OEO Developer Meeting #13_2 Energy Subclasses

- Pad to this meeting: https://etherpad.wikimedia.org/p/oeo-dev-energy-subclasses
- Dudle: https://dudle.inf.tu-dresden.de/oeo-dev_energy-subclasses/

- **Date:** 2021-02-02

Participants: Ludwig, Michaja, Vera, Simon, Carsten, Ulrich, Hannah, Mirjam, Lukas

- moderator: Vera, Mirjam
- protocol: Ludwig

Preparation:

- Read relvant issues:
  - https://github.com/OpenEnergyPlatform/ontology/issues/522
  - https://github.com/OpenEnergyPlatform/ontology/issues/515
  - https://github.com/OpenEnergyPlatform/ontology/issues/393

Agenda:

- Collect related classes of energy
  - Wind energy ✓
  - Solar energy ✓
  - Hydro energy
  - Nuclear energy
  - Geothermal energy (#393)
  - Ocean energy / tide / wave energy
  - solar thermal energy? (#393)
  - combustion energy?

Bestehende Energieformen:

- **Energy** is a quality of matter and radiation which manifests as a capacity to perform work (such as causing motion or the interaction of molecules)
- **chemical energy** is energy that is stored in the chemical bonds of a substance, which can be released by a chemical reaction.
- **electrical energy** is a form of energy derived from the potential or kinetic energy of charged particles.
- **thermal energy**
- **Kinetic energy** is the energy that a material entity possesses due to its motion. It is defined as the work needed to accelerate a body of a given mass from rest to a stated velocity. (existing definition)
- potential energy
- radiative energy --> eigenes **issue**

Verschiedene Konzepte:

- *Wind energy is a kind of kinetic energy*

- *(Moving air (wind) possesses kinetic energy)*
- *b: Relation: wind energy transformation uses / has input/ has participant(?) some wind energy*
- *b: Relation: wind energy transformation has output / has participant(?) some electrical energy*
- *b: Def:* ***wind energy transformation*** *is an energy transformation that converts wind energy to electrical energy.*
- **c: Wind energy** is the kinetic energy of moving air.
- **a: Def: Wind** is a process of air naturally moving. (existing definition)
    - Relation: air has quality some wind energy

- **Überlegung 1:** has input ausweiten für energy, nicht nur material entity --> eigenes Issue, auch für has output / has participant, möglicherweise eigene Relation für Energie-Input und Energie-Output
- **Überlegung 2:** Def von energy anpassen: Bezug zu Radiation raus. Dafür "photon" als portion of matter definieren, dann wäre auch energy carrier für solar energy sauber

Je vier Klassen werden definiert:

- a: Primärenergie-Prozess
- b: Transformationsprozess
- c: Primärenergie:
- d: Primärenergieträger: air

Solar:

- a: **Solar radiation** is radiation that is emitted by the sun.
    - Radiation is the process of emitting or transmitting energy in the form of waves or particles through a spatial region or a material entity. (existiert schon)
- b: **solar energy transformation** is an energy transformation that converts solar energy.
    - ***solar thermal energy transformation*** is a solar energy transformation that converts solar energy into thermal energy
    - ***solar xxxx energy transformation*** is a solar energy transformation that converts solar energy into electrical energy. It has two partical process: a solar thermal energy transformation and a steam power process. --> eigenes Issue für steam power process (mit anderem/besserem Label)
    - ***solar chemical energy transformation*** is a solar energy transformation that converts solar energy into chemical energy --> evtl nochmal erweitern
    - ***photovoltaic energy transformation*** is a solar energy transformation that converts solar energy into electrical energy.
- c: **solar energy** is radiative energy of the sun
- d: **photons** (Photonen ~~nicht~~ eigens definieren), photon has quality some radiative energy --> issue

radiative energy:
Def.: radiative energy is energy that has been transmitted by a radiation process

Anstehende Aufgaben:

- Verknüpfung von Energie/Träger/Prozess zu Erneuerbar muss überarbeitet werden
- Übertragung auf Wasser
    - Gleiches Prinzip oder anders?
    - Laufwasser/Speicherwasser
    - Weiter im nächsten Dev-Meeting!

- Vorbereitung des Dev-Meetings:
  - Zuordnung der bestehenden Klassen
  - Versuch der Übertragung auf Wasser
  - Eigene Issues für jede Erneuerbare

Trivia:

- Es wird über den Welle-Teilchen-Dualismus diskutiert ;) Siehe auch https://github.com/OpenEnergyPlatform/ontology/issues/362