



## Certification Guidelines



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## Certification Guidelines

to the naturemade star, naturemade basic and naturemade resources star quality standards



# Conditions of certification

## Introductory provisions

Scope for naturemade star and naturemade basic	<p>The Certification Guidelines of the Association for Environmentally Sound Energy (VUE) apply to the following:</p> <ul style="list-style-type: none"> <li>a) Plants and power stations which generate energy from renewable energy sources designate and certify their energy under the naturemade star or naturemade basic quality seal and market it as such. Certification is always awarded to entire plants<sup>1</sup>.</li> <li>b) Energy distributors and suppliers which designate or certify electricity products under the naturemade star or naturemade basic quality seal and market them accordingly to their end-customers.</li> </ul>
Scope of naturemade resources star	<p>The naturemade resources star Certification Guidelines of the Association for Environmentally Sound Energy (VUE) apply to the following:</p> <ul style="list-style-type: none"> <li>a) Plants which recover energy and reusable materials from waste and designate or certify energy and reusable materials under the naturemade resources star quality seal and market them accordingly. Certification is always awarded to entire plants<sup>2</sup>.</li> <li>b) Suppliers which designate or certify energy products and/or reusable materials under the naturemade resources star quality seal and market them accordingly to end customers.</li> </ul>
Mandatory licensing agreement for energy producers, waste incineration plants and recycling plants	<p>Energy producers are only entitled to use the naturemade star or naturemade basic quality seal once they have signed a licensing agreement. This applies equally to plant operators using the naturemade resources star quality seal. A licensing agreement is valid for 5 years.</p> <p>Initial licensing agreements are valid up to the end of the 5th year. Licensing agreements on recertification are dated 1 January of the first year and likewise expire at the end of the 5th year.</p> <p>If any structural or operational changes are made that affect the overall environmental impact, in particular changes in the plant's installed capacity, any recertification must be reviewed by the lead auditor/s.</p>
Mandatory licensing agreement for energy distributors and suppliers and vendors of reusable materials	<p>Energy distributors and/or suppliers are only entitled to use the naturemade star or naturemade basic quality seal once they have signed a licensing agreement. A licensing agreement is valid for 5 years. This applies equally to suppliers using the naturemade resources star quality seal. A licensing agreement is valid for 5 years.</p> <p>Initial licensing agreements are valid up to the end of the 5th year. Licensing agreements on recertification are dated 1 January of the first year and likewise expire at the end of the 5th year.</p>
Issue and amendment	<p>The VUE Board is responsible for issuing and amending these Guidelines. Amendments may be proposed by specialist working groups, association members or the VUE office itself.</p>

<sup>1</sup> The term "entire plants" describes units that function autonomously.

<sup>2</sup> The term "entire plants" describes units that function autonomously.

VUE membership	Membership of the Association for Environmentally Sound Energy (VUE) is a prerequisite for certification. The application for membership may be submitted together with the audit documentation.
Package certification	<p>With package accreditations, several plants belonging to a single energy system are accredited jointly via a shared naturemade production licence. As a result, there is only a single licensee.</p> <p><b>Package accreditations are available for the following energy systems:</b></p> <ul style="list-style-type: none"> <li>– Photovoltaic power plants</li> <li>– Wind energy plants</li> <li>– Drinking water power plants</li> <li>– naturemade basic-accredited hydroelectric power plants</li> <li>– naturemade star-accredited micro-hydropower plants (&lt;1 MW), if they are situated on the same section of a body of water</li> </ul> <p><b>Requirements for package accreditation</b></p> <ul style="list-style-type: none"> <li>– All plants belong to the same energy system.</li> <li>– Each plant meets the accreditation criteria individually.</li> <li>– The licensee is responsible for all information and data required for the annual review audit being available for all plants.</li> <li>– There is a shared energy accounting system.</li> <li>– Only the licensee is entitled to the first sale of the added environmental value from all individual plants in a package.</li> </ul> <p><b>Inclusion of plants in a package</b></p> <p>The process for including plants in an existing package depends on the respective energy system.</p> <ul style="list-style-type: none"> <li>– <u>Photovoltaic power plants:</u> Inclusion available at any time by application to the executive office. <i>Earliest time accredited energy can be credited:</i> Validity of the proof of origin.</li> <li>– <u>Wind energy plants, drinking water power plants, naturemade basic-accredited hydroelectric power plants</u> Inclusion available as part of the EEA review audit. The lead auditor submits the required information on the new plant to the VUE executive office together with the review audit documentation. <i>Earliest time accredited energy can be credited:</i> 1 January of the current year</li> <li>– <u>naturemade star-accredited micro-hydropower plants:</u> New plants can only be included as part of package accreditation or re-accreditation.</li> </ul>

