

# NATCARB\_Sources2012 (v1501)

FGDC Metadata

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## Description

### Citation

**Title:** NATCARB\_Sources2012 (v1501)

**Originators:** NATCARB Map Team, US Dept. of Energy (DOE) National Energy Technology Laboratory (NETL)

**Publication date:** 20150415

**Edition:** v1501

**Data type:** vector digital data

**Other citation details:** [http://www.netl.doe.gov/technologies/carbon\\_seq/natcarb](http://www.netl.doe.gov/technologies/carbon_seq/natcarb)

### Description

**Abstract:** The National Carbon Sequestration Database and Geographic Information System (NATCARB) Sources spatial database of stationary sources of atmospheric carbon dioxide (CO<sub>2</sub>) emissions across the USA and parts of Canada. Sources are classified into nine categories - Agricultural Processing Facilities, Cement and Lime Plants, Electric Generating Plants, Ethanol Production Plants, Fertilizer Production, Industrial Facilities, Petroleum or Natural Gas Transmission, Refineries and Chemical Facilities, and Unclassified. This data layer reflects the best available knowledge regarding stationary CO<sub>2</sub> emissions sources in the USA and Canada.

Version Log:

v1101 - Initial release for Atlas III.

v1103 - CANADA and WESTCARB data updated. Many duplicates among partnerships removed. Metadata revised.

v1104 - Ethylene and Ethylene Oxide plants reclassified to Refineries/Chemical Plant.

v1204 - Initial release for Atlas IV. New data submitted by all regional partnerships.

v1302 - Locations reviewed and corrected for all electric power plants in MGSC, MRCSP and SECARB and some power plants in BSCP and SWP. Metadata revised.

v1303 - Locations reviewed and corrected for all electric power plants in SWP and WESTCARB, and for all refineries in MGSC, MRCSP, SECARB, SWP, WESTCARB and parts of BSCP. All PCOR sources replaced with most recent data from partnership. Fields DATA\_SOURCE, COMMENTS, and RCSP\_ID added to database schema. Metadata revised.

v1403 - Initial release for Atlas V. NATCARB and 2011 EPA Greenhouse Gas Reporting Program sources integrated with common ID (GHGRP\_ID). Many source locations in the EPA database corrected or moved to facility location, rather than office or company headquarters. Fields EPA\_SUBPART\_CATEGORY and EPA\_SECTOR added to database schema and used to reclassify SOURCE\_TYPE\_COMMON for many sources.

v1501 - Initial release of Sources using the 2012 year EPA GHGRP data.

The NATCARB is administered by the US Dept. of Energy (DOE) National Energy Technology Laboratory (NETL) and contains data provided by the Regional Carbon Sequestration Partnerships (RCSP). The NATCARB Team at KGS compiled the regional datasets into a single, seamless layer.

**Purpose:** The NATCARB Sources dataset provides a single, seamless spatial database of stationary sources of atmospheric carbon dioxide emissions across the USA and parts of Canada compiled from regional datasets created by the RCSPs. The spatial distribution of carbon dioxide emission estimates in this dataset are intended to be used as an initial assessment of stationary sources only. Stationary sources are particular, identifiable, localized sources of emissions, and include such operations as power plants, ethanol plants, petroleum and natural gas processing facilities, cement and lime plants, agricultural processing facilities, industrial facilities, iron and steel production facilities, and fertilizer production facilities. Non-stationary sources of CO<sub>2</sub>, such as transportation, and non-point sources, such as widespread land use practices, are not included in this data set. RCSPs either used emissions estimates from the EPA Greenhouse Gas database or calculated emissions estimates using other publicly-available databases (e.g., eGRID, IEA GHG, and NATCARB) and emissions factors. Calculation methods for a given source type vary by RCSP.

