

# Circular Economy Ontology Network (CEON) - Energy

## Metadata

IRI	<a href="http://w3id.org/CEON/ontology/energy/">http://w3id.org/CEON/ontology/energy/</a>
Title	Circular Economy Ontology Network (CEON) - Energy
Creator	Huanyu Li
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Date Created	2024-11-01
License	<a href="https://creativecommons.org/licenses/by/4.0/">https://creativecommons.org/licenses/by/4.0/</a>
Version Iri	<a href="http://w3id.org/CEON/ontology/energy/0.1/">http://w3id.org/CEON/ontology/energy/0.1/</a>
Version Info	0.1
Preferred Namespace Prefix	energy
Preferred Namespace Uri	<a href="http://w3id.org/CEON/ontology/energy/">http://w3id.org/CEON/ontology/energy/</a>
Description	A module of the CEON ontology network defining aspects of the energy concept.
Covers Requirements	Covers the following requirements from Onto-DESIDE D2.3: CE1-2, CE4-3, CE6-3, CE7-4, CE8-2, CE10-7, CE10-9, CE11-6, CE12-5.

## Classes

Anergy <sup>C</sup>	
IRI	<a href="http://w3id.org/CEON/ontology/energy/Anergy">http://w3id.org/CEON/ontology/energy/Anergy</a>
Sub Class Of	<a href="#">Energy<sup>C</sup></a>
In Range Of	<a href="#">hasAnergy<sup>op</sup></a>

Biofuel <sup>C</sup>	
IRI	<a href="http://w3id.org/CEON/ontology/energy/Biofuel">http://w3id.org/CEON/ontology/energy/Biofuel</a>
Sub Class Of	<a href="#">Biomass<sup>C</sup></a>

## Biogas<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/Biogas>

**Sub Class Of** [Biomass<sup>C</sup>](#)

## Biomass<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/Biomass>

**Sub Class Of** [EnergySource<sup>C</sup>](#)

**Super Class Of**  
[Biofuel<sup>C</sup>](#)  
[Biogas<sup>C</sup>](#)

## Coal<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/Coal>

**Sub Class Of** [FossilFuel<sup>C</sup>](#)

## Energy<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/Energy>

**Sub Class Of** <http://w3id.org/CEON/ontology/resourceODP/Resource>

**In Domain Of** [hasEnergySource<sup>op</sup>](#)

**Super Class Of**  
[Anergy<sup>C</sup>](#)  
[Exergy<sup>C</sup>](#)  
[NonRenewableEnergy<sup>C</sup>](#)  
[RenewableEnergy<sup>C</sup>](#)

## Energy Composition<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/EnergyComposition>

**Sub Class Of** <http://w3id.org/CEON/ontology/actorODP/ResourceParticipation>

**In Domain Of** [hasEnergyComponentPercentage<sup>dp</sup>](#)

## Energy Conversion<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/EnergyConversion>

**Sub Class Of** <http://w3id.org/CEON/ontology/actorODP/ResourceRelation>

## Energy Infrastructure<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/EnergyInfrastructure>

**Sub Class Of** <http://w3id.org/CEON/ontology/actorODP/Infrastructure>

## Energy Source<sup>C</sup>

**IRI** <http://w3id.org/CE0N/ontology/energy/EnergySource>

**In Domain Of** [hasCarbonIntensity](#)<sup>dp</sup>  
[hasSustainability](#)<sup>dp</sup>

**In Range Of** [hasEnergySource](#)<sup>op</sup>

**Super Class Of** [Biomass](#)<sup>C</sup>  
[FossilFuel](#)<sup>C</sup>  
[GeothermalEnergySource](#)<sup>C</sup>  
[Hydropower](#)<sup>C</sup>  
[SolarEnergySource](#)<sup>C</sup>  
[Wind](#)<sup>C</sup>