Collective licence	<p>Biomass plants (agricultural biogas plants, green waste fermentation plants and biomethane/biogas production) can be collectively licensed. In principle, this type of licence is treated in the same manner as a package certification. Collective licensing does not, however, release the licensee from its obligation to have certification and review audits conducted for each individual plant. Under a collective licence, a joint audit report for several plants can be prepared per system.</p>
Combined licence	<p>A combined licence entails the certification of a plant (or a package of plants) jointly with a related product. A combined licence can only be issued for products from one energy source, and only where the licensee's total energy turnover is less than 5 GWh/a.</p> <p>For biomethane/biogas plants, a combined licence can be issued for individual plants that also supply energy from a single pumping station, if their turnover does not exceed 5 GWh.</p> <p>For a combined licence, the (re)certification fee (CHF500.00) and the annual fixed licence fee (CHF200.00) for the plant and its associated product are not charged twice.</p>
Multiple licence	<p>If a plant generates different energy outputs (electricity, heating and cooling energy, biomethane/biogas), only one energy generation licence (a so-called multiple licence) needs to be acquired. Depending on the energy products generated, the criteria relevant to the production of electricity, heating/cooling energy or biomethane/biogas need to be fulfilled. Multiple licences can only be obtained for generation. Multiple, combination and/or package licences cannot be combined.</p>
Criteria set-off	<p>One condition on which VUE insists for successful naturemade star certification is the compliance with <i>all</i> global, regional and local certification criteria defined both for new renewable energy sources and for hydroelectric power. It is not possible to set off individual global criteria against individual local criteria, or vice versa. In individual cases, the VUE Board may, however, weigh individual global, regional or local criteria against each other (e.g. in case of new energy technology).</p> <p>This applies equally to certifications under the naturemade resources star quality seal.</p>
Transition period	<p>If VUE changes criteria of the Certification Guidelines, the following rules apply to the recertification of licensees:</p> <ul style="list-style-type: none"> <li>– The Certification Guidelines current at the time of the recertification audit apply.</li> <li>– If criteria are to be changed significantly, the VUE office notifies the Lead Auditors (LAs) and licensees by the end of the current year of any changes scheduled to take effect on 1 January of the following year.</li> <li>– During the next annual review audits, LAs additionally alert licensees with current licensing agreements to the changes and possible measures that may become necessary for recertification. This is noted on the review audit form.</li> </ul> <p>If the time to recertification is considered insufficient to ensure compliance with the changed criteria on recertification, VUE may, upon request, grant an extension of up to three years of the recertification deadline, to allow requirements to be met. However, no more than four years may elapse between an amendment to a criterion and compliance.</p>

**Special regulations for long-term contracts with energy end**

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**customers**

Licensees may conclude long-term contracts with energy end customers that extend beyond the term of the licensing agreement. These supply contracts must be based on the criteria in the certification guidelines that are stated in the licensing agreement and apply at the time the supply contract is made. The following conditions must be complied with:

- Long-term contracts that extend beyond the validity of the licensing agreement but are based on the certification criteria of the licensing agreement may only be made for a term that ends concurrently with the end of the subsequent certification period.
- If the licence is not recertified, the licensee is obliged to dissolve the contract with the end customer at the end of the licensing period or to source relevant naturemade-certified energy products via third parties.
- The licensee informs the VUE Executive Office and the lead auditor/s about supply contracts that extend beyond the term of the licensing agreement as part of the recertification process.

