GLOSSARY ON RENEWABLE ENERGY AND LANDSCAPE QUALITY – THE GLOSSARY

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*people who participated as core group members in the work of the responsible Working Group
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Cultural Planning
Ecological engineering
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Environmental Impact Assessment
Landscape assessment
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Planning process
Public participation
Public participation process
RE policy documents
Scenario Techniques
Social Impact Assessment
Stakeholder
Strategic Environmental Assessment
Territorial Impact Assessment
Visual Assessment
ENERGY LANDSCAPE

Definition
An energy landscape is characterized by one or more elements of the energy chain (e.g. energy extraction, assimilation, conversion, storage, transport or transmission of energy). The outcome can be a multi-layer energy landscape comprising combinations of technical and natural sources of energy within a landscape. In COST RELY, energy landscape is focused on renewable energy and the impact on landscape quality.

Related terms
Landscape resilience, Landscape sensitivity, Landscape vulnerability

Keywords
Energyscapes, Landscapes of carbon neutrality, Multi-layer, Multi-functional, Renewable energy sources, Sustainable energy landscape

Figure 3a. Three layers of energy production in the area of Garzweiler II, Germany. Foreground: agriculture with oil pumping. Middle: open brown coal mining with a coal-fired power plant. Background: wind turbines. (Photo: Alexandra Kruse 2016)

Figure 3b. Wind energy landscape, Ore Mountains, Czech Republic (Photo: Bohumil Frantal 2012)

Figure 3c. This energy landscape in Carinthian Mölltal in Austria shows different layers of energy production and impact on the landscape. Foreground: electric train line and electricity high voltage cables. Middle: agriculture including modern hay balls; background, forestry. These very intensive and close layers are dominating the Alpine valleys in Austria. (Photo: Alexandra Kruse 2016)

Source
Definition developed by COST RELY Action.
**Translations**

<table>
<thead>
<tr>
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<th>Translation</th>
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<tr>
<td>LANDSCAPE</td>
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<tr>
<td><strong>Definition</strong></td>
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<tr>
<td>(1) An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.</td>
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<tr>
<td>(2) An area (spatial component) as perceived by people (subjective component), whose sensually perceivable features (link to aesthetics in the original meaning of the Greek ‘aisthesis’) and character (Alexander von Humboldt's definition of landscape) are the result (evolutionary/temporal aspect of landscape) of the action of natural and/or cultural factors (holistic view of landscape).</td>
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<td>(3) The Swedish primary definition of the word landscape (<em>swe. landskap</em>) denotes the conditions in a country, a country's character, and/or a country's traditions. Originally, landskap was strongly related to customs, ideas of homeland, justice, nature, and nation (Olwig 1996). Landskap was a social space that denoted a territory and its people, and connoted aspects of custom, value, and everyday life.</td>
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<td>(4) For many people, landscape simply means scenery – everything that is around us and can be viewed at one time from one place on the horizon – or all the visible features of an area, considered for their aesthetic appeal.</td>
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</table>

**Related terms**
Landscape identity, Landscape quality, Landscape sensitivity, Landscape service, Landscape vulnerability

**Keywords**

*Figure 4. Landscape – composed by houses, forest, bushes, windmills, single trees and meadows, Sao Miguel, Azores (Photo: Naja Marot, 2006)*
Source
A discussion on the origin and meaning of the term landscape, including the three definitions cited above, can be found in the EUCALAND glossary:

<table>
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<th>Language</th>
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<td>Montenegrin: Pejzaž</td>
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<td>Polish: Krajobraz</td>
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<td>Greek: Ανάλυση Τοπίου</td>
<td>Serbian: Пејзаж</td>
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<td>Spanish: Paisaje</td>
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<td>Hungarian: Táj</td>
<td>Slovakian: Krajina</td>
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<td></td>
<td>Swedish: Landskap</td>
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</table>
LANDSCAPE AWARENESS

**Definition**
Landscape awareness refers to deeper understanding of the value of landscapes, their role and changes to them, among the civil society, private organisations and public authorities. European Landscape Convention marks the importance of awareness-raising which is defined as a way of making clear the relations that exist between people’s cadre de vie, the activities pursued by all parties in the course of their daily lives and the characteristics of the natural environment, housing and infrastructure (Council of Europe).

**Related terms**
Landscape character, Landscape identity, Landscape sensitivity

**Keywords**
Ecological awareness, Knowledge-spreading process, Perception

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![Figure 5. “Re-Storying the Landscape” landscape awareness-raising among children (Source: http5)](http5)

**Source**

**Translations**
- Bosnia and Herzegovina: Svijest o pejzažu/ okolišu
- Bulgarian: Информираност относно ландшафта
- Croatian: Svjesnost o krajoliku
- Czech: Povědomí krajiny
- Danish: Povædomi kraphy
- Dutch: Landschapsbewustzijn
- Esperanto: Konscienco pri pejzaĝo
- Estonian: Teadlikkus
- Finnish: Tietoisuus maisemasta
- French: Participation publique considérant le paysage
- German: Landschaftsbewusstsein
- Greek: Κατανόηση τοπίου
- Hebrew: נופית מודעות
- Hungarian: Tájutasdosság (we do not really use it)
- Italian: Consapevolezza pesaggistica
- Icelandic: Landslagsvitund
- Latvian: Ainavas novērtējums
- Lithuanian: Susirūpinimas kraštovaizdžiu (visuomenės, politinis...)
- Montenegrin: Svijest o pejzažu
- Polish: Świadomość krajobrazowa
- Portuguese: Sensibilização paisagística, consciencialização paisagística
- Romanian: Conștientizarea peisajului
- Russian: Пейзажное осознание / Информированность о ландшафте
- Slovakian: Povedomie o krajine (znalosť krajiny)
- Slovenian: Zavedanje o krajini
- Serbian: Свет и вредниоње пејзаж
- Spanish: Participación pública en relación con el paisaje
- Swedish: Landskapsmedvetenhet
**LANDSCAPE CAPACITY**

**Definition**
Landscape capacity refers to the degree to which a particular landscape character type or area is able to accommodate change without significant effects on its character, or overall change of landscape character type. Capacity is likely to vary according to the type and nature of change being proposed.

**Related terms**
Environmental Impact Assessment, Landscape sensitivity, Landscape service, Suitability of landscape for renewable energy production

**Keywords**
Magnitude of landscape change, Capacity thresholds, Landscape capacity thresholds

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*Figure 6. Example of Landscape Capacity toolkit used by Scottish National Heritage (Source: http6)*

**Source**
<table>
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<td>Montenegrin: Kapacitet pejzaža</td>
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<td>Dutch: Landschapscapaciteit</td>
<td>Polish: Pojemność krajobrazu</td>
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<td>Portuguese: Capacidade paisagística</td>
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<td>Russian: Ландшафтная вместимость</td>
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<td>French: Capacité du paysage</td>
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<td>Serbian: Капацитета пејзажа</td>
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<td>Hungarian: Tájterhelhetőség</td>
<td>Swedish: Landskapskapacitet</td>
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### LANDSCAPE CHARACTER

**Definition**
The distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape. It is a standard methodology for identifying, describing, classifying and mapping what is distinctive about landscapes. It is used in the assessment of landscape impacts for land use changes. For COST RELY, it is a basis of considering some of the landscape impacts of renewable energy developments (e.g. the UK).

**Related term**
Landscape identity

**Keywords**
Landscape Character Assessment, Landscape quality, Landscape value

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**Figure 7a.** Map of Landscape Character from Tayside Landscape Character Assessment, produced for Scottish Natural Heritage (Source: Perth and Kinross Council, UK)

**Figure 7b.** Physical and perceptual characteristics to be considered in a Landscape Character Assessment (Source: http7)

**Source**
Countryside Agency and Scottish Natural Heritage 2002: Landscape character assessment guidance for England and Scotland, Cheltenham, Countryside Agency; Edinburgh, Scottish Natural Heritage, Paragraph 7.8

**Translations**

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LANDSCAPE CLASSIFICATION

Definition
Landscape classification is a means of grouping different types of landscapes into categories to address similar types at once. Classification is important for communication because it provides a consistent frame of reference. As the classification of landscapes is complicated by the fact that it involves both human perception and physical reality, there are many different attempts, according to nationality but also to scientific background. EUCALAND set-up a European Agricultural Landscape classification based on identity, pattern, process, change, spatial relationship, social organisation and topography with 10 different classes. Landscape classification is a basis of the research on landscape structure, process, and function, and also, the prerequisite for landscape evaluation, planning, protection, and management, directly affecting the precision and practicability of landscape research.

Related terms
Landscape character

Keywords
Landscape units

Source
**Translations**

- Bosnia and Herzegovina: Klasifikacija pejzaža/ okoliša
- Bulgarian: Класификация на ландшафта
- Croatian: Klasifikacija krajolika
- Czech: Klasifikace krajiny
- Danish: Landskabs klassifikation
- Dutch: Landschapsclassificatie
- Esperanto: Klasiﬁko de pejzaĝo
- Estonian: Maastiku klassifikatsioon
- Finnish: Maisemien luokittelu
- French: Classification du paysage
- German: Landschaftsklassifikation
- Greek: Κατάταξη τοπίου
- Hebrew: נופים סיווג
- Hungarian: Tájosztályozás
- Italian: Classificazione del paesaggio
- Icelandic: Flokkun landslags / landslagsflokkun
- Latvian: Ainavas klasifikācija
- Lithuanian: Krašto vaizdžio klasifikacija
- Montenegrin: Klasifikacija pejzaža
- Polish: Klasyfikacja krajobrazu
- Portuguese: Classificação paisagística
- Romanian: Clasificarea peisajului
- Russian: Ландшафтная Классификация
- Slovakian: Klasifikácia krajiny
- Slovenian: Klasifikacija krajine
- Serbian: Класификација пејзажа
- Spanish: Clasificación del paisaje
- Swedish: Landskapsklassificering
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<tr>
<td><strong>Definition</strong></td>
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<tr>
<td>The flows of social, economic and ecological benefits that land may generate. In the context of Ecosystem Services, this can be described as the capacity of land for ecosystem service production.</td>
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**Figure 9.** Landscapes have different functions for different stakeholders  
(Graphic made by COST RELY: A. Kruse & J. M. Rojas)

**Source**
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LANDSCAPE IDENTITY

Definition
Landscape identity is related to the character and the tangible and intangible characteristics that shape the feeling of a person belonging to a landscape. Identity of a landscape is the sum of the different information layers drawing on for example the territory, cultural elements, natural resources, and current use.

