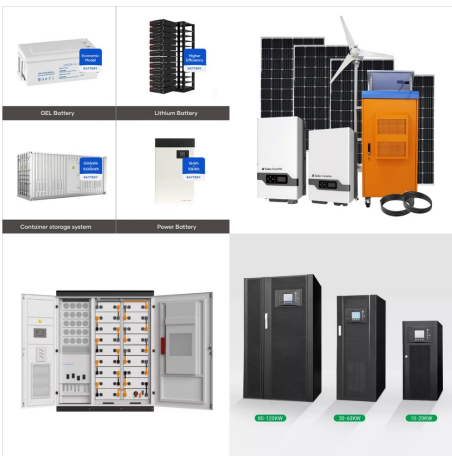
# CITY ENERGYSHEDS AND RENEWABLE ENERGY IN THE UNITED STATES



Ramping up renewable energy is crucial for the US to reach its net-zero goals. They say cities, states and the federal government should adopt strong policies to make it easy and affordable for homeowners, businesses and utilities to "go solar". Explore and monitor how United States is affecting economies, industries and global issues.



Herein we present a spatial framework for matching the supply of energy to demand across the electricity grid that allows for allocation of city energysheds. A city energys shed comprises the ???



As the United States moves toward decarbonization, states and their leaders will help determine whether net zero is achieved???and whether the energy transition elevates communities to deliver a more prosperous future for all.Last year, we outlined six critical action areas that could enable a more orderly transition, from designing a capital-efficient and ???

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Yet despite record growth, renewable energy installations need to ramp up even faster. Analyses of achieving 100% carbon-free electricity by 2035, what's needed to achieve U.S. greenhouse gas reduction targets, indicate that annual installation rates of renewables in coming years need to nearly double the rates seen in 2023.. Electric vehicle sales set new records in ???



In 2016, the United States Conference of Mayors approved a resolution in favor of 100% renewable energy in cities, and in 2017 mayors, governors, and business leaders launched the "We Are Still In" campaign in reference to President Trump's decision to withdraw from the Paris Accord (United States Conference of Mayors Citation 2016).



This is an overview of the major programs and incentives available for renewable energy production and use in the United States. The Database of State Incentives for portfolio standard (RPS) typically requires that a percentage of the electric power sales in a state comes from renewable energy sources. Some states have specific requirements



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TAX FREE

1-3MWh BESS





Outdoor Cabinet BESS

Universal 300 kWh Battery Storage Systems

Industrial and Commercial Energy Storage







All in One

Integrating battery packs

High-capacity

10-100kWh

Degree of Protection

IP54

Operating Temperature Range

-20-60°C (derating above 50 °C)

Intelligent Integration

Integrated BMS/EMS, energy control

Rated AC Power

10-100kW

Altitude

0-3000m (derating)

Nebraska's renewable energy production. Nebraska produced 12,252 thousand megawatt hours of electricity using renewable energy sources. That made up 31.2% of its total electricity, which ranked 13th.