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Issue of sublicences If sublicences are issued, the licensee must meet the certification criteria. However, the VUE Board prefers the sublicensee (producer or supplier) to meet the criteria as well. If issued sublicences result in sublicensees intentionally circumventing the criteria (namely the introduction of environmental management systems), the Board may intervene in individual cases to prevent the issue of sublicences. Sublicensing agreements are to be submitted to VUE for information.

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Net energy production The quantity of certified energy from a power plant refers to annual net quantity (production minus internal consumption and losses). Plants must have one mandatory net quantity meter per energy output (electricity, heat and biomethane/biogas) for documenting their net energy quantities.

The following specific requirements apply to **heat certifications**:

- The quantity of heat measured at the consumer's heat meter counts.
- Network losses therefore need to be deducted for district heat networks in particular.
- If the plant's energy input comes from the plant's internal production or extra renewable power, it does not need to be deducted from the gross quantity.

The following specific requirements apply to **biomethane/biogas certifications**:

- The entire energy input (electricity, heat, biomethane/biogas and natural gas) is deducted from the gross biomethane/biogas production.
- naturemade star-certified biomethane/biogas input does not need to be deducted.
- A biomethane/biogas input meter plus one energy input meter per energy input (electricity, heat, biomethane/biogas or natural gas) is required for documentation purposes.
- All energy inputs (heat, electricity, biomethane/biogas and natural gas) are treated on a 1:1 basis for deduction (in kWh) and are not weighted.

For naturemade star hydroelectric power plants, net power production also determines the contributions to the environmental improvement fund at production level.

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<b>Auditing provisions</b>	
Auditing institution	VUE acts as the sole certification body. The necessary audit can be carried out by any independent auditing institution accredited by VUE.
Choice of auditor	The energy producer or supplier has a free choice of an accredited auditor. VUE provides a list of its accredited auditors. Certification and review audits must be conducted by an accredited auditing institution.
Lead auditor / specialist auditor	The lead auditor is responsible for the audit and review of all certification criteria. The lead auditor must involve a specialist auditor to review regional and local criteria and special requirements as part of certification or recertification for hydroelectric power generation. A specialist auditor must be consulted for review audits if a specialist auditor was defined as review body in the certification or recertification audit respectively. Specialist auditors are employees of experienced specialist companies which need to obtain VUE accreditation.
Scope of (re)certification audit <b>Production</b>	Certification audits must comply with the (re)certification criteria compiled by VUE. Audits involve verification that all (re)certification criteria are met. (Re)Certification audits conclude with a certification audit report explaining how the (re)certification criteria are met. <u>Addendum for production according to naturemade resources star requirements:</u> Plants to be certified are audited on site. If external plants, i.e. plants located at a different site than the plant to be certified, are involved in the recovery of reusable materials, the auditor verifies whether the relevant criteria are met at the external plant site. <b>Required documentation</b> – Application for certification: This contains the main information about the enterprise and the future licensee. – Declaration for energy generation plants: This contains all important information about the energy generation plant. – Certification audit report: This confirms compliance with all relevant naturemade certification criteria. – Completed parameter model for verifying compliance with global criteria (where necessary) <b>Additionally for naturemade star hydroelectric power plants:</b> – Management concept: Contains detailed clarifications regarding the naturemade star greenhydro® criteria and an action plan. – Specialist audit: During a specialist audit, a specialist auditor verifies whether the hydroelectric power plant to be (re)certified complies with the fundamental scientific and aquatic ecological requirements defined for naturemade star.

