

8 Criteria for new Energy Supply Technologies

positive criteria The swisscleantech business association is opposed to any ban on technology and therefore proposes positive criteria for assessing any new energy-supply technology, including nuclear technology. The relevant technology must meet the following requirements:

1. It must be economical

The energy production costs must be covered by the returns. Costs include:

- Running or marginal costs, including the cost of waste disposal
- Amortization
- Provisions for downstream costs such as demolition and dismantling
- Risk costs or insurance premiums for the full risk and environmental costs

Co-financing by pay-as-you-go, particularly for amortization costs, is possible for all technologies, but financing must come from the sale of energy not from the national budget.

2. There must be a broad raw-materials base

Where the energy production requires specific raw materials, these must be available in sufficient quantities. For it to be worthwhile investing in the new technology, it should potentially be able to meet 10% of world energy demand of 140 PWh for 100 years. Supply should be diversified worldwide.

3. Production may not represent a direct threat to the environment.

Under normal operating conditions, or in the direct handling of raw materials and waste, no toxic or nuclear contamination of the environment may arise (full supply-chain management).

4. The production plant may have little or no impact on biodiversity

The infrastructure necessary for the construction and operation of the plant must be integrated into the biosphere in such a way as to have a low negative impact on biodiversity. Offsetting at another location must be possible.

5. It should produce only such waste as can be rendered inactive and non-toxic within 5 generations

Storing waste for many generations is problematic because there can be no guarantee that the pollutants will remain outside the biosphere. This assessment includes both radioactive and non-radioactive pollutants (such as dioxin). The key factor is the harmful impact and the

quantity of waste generated per kWh of energy produced (hazard potential after five generations). Criteria for practical measurement need to be established.

6. Its production plants are endowed with guaranteed containment

Where large quantities of (radioactive and/or toxic) pollutants are generated during the production process, such pollutants must remain at the production location at all times. Removal is possible only where arranged by the operator.

7. Runaway reactions are precluded

If the energy is produced by an exothermic reaction, it must be ensured that the reaction remains constantly active. The (active or passive) omission of this measure, which is designed to keep the process active, must also halt energy production quickly enough to ensure that requirement 3 is met, without active cooling measures being necessary.

8. No proliferation hazard

Post-production residual waste may not be used to manufacture weapons of mass destruction with a destructive power of over 10 kg TNT Eq/kg or an energy content of 100 kWh/kg.