**Supplemental information:** For a detailed methodology of emissions estimates refer to Appendix A of The United States 2014 Carbon Utilization and Storage Atlas - Fifth Edition (Atlas V). For data access please contact the US DOE-NETL NATCARB Map Team - [NatCarb.Maps@netl.doe.gov](mailto:NatCarb.Maps@netl.doe.gov) For questions regarding how the data were assembled, contact the KGS NATCARB Team - [natcarb@kgs.ku.edu](mailto:natcarb@kgs.ku.edu)

**Dataset credit:** Version 1501 (first quarter release of 2015) of the NATCARB Sources spatial database was created by the NATCARB Team at the Kansas Geological Survey (KGS). The following Regional Carbon

Sequestration Partnerships (RCSP) contributed data to the national dataset:  
Big Sky Carbon Sequestration Partnership (BSCSP);  
Midwest Geological Sequestration Consortium (MGSC);  
Midwest Regional Carbon Sequestration Partnership (MRCSP);  
The Plains CO2 Reduction Partnership (PCOR);  
Southeast Regional Carbon Sequestration Partnership (SECARB);  
Southwest Regional Partnership on Carbon Sequestration (SWP);  
West Coast Regional Carbon Sequestration Partnership (WESTCARB).  
Data were also provided by NETL.

### Point Of Contact

**Organization:** NATCARB Map Team, US Dept. of Energy (DOE) National Energy Technology Laboratory (NETL)  
**Phone:** 304-285-2006  
**Phone:** 304-285-1354  
**Email:** NatCarb.Maps@netl.doe.gov  
**Address type:** mailing and physical  
**Address:** 3610 Collins Ferry Road M/S F04  
**City:** Morgantown  
**State or Province:** West Virginia  
**Postal code:** 26507  
**County:** US

### Data Type

**Data type:** vector digital data  
**Native dataset environment:** Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.2.2.3552

### Status

**Data status:** Complete  
**Update frequency:** Quarterly

### Key Words

**Theme:**  
**Keywords:** Carbon Dioxide Emissions, US Department of Energy, Energy, NATCARB  
**Keyword thesaurus:** None  
**Theme:**  
**Keywords:** climatologyMeteorologyAtmosphere, environment, utilitiesCommunication  
**Keyword thesaurus:** ISO 19115 Topic Categories  
**Place:**  
**Keywords:** Canada, USA, North America  
**Keyword thesaurus:** ISO 19115 Topic Category

### Data Access Constraints

**Access constraints:** None  
**Use constraints:** See access and use constraints information.

## Spatial Reference Information

### Horizontal Coordinate System

#### Coordinate System Details

### Geographic coordinate system

**Latitude resolution:** 8.983152841195215e-009

**Longitude resolution:** 8.983152841195215e-009

**Geographic coordinate units:** Decimal Degrees

### Geodetic model

**Horizontal datum name:** D WGS 1984

**Ellipsoid name:** WGS 1984

**Semi-major axis:** 6378137.0

**Denominator of flattening ratio:** 298.257223563

## Spatial Domain

### Bounding Coordinates

#### In Unprojected coordinates (geographic)

Boundary	Coordinate
West	-166.553514 (latitude)
East	-64.703195 (latitude)
North	71.294240 (longitude)
South	17.724392 (longitude)

## Data Structure and Attribute Information

### Overview

**Direct spatial reference method:** Vector

### Attributes of NATCARB\_Sources2012\_v1501

**Description:** Vector point features representing major stationary sources of carbon dioxide emissions in the USA and parts of Canada

**Source:** NATCARB

#### Attributes

##### OBJECTID

**Definition:** Internal feature number.

**Attribute values:** Sequential unique whole numbers that are automatically generated.

**Attribute definition source:** ESRI

##### SHAPE

**Definition:** Feature geometry.

**Attribute values:** Coordinates defining the features.

**Attribute definition source:** ESRI

##### PARTNERSHIP

**Definition:** Abbreviation for RCSP or other data source

#### Attribute domain values

Value	Definition
NATCARB	New England and Hawaii emissions sources derived from EPA data by NATCARB
BSCSP	Big Sky Sequestration Partnership