The Spanish: key naturalists Martinez de Pison (2000) and Gonzalez Bernaldez (1981) have referred to this concept saying landscape identity comes with the person; it is a bag full of information of what we are carrying.

Related terms
Landscape awareness, Landscape resilience, Landscape sensitivity

Keywords
Attachment, Feeling of belonging, Motivation, People and place, Recognition, Roots, Sense of place

![Orchards](http://www.snh.gov.uk/docs/B1118160.pdf)

**Figure 10.** Orchards (or, allotment gardens, CSA (community supported agriculture) etc.) establish emotional relationships between people and territory, as well as among different groups of people. New feelings of belonging to a certain place emerge throughout the practice of farming itself or the fact of producing own food. This is a very ancient practice but certainly is being used in our current days to create connections between people and their place, to create new places and to live a place and it is widely adopted by young communities in urban backgrounds. Orchards in the South of Madrid, Olmeda de las Fuentes.

(Photograph: Observatory for a Culture of the Territory 2009)

Source
http://www.snh.gov.uk/docs/B1118160.pdf
<table>
<thead>
<tr>
<th>Translations</th>
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<td>Bulgarian: Ландшафтна идентичност</td>
<td>Icelandic: Ímynd landslags / landslagstengd sjálfsmynd</td>
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<td>Latvian: Ainavas identitāte</td>
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<td>Czech: Identita krajin</td>
<td>Lithuanian: Kraštovaizdžio identitetas</td>
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<td>Danish: Landskabsidentitet</td>
<td>Montenegrin: Identitet pejzaža</td>
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<td>Polish: Tożsamość krajobrazowa</td>
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<td>Esperanto: Identeco de pejzaĝo</td>
<td>Portuguese: Identidade de paisagem</td>
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<tr>
<td>Estonian: Maastiku identiteet</td>
<td>Romanian: Identitatea peisajului</td>
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<tr>
<td>Finnish: Maisemaidentiteetti</td>
<td>Russian: Ландшафтная идентичность</td>
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<td>French: Identité du paysage</td>
<td>Slovakian: Identita krajiny</td>
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<td>German: Landschaftsidentität</td>
<td>Slovenian: Identiteta krajine</td>
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<td>Greek: Ταυτότητα τοπίου</td>
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<td>Hebrew: נופית זהות</td>
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<td>Hungarian: Táji identitás</td>
<td>Swedish: Landskapsidentitet</td>
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</table>
LANDSCAPE QUALITY

Definition
The perception of the holistic environmental, cultural, sensory and psychological characteristics of a landscape with respect to their benefits or significance to people. It is relative, not absolute, requiring interpretation in the context of geographic scale (i.e. local, regional, national) and, or human experience.

Related terms
Landscape service

Keywords
Benefits, Landscape character, Landscape resource, Landscape value, Perception

Figure 11. Landscape quality comprises different components and perception (Graphic made by COST RELY, A. Kruse)

Source
Definition developed by COST RELY Action, 2017.

Translations
Bosnia and Herzegovina: Kvalitet pejzaža/okoliša
Bulgarian: Качество на ландшафта
Croatian: Kvaliteta krajobraza
Czech: Kvalita krajin
Danish: Landskabskvalitet
Dutch: Landschapskwaliteit
Esperanto: Kvalito de pejzaĝo
Estonian: Maastiku kvaliteet
Finnish: Maiseman laatu
French: Qualité du paysage
German: Landschaftsqualität
Greek: Ποιότητα τοπίου
Hebrew: תכונה אicional
Hungarian: Tájminőség és
Italian: Qualità del paesaggio
Icelandic: Gaði landslags
Latvian: Ainavas kvalitāte
Lithuanian: Kraštovaizdžio kokybė
Montenegrin: Kvalitet pejzaže
Polish: Jakość krajobrazu
Portuguese: Qualidade paisagística e avaliação de características
Romanian: Calitatea peisajului
Russian: Качество ландшафта
Slovakian: Kvalita krajin
Slovenian: Kakovost krajine
Spanish: Calidad del Paisaje
Swedish: Landskapskvalitet
# LANDSCAPE RESILIENCE

## Definition
Landscape resilience is its capacity for renewal in a dynamic environment. Its characteristics are flexibility, adaptability, and ability to withstand change. In the context of COST RELY, such change focuses on renewable energy systems.

## Related terms
Landscape assessment, Landscape capacity, Landscape governance, Landscape vulnerability

## Keywords
Adaptation, Renewable energy landscape impact, Regeneration, Resistance, Risk*

*No definition of landscape risk is included in COST RELY as the pressures for change are those of renewable energy, while the term landscape risk is more commonly associated with natural hazards (e.g. earthquakes).

## Source

## Translations
<table>
<thead>
<tr>
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<th>Translation</th>
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<td>Bulgarian</td>
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<td>Croatian</td>
<td>Otpornost krajolika</td>
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<td>Czech</td>
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<td>Esperanto</td>
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<td>Italian</td>
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Icelandic: Seigla landslags / viðnámsþróttur landslags
Latvian: Ainavas elstīgums
Lithuanian: Kraštovaizdžio atsparumas
Montenegrin: Otpornost pejzaža
Polish: Odporność krajobrazu
Portuguese: Resiliência paisagística
Romanian: Rezilienţa peisajului
Russian: Устойчивость ландшафта
Slovakian: Prispôsobivost' krajiny
Slovenian: Odpornost krajine
Serbian: Резистентност околне
Spanish: Resiliencia del paisaje/Paisajes resilientes
Swedish: Landskaps resiliens
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<th>LANDSCAPE SENSITIVITY</th>
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<td><strong>Definition</strong></td>
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<tr>
<td><strong>Related terms</strong></td>
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<td><strong>Keywords</strong></td>
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![Figure 13. Steps in a landscape sensitivity study](Source: Adapted by COST RELY, based on: Land Use Consultants (LUC), http11)

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**LANDSCAPE SERVICES**

**Definition**
The contributions of landscapes and their components to human well-being. Landscape Services is a concept complementary to that of Ecosystem Services.

**Related terms**
Landscape function, Landscape services

**Keywords**
Landscape processes, Ecosystem services, Landscape scale

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**Figure 14.** Landscape and their benefits (Source: SNH: [http12](http://www.snh.gov.uk/protecting-scotlands-nature/looking-after-landscapes/communities/talking-about-our-place/))

**Source**
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LANDSCAPE VULNERABILITY

Definition
In landscape planning, vulnerability is defined as ‘vulnerability to impact’, and the likelihood of change to, or loss of, landscape features. Its level is a reflection of the significance of the functions of such features. In COST RELY it relates to the potential negative impact of renewable energy developments on landscapes.

Related terms
Landscape sensitivity

Keywords
Development constraints, Hazard, Impact models, Risk

Source

Translations
Bosnia and Herzegovina: Ranjivost pejzaža/ okoliša
Bulgarian: Уязвимост на ландшафта (Слободан миковски)
Croatian: Ranjivost krajobraza
Czech: Zranitelnost krajiny
Danish: Landskabets sårbarhed
Dutch: Kwetsbaarheid van het landschap
Esperanto: Vundebleco de pejzaĝo
Estonian: Maastiku haavatavus
Finnish: Maiseman haavoittuvuus
French: Vulnérabilité du paysage
German: Verletzlichkeit der Landschaft
Greek: Κίνδυνοι τοπίου
Hebrew: דרכי תפיסת נוף
Hungarian: Táji sérülékenység
Italian: Vulnerabilità del paesaggio
Icelandic: Viókvæmmi landslags
Latvian: Ainavas traushums
Lithuanian: Kraštovaizdžio pažeidžiamumas
Montenegrin: Ranjivost pejzaža
Polish: Wrażliwość krajobrazu
Portuguese: Vulnerabilidade paisagística
Romanian: Vulnerabilitatea peisajului
Russian: Уязвимость ландшафта
Slovakian: Zraniteľnosť krajiny
Slovenian: Ranljivost krajine
Serbian: Ранјивост пејзажа
Spanish: Vulnerabilidad del paisaje
Swedish: Landskaps sårbarhet
LAND USE CONFLICTS

Definition
A land use conflict is a situation where there is a disagreement on the use of a certain piece of land and/or a belief that people’s rights or well-being are being threatened by an action or undertakings of another, or the inaction of another party. The origins of most land use conflicts is when a land use, a project or an action is incompatible with the views, expectations and values of the people living, working and/or vacationing in a potentially affected area.

Related terms
Landscape governance, Planning process, Public participation, Stakeholder

Keywords
Disagreement, Dispute, Incompatibility, Dysfunctionality, Landscape conflict

Figure 16. Public protest against a proposed project of large wind park (130 wind turbines) at Nantucket Sound, Massachusetts (USA) taken on February 2, 2010 at Woods hole, MA
(Source: The Associated Press, http13)


Translations
Bosnia and Herzegovina: Konflikt namjene zemljista
Bulgarian: Конфликт при използването на земите
Croatian: Konflikt namjene zemljista
Czech: Konflikt o využití krajiny
Danish: Arealanvendelses konflikt
Dutch: Landgebruiksconflict
Esperanto: Konflikto pri uzo de tero
Estonian: Maakasutuskonflikt
Finnish: Maankäyttökonflikti
French: Conflit dans l’exploitation du paysage
German: Landnutzungskonflikt
Greek: Διενέξεις χρήσης γης
Hebrew: קרבין שימושים של קרקע
Hungarian: tájhasználati konfliktus
Italian: Conflitto di usi del suolo
Icelandic: Ætök um landnýtingu/ ágreiningur um landnýtingu
Latvian: Žemes lietojuma konfliktks
Lithuanian: Žemėsnaudos konfliktai
Montenegrin: Konflikt korišćenja zemljišta
Polish: Konflikty przestrzenne
Portuguese: Conflito sobre uso de terra
Romanian: Conflict în utilizarea terenului
Russian: Конфликт землепользования
Slovakian: Konflikt o využití zeme
Slovenian: Konflikt med rabami zemljišča
Serbian: Konflikti pri korишњену земљишта
Spanish: Markanvändningskonflikt
Swedish: markanvändningskonflikt
VISUAL IMPACT

Definition
Change to the appearance of the landscape as a result of a development which can be positive (improvement) or negative (detraction) and the associated changes in the human visual experience of the landscape.