## Exergy<sup>C</sup>

**IRI** <http://w3id.org/CE0N/ontology/energy/Exergy>

**Sub Class Of** [Energy](#)<sup>C</sup>

**In Range Of** [hasExergy](#)<sup>op</sup>

## Fossil Fuel<sup>C</sup>

**IRI** <http://w3id.org/CE0N/ontology/energy/FossilFuel>

**Sub Class Of** [EnergySource](#)<sup>C</sup>

**Super Class Of** [Coal](#)<sup>C</sup>  
[NaturalGas](#)<sup>C</sup>  
[Petroleum](#)<sup>C</sup>

## Geothermal Energy Source<sup>C</sup>

**IRI** <http://w3id.org/CE0N/ontology/energy/GeothermalEnergySource>

**Sub Class Of** [EnergySource](#)<sup>C</sup>

## Hydropower<sup>C</sup>

**IRI** <http://w3id.org/CE0N/ontology/energy/Hydropower>

**Sub Class Of** [EnergySource](#)<sup>C</sup>

## Natural Gas<sup>C</sup>

**IRI** <http://w3id.org/CE0N/ontology/energy/NaturalGas>

**Sub Class Of** [FossilFuel](#)<sup>C</sup>

## Non Renewable Energy<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/NonRenewableEnergy>

**Sub Class Of** [Energy<sup>C</sup>](#)

## Petroleum<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/Petroleum>

**Sub Class Of** [FossilFuel<sup>C</sup>](#)

## Renewable Energy<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/RenewableEnergy>

**Sub Class Of** [Energy<sup>C</sup>](#)

## Solar Energy Source<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/SolarEnergySource>

**Sub Class Of** [EnergySource<sup>C</sup>](#)

## Wind<sup>C</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/Wind>

**Sub Class Of** [EnergySource<sup>C</sup>](#)

## Object Properties

### has anergy<sup>op</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/hasAnergy>

**Sub Property Of** <http://w3id.org/CEON/ontology/actorODP/participatingObject>

**Range** [Anergy<sup>C</sup>](#)

### has converted energy<sup>op</sup>

**IRI** <http://w3id.org/CEON/ontology/energy/hasConvertedEnergy>

**Sub Property Of** <http://w3id.org/CEON/ontology/actorODP/participatingResource>

**Range** [NonRenewableEnergy<sup>C</sup>](#) or [RenewableEnergy<sup>C</sup>](#)

### has energy source<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CEON/ontology/energy/hasEnergySource">http://w3id.org/CEON/ontology/energy/hasEnergySource</a>
<b>Domain</b>	<a href="#">Energy</a> <sup>c</sup>
<b>Range</b>	<a href="#">EnergySource</a> <sup>c</sup>

### has exergy<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CEON/ontology/energy/hasExergy">http://w3id.org/CEON/ontology/energy/hasExergy</a>
<b>Sub Property Of</b>	<a href="http://w3id.org/CEON/ontology/actorODP/participatingObject">http://w3id.org/CEON/ontology/actorODP/participatingObject</a>
<b>Range</b>	<a href="#">Exergy</a> <sup>c</sup>

### has original energy<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CEON/ontology/energy/hasOriginalEnergy">http://w3id.org/CEON/ontology/energy/hasOriginalEnergy</a>
<b>Sub Property Of</b>	<a href="http://w3id.org/CEON/ontology/actorODP/participatingResource">http://w3id.org/CEON/ontology/actorODP/participatingResource</a>
<b>Range</b>	<a href="#">NonRenewableEnergy</a> <sup>c</sup> or <a href="#">RenewableEnergy</a> <sup>c</sup>

### participating energy<sup>op</sup>

<b>IRI</b>	<a href="http://w3id.org/CEON/ontology/energy/participatingEnergy">http://w3id.org/CEON/ontology/energy/participatingEnergy</a>
<b>Sub Property Of</b>	<a href="http://w3id.org/CEON/ontology/actorODP/participatingSubject">http://w3id.org/CEON/ontology/actorODP/participatingSubject</a>