SECARB	Southeast Regional Carbon Sequestration Partnership
CANADA	Natural Resources Canada / Ressources naturelles Canada
WESTCARB	West Coast Regional Carbon Sequestration Partnership
MRCSP	Midwest Regional Carbon Sequestration Partnership
PCOR	The Plains CO2 Reduction Partnership
SWP	Southwest Regional Partnership on Carbon Sequestration
MGSC	Midwest Geological Sequestration Consortium

### **GHGRP\_ID**

**Definition:** Unique ID from EPA's Greenhouse Gas Reporting Program database

**Attribute definition source:** US EPA Greenhouse Gas Reporting Program

### **FRS\_ID**

**Definition:** EPA Facility Registry System Code

#### **Attribute value codeset domain**

<b>Codeset</b>	<b>Description</b>
Name	Facility Registry System
Source	US Environmental Protection Agency

**Attribute definition source:** US Environmental Protection Agency

### **PRIMARY\_NAICS**

**Definition:** US Census Bureau North American Industry Classification System code

#### **Attribute value codeset domain**

<b>Codeset</b>	<b>Description</b>
Name	North American Industry Classification System
Source	US Census Bureau

**Attribute definition source:** US Census Bureau

### **ORIS**

**Definition:** EPA Office of Regulatory Information Systems code

#### **Attribute value codeset domain**

<b>Codeset</b>	<b>Description</b>
Name	Office of Regulatory Information Systems
Source	US Environmental Protection Agency

### **LONGITUDE\_WGS84**

**Definition:** Longitude (WGS 84) of emission source

#### **Attribute domain range**

<b>Range</b>	<b>Value</b>
Minimum	-180
Maximum	180
Attribute units of measurement	decimal degrees

### **LATITUDE\_WGS84**

**Definition:** Latitude (WGS 84) of emission source

#### **Attribute domain range**

<i>Range</i>	<i>Value</i>
Minimum	-90
Maximum	90
Attribute units of measurement	decimal degrees

#### **SOURCE\_NAME**

**Definition:** Name of emission source

#### **OPERATOR**

**Definition:** Operator (owner) of emission source.

**Attribute values:** Text string

#### **ADDRESS**

**Definition:** Street address of emission source as provided by EPA or RCSP. May not reflect physical location of facility but rather the mailing address, headquarters, or address filed with EPA under the Greenhouse Gas Reporting Program or with the Department of Natural Resources Canada.

**Attribute values:** Text string

#### **CITY**

**Definition:** City of emission source as provided by EPA or RCSP. May not reflect physical location of facility but rather the mailing address, headquarters, or address filed with EPA under the Greenhouse Gas Reporting Program or with the Department of Natural Resources Canada.

**Attribute values:** Text string

#### **STATE\_PROV\_NAME**

**Definition:** State or Province of emission source as provided by EPA or RCSP. May not reflect physical location of facility but rather the mailing address, headquarters, or address filed with EPA under the Greenhouse Gas Reporting Program or with the Department of Natural Resources Canada.

#### **STATE\_PROV\_ABBRV**

**Definition:** Abbreviated State or Province of emission source as provided by EPA or RCSP. May not reflect physical location of facility but rather the mailing address, headquarters, or address filed with EPA under the Greenhouse Gas Reporting Program or with the Department of Natural Resources Canada.

#### **STATE\_LOCATION**

**Definition:** Abbreviated name of State or Province of physical location of facility as determined by geographic boundaries.

