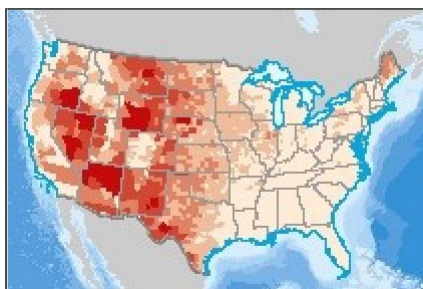


Wind and Solar Technical Generation Potential (2020)



Tags

wind energy, solar energy, technical potential

Summary

Depicts estimated 2020 technical generation potential, by county, for commercial photovoltaic, concentrating solar, distributed wind, land-based wind, residential photovoltaic, and utility photovoltaic technologies. Technical generation potential is the upper bound of generation based on resource, system performance, topographic limitations, and environmental and land-use constraints, not market conditions.

Estimates are modeled and have a high degree of uncertainty.

See <https://gds.nrel.gov/slope> for more information.

Description

Depicts estimated 2020 technical generation potential, by county, for commercial photovoltaic, concentrating solar, distributed wind, land-based wind, residential photovoltaic, and utility photovoltaic technologies. Technical generation potential is the upper bound of generation based on resource, system performance, topographic limitations, and environmental and land-use constraints, not market conditions. Utility-scale PV generation potential is estimated using the Renewable Energy Potential (reV) Model based on single-axis tracking, 20 MW capacity systems, with performance and pricing characteristics in line with a 1.34 DC-to-AC ratio or inverter loading ratio, consistent with Annual Technology Baseline. representative technology.

Estimates are modeled and have a high degree of uncertainty.

Credits

NREL (National Renewable Energy Laboratory). State and Local Planning for Energy (SLOPE). techpot_baseline_county.csv, accessed January 19, 2021. Golden, CO: National Renewable Energy Laboratory.

Use limitations

There are no access and use limitations for this item.

Extent

West -124.762578 **East** -66.950005
North 49.384359 **South** 24.521051

Scale Range

Maximum (zoomed in) 1:500,000
Minimum (zoomed out) 1:20,000,000

Topics and Keywords

THEMES OR CATEGORIES OF THE RESOURCE utilitiesCommunication

Citation

TITLE Wind and Solar Technical Generation Potential (2020)
PUBLICATION DATE 2020-01
PRESENTATION FORMATS * digital map

Resource Details

DATASET LANGUAGES * English (UNITED STATES)
DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format
STATUS completed
SPATIAL REPRESENTATION TYPE * vector
* PROCESSING ENVIRONMENT Version 6.2 (Build 9200) ; Esri ArcGIS 10.8.0.12790
CREDITS

NREL (National Renewable Energy Laboratory). State and Local Planning for Energy (SLOPE). techpot_baseline_county.csv, accessed January 19, 2021. Golden, CO: National Renewable Energy Laboratory.

ARCGIS ITEM PROPERTIES

* NAME technical_potential_county_2020

Extents

EXTENT

DESCRIPTION

Estimates are for 2020

GEOGRAPHIC EXTENT

BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching

* WEST LONGITUDE -124.762578
* EAST LONGITUDE -66.950005
* NORTH LATITUDE 49.384359
* SOUTH LATITUDE 24.521051

* EXTENT CONTAINS THE RESOURCE Yes

TEMPORAL EXTENT

DATE AND TIME 2020-01

EXTENT IN THE ITEM'S COORDINATE SYSTEM

* WEST LONGITUDE -13888506.657945
* EAST LONGITUDE -7452840.456226
* SOUTH LATITUDE 2817030.198989
* NORTH LATITUDE 6340332.527589
* EXTENT CONTAINS THE RESOURCE Yes

Resource Maintenance

RESOURCE MAINTENANCE

UPDATE FREQUENCY unknown

Spatial Reference

ARCGIS COORDINATE SYSTEM

- * TYPE Projected
- * GEOGRAPHIC COORDINATE REFERENCE GCS_WGS_1984
- * PROJECTION WGS_1984_Web_Mercator_Auxiliary_Sphere
- * COORDINATE REFERENCE DETAILS

PROJECTED COORDINATE SYSTEM

WELL-KNOWN IDENTIFIER 102100
X ORIGIN -22041257.77387803
Y ORIGIN -30241100
XY SCALE 144148035.89861274
Z ORIGIN -100000
Z SCALE 10000
M ORIGIN -100000
M SCALE 10000
XY TOLERANCE 0.001
Z TOLERANCE 0.001
M TOLERANCE 0.001
HIGH PRECISION true
LATEST WELL-KNOWN IDENTIFIER 3857
WELL-KNOWN TEXT PROJCS["WGS_1984_Web_Mercator_Auxiliary_Sphere",GEOGCS
["GCS_WGS_1984",DATUM["D_WGS_1984",SPHEROID
["WGS_1984",6378137.0,298.257223563]],PRIMEM["Greenwich",0.0],UNIT
["Degree",0.0174532925199433]],PROJECTION["Mercator_Auxiliary_Sphere"],PARAMETER
["False_Easting",0.0],PARAMETER["False_Northing",0.0],PARAMETER
["Central_Meridian",0.0],PARAMETER["Standard_Parallel_1",0.0],PARAMETER
["Auxiliary_Sphere_Type",0.0],UNIT["Meter",1.0],AUTHORITY["EPSG",3857]]