Related terms

Keywords
Scenery, Visual amenity, Viewsheds

Source

Translations
Bosnia and Herzegovina: Vizuelni uticaj/utjecaji
Bulgarian: Визуална оценка на въздействието
Croatian: Vizualni utjecaj
Czech: Vizální dopad
Danish: Visuelle konsekvenser
Dutch: Visueel effect of visuele invloed (of hinder)
Esperanto: Vida influo
Estonian: Visuaalne mõju
Finnish: Visuaalinen vaikutus
French: Impact visuel
German: Visuelle Beeinträchtigung
Greek: Οπτική επιβάρυνση
Hebrew: הַשְׁפָּעָה הַוְיִוְלָה
Hungarian: Vizuális hatás

Italian: Impatto visivo
Icelandic: Sjónrað áhrif
Latvian: Vizuālā ietekme
Lithuanian: Vizualinis poveikis
Montenegrin: Vizualni uticaj
Polish: Oddziaływania wizualne
Portuguese: Impacto visual
Romanian: Impact vizual
Russian: Визуальное воздействие
Slovakian: Vizuálny impakt
Slovenian: Vpliv na vidne kakovosti
Serbian: Визуелни утицај
Spanish: Impacto visual
Swedish: Visuell påverkan
**BIOFUEL**

**Definition**
A biofuel is any fuel whose energy is obtained through a process of biological carbon fixation. To be considered a biofuel it must contain over 80% renewable materials. It can be derived directly from plants, or indirectly from agricultural, commercial, domestic, and/or industrial wastes.

Biofuels generally involve carbon fixation through the process of photosynthesis. It is produced by conversion from biomass in three different ways:

- a) thermal,
- b) chemical and
- c) biochemical.

Biofuel can be solid, liquid or gaseous. The most common types of biofuels are bioethanol and biodiesel, which are predominantly used in the transport and heating sectors.

**Related terms**
Biomass, Biogas

**Keywords**
Carbon fixation, Bioethanol, Biodiesel, Transportation fuel, Heating fuel

---

*Figure 18. Scheme of production of biofuels from the waste (Source: [http14](http://biofuel.org.uk/glossary.html))*

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**BIOGAS**

**Definition**
Biogas is produced by anaerobic digestion (AD) which is the breakdown of organic material by micro-organisms in the absence of oxygen. Suitable organic materials include animal manure, sewage sludge, the organic fractions of household and industrial waste, or energy crops.

The calorific value of biogas is linked to characteristics of the inputs. For example, a high content of sugar and fat will result in biogas with a high calorific value.

**Related terms**
Biomass, Biofuel

**Keywords**
Methane, Landfill gas, Agricultural wastes, GHG emissions

---

**Figure 19a.** Diagram of a biogas plant (Source: http19)

**Figure 19b.** Scheme of biogas production in industrial style (Source: http20, permission by Enerkem)

**Figure 19c.** Bigger biogas plant on a farm in Oberscheid, Germany (Photo: Alexandra Kruse 2016)

**Figure 19d.** Full-scale biofuel facility in Edmonton, Canada (Publication permission by Enerkem)

**Source**
http21: www.biogas-info.co.uk/ (UK Government portal on aerobic digestion)
http22: http://european-biogas.eu/biogas/ (European Biogas Association)
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**BIOMASS**

**Definition**
From an ecological point of view, biomass is the total amount of living matter that exists in an ecosystem or in an animal or plant population. It is derived from organic material such as trees, plants, and agricultural and urban waste.

(a) Agricultural crops, i.e. those grown for energy production, in Europe are predominantly herbaceous crops (e.g. miscanthus, reed canary grass, giant reed), oil seeds (e.g. rape seed, sunflower), sugar crops (e.g. sugar cane, sweet sorghum), and starch crops (e.g. maize, wheat), straw;

(b) Forestry crops, which are predominantly short rotation plantation (e.g. willow, poplar and eucalyptus), and forest by-products (e.g. wood chips and blocks); agricultural wood production (e.g. vineyard, olive groves, orchards);

(c) Industrial residues, such as industrial wood waste, sawdust from sawmills, fibrous vegetable waste from paper industries;

(d) Waste, from parks and domestic gardens, demolition wood, biodegradable landfill waste, sewage sludge, municipal solid waste.

These various sources of biomass can be treated by chemical, biochemical or thermochemical processes to produce energy to generate renewable electricity or heat. They are chopped, chipped, pelleted or baled before being:

- burnt in a stove or boiler,
- mixed with coal for use in a conventional power station and
- used in a dedicated biomass power station.

Energy crops can also be grown for use in an anaerobic digester, where the organic material is broken down to produce biogas for heat and power.

**Related terms**
Biofuels, Biogas

**Keywords**
Bioenergy, Land use for energy

*Figure 20a. Non-food, perennial biomass, crops such as willows and miscanthus can contribute to the reduction of CO₂ and play a role in mitigation against climate change (Source: Test fields at Szent István University/HU Alexandra Kruse 2017)*

*Figure 20b. Biomass power plant – Scheme (Source: http23)*
## Source
Definition developed by COST RELY Action.

### Translations

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ENVIRONMENTAL THERMAL ENERGY SOURCE

Definition
Environmental thermal energy source refers to the availability of very low enthalpy of air (aerothermal), water (hydrothermal) and ground (geothermal) that can be commonly exploited as a heat source by convertible heat pump systems. This energy can be used either for air conditioning or producing the hot water. Its benefits include zero CO₂ emissions, inexhaustible source of energy, independence from external suppliers and low heating costs. Preconditions are large radiators for a low temperature system and good insulation of the building.

Ground-sourced energy can be utilised via heat pumps in two different ways. 1. Heat close to the surface is used (an uniformed year-round temperature) via a surface collector installed as a heating coil at a depth of 1.5 m extracts heat from the ground. 2. Heat recovery is possible with a space-saving geothermal probe. The geothermal heat is removed with special ground probes that go as far as 100 metres deep into the earth (the area with the all-year-constant temperature of 10 °C).

Groundwater-source energy relies on the constant temperature of the groundwater. Exploitation is possible with a well.

Ambient-air-sourced energy can be utilized with heat pumps for heating purposes.

Related terms
Geothermal energy

Keywords
Air-source heat pumps, Ground coupled heat pumps, Ground-source heat exchangers, Surface water heat pumps

Source
http25: www.ehpa.org (European Heat Pump Association)
http26: http://egec.info/ (European Geothermal Energy Council)
<table>
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# GEOTHERMAL ENERGY

## Definition
Geothermal energy is energy stored in the form of heat below the earth’s surface. It is used as a source for renewable electricity and heat with liquid water or steam as a carrier.

## Related terms
- Environmental thermal energy source

## Keywords
- Renewable heat

---

![Figure 22a. Geothermal energy plant in Krafla, Northeast Iceland (Photo: David Ostman 2017)](https://ec.europa.eu/research/energy/index.cfm?pg=area&areaname=renewable_geothermal)

![Figure 22b. Geothermal energy plant in Hengill, Southwest Iceland (Photo: David Ostman 2017)](https://ec.europa.eu/research/energy/index.cfm?pg=area&areaname=renewable_geothermal)

## Source
http://ec.europa.eu/research/energy/index.cfm?pg=area&areaname=renewable_geothermal
(EU Research and Innovation, Geothermal Energy)

## Translations

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## HYDROPOWER

### Definition
Moving water (kinetic energy) is used to produce electricity, referred to as hydropower. Hydropower generation is categorized in relation to the: (i) means of storage, (ii) movement of the water. There are two broad types of hydro-power, run-of the river and reservoir. Reservoir is subdivided into storage reservoir and pumped storage. The energy produced is classified according to their energy production capacity, expressed in megawatts. The two types of hydropower are associated with differ capacities of energy production, described below. Large scale hydropower generation requires water storage provided by natural or man-made lakes or reservoirs, which are dammed to retain and regulate water for later release for power generation for domestic and industrial use. Globally, the hydropower scheme with the largest installed capacity is the Three Gorges Dam, China (22,500 MW), and the largest in Europe is the Iron Gates I, Romania (2,250MW). Small scale hydropower is characterised by the capture of energy in flowing water (run of the river), with an upper limit of 10MW to 30MW depending upon country. The power of the scheme is proportional to the flow and the head: 1. Flow - the minimum amount of water that is constantly available throughout the year, and 2. Head - the vertical distance between the flow intake and the turbine. This definition includes micro hydropower that is considered to be an installation of 300kW or less, depending upon country.

### Related terms
Marine Energy

### Keywords
Hydroelectric, Water energy

### Source
http29: [www.small-hydro.com/about/small-scale-hydropower.aspx](http://www.small-hydro.com/about/small-scale-hydropower.aspx)
Translations for small and micro hydropower

Bosnia and Herzegovina: Male i mikro hidroelektrane
Bulgarian: Малка и средна хидроцентрала
Croatian: Male i mikro hidroelektrane
Czech: Malá a extrémně malá vodní energie
Danish: Lille og micro vandkraft
Dutch: Kleine en micro waterkracht
Esperanto: Malgrandaj kaj mikro akvoelektrojo
Estonian: Väikehüdroelektrijaamad
Finnish: Pienvesivoima
French: Energie hydraulique de petite et moyenne taille
German: Mini- und Kleinstwasserkraftwerke
Greek: Μικρά Υδροηλεκτρικά
Hebrew: תחנה לייצור אנרגיה הידראולית בינונית וקטן
Hungarian: Kis és mikro vízerőmű
Italian: Mini e micro idroeletrico
Icelandic: Smá- og örvirkjanir
Latvian: Mazā un mikro hidroelektrostacija
Lithuanian: Mažosios ir mikro hidroelektrinės
Montenegrin: Mala i mikro hidroelektrana
Polish: Mała i mikro- elektrownia wodna
Portuguese: Pequenas e micro hidroelétricas
Romanian: Micro- și minihidrocentrale
Russian: Малая и средняя гидроэлектроэнергия
Slovakian: Malé a mikro-vodné elektrárne
Slovenian: Mala in mikro hidroelektrarna
Serbian: Мале хидроелектране
Spanish: Energía hidroeléctrica a pequeña escala
Swedish: Liten och mikro vattenkraft