#### **SOURCE\_TYPE**

**Definition:** Emission source type as submitted by RCSP

**Attribute values:** Text string

**Attribute definition source:** RCSP

#### **SOURCE\_TYPE\_COMMON**

**Definition:** Classified emission source type

**Attribute domain values**

<i>Value</i>	<i>Definition</i>
REFINERIES/CHEMICAL	Petroleum refinery or chemical production plant
ETHANOL	Ethanol plant
CEMENT PLANT	Cement plant or lime production facility
AG PROCESSING	Agricultural or food processing facility

ELECTRICITY	Coal-, oil- or natural gas-fired electric generating plant
FERTILIZER	Fertilizer or ammonia production facility
UNCLASSIFIED	Other CO2 source
PETROLEUM/NATURAL GAS	Petroleum or natural gas processing or transmission
INDUSTRIAL	Industrial/Manufacturing (non-chemical or petroleum)
MINING	Mineral mine or mining-related facility
WASTE MANAGEMENT	Landfill, recycling center or other solid waste management facility

**Attribute definition source:** DOE-NETL

#### **EPA\_IND\_SUBPART**

**Definition:** Letter code(s) designating facility type (from EPA GHG database).

##### **Attribute value codeset domain**

<b>Codeset</b>	<b>Description</b>
Name	Industry Subpart Code
Source	US Environmental Protection Agency

**Attribute definition source:** US Environmental Protection Agency

#### **EPA\_SUBPART\_CATEGORY**

**Definition:** EPA industry subpart description

##### **Attribute value codeset domain**

<b>Codeset</b>	<b>Description</b>
Name	text string

**Attribute definition source:** US Environmental Protection Agency

#### **EPA\_SECTOR**

**Definition:** EPA Industry Sector

**Attribute definition source:** US Environmental Protection Agency

#### **FUEL**

**Definition:** Fuel type of emission source. This data is under development and should not be used.

**Attribute value accuracy explanation:** Data is under development. Do not use.

**Attribute values:** Text string

**Attribute definition source:** Atlas IV

#### **CO2\_TONNE**

**Definition:** Estimated emission amount in metric tonnes

##### **Attribute domain range**

<b>Range</b>	<b>Value</b>
Minimum	0
Attribute units of measurement	metric tonnes
Attribute measurement resolution	whole number

#### **CO2\_BIO**

**Definition:** Estimated emission amount of biogenic CO2 sources in metric tonnes

##### **Attribute domain range**

<b>Range</b>	<b>Value</b>
Minimum	0

Attribute units of measurement | metric tonnes |

#### **YEAR**

**Definition:** Year for which emissions data were calculated

**Attribute values:** Year

#### **DATA\_SOURCE**

**Definition:** Original data source for the facility.

#### **COMMENTS**

### **SDTS Feature Description**

#### ***Spatial data transfer standard (SDTS) terms***

##### ***Feature class***

**Type:** Entity point

**Count:** 6423

### **Data Source and Process Information**

#### **Data Sources**

##### ***Data source information***

##### ***KGS***

**Title:** KGS NATCARB

**Media:** None

**Source contribution:** As the primary entity responsible for compiling the NATCARB layers, the Kansas Geological Survey NATCARB Team worked closely with the DOE-NETL NATCARB Team to develop rules and methods for assembling the composite datasets.

##### ***Atlas V***

**Title:** The United States 2014 Carbon Utilization and Storage Atlas

**Publisher:** US Department of Energy (DOE) National Energy Technology Laboratory (NETL)

**Publication place:** 3610 Collins Ferry Road, Morgantown, WV, 26507-0880, US

**Data location:** [http://www.netl.doe.gov/technologies/carbon\\_seq/refshelf/atlasV/](http://www.netl.doe.gov/technologies/carbon_seq/refshelf/atlasV/)

**Media:** onLine

**Source contribution:** The Fifth Edition of The United States 2014 Carbon Utilization and Storage Atlas (Atlas V) provides updated information regarding carbon dioxide storage potential in the US and parts of Canada and includes maps, summary tables and, in Appendices A and B, detailed methodologies.

##### ***SWP***

**Title:** SWP Carbon Sequestration Potential

**Originators:** Southwest Regional Partnership on Carbon Sequestration  
New Mexico Institute of Mining and Technology

**Data type:** vector digital data

**Data location:** <http://www.natcarb.org/Atlas/partners.html>,  
<http://www.southwestcarbonpartnership.org/>

**Media:** None

**Source contribution:** Southwest Regional Partnership on Carbon Sequestration provided data for the Southwestern United States (Eastern Arizona, Colorado, Kansas, New Mexico, Western Texas and Utah).

