

Renewable needs a rework

<https://github.com/OpenEnergyPlatform/ontology/issues/741>

Already Discussed

Problem

- Current definition: Renewable is an origin of portions of matter that replenish on a human time scale.
- Use case: *has origin some renewable* indicates which energy carriers are renewable, e.g., air, photon, water, biomass
- The definition of renewable only fits biomass (water does not replenish)

What things can have an origin?

- Options:
 - portion of matter (original solution)
 - energy and portion of matter (agreed upon in the issue)
 - energy and fuel
- Arguments:
 - assigning renewable to energy is practical
 - using fuel would exclude rock and others which don't fit the definition of renewable
 - using portion of matter would include relevant use cases for certain origins, e.g., anthropogenic for emissions

Results

- domain added to definition of origin: *Origin is a quality that indicates where **a portion of matter or energy** comes from (its source).*
 - editor note: Origin is not used to describe the output of a process. In such case, we recommend the relation "has physical output".
- updated definition of renewable: *Renewable is an origin of an energy carrier or energy that indicates that the energy carrier replenishes on a human time scale **or isn't consumed when the respective energy is used.***
 - → makes connection between hydro energy and renewable possible

Open Questions

Classification of renewable

- Is renewable really an origin?
 - origin: *a quality that indicates where a portion of matter or energy comes from (its source).*
 - other subclasses: anthropogenic (source: human), biogenic (source: life), geogenic (source: earth), fossil (source: organic materials), synthetic (source: chemical processes)
 - Renewable doesn't state *where* the matter / energy came from, but makes a statement about *what will happen* to it (it will get replenished / not be used up)
- solution: reclassify renewable as a quality

Energy Problem

- has origin is a subproperty of has quality (*a relation between an **independent continuant** (the bearer) and a quality, in which the quality specifically depends on the bearer for its existence*)
 - → energy can't be part of the domain of has origin
- solution 1: don't use has origin for energy
- solution 2: don't classify has origin as a subproperty of has quality
- solution 3: classify energy as an independent continuant

Water Problem

- pumped water can be pumped using electricity of a coal power plant, thus making pumped water not renewable for some cases
- solution 1: only use has origin some renewable for *unambiguous cases*
- solution 2: create *parallel classes* pumped water and renewable pumped water