Translations for Large hydropower

Bosnia and Herzegovina: Velike hidroelektrane
Bulgarian: Голяма хидроцентрала
Croatian: Velike hidroelektrane
Czech: Velká vodní energie
Danish: Større vandkraft (-plant = -centrale)
Esperanto: Grandaj akvoelektrojo
Estonian: Hidroelektrijaam
Finnish: Suurvesivoima
French: Energie hydraulique de grande taille / Grande hydraulique
German: Großwasserkraft
Greek: Μεγάλα υδροηλεκτρικά
Hebrew: תחנה לייצור אנרגיה הידראולית בהיקף גדול
Hungarian: Nagy vízerőmű
Italian: Grandi impianti idroelettrici / Idroelettrico a grande scala
Icelandic: Stórar vatnsaflsvirkjanir
Latvian: Lielā hidroelektrostacija
Lithuanian: Didžiosios hidroelektrinės
Montenegrin: Velika hidroelektrana
Polish: Elektrownia wodna
Portuguese: Grandes hidroelétricas
Romanian: Hidrocentrale
Russian: Крупномасштабная гидроэлектроэнергия
Slovakian: Veľké vodné elektrárne
Slovenian: Velika hidroelektrarna
Serbian: Велике хидроелектране
Spanish: Grandes centrales hidroeléctricas
Swedish: Stor vattenkraft
## MARINE ENERGY

**Definition**
Marine energy is a common term for the energy of oceans, which can be either carried by ocean waves, ocean current, tidal stream and range, run-of-river, salinity and ocean temperature differences. It is also called marine power, ocean energy, ocean power, hydroelectricity, marine and hydrokinetic energy. Due to the proximity of oceans to the most populated locations in the world, oceans have a potential of providing a substantial amount of yet unutilized renewable energy. According to the Ocean Energy Europe (the largest network of ocean energy professionals – utilities, industrialists and research institutes), ocean energy can provide 10% of Europe’s electricity by 2050. For this, the industry foresees to build 100 GW of production capacity.

Wave energy encompasses power from surface waves. The size of the waves generated will depend upon the wind speed, its duration, and the distance of water over which it blows (the fetch), bathymetry of the seafloor (which can focus or disperse the energy of the waves) and currents. The movement of water carries kinetic energy, which can be harnessed by wave energy devices. The optimal resources for the wave energy are in the offshore waters where waves are formed by the strong winds that have travelled long distances.

Tidal energy is energy harnessed from the kinetic energy of large bodies of moving water. Tidal streams causing this energy are formed due to the constantly changing gravitation pull of the moon and sun on the oceans. It is a constant movement, which can be due to the relative positions of the sun and moon predicted with perfect accuracy. The best areas for tidal stream exhaustion are areas with a good tidal range or in the in narrow straits and inlets, around headlands, and in channels between islands where the speed of the currents are empowered due to the geomorphological funnelling effect.

**Related terms**
Hydropower, Wind energy

**Keywords**
Renewable energy
**Figure 24. Wave resource distribution in Europe**

(Source: http://www.emec.org.uk/marine-energy/ (The European Marine Energy Centre) 2017)

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Bulgarian: Енергия от морето
Croatian: Energija valova
Czech: Morská energie
Danish: Havenergi (energy på havet)
Dutch: Maritieme energie
Esperanto: Energio de maro
Estonian: Mereenergia
Finnish: Aaltovoima
French: Energie marine
German: Marine Energie
Greek: Ενέργεια των Θαλασσών
Hebrew: יניב ים ונהר

Hungarian: Tengeri energia
Italian: Energia marina
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Slovakian: Morská energia
Slovenian: Energija morja
Serbian: Енергија таласа и морских струја
Spanish: Energía maremotriz
Swedish: Marin energi
**PHOTOVOLTAIC**

**Definition**
Photovoltaic technology is the means to convert the sun’s radiation directly into electricity by solar cells. These cells are made of semiconducting materials similar to those used in computer chips. When sunlight is absorbed by these materials, the solar energy knocks electrons loose from their atoms, allowing the electrons to flow through the material to produce electricity. This process of converting light (photons) to electricity (voltage) is called the photovoltaic effect. Photovoltaic modules are connected in series and in parallels. The modules mostly have a frame, and the supporting structures are usually built out of galvanized steel or aluminium. The structures are attached to the ground via a foundation. Most of the time this type of systems are grid connected. We distinguish between two types of photovoltaics:

a) On/in building-mounted photovoltaic
b) On ground-mounted photovoltaic

To a): Photovoltaic modules connected in series and in parallel that are mounted onto or into the building’s envelope, also called building added on photovoltaics (BAPV), or building attached photovoltaics-BAPV. Such photovoltaics do not use additional land area not included within the building’s footprint neither do they have any building’s function.

In the case of in buildings systems (so-called building integrated photovoltaics-BIPV) the photovoltaic modules replace conventional buildings’ technological units; therefore photovoltaic components, suited for building integration have to be used to fulfil a number of functions, e.g. mechanical and thermal, standard photovoltaic modules cannot meet.

To b): The majority of the solar power installed today, is ground-mounted. Based on some solar capture optimization rules, the modules have generally a fixed orientation (normally South facing in the Northern hemisphere), and they are tilted to an optimal angle in order to maximize solar utilization. The distance between the rows of modules is designed so as to avoid shading effects while maximising the use of the available land.

There is no consensus on the size of an on ground PV system to be defined “utility scale” or “large”. The nominal power of on ground PV systems varies greatly, from a few kWp up to hundreds of MWp.

In some countries, the authorization procedure for on ground PV systems is related to the size. In Italy, for example, a simplified procedure exists for systems smaller than 1MWp, whereas for systems larger than 1MWp, the environmental impact assessment procedure is required.

**Related terms**
Solar thermal, Solar thermoelectric

**Keywords**
Building Integrated Photovoltaics, Building Added Photovoltaics, Building Attached Photovoltaics
Photovoltaic’s definition continues.

**Figure 25a.** Type a) Roof integrated photovoltaics, Tablà in Selva di Cadore (IT), designed by Exit. Special BIPV opaque components (modules + framing system) replace the traditional wooden tiles of the roof. (Photo: courtesy of Exit)

**Figure 25b.** Type a) Roof integrated photovoltaics. Glass-glass PV modules can be used in replacement of standard glazed surfaces (facades, roofs, skylights) in building’s envelopes, coupled with standard framing systems. (Photo: courtesy of Ertex Solar)

**Figure 25c.** Type b) Waldpolenz solarpark (40MW), Leipzig (DE). This PV system is a typical example of a large scale PV; it is built on a former military area. The modules are arranged in a parallel stripes pattern, are E-W oriented, and face the South with an optimal tilt inclination of about 30°. (Photo: Juwi Solar GmbH)

**Figure 25d.** Type b) Agrinergie® (2.1 MWp), La Reunion (FR). It combines energy generation from PV and lemon grass production. This dual land use design pattern enabled the developers to get the approval for the realization of a system, since in French overseas islands it is not allowed to build on ground PV, because of land and landscape protection rules. (Photo: Akuo Energy)
### Translations: Solar PV ground-mounted power

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### Translations: Solar PV on-roof power

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SOLAR THERMAL

Definition
Solar energy utilization is used in applications associated with covering the heating and/or cooling requirements of buildings. These applications require low or medium temperature heat and include water heating, for either domestic hot water systems or swimming pools, space heating, and possibly also for space cooling. The main component is the solar thermal collector. The collector typically consists of a black absorber in which the absorbed solar radiation is converted to heat, which in turn is conducted to a fluid. The back and sides of the absorber are insulated and the front side is covered by a transparent cover that allows solar radiation to reach the absorber but reduces heat losses to the atmosphere. All the above, are encased in a metal housing that provides weather protection and offers structural support. Storage tanks are used to store heat in order to cover the loads when solar potential is low. The systems can be of two types:

a) In/on building-mounted solar thermal
b) On ground-mounted solar thermal

To a) In/on building-mounted solar heating systems for hot water production for sanitary use are the most common ones. Typical systems consist mainly of flat plate solar collectors, a storage tank, a mounding base and the necessary piping. Average annual system efficiency for the conversion of solar radiation to energy in form of hot water varies between 30–40%, depending mainly on the type of solar collector used and the location. Larger systems can be used in order to cover space heating needs or/and air conditioning of buildings.

To b) The technical principles of the on ground-mounted solar thermal are the same as under a), but the number of units requires a larger solar field that cannot be accommodated on the roof of buildings.

Related terms
Photovoltaic, Thermoelectric

Keywords
Domestic solar thermal systems, Hot water, Roof-top solar, Solar combi systems, Solar energy, Sun energy

Source
| Translations: Solar thermal ground-mounted power | Hungarian: Földre telepített napkollektor  
Italian: Impianto solare termico a terra  
Icelandic: Sólarhitasöfnarkerfi á jórdu  
Latvian: Saules termālās panelās uz zemes  
Lithuanian: Antžeminės saulės šiluminės jėgainės  
Montenegrin: Solarne termalne elektrane na zemljištu  
Polish: Naziemne panele słoneczne  
Portuguese: Termoelétrica solar no solo  
Romanian: Energie termică solară terestră  
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Slovenian: Sončne termalne naprave na tleh  
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Danish: Solvarme jordmonteret  
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Slovenian: Sončne termalne strešne naprave  
Serbian: Соларне термоелектране - кровне  
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Swedish: Sol termisk takmonterad kraft |
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Swedish: Sol termisk takmonterad kraft |
## SOLAR THERMOELECTRIC

### Definition
Solar thermoelectric (concentrated) power systems use a large array of mirrors and/or lenses to concentrate the sun’s energy onto a focal point. In this way they transform the direct components of solar radiation into heat energy at high temperature. This heat energy is then converted into electricity for immediate use, and in some cases into energy that can be stored in the form of heat or in chemical form. There are currently four types of thermosolar technology of particular note because of their high degree of technological development: parabolic troughs, solar power towers, linear Fresnel concentrators and Stirling parabolic dishes. Each of these technologies has certain specific characteristics that help create different kinds of thermoelectric solar landscapes, although all these landscapes have a set of common features.