## DOE-NETL

**Title:** US Department of Energy (DOE) National Energy Technology Laboratory (NETL) NATCARB Team

**Data location:** [http://www.netl.doe.gov/technologies/carbon\\_seq/natcarb/](http://www.netl.doe.gov/technologies/carbon_seq/natcarb/)

**Media:** None

**Source contribution:** As the responsible authority for the National Carbon Sequestration Database and Geographic Information System (NATCARB), the US Department of Energy (DOE) National Energy Technology Laboratory (NETL) NATCARB Team provided data, methodological guidance and expertise in handling issues specific to creation of the composite NATCARB data layers.

## PCOR

**Title:** PCOR Carbon Sequestration Potential

**Originators:** University of North Dakota, Energy and Environmental Research Center  
The Plains CO2 Reduction Partnership

**Data type:** vector digital data

**Data location:** <http://www.undeerc.org/pcor/>, <http://www.natcarb.org/Atlas/partners.html>

**Media:** None

**Source contribution:** The Plains CO2 Reduction Partnership provided data for the upper Midwest and Central Canada (Iowa, Minnesota, Missouri, Eastern Montana, Nebraska, North Dakota, Eastern South Dakota, Wisconsin, Eastern Wyoming, Alberta, Northeastern British Columbia, Manitoba and Saskatchewan).

## BSCSP

**Title:** BSCSP Carbon Sequestration Potential

**Originators:** Big Sky Sequestration Partnership  
Montana State University

**Data type:** vector digital data

**Data location:** <http://www.bigskyco2.org/>, <http://www.natcarb.org/Atlas/partners.html>

**Media:** None

**Source contribution:** Big Sky Carbon Sequestration Partnership provided data for the Innermountain West region of the Northwestern United States (Idaho, Eastern Montana, Eastern Oregon, Western South Dakota, Eastern Washington and Wyoming).

## WESTCARB

**Title:** WESTCARB Carbon Sequestration Potential

**Originators:** California Energy Commission  
West Coast Regional Carbon Sequestration Partnership

**Data type:** vector digital data

**Data location:** <http://www.westcarb.org/>, <http://www.natcarb.org/Atlas/partners.html>

**Media:** None

**Source contribution:** West Coast Regional Carbon Sequestration Partnership provided data for the Western United States and Canada (Alaska, Western Arizona, Western British Columbia, California, Hawaii, Nevada, Western Oregon and Western Washington).

## SECARB

**Title:** SECARB Coal Carbon Sequestration Potential

**Originators:** Southeast Regional Carbon Sequestration Partnership  
Southern States Energy Board

**Data type:** vector digital data

**Data location:** <http://www.secarbon.org/>, <http://www.natcarb.org/Atlas/partners.html>

**Media:** None

**Source contribution:** Southeast Regional Carbon Sequestration Partnership provided data for the Southeastern United States (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Eastern Texas, West Virginia and Virginia).

## MRCSP



**Title:** MRCSP Coal 10K Carbon Sequestration Potential

**Originators:** Batelle Memorial Institute

Midwest Regional Carbon Sequestration Partnership

**Data type:** vector digital data

**Data location:** <http://www.mrcsp.org/>, <http://www.natcarb.org/Atlas/partners.html>

**Media:** None

**Source contribution:** Midwest Regional Carbon Sequestration Partnership provided data for the Ohio Valley and Northeastern United States (Eastern Indiana, Eastern Kentucky, Maryland, Michigan, New Jersey, New York, Ohio, Pennsylvania and West Virginia).