<p>Scope of (re)certification audit <b>Supply</b></p>	<p>No audit is required for <u>certification</u> of new supplies of naturemade energy. It is sufficient if applicants furnish the corresponding application for certification and declaration.</p> <p><u>Recertification</u> requires a recertification audit conducted by an accredited auditor. Recertification audits must comply with the certification criteria compiled by VUE. Audits involve verification that all certification criteria are met. Recertification audits conclude with a recertification audit report explaining how the certification criteria are met.</p> <p><b>Required documentation (recertification)</b></p> <ul style="list-style-type: none"> <li>– Application for (re)certification: This contains the main information about the enterprise and the future licensee.</li> <li>– Declaration for energy products: This contains all relevant information about the energy product.</li> <li>– Recertification audit report: This confirms adherence to and compliance with all relevant naturemade recertification criteria.</li> </ul>
<p>Scope of review audit</p>	<p>Review audits must comply with the certification criteria compiled by VUE and must be conducted by an accredited lead auditor. Review audits focus on examining the following points:</p> <ul style="list-style-type: none"> <li>– Compliance with the relevant naturemade criteria (incl. legal compliance, funding scheme, environmental improvement fund etc.)</li> <li>– Energy accounting (energy production and sales)</li> <li>– Level of implementation of conditions imposed</li> </ul>
<p>Review audit schedule</p>	<p>Review audits are due annually. In the first year of validity of the naturemade quality seal, the date for the review audit may be postponed to a maximum of 15 months or brought forward to less than 12 months.</p> <p>From the second year onward, review audits must be submitted to the VUE office no later than by the end of the subsequent year . In case of terminations or discontinuations of recertification, review audits must also be submitted for the last review period of the contractual term.</p>

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### Simplified (re)certification procedure for small production plants

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Scope The simplified procedure is only available for photovoltaic plants, wind power plants and drinking water power plants that produce less than 30 kVA and are located in Switzerland. For all other plants, the standard certification procedure applies for certification under the naturemade star and naturemade basic quality seals.

Package certifications are not available as part of the simplified certification procedure.

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Simplified certification and recertification of small photovoltaic plants

Simplified certification procedure for photovoltaic plants < 30 kVA:

- Online registration via [www.naturemade.ch](http://www.naturemade.ch) with the required documentation and information
- Registration in the Swiss proof of origin system (HKN system) is required.
- Confirmation that the specific naturemade criteria for photovoltaic plants (GK-1, LK-P1 and LK-P2) are complied with (part of registration)
- New registration for naturemade certification every 5 years

No certification audit, recertification audit or annual review audit by a naturemade-accredited lead auditor is required.

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Simplified recertification for small wind power plants

**Certification:**

There is no simplified certification procedure available.

**Recertification:**

The simplified recertification procedure is only available if there are no requirements that have not yet been implemented at the given time.

Simplified recertification procedure for wind power plants < 30 kVA:

- Submission of the application for recertification for wind power plants < 30 kVA
- Confirmation that the specific naturemade criteria for wind power plants (GK-1 and LK-W1) are complied with (part of the application)
- Registration in the Swiss proof of origin system (HKN system) is required.
- Re-registration every 5 years

No recertification audit or annual review audit by a naturemade-accredited lead auditor is required.

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Simplified recertification for small drinking water power plants

**Certification:**

There is no simplified certification procedure available.

**Recertification:**

The simplified recertification procedure is only available if there are no requirements that have not yet been implemented at the given time.

Simplified recertification procedure for drinking water power plants < 30 kVA:

- Submission of the application for recertification for drinking water power plants < 30 kVA
- Confirmation that the specific naturemade criteria for drinking water power plants (GK-1 and LK-W1) are complied with (part of the application)
- Registration in the Swiss proof of origin system (HKN system) is required.
- Re-registration every 5 years

No recertification audit or annual review audit by a naturemade-accredited lead auditor is required.

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**Provisions concerning global impacts**

Global impact assessment

VUE follows a scientifically based process for drawing up a life cycle assessment (LCA) to assess the global impacts of individual types of energy generation. This process is based on the EcoIndicator 99 evaluation method<sup>99,3</sup>, which involves modelling of the various types of power plants using type-specific baseline data.