### Related terms
Solar thermal, Photovoltaic

### Keywords:
- Sun energy
- Lenses
- Heat energy
- Concentrated solar power (CSP)
- Concentrated solar thermal power
- Industrial landscape
- Agroindustrial landscapes

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![Figure 27. Solucar PS10 is the first solar thermal power plant in the world that generates electricity with this technique in a commercial way, near Seville, Spain (Photo: Naja Marot 2017)](image)

Source

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**SUSTAINABLE RENEWABLE ENERGY PRODUCTION**

**Definition**
The production of renewable energy in line with the principles of sustainability. Economic sustainability encompasses the price of renewable energy production at sustainable levels, and efficient processes characterized by lower process requirements, capital and operating costs. Social sustainability concerns social acceptance, energy democratization, and equality access to energy. Environmental sustainability includes an assessment of the full environmental footprint of the renewable energy production (e.g. Life Cycle Assessment; Environment Impact Assessment). It also addresses land use requirements and whether renewable energy production is in competition with food production, habitats and biodiversity, or water supply and quality. Cultural sustainability should conform to local cultural values and not adversely impact on cultural landscapes and heritage.

**Related terms**
Life Cycle Analysis, Environmental Impact Assessment, Social Impact Assessment

**Keywords**
Sustainable development

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![Figure 28. Sustainable Renewable Energy Production (Photo & Montage: Pia Otte 2016)](image)

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<td>Polish: Zrównoważona produkcja energii ze źródeł odnawialnych</td>
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<td>Russian: Производство возобновляемой энергии</td>
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# WIND ENERGY

## Definition
Wind power refers to the extraction of kinetic energy from the wind to generate electricity. In early 2017, the total installed capacity reached 153.7GW, placing wind energy as the second largest form of power generation capacity in Europe.

Wind energy generation is categorized by the type of wind turbine (horizontal or vertical axis), and the on- or off-shore location of the turbines. The predominant use is of horizontal axis turbines, with vertical axis turbines more commonly used in urban or built environments.

(a) Onshore wind energy generation is land-based with developments ranging in the size (height of tower and diameter of rotor blades) and the number of turbines. Energy capacity of turbines (currently) range up to 3.6MW, with a rotor diameter of 130m. Developments may be classified as small, medium or large scale the definitions of which vary by country.

(b) Offshore wind energy generation is marine, sea or lake, typically employing turbines of a larger capacity than onshore, with capacity up to 8MW, and a rotor diameter of 164m.

## Related terms
Energy landscape, Visual impact, Visual impact assessment, Marine energy

## Keywords
Wind farm, Wind park, Wind turbine

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**Figure 29a.** Onshore wind farm near Diepholz, Germany, with the currently world's highest performing onshore wind turbine, i.e. the Enercon-126, with a hub height of 135m (443 ft), rotor diameter of 126m (413 ft)  
(Photo: Olaf Schrot 2015)

**Figure 29b.** Offshore wind production in Wirral Penninsula – West Kirby, Wales, United Kingdom  
(Photo: Elsie Roulston 2016)

**Figure 29c.** Old and new wind power use in Terras Altas de Fafe, Portugal (Photo: Filipa Soares 2013)

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**Source**
http://ec.europa.eu/research/energy/index.cfm?pg=area&areaname=renewable_wind
http://windeurope.org/about-wind/statistics/
## Translations: Wind onshore energy

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## Translations: Wind offshore energy

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BEST PRACTICE

Definition
In a general sense, best practice (also used good practice) is an approach that, through scientific evidence and practical experience, showing processes and outcomes, which are superior to those achieved by other means, and which are used as models and recommendations for others.

In order to speak about best practice, it is necessary to define the parameters, why and how an example can be a best one. E.g. in the context of waste prevention, the European Commission has given the following benchmarks:

“Practices have been selected to demonstrate excellent examples of informational, promotional and regulatory measures to stimulate the prevention of waste. They were selected in consideration of the following criteria:

- Targeted: Practices have a strong waste prevention focus, clearly distinct from other waste management strategies or broad environmental goals.
- Innovative: Practices use original or resourceful techniques for waste prevention.
- Replicable: Practices can be easily reproduced and are similarly relevant in regions across Europe.
- Representative: Practices originate from a wide range of countries, operate at national, regional and local level, and target a variety of waste streams.
- Effective: Practices have clearly defined objectives and measurable results.

Best practice in the context of renewable energy development and landscape quality can be defined as the process and outcome of the production of renewable energy with minimal negative impact on people and at all stages of its life cycle (including planning, and the extraction, manufacturing, transport, and construction of the site, its operation and decommissioning). Furthermore, they have to be compatible with the landscape (as well with its character), and preventing or minimizing potential negative impacts on people and ecosystems.

In the COST action RELY best practice of renewable energy development is understood with respect to the elements underpinning landscape quality.

Related terms
Ecological engineering, Energy-conscious design, Environmental Impact Assessment

Keywords
Achievement, Evidence, Landscape compatible, Model case, Smart practice experience

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**Figure 30a.** The ‘Floating’ solar power plant in Kagoshima Bay, Japan can be considered as a good example for saving space. The panels over water have a cooler temperature which makes them more efficient. Finally the blue colour of the panels matches with the blue of the water, hence the panels do not disturb aesthetically. (Photo: © KYOCERA Corporation)

**Figure 30b.** PV-Panels in parallel to the airstrip of Athens Airport. This can be considered as best practice as the installation respect at best the already given rectangular layout of infrastructure and agriculture. (Photos: Alexandra Kruse 2017)
**Source**
Definition developed by COST RELY Action.

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CULTURAL MAPPING

Definition
It is exploration of the complexity of local meanings of place through engagement with people and artistic practices, often combined with other sources of data. Aims at identifying local cultural resources supported by the communities, including landscape and cultural heritage. Usually forming a crucial part of the cultural planning process and has been recognized by UNESCO as a crucial tool and technique in preserving the world's intangible and tangible cultural assets. It encompasses a wide range of techniques and activities from community-based participatory data collection and management to sophisticated mapping using GIS (Geographic Information Systems).
In the context of COST RELY, cultural mapping might be considered during planning processes for renewable energy facilities.

Related terms
Cultural planning

Keywords
Cultural diversity, Cultural landscape mapping, Cultural resource mapping, GIS, participation

Sources
http39: http://www.unescobkk.org/culture/tools-and-resources/tools-for-safeguarding-culture/culturalmapping/

Translations
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CULTURAL PLANNING

Definition
It is strategic and iterative planning process of a locality, based on wide participation and cross-sectoral and building on the definition of culture as a way of life. Aims at collaborative and culturally sensitive planning, sustainable use and development of cultural resources and empowerment of local communities.

In comparison with the term cultural mapping, cultural planning is a public process in which representatives of a community undertake a comprehensive community assessment and create a plan of the cultural assets existing in their locality. Cultural planning is a process of inclusive community consultation and decision-making that helps local governments to identify cultural resources and to think strategically about how these resources can help a community to achieve its civic goals. In addition, it is a strategic approach that integrates the community’s cultural resources into a wide range of local government planning activities.

Related terms
Cultural mapping

Keywords
Creative cities, Cultural resources planning, Urban planning

Figure 32. The Elements to consider during cultural planning (Source: http40)

Sources
### Translations

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# ECOLOGICAL ENGINEERING

## Definition
I is the design of sustainable ecosystems that integrate society with its natural environment for the mutual benefit of humans and nature. It is a recent branch of engineering that has developed with two goals:
1. The restoration of ecosystems that have been significantly disturbed by human activities (e.g. pollution); and
2. The development of new sustainable ecosystems that allow human activities.

The term has been introduced in connection with the restoration of rivers and other water bodies. In relation to Renewable Energy it can refer to shaping and forming the landscape to perform an engineering or RE function.

## Related terms
Energy-conscious design

## Keywords
Ecosystem based adaptation, Eco-technology, Ground-bioengineering, Environmental planning, Restoration

![Figure 33. Ecological Engineering within the climate change and hazard framework](Source: Cheong et al. 2013)

## Sources
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<td>Swedish: Miljöteknik</td>
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ENERGY-CONSCIOUS DESIGN

Definition
Energy-conscious design and planning refers to the inclusion of energy, embodied-energy and energy efficiency in the planning and design of the built environment. It is relevant to design and planning at different scales, reaching from individual buildings to the regional scale. The term refers to the ongoing transition towards a low-carbon energy future that is pursued through the increase of energy efficiency as well as the increase in renewable energy sources. Strategies for sustainable energy transition have implications for environmental design. Energy-conscious design can be considered as part of ecological engineering but it also bridges the gap between ecological engineering (mainly in rural/natural surrounding/infrastructure context) and energy efficiency (mainly urban/man-made/building context).

Related terms
Ecological engineering

Keywords
Ecological design, Embodied-energy, Energy-efficient landscaping, Environmental design

Sources
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<th>Italian: Progettazione energeticamente consapevole</th>
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<td>Latvian: Energo-efektīvs dizains</td>
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<td>Croatian: Projekt u skladu s očuvanjem energije</td>
<td>Lithuanian: Eko-energetinis projektavimas</td>
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<td>Danish: Energiebewustontwerp</td>
<td>Montenegrin: Dizajn koji uvažava pitanje energije</td>
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<td>Portuguese: Design que tem em consideração questões energéticas</td>
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<td>Spanish: Diseño ecoeficiente</td>
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<td>Swedish: Energimevedveten design</td>
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ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Definition
An Environmental Impact Assessment is a procedure evaluating the effects on the environment of an infrastructure project. The aim is to ensure that plans, programmes, and projects likely to have significant effects on the environment are made subject to an environmental assessment, prior to their approval or authorisation. Consultation with the public is a key feature of environmental assessment procedures.

Within the European Union, the Directive 2011/92/EU Environmental assessment regulates the EIA for individual projects, such as a dam, motorway, airport or factory, and the Directive 2001/42/EC (known as 'Strategic Environmental Assessment' – SEA Directive) regulates the assessment for public plans or programmes.

Landscape impacts are the impacts or effects on the ‘landscape in its own right’ (LI and IEMA 2013). Renewable energy landscape impacts use the methodologies of EIAs in the planning and assessment of proposed renewable energy production systems.