## MGSC

**Title:** MGSC Carbon Sequestration Potential

**Originators:** Midwest Geological Sequestration Consortium

Illinois State Geological Survey

**Data type:** vector digital data

**Data location:** <http://www.sequestration.org/>, <http://www.natcarb.org/Atlas/partners.html>

**Media:** None

**Source contribution:** Midwest Geological Sequestration Consortium provided data for Illinois, Western Indiana and Western Kentucky.

## WVU NATCARB

**Title:** University of West Virginia NATCARB Team

**Originators:** West Virginia GIS Technical Center, Department of Geology and Geography

**Data type:** vector digital data

**Media:** None

**Source contribution:** The NATCARB Team at the University of West Virginia validated and edited some emission source features.

## Process Steps

### Process step information

#### Process Step 1

**Process description:** The NATCARB Team at the Kansas Geological Survey assembled GIS datasets from the regional partnerships (and other sources where necessary) into a single layer using ESRI's ArcInfo (v10.2.2) software in the Summer and Fall of 2014. Other alterations to the data include identifying overlapping and duplicate data submitted by adjacent partnerships and making corrections to values in text fields (spelling, capitalization, etc.) when errors were noticed.

**Organization:** GIS Support Section, Kansas Geological Survey

**Position:** NatCarb Team

**Phone:** 785-864-3965

**Email:** natcarb@kgs.ku.edu

**Hours of service:** 8 am - 5 pm M-F

**Address type:** mailing and physical

**Address:** 1930 Constant Ave

**City:** Lawrence

**State or Province:** KS

**Postal code:** 66047-3726

**County:** US

**Process date:** 20140902

#### Process Step 2

**Process description:** Metadata updated

**Organization:** GIS Support Section, Kansas Geological Survey

**Position:** NATCARB Team  
**Phone:** 785-864-3965  
**Email:** natcarb@kgs.ku.edu  
**Hours of service:** 8 am - 5 pm M-F  
**Address type:** mailing and physical  
**Address:** 1930 Constant Ave  
**City:** Lawrence  
**State or Province:** Kansas  
**Postal code:** 66047-3726  
**County:** US  
**Process date:** 20140902

## Data Distribution Information

### General

**Distribution liability:** See access and use constraints information.

### Distribution Point of Contact

**Organization:** NATCARB Map Team, US Department of Energy (DOE) National Energy Technology Laboratory (NETL)  
**Phone:** 304-285-2006  
**Phone:** 304-285-1354  
**Email:** NATCARB.Maps@NETL.DOE.GOV  
**Address type:** mailing and physical  
**Address:** 3610 Collins Ferry Road M/S F04  
**City:** Morgantown  
**State or Province:** West Virginia  
**Postal code:** 26507  
**County:** US

### Standard Order Process

**Digital form:**

**Format name:** ESRI File Geodatabase

**Format version number:** 10.2.2

**File decompression technique:** zip

**Digital transfer option:**

**Online option:**

**Computer information:**

**Network address:**

**Network resource name:** [http://www.netl.doe.gov/technologies/carbon\\_seq/natcarb/download.html](http://www.netl.doe.gov/technologies/carbon_seq/natcarb/download.html)

**Fees:** None

**Ordering instructions:** GIS datasets in ESRI file geodatabase and shapefile format are available online. Please contact the DOE-NETL NATCARB Map Team for custom requests.

## Metadata Reference

### Metadata Date

**Last updated:** 20150413

### Metadata Point of Contact

**Organization:** GIS Support Section, Kansas Geological Survey

**Position:** NATCARB Team

**Phone:** 785-864-3965

**Email:** natcarb@kgs.ku.edu

**Hours of service:** 8 am - 5 pm M-F

**Address type:** mailing and physical

**Address:** 1930 Constant Ave

**City:** Lawrence

**State or Province:** Kansas

**Postal code:** 66047-3726

**County:** US

### Metadata Standards

**Standard name:** FGDC Content Standard for Digital Geospatial Metadata

**Standard version:** FGDC-STD-001-1998

**Time convention:** local time

### FGDC Plus Metadata Stylesheet

Federal Geographic Data Committee