REFERENCE SYSTEM IDENTIFIER

- * VALUE 3857
- * CODESPACE EPSG
- * VERSION 8.8(9.3.1.2)

Spatial Data Properties

VECTOR

- * LEVEL OF TOPOLOGY FOR THIS DATASET geometry only

GEOMETRIC OBJECTS

FEATURE CLASS NAME technical_potential_county_2020
* OBJECT TYPE composite
* OBJECT COUNT 3109

ARCGIS FEATURE CLASS PROPERTIES

FEATURE CLASS NAME technical_potential_county_2020
* FEATURE TYPE Simple
* GEOMETRY TYPE Polygon
* HAS TOPOLOGY FALSE
* FEATURE COUNT 3109
* SPATIAL INDEX TRUE
* LINEAR REFERENCING FALSE

Fields

DETAILS FOR OBJECT `technical_potential_county_2020`

- * TYPE Feature Class
- * ROW COUNT 3109

FIELD `OBJECTID`

- * ALIAS `OBJECTID`
- * DATA TYPE `OID`
- * WIDTH 4
- * PRECISION 0
- * SCALE 0
- * FIELD DESCRIPTION
Internal feature number.
- * DESCRIPTION SOURCE
Esri
- * DESCRIPTION OF VALUES
Sequential unique whole numbers that are automatically generated.

FIELD `Shape`

- * ALIAS `Shape`
- * DATA TYPE `Geometry`
- * WIDTH 0
- * PRECISION 0
- * SCALE 0
- * FIELD DESCRIPTION
Feature geometry.
- * DESCRIPTION SOURCE
Esri
- * DESCRIPTION OF VALUES
Coordinates defining the features.

FIELD `NAME`

- * ALIAS `County Name`
- * DATA TYPE `String`
- * WIDTH 32
- * PRECISION 0
- * SCALE 0

FIELD `STATE_NAME`

- * ALIAS `State Name`
- * DATA TYPE `String`
- * WIDTH 25
- * PRECISION 0
- * SCALE 0

FIELD `STATE_FIPS`

- * ALIAS `State FIPS Code`
- * DATA TYPE `String`
- * WIDTH 2
- * PRECISION 0
- * SCALE 0

FIELD `CNTY_FIPS`

- * ALIAS `County FIPS Code`
- * DATA TYPE `String`
- * WIDTH 3
- * PRECISION 0
- * SCALE 0

FIELD FIPS

- * ALIAS FIPS Code
- * DATA TYPE String
- * WIDTH 5
- * PRECISION 0
- * SCALE 0

FIELD SQMI

- * ALIAS Area (sq. mi.)
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD GeoID

- * ALIAS GeoID
- * DATA TYPE String
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD Com_PV_TechGenPotenMWh

- * ALIAS Commercial PV Technical Generation Potential (MWh)
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD CSP_TechGenPotenMWh

- * ALIAS CSP Technical Generation Potential (MWh)
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD Dist_Wind_TechGenPotenMWh

- * ALIAS Distributed Wind Technical Generation Potential (MWh)
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD Land_Wind_TechGenPotenMWh

- * ALIAS Land-based Wind Technical Generation Potential (MWh)
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD Resid_PV_TechGenPotenMWh

- * ALIAS Residential PV Technical Generation Potential (MWh)
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD Util_PV_TechGenPotenMWh

- * ALIAS Utility PV Technical Generation Potential (MWh)
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD Shape_Length

- * ALIAS Shape_Length
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0
- * FIELD DESCRIPTION
Length of feature in internal units.
- * DESCRIPTION SOURCE
Esri
- * DESCRIPTION OF VALUES
Positive real numbers that are automatically generated.

FIELD Shape_Area

- * ALIAS Shape_Area
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0
- * FIELD DESCRIPTION
Area of feature in internal units squared.
- * DESCRIPTION SOURCE
Esri
- * DESCRIPTION OF VALUES
Positive real numbers that are automatically generated.

Metadata Details

- * METADATA LANGUAGE English (UNITED STATES)
- SCOPE OF THE DATA DESCRIBED BY THE METADATA * dataset
- SCOPE NAME * dataset
- * LAST UPDATE 2021-06-03
- ARCGIS METADATA PROPERTIES
 - METADATA FORMAT ArcGIS 1.0
 - METADATA STYLE FGDC CSDGM Metadata
 - STANDARD OR PROFILE USED TO EDIT METADATA FGDC
 - CREATED IN ARCGIS FOR THE ITEM 2021-02-26
 - LAST MODIFIED IN ARCGIS FOR THE ITEM 2021-06-03
 - AUTOMATIC UPDATES
 - HAVE BEEN PERFORMED Yes
 - LAST UPDATE 2021-06-03

Metadata Contacts

- METADATA CONTACT
 - INDIVIDUAL'S NAME Jim Kuiper
 - ORGANIZATION'S NAME Argonne National Laboratory
 - CONTACT'S ROLE user
 - CONTACT INFORMATION
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