Related terms:
Strategic Environmental Assessment, Visual Impact Assessment

Keywords
Environmental factors, Environmental law, Renewable energy, Landscape impact, Sustainable development

Figure 35. Procedure of Environmental Impact Assessment (Source: http44)

Sources
http45: http://ec.europa.eu/environment/eia/home.htm
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<td>Portuguese: Avaliação de Impacte Ambiental</td>
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<td>Finnish: Ympäristövaikutusten arviointi</td>
<td>Romanian: Studiu de impact asupra mediului</td>
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<td>French: Étude de l’impact sur l’environnement / évaluation environnementale</td>
<td>Russian: Экологическая Оценка</td>
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<td>German: Umweltverträglichkeitsprüfung</td>
<td>Slovakian: Posudzovanie vplygov na životné prostredie</td>
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<td>Greek: Ανάλυση Περιβαλλοντικής επιβάρυνσης</td>
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<td>Hebrew: תסקור השפעת על הסביבה</td>
<td>Serbian: Процена утицаја на животну средину</td>
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<tr>
<td>Spanish: Evaluación de impacto ambiental</td>
<td>Swedish: miljökonsekvensbedömning</td>
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</table>
LANDSCAPE ASSESSMENT

Definition
The purpose of landscape assessment in landscape planning is to support the identification of landscape values, development opportunities and management options. It is a broad term referring to various assessment types that may be classified by their objective as resource (opportunities for specific uses), capacity (constraints for specific uses) and other (not necessarily planning orientated) assessments (e.g. formal aesthetic, character, ecological assessments). Assessments can take account of quantitative and qualitative (descriptive or depictive) factors.

Related terms
Environmental Impact Assessments, Landscape capacity, Landscape character, Social Impact Assessment, Visual assessment

Keywords
Landscape quality, Renewable Energy systems, Landscape identity

Figure 36. Maps showing the relationship between landscape and sites of special scientific interest, protection areas, ancient monuments, visual envelopes, etc.
(Source: Diagram from Stonehaven South LVIA, UK © David Wilson Associates)

Source
Definition developed by COST RELY Action.
<table>
<thead>
<tr>
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<td>Studija utjecaja na krajolik</td>
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<td>Landskabsvurdering</td>
<td>Montenegrin: Procjena pejzaža</td>
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<td>Landschappelijke beoordeling</td>
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<td>Pritakso de pejzaĝo</td>
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<td>Maisema-arviointi</td>
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<td>Evaluation du paysage</td>
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<td>Hungarian:</td>
<td>Tájértékelés</td>
<td>Swedish: Landskap bedömning</td>
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LANDSCAPE GOVERNANCE

Definition
Landscape governance is the process of goal-oriented formulation, coordination, management and decision-making about utilisation and protection of landscape involving governmental and non-governmental actors (general public, NGOs, private sector etc.).

The trend is of reducing responsibility of the state government for public spaces or common land, progressive decentralization of decision-making regarding landscape issues, transparency and citizen participation (bottom-up decision-making). This is consistent with Art. 6 para. D of the European Landscape Convention, “Each Party undertakes to define landscape quality objectives for the landscapes identified and assessed, after public consultation in accordance with Article 5.c.”

The European Landscape Convention provides a framework for landscape governance, implementing subsidiarity, defining principles and concepts, promoting citizen participation and co-operation at different administrative levels, without imposing specific rules and methodologies.

Related terms
Planning process, Public participation, Public participation processes and tools

Keywords
Decision-making, Landscape planning, Landscape policy, Landscape protection, Landscape quality

Figure 37. Landscape governance: interactions between natural and social-political aspects
(Source: Opdam et al. 2016)

Sources


<table>
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LIFE CYCLE ANALYSIS (LCA)

Definition
Life Cycle Analysis (also called Life Cycle Assessment) is a technique to assess environmental impacts associated with all the stages of an asset’s life, from cradle to grave, from raw material extraction, materials processing, manufacture, distribution, use and landscape context, repair and maintenance, and disposal or recycling.

LCA provides a wider consideration of environmental issues by:
- Compiling an inventory of relevant energy and material inputs, and environmental gains and losses;
- Evaluating the potential impacts associated with identified inputs and losses;
- Interpreting the results to help make a more informed decision.

Examples of relevance to COST RELY are: (i) the timescale required to balance the energy to produce photovoltaic systems and the energy saved through their use; (ii) assessing the carbon budgets of wind farms on peatlands.

Related terms
Sustainable renewable energy production, Energy conscious design, Environmental Impact Assessment

Keywords
Ecobalance, Amortization, Energy production, Energy recovery

Sources

<table>
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<th>Translations</th>
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<th>Bulgarian: Анализ на жизнения цикъл</th>
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</table>

| Italian:     | Analisi del ciclo di vita                     |                                      |
| Icelandic:   | Vistferilsgreining                            |                                      |
| Latvian:     | Dzīves cikla analīze                          |                                      |
| Lithuanian:  | Gyvavimo ciklo analizė                        |                                      |
| Montenegrin: | Analiza životnog ciklusa                      |                                      |
| Polish:      | Analiza cyklu życia                            |                                      |
| Portuguese:  | Análise de ciclo de vida                      |                                      |
| Romanian:    | Analiza ciclului de viață                    |                                      |
| Russian:     | Анализ жизненного цикла                      |                                      |
| Slovakian:   | Analýza životného cyklu                      |                                      |
| Slovenian:   | Konflikt med rabami zemljišč                 |                                      |
| Serbian:     | Analiza животног циклуса                     |                                      |
| Spanish:     | Análisis de ciclos de vida                    |                                      |
| Swedish:     | Livscykelanalys                               |                                      |
PLANNING PROCESS

Definition
A planning process, also called a planning procedure, is a legal framework by which a plan is developed from a start to its completion. It is defined in relevant national legislation. Such a process has a number of stages, depending on the type of plan (e.g. urban, environmental), scale (e.g. strategic, detailed), legal requirements for public participation (e.g. frequency and types of public consultation, public integration, types of stakeholders), assessment requirements (e.g. strategic environmental assessment), and stages at which administrative approval is required (e.g. ministerial or departmental).

Related terms
Public participation, Public participation procedure, Stakeholder, Strategic Environmental Assessment

Keywords
Legal framework

Figure 39. Scheme of the planning process in Latvia according to the COMMIN glossary

(Source: http48)

Source
Definition developed by COST RELY Action.
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**PUBLIC PARTICIPATION**

**Definition**
It is a process that directly engages the public in decision-making and gives full consideration to public input in making that decision. The level and nature of participation is usually described in terms of the openness of the process to the public, explained with respect to typologies such as eight-level scale of Arnstein (1969), Figure 39a, or five-level scale of the International Association of Public Participation (2017), Figure 39b.

Public: One or more natural or legal persons, and, in accordance with national legislation or practice, their associations, organisations or groups.

The public concerned: The public affected or likely to be affected by, or have an interest in, the environmental decision-making; for the purposes of this definition, non-governmental organizations promoting environmental protection and meeting any requirements under national law shall be deemed to have an interest.

**Related terms**
Landscape governance, Land use conflicts, Public participation process, Scenario techniques, Stakeholder

**Keywords**
Community involvement, Ladder of participation, Public involvement, Stakeholder involvement

**Sources**
http50: www.epa.gov/international-cooperation/public-participation-guide-introduction-public-participation
http52: https://www.iap2.org/?page=pillars
## Translations

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<thead>
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<td>Italian: Partecipazione pubblica</td>
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</table>
**PUBLIC PARTICIPATION PROCESS**

**Definition**
Public participation process is a cycle or iterative process for stakeholders’ engagement in decision-making. It usually comprises several phases which can be repeated: (i) a contextual (social and territorial) appraisal; (ii) participatory situation analysis; (iii) discussion and development of action plans (alternative or future plans). These phases can involve one or more stakeholder groups (generally as collective actions but possibly as individuals), operating in parallel or consecutively.

The following techniques can be used to facilitate public participation: sociograms (social maps), discussion groups, SWOT analysis, semi-structured interviews, life stories, participatory mapping and visualisation, future scenario development, and participation stairway.

**Related terms**
Landscape governance, Land use conflict, Planning process, Public participation, Scenario technique, Stakeholder

**Keywords**
Public consultation process, Public engagement process

---

**DAY 1 – SESSION 4  16.00 – 17.30**

**TIMELINES AND ORGANISATION OF STAKEHOLDER DIALOGUE**

*Figure 41a. Stakeholder dialog, including different steps and means with timeline*  
(Source: COMUS – 1st Stakeholder Workshop in Regensburg/Germany, presented by Philip Stein 2015)
Figure 41b. Often public participation is restricted to one/several public presentation of plans. Public hearing in Heiligenblut (Austria) during the World Heritage nomination process of the Großglockner High Alpine road. (Photo: Alexandra Kruse 2016)

Figure 41c. Public participation should be more active and shall start early, like in this example from the James Hutton Institute (UK): Identifying benefits from the land, annotating aerial photographs, Aboyne, Aberdeenshire/UK (Photo: David Miller)

Figure 41d. (on your left) Participation uses different technical means – with respect to the (envisaged) audience. Young people voting on benefits associated with different land users in Aboyne, Aberdeenshire/UK. (Photo: David Miller)

Sources

Translations
Bosnia and Herzegovina: Proces građanske participacije/Sudjelovanje javnosti
Bulgarian: Процес на участие на обществото
Croatian: Sudjelovanje Javnosti
Czech: Proces zapojení veřejnosti
Danish: Borgerindragselserprocess
Dutch: Publieks participatie
Esperanto: Procezo de publika partopreno
Estonian: Avalikkuse kaasamine
Finnish: Osallistamisprosessi
French: Processus de participation publique
German: Öffentlickeitsbeteiligung
Greek: Διαδικασία δημόσιας διαβούλευσης
Hebrew: בוחן יחקו הליך
Hungarian: Közösségi részvétel
Italian: Processo di partecipazione pubblica
Icelandic: Bátttaka almenningar
Latvian: Sabiedrības līdzdalības process
Lithuanian: Visuomenės dalyvavimo procesas
Montenegrin: Proces učešća javnosti
Polish: Proces partyjacji społecznej
Portuguese: Processo de participação pública
Romanian: Proces de participare publică
Russian: Процесс участия общества
Slovakian: Proces účasti verejnosti
Slovenian: Postopek sodelovanja javnosti
Spanish: Proceso de participación pública
Swedish: Allmänhetens deltagande
RENEWABLE ENERGY POLICY DOCUMENTS

Definition
Policy documents on local, regional, national and transnational level referring to the use of renewable energy are the following major policies on EU level:

- Energy 2020: A strategy for competitive, sustainable and secure energy,
- Renewable Energy Directive (2009/28/EC), and
- Directive to reduce indirect land use change for biofuels and bio liquids (EU 2015/1513).

