

POTENTIAL DEFINITIONS IN RENEWABLE ENERGY

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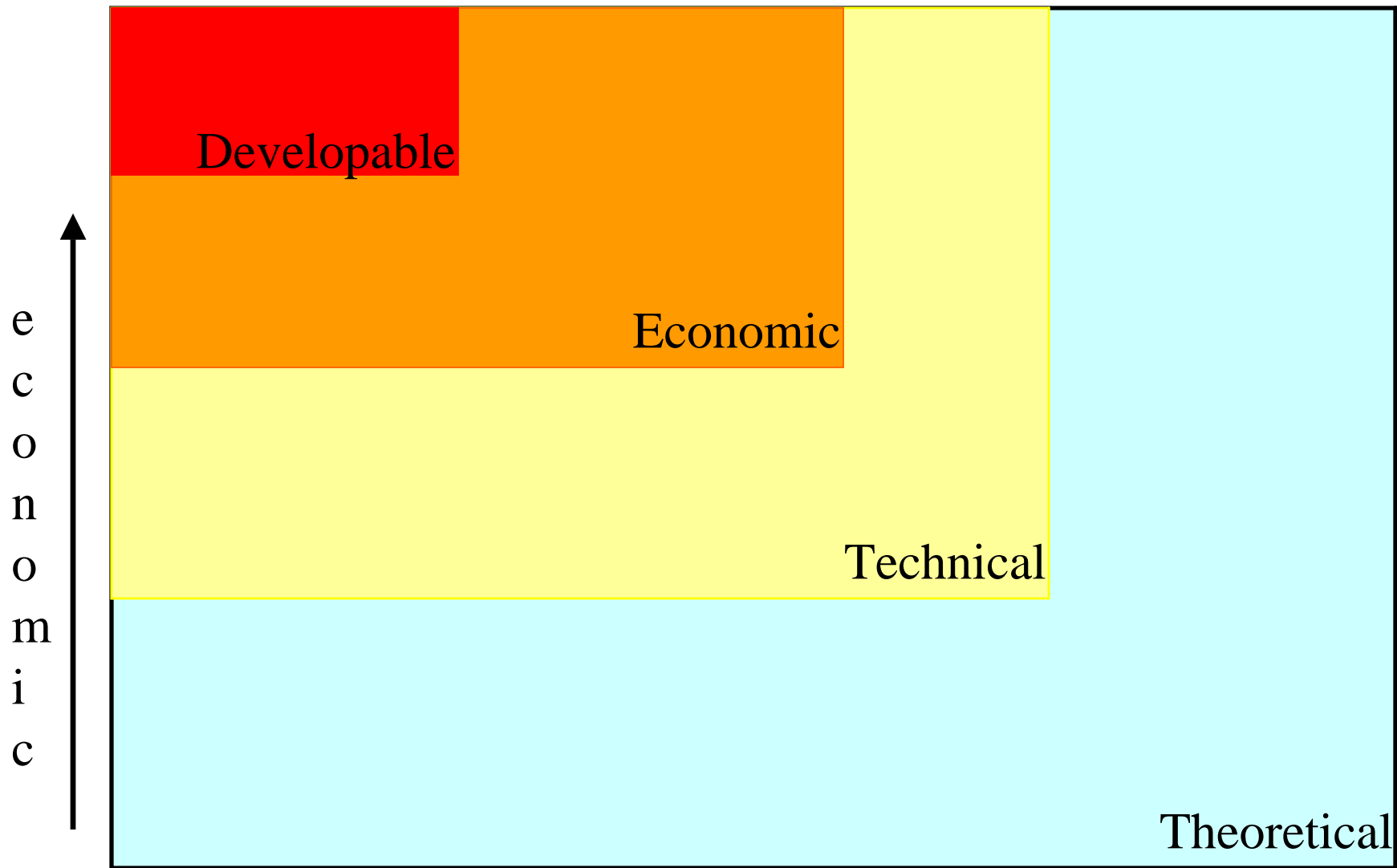
- * **Various potential categories**
- * **Description of potential categories**

Reference: Piot, M. (2006): Potentialbegriffe. Swiss Federal Office of Energy Bern, 4 p



Potential definitions

realizable



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Developable

Economic

Technical

Theoretical

Theoretical potential

The theoretical potential describes the physically usable energy supply (e.g. the in the total biomass stored energy) over a certain time span in a given region.

It is defined solely by the physical limits of use and thus marks the upper limit of the theoretically realizable energy supply contribution.

Due to insurmountable technical, structural and administrative limitations only small fractions of the theoretical potential can actually be used.

Therefore the theoretical potential has no practical relevance in assessing the practical usability of renewable energies.

Technical potential

The technical potential describes the fraction of the theoretical potential that can be used under the existing technical restrictions (currently available technology).

In addition, it considers the given structural and ecologic restrictions as well as legal and regulatory allowances, since these are –similar to technical limitations– of insurmountable character.

Thus it describes the time and location dependent possible contribution of a renewable energy to the energy demand.

Since this potential depends mainly on technical boundary conditions it is less subject to temporal variations than the economic potential.

Economic potential

The economic potential describes the time and location dependent fraction of the technical potential that can be economically utilized within the actually considered energy system: the total costs (investment, operation, and decommissioning of a renewable energy installation) are in the same range as the total costs of concurrencing systems.

Since various approaches exist to assess the economy of a technology for energy supply there are different economic potentials.

In addition several economic boundary conditions exist (e.g. oil price changes, changing taxations, write-offs, feed-in tariffs).

Developable potential

The economically developable potential describes the fraction of the economic potential that can be developed under realistic conditions.

Therefore it is usually smaller than the economic potential.

It can be greater when administrative measures like promotion programs exist for renewable energies.

Potential definitions

realizable