## Datatype Properties

### has carbon intensity<sup>dp</sup>

<b>IRI</b>	<a href="http://w3id.org/CEON/ontology/energy/hasCarbonIntensity">http://w3id.org/CEON/ontology/energy/hasCarbonIntensity</a>
<b>Domain</b>	<a href="#">EnergySource</a> <sup>c</sup>

### has energy component percentage<sup>dp</sup>

<b>IRI</b>	<a href="http://w3id.org/CEON/ontology/energy/hasEnergyComponentPercentage">http://w3id.org/CEON/ontology/energy/hasEnergyComponentPercentage</a>
<b>Domain</b>	<a href="#">EnergyComposition</a> <sup>c</sup>

### has sustainability<sup>dp</sup>

<b>IRI</b>	<a href="http://w3id.org/CEON/ontology/energy/hasSustainability">http://w3id.org/CEON/ontology/energy/hasSustainability</a>
<b>Domain</b>	<a href="#">EnergySource</a> <sup>c</sup>

## Annotation Properties

[description](#)<sup>ap</sup>

**IRI** <http://purl.org/dc/elements/1.1/description>

[contributor](#)<sup>ap</sup>

**IRI** <http://purl.org/dc/terms/contributor>

[created](#)<sup>ap</sup>

**IRI** <http://purl.org/dc/terms/created>

[creator](#)<sup>ap</sup>

**IRI** <http://purl.org/dc/terms/creator>

[description](#)<sup>ap</sup>

**IRI** <http://purl.org/dc/terms/description>

[license](#)<sup>ap</sup>

**IRI** <http://purl.org/dc/terms/license>

[title](#)<sup>ap</sup>

**IRI** <http://purl.org/dc/terms/title>

[preferred namespace prefix](#)<sup>ap</sup>

**IRI** <http://purl.org/vocab/vann/preferredNamespacePrefix>

[preferred namespace uri](#)<sup>ap</sup>

**IRI** <http://purl.org/vocab/vann/preferredNamespaceUri>

[covers requirements](#)<sup>ap</sup>

**IRI** <http://www.ontologydesignpatterns.org/schemas/cpannotationschema.owl#coversRequirements>

[definition](#)<sup>ap</sup>

**IRI** <http://www.w3.org/2004/02/skos/core#definition>

pref label<sup>ap</sup>

IRI <http://www.w3.org/2004/02/skos/core#prefLabel>

## Namespaces

:	<a href="http://w3id.org/CE0N/ontology/energy/">http://w3id.org/CE0N/ontology/energy/</a>
dc	<a href="http://purl.org/dc/elements/1.1/">http://purl.org/dc/elements/1.1/</a>
dcterms	<a href="http://purl.org/dc/terms/">http://purl.org/dc/terms/</a>
geo	<a href="http://www.opengis.net/ont/geosparql#">http://www.opengis.net/ont/geosparql#</a>
odp	<a href="http://www.ontologydesignpatterns.org/schemas/cpannotationschema.owl#">http://www.ontologydesignpatterns.org/schemas/cpannotationschema.owl#</a>
owl	<a href="http://www.w3.org/2002/07/owl#">http://www.w3.org/2002/07/owl#</a>
prov	<a href="http://www.w3.org/ns/prov#">http://www.w3.org/ns/prov#</a>
rdf	<a href="http://www.w3.org/1999/02/22-rdf-syntax-ns#">http://www.w3.org/1999/02/22-rdf-syntax-ns#</a>
rdfs	<a href="http://www.w3.org/2000/01/rdf-schema#">http://www.w3.org/2000/01/rdf-schema#</a>
skos	<a href="http://www.w3.org/2004/02/skos/core#">http://www.w3.org/2004/02/skos/core#</a>
vann	<a href="http://purl.org/vocab/vann/">http://purl.org/vocab/vann/</a>

## Legend

c	Classes
op	Object Properties
dp	Datatype Properties
ap	Annotation Properties