According to these policies, EU countries should together reach a binding target of 20% final energy consumption from renewable sources by 2020. In order to do so they have committed themselves to their own targets ranging from 10% in Malta to 49% in Sweden. Additionally, they are required to reach at least 10% of their transport fuel comes from renewable sources by 2020.

On the national level countries adopt national renewable energy strategies/operational programmes/action plans presenting their objectives and measures to implement to meet the targets. These plans include sectorial targets for electricity, heating and cooling, and transport; planned policy measures; the different mix of renewables technologies they expect to employ; and the planned use of cooperation mechanisms.

On the lower administrative levels, regions can adopt regional energy plans, and on the local level local communities can prepare local energy concept.

Local energy concept (LEC), called as well (local) sustainable energy plan, assesses opportunities and proposes solutions for the energy supply of the local community, taking into account the long-term development of the local community in various fields and existing energy capacity. Local energy concepts are designed to raise awareness of energy consumers, to prepare measures in the field of energy efficiency, and to introduce new energy solutions. They include an analysis of the current situation in the field of energy use and energy supply. LEC examines the possibility of using local renewable energy sources, which increase the security of supply of heat and electricity in the local community. The proposed projects simultaneously bring the reduction of emissions and environmental pollution. Local energy concept includes an Action Plan (where projects are economically evaluated) and a schedule.

Related terms
Planning process

Keywords
Policy making, Sustainable energy, Renewable energy, Local authority
Glossary on renewable energy and landscape quality – The glossary

Sources
http://www.lea-ptauj.si/en/services/local-energy-concept/

Translations
Bosnia and Herzegovina: Zakonska regulativa u vezi obnovljivih izvora energije
Bulgarian: Политически документ за възобновяема енергия
Croatian: Regulativa iz obnovljivih izvora energije
Czech: Politické dokumenty týkající se obnovitelných zdrojů
Danish: Vedvarende energi politisk document
Dutch: Beleidsdocumenten
Esperanto: Dokumentoj politikaj pri produktado de renovigebla energio
Estonian: Taastuvenergia-alane seadusandlus
Finnish: Uusiutuvan energian politiikka-aineistot
French: Documents politiques sur l’Énergie renouvelable
German: Positionspapier zu Erneuerbaren Energien
Greek: Κείμενα πολιτικής για τις ΑΠΕ
Hebrew: מדגיש תרבות עם דימוי פרספקטיבה
Hungarian: Megújulóenergia-irányelv dokumetumai
Italian: Documenti di indirizzo per l'energia rinnovabile
Icelandic: Stefnuskjöl um endurnýjanlega orku
Latvian: Atjaunīgās enerģijas (AE) politikas dokumenti
Lithuanian: Atsinaujinančios energetikos teisės aktai
Montenegrin: Zakonska regulativa o obnovljivim izvorima energije
Polish: Dokumenty polityki źródeł odnawialnych
Portuguese: Documentos de orientação política para Energia Renovável
Romanian: Documente politice privind energia regenerabilă
Russian: Документы по политике использования возобновляемых источников энергии
Slovakian: Politické dokumenty o obnoviteľných zdrojoch energie
Slovenian: Dokumenti politik za obnovljive vire energije
Serbian: Законска регулатива у вези обновљивих извора енергије
Spanish: Normativa sobre energías renovables
Swedish: energipolicy
**SCENARIO TECHNIQUES**

**Definition**
A scenario as a plausible description of how the future may develop based on a coherent and internally consistent set of assumptions about key relationships and driving forces. Scenarios enable: (i) the envisioning of future pathways and accounting for critical uncertainties; (ii) addressing real-world questions for which the future is subject to human actions and choices and not preordained. The objective is to encourage people to consider and discuss alternative futures. The focus is on the internal consistency of the scenario storyline rather than on their likelihood of coming true. In COST RELY, pathways and choices relate to the development of renewable energy systems in different landscape settings.

A range of techniques may be employed in development of scenarios. Two broad approaches are defined:

1. Non-participatory: Non-participatory scenario development usually involves a model with some kind of exploratory or predictive capacity which is projected forward to a future date, usually after calibration against historical (observed) data. The output of various climate models under Intergovernmental Panel on Climate Change (IPCC) scenarios is a good example of this technique. It is non-participatory in the sense that it uses only data collected by researchers, and participatory processes are not formally used for information gathering or scenario construction.

2. Participatory: Participatory scenario development differs from the above in that scenarios are constructed by, or based on information supplied by stakeholders engaged in some kind of participatory process. For example, the European Environment Agency PRELUDE project (2004-2005) engaged stakeholders from multiple backgrounds from across Europe to create five scenarios for a Europe affected by changing patterns of land use, climate change, agriculture and demographics. In Spain, local stakeholders developed four “Ecofuture” scenarios for the threatened Doñana natural area in the year 2035 under an ecosystem services approach. They then illustrated the scenarios on posters using a range of materials, like press and magazine cuttings. A Follow-up project mapped these scenarios inside a land use model.

**Related terms**
Landscape Governance, Public participation, Planning process, Public participation process

**Keywords**
Participatory scenario planning, Future scenarios, Scenario modelling, Strategy formulation

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*Figure 43a. Scenarios of alternative development pathways for land use. Developed from the UKCIP/Foresight socioeconomic scenarios (Source: Brown and Castellazzi 2014)*

*Figure 43b. Scenario technique (Source: Schroth 2010)*
Figure 43c. Workshop participants in Doñana, Spain locating hypothesized land use change under EcoFuture scenario “Trademark Doñana” (Photo: Verónica Hernández Jiménez 2012)

Sources

Translations
Bosnia and Herzegovina: Tehnike scenarija
Bulgarian: Техника на сценария
Croatian: Scenariji
Czech: Technika scénáře
Danish: Scenario teknik
Dutch: Scenario-technieken
Esperanto: Tekniko de scenaro
Estonian: Stsenariium / tulevikuväljavaade
Finnish: Skenaariotekniikka
French: Scénario technique
German: Szenario Methode
Greek: Σημαδιό
Hebrew: תרשים פוכדות
Hungarian: Szenáriók technika

Italian: Tecnica di scenario
Icelandic: Sviðsmyndagreining
Latvian: Scenāriju tehnika
Lithuanian: Scenarijai
Polish: Technika scenariuszy
Portuguese: Metodologia de cenário
Romanian: Tehnica scenariului
Russian: Технический сценарий
Slovakian: Technika scenára
Slovenian: Orodja in tehnike sodelovanja javnosti
Serbian: Технике сценарија
Spanish: Escenarios técnicos
Swedish: Scenarioteknik
SOCIAL IMPACT ASSESSMENT (SIA)

Definition
It is a process of analysing, monitoring and managing the intended and unintended social consequences (either positive or negative) of planned interventions (policies, programmes, plans, projects) and/or any social change processes invoked by those interventions. Its primary purpose is to create a more sustainable and equitable biophysical and human environment.

Related terms
Environmental Impact Assessment, Landscape governance, Landscape assessment

Keywords
Interventions, Social consequences, Sustainability

Figure 44. Social Impact Assessment: Due to mining of lignite the medieval city of Most in Western-Bohemia was demolished in 1960s and a new city made of prefab houses was built (Photo: Stanislav Martinat 2013)

Source

Translations
Bosnia and Herzegovina: Translation not provided
Bulgarian: Оценка за социалното въздействие
Croatian: Procjena utjecaja na društvo
Czech: Hodnocení dopadu na společnost
Danish: Social konsekvensanalyse
Dutch: Sociale effectstudie (no Dutch instrument)
Esperanto: Takso de socia efiko
Estonian: Sotsiaalsete mõjude hindamine
Finnish: ‘Sosiaalisten vaikutusten arviointi
French: Etude de l’impact social
German: Sozialverträglichkeitsprüfung
Greek: Ανάλυση κοινωνικών επιπτώσεων
Hebrew: תרמית השפעת חברתי
Hungarian: Szociális hatás vizsgálata

Italian: Valutazione di impatto sociale
Icelandic: Mat á samfélagsáhrifum
Latvian: Sociālās ietekmes novērtējums
Lithuanian: Socialinio poveikio vertinimas
Montenegrin: Procjena socioloških uticaja
Polish: Ocena wpływu społecznego
Portuguese: Avaliação de Impacto Social
Romanian: Evaluarea impactului social
Russian: Оценка социального воздействия
Slovakian: Posudzovanie sociálneho vplyvu
Slovenian: Presoja vplivov na družbo
Serbian: Процена социолошких утицаја
Spanish: Evaluación del impacto social
Swedish: Social konsekvensanalys
# STAKEHOLDER

**Definition**
A stakeholder is an individual, a group of individuals, a company or an institution that has a stake in a plan, project or any other planning related matter. A stakeholder can be either public (e.g. planning department of the local community) or private (e.g. construction company). The stake can be defined according to the property (e.g. ownership of the land), spatial proximity (e.g. neighbouring parcel), development interest (e.g. investment companies), political interest or values and principles (e.g. engagement of NGO’s in the planning process). Stakeholders are defined with the method of stakeholders’ mapping.

**Related terms**
Planning process, Public participation, Public participation process

**Keywords**
Public participation, Policy making, Bottom-up decision making process

![Diagram of stakeholders' representation and their power in local spatial development](Source: Marot 2010)

**Source**
Developed by COST RELY Action.

**Translations**
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Figure 45. Example of the stakeholders’ representation and their power in the local spatial development (Source: Marot 2010)
STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

Definition
According to Organisation for Economic Co-operation and Development (OECD) Strategic Environmental Assessment (SEA) is defined as analytical and participatory approach to strategic decision-making that aims at integrating environmental considerations into policies, plans and programmes and evaluates the inter linkages with economic and social considerations. It involves stating objectives of the policies, plans and programmes (PPP), describing the baseline environment, predicting the likely environmental impacts of the PPP (and of alternatives), and proposing ways of mitigating these impacts. It is generally carried out by (or for) the PPP proponent, with consultation of other relevant agencies.

According to the EU directive on SEA, a SEA is mandatory for plans and programs which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste/water management, telecommunications, tourism, town & country planning or land use and which set the framework for future development consent of projects listed in the EIA Directive, or have been determined to require an assessment under the Habitats Directive. Video introduction to EU SEA is available here: http://ec.europa.eu/environment/temp/SEA_protocol_v5_ENG.mp4.

Related Terms
Environmental Impact Assessment, Landscape assessment

Keywords
Assessment, Landscape changes

Figure 46. Strategic Environmental Assessment (Source: Buckley 1998)

Sources
http://sba-int.ch/1274-Strategic_Environmental_Assessment
### Translations

<table>
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<td>stratégiai környezetértékelés</td>
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<td>Valutazione ambientale strategica</td>
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<td>Stratēģiskais vides novērtējums</td>
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<td>Montenegrin</td>
<td>Strateška procjena uticaja na životnu sredinu</td>
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<td>Strategiczna ocena oddziaływania na środowisk</td>
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<td>Slovakian</td>
<td>Strategické environmentálske hodnotenie</td>
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<td>Strategisk miljöbedömning</td>
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TERRITORIAL IMPACT ASSESSMENT (TIA)

Definition
It is an assessment approach, developed by several projects in the frame of the ESPON program. It aims at informing policy makers on the impacts of (EU) policies, e.g. Directive 2009/28/EC on the promotion of the use of energy from renewable sources, on different geographical areas (‘territorial units’), comprising the assessment of environmental and spatial, economic, social and administrative impacts. It consists of four phases, namely screening, scoping, assessment and evaluation, and can be performed in either \textit{ex-ante} or \textit{ex-post} manner.

An on-line ESPON TIA tool combines the expert knowledge and judgements about the potential impact with a set of statistical data describing the characteristics of regions. Based on the different sensitivity of regions the expert judgments are translated into maps showing the territorial impact of EU policy on NUTS3 level. These maps can serve as starting point for further discussion of different impacts of a concrete EU policy on different regions. The tool is available here: \url{https://www.espon.eu/tools-maps/espon-tia-tool}

Related terms
Environmental Impact Assessment (EIA), Social Impact Assessment (SIA)

Keywords
EU directives, Policy making, Territorial approach

<table>
<thead>
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<th>PHASE of TIA</th>
<th>STEPS in the procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCREENING</td>
<td>- overview of directive’s content (criteria check list)</td>
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<tr>
<td></td>
<td>- representation of directive’s content and determination of the potential directive’s impacts (logical chain)</td>
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<tr>
<td>SCOPING</td>
<td>- description of directive’s measures</td>
</tr>
<tr>
<td></td>
<td>- selection of criteria from the check list</td>
</tr>
<tr>
<td></td>
<td>- selection of territorial level and unit - typology</td>
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<tr>
<td></td>
<td>- definition of the territorial policy goals on national/regional/local level</td>
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<tr>
<td>ASSESSMENT</td>
<td>- impact assessment in selected territorial unit(s) – numeric and descriptive</td>
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<tr>
<td></td>
<td>- overview of potential impacts and their strength</td>
</tr>
<tr>
<td></td>
<td>- description of territorial distinction of impacts (cartographical representation)</td>
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<td></td>
<td>- review of impacts by the relevant field (charts)</td>
</tr>
<tr>
<td>EVALUATION</td>
<td>- contribution of directive/impacts to the achievement of spatial development goals (tables)</td>
</tr>
</tbody>
</table>

Figure 47. Territorial Impact Assessment procedure (Source: Golobič et al. 2015)

Sources
\url{https://www.espon.eu/tools-maps/espon-tia-tool}
<table>
<thead>
<tr>
<th>Translations</th>
<th>Italian: Valutazione di impatto territoriale</th>
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<tr>
<td>Bosnia and Herzegovina: Studija uticaja na teritoriju</td>
<td>Latvian: Teritoriālās ietekmes novērtējums</td>
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<td>Bulgarian: Оценка на въздействието върху околната среда за територията</td>
<td>Lithuanian: Teritorinio poveikio vertinimas</td>
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<td>Croatian: Studija utjecaja na teritorij</td>
<td>Montenegrin: Teritorijalna procjena uticaja</td>
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<td>Czech: Hodnocení dopadů na území</td>
<td>Polish: Ocena oddzialewania terytorialnego</td>
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<td>Danish: /not used</td>
<td>Portuguese: Avaliação de Impacto Territorial</td>
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<td>Dutch: Territoriale effectrapportage</td>
<td>Romanian: Evaluarea impactului territorial</td>
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<td>Esperanto: Takso de teritiraj efikoj</td>
<td>Russian: Оценка воздействий территории</td>
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<td>Estonian: Territoriaalse mõju hindamine</td>
<td>Slovakian: Hodnotenie územného dosahu</td>
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<td>Finnish: /not used</td>
<td>Slovenian: Presoja učinkov na prostor</td>
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<td>French: Etude d’impact territorial</td>
<td>Serbian: Procena teritorijalnog uticaja</td>
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VISUAL ASSESSMENT

Definition
Visual assessment (called also Visual Impact Assessment – VIA) is the process (including analysis) of taking account of the effects of certain types of development on the visual landscape, usually prior to implementation. The term Visual Impact Assessment was coined as part of Environmental Impact Assessment in the US National Environmental Policy Act of 1969.

In COST RELY, it concerns with how the visual characteristics of landscape are influenced by the development of renewable energy systems. The process identifies and evaluates these effects, and uses the data gathered to support informed decision making.

Related terms: Landscape assessment, Environmental Impact Assessment, Visual impact

Keywords
Visual effects, Visual amenity, Experience, Perception, Viewpoint analysis, Zones of visual influence

Figure 48a. Model to give an impression of how a solar panel installation would look like – today an often used tool for a visual assessment (Source: http57)
Figure 48b. Viewshed (or Zone of Theoretical Visibility) indicating the number of wind turbines in purple colours (the darker the more turbines are visible) overlaid with settlement area (yellow) and forest (green) (Source: University of Sheffield 2016)

Sources
Elaborated by the COST RELY Action members on the base of
http59: www.macaulay.ac.uk/ccw/task-three/via.html/ref

Translations
Bosnia and Herzegovina: Vizuelna procjena/ Procjena vizuelnih efekata
Bulgarian: Оценка на устойчивостта
Croatian: Procjena vizualnog utjecaja
Czech: Vizualní hodnocení
Danish: virsualisering
Dutch: visuele beoordeling
Esperanto: Vida takso
Estonian: visuaalne hindamine
Finnish: Visuaalinen arviointi
French: Evaluation de la visibilité
German: Landschaftsbildbewertung
Greek: Οπτικής ανάλυση
Hebrew: בוחנים зрויות הנוף
Hungarian: vizualis értékelés
Italian: Valutazione visiva
Icelandic: sjónrænt mat
Latvian: Teritoriālās ietekmes novērtējums
Lithuanian: Vizualūs novirtējums
Montenegrin: Vizuelna procjena
Polish: Vizualna procjena
Portuguese: Ocena wizualna
Romanian: evaluare vizuală
Russian: визуальная оценка
Slovakian: Vizuálne hodnotenie
Slovenian: vizualna presoja
Serbian: Визуелна процена
Spanish: Evaluación de la visibilidad
Swedish: visuell bedömning
References


Brown, I., Castellazzi, M. 2014: Scenario analysis for regional decision-making on sustainable multifunctional land uses. Regional Environmental Change 14(4): 1357–1371. (Figure 43a)


Cheong, S. M., Silliman, B., Wong, P. P., Van Wesenbeeck, B., Kim, C. K., Guannel, G. 2013: Coastal adaptation with ecological engineering. Nature Climate Change 3(9): 787–791. (Figure 33)


Opdam, P., Coninx, I., Dewulf, A., Steingröver, E., Vos, C., van der Wal, M. 2016: Does information on landscape benefits influence collective action in landscape governance? Current Opinion in Environmental Sustainability 18: 107–114. (Figure 37.)


Schröth, O. 2010: From information to participation: interactive landscape visualization as a tool for collaborative planning (Vol. 6). vdf Hochschulverlag AG, Zürich. (Figure 43b)

Links
Numbering starts with 5 because the glossary presents in terms of references with the preface one item as a whole.
http5: https://www.earthmirrors.com
http6: www.snh.gov.uk/docs/B858929.pdf
http7: www.ccwwdaonb.org.uk/outstanding-landscapes/landscape-character/
http8: http://www.snh.gov.uk/docs/B1118160.pdf
http11: http://landuse.co.uk/sectors/energy-infrastructure/
http13: https://www.ap.org/en-gb
http15: http://biofuel.org.uk/glossary.html
http17: http://www.alternative-energy-news.info/technology/biofuels/
http19: https://de.pinterest.com/pin/312015080408785184/, with permission of Enerkem
http20: http://enerkem.com/about-us/technology/[12/06/2017
http21: www.biogas-info.co.uk/ (UK Government portal on aerobic digestion)
http22: http://european-biogas.eu/biogas/ (European Biogas Association)
http23: https://www.nortisgroup.com/services/biomass/
http24: www.treehugger.com
http25: www.ehpa.org (European Heat Pump Association)
http26: http://egec.info/ (European Geothermal Energy Council)
http29: www.small-hydro.com/about/small-scale-hydropower.aspx
http30: www.aquaret.com
Sources of illustrations
Here are listed the sources of illustrations which do not come from printed/published sources or HTML but generally refer to persons, companies or institutions.

Akuo Energy (Figure 25d)
ARCON/ESTIF (Figure 24b)
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Bottarelli, Michelle (Figure 21a)
David Wilson Associates (Figure 36.)
Ertex Solar (Figure 25b)
Exit (Figure 25a)
Frantal, Bohumil (Figure 3b)
Juwi Solar GmbH (Figure 25c)
Kruse, Alexandra (Figures 3a, 3c, 9., 11., 17., 19c, 20a, 30b, 41b)
KYOCERA Corporation (Figure 30a)
Marot, Naja (Figure 4., 23b, 27.)
Martinat, Stanislav (Figure 44.)
Miller, David (Figures 41c, d)
Observatory for a Culture of the Territory (Figure 10.)
Ostman, David (Figure 22a, 22b)
Otte, Pia (Figure 28.)
Perth and Kinross Council, UK (Figure 7a)
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Rojas, Jose M. (Figure 9.)
Roulston, Elsie (Figure 29b)
Schrot, Olaf (Figure 29a)
Soares, Filipa (Figure 29c)

Sources of illustrations (US United States)
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Stein, Philip (Figure 41a)
University of Sheffield (Figure 48b)