Threshold values

VUE has set naturemade star threshold values for existing plants.

**Electricity**

The environmental impact caused by audited plants must not exceed half of the impact of a modern combined-cycle gas-turbine power plant.

**Heat**

The environmental impact caused by audited plants must not exceed half of the impact of a condensing natural gas boiler (> 100 kW).

**Biomethane/Biogas**

The environmental impact caused by audited existing plants (from gas generation through to biomethane/biogas feed into a network or direct supply to a filling station) must not exceed half of the impact of natural gas used as fuel (from generation through to transport and feed into a supply network).

Separate limits have been defined for certification under the naturemade resources star quality seal.

VUE decides individually on plants whose index values in the parameter model are close to the limit (+/-).

Parameter model

An assessment of the ecological impact of individual types of power plants is based on a few, easily obtainable plant parameters. These must be recorded for the plant to be audited. In the "parameter model", these parameters are then used to derive an index level. If this level is below the threshold defined by VUE, the *Global Criteria* audit requirements are deemed fulfilled.

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<sup>3</sup> Cf. Goedkoop M., R. Spiensma, 2000. *The EcoIndicator 99: A damage oriented method for Live Cycle Impact Assessment, Methodology Report, 2<sup>nd</sup> revised Edition 17.4.2000, Pré Consultants B.V., Amersfoort.*

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**Specific conditions for the certification of thermal energy**

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Scope for thermal energy generation plants	Heat from the following thermal energy generating systems can be certified: a) Plant collectives: Plant collectives consist of one or several central heat generating plants supplying more than one end consumer. Consumers are connected to each other via a distribution network. b) Single plants: Single plants generate heat locally, directly at the point of physical consumption. The added environmental value may be consumed elsewhere ("virtual net", e.g. contracting).
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# Certification of energy generation

to the naturemade basic quality standard



## **naturemade basic certification criteria**

**ZK-E1:** The energy for certification derives exclusively from plants which use renewable energy sources.

For pumped-storage power plants only the amount of energy generated from natural inflow can be certified. For Swiss plants this corresponds to the quantity of electricity covered by a proof of origin (HKN) for hydroelectric power. For plants outside Switzerland, the Swiss HKN regulation applies likewise.

Imported waste vegetable oil must fulfil the environmental criteria for tax exemption corresponding to the Swiss Mineral Oil Tax Ordinance.

Hydroelectric power plants must fulfil the residual flow requirements of Art. 80 to (and including) Art. 83 Water Protection Act within the time specified, if they are to be certified under the naturemade quality seal.

These requirements are deemed fulfilled if

- The competent authority has not classified the plant as requiring remediation; or
- Any remediation prescribed by the competent authority in a legally binding form has been fully implemented.

**ZK-E2:** The intentional use of genetically modified organisms (e.g. plants, micro-organisms) for energy generation is prohibited. Traces of modified biogenic material are permitted.

**ZK-E3:** The long-term fertility and productivity of the soil used to grow biomass for fuels must be ensured by returning the nutrients of the substrates used for energy generation into the natural cycle.

**ZK-E4:** The generated electricity can be traced back to clearly described, identifiable sources (plants or third-party suppliers). The proportion of these sources is clearly stated in the "Declaration for energy generation plants" form.

All naturemade-certified electricity generation plants must be registered in the proof of origin system of the country where they are located. This also applies to plants smaller than 30 kVA.

For biomethane/biogas, relevant evidence is to be provided via nationally recognised registers as far as possible. If the licensee uses a register that is not nationally recognised, the principles governing that register and all transactions concerning energy volumes from the plant must be disclosed to the competent naturemade lead auditor.

**ZK-E5:** Maintaining and promoting the sustainable generation and efficient use of energy must be core parts of licensees' corporate policy, with corporate policy on sustainability making explicit reference to the company as a whole. To satisfy this criterion, VUE can call for the implementation of an environmental management system independently of the requirements of criterion ZK-E6.

**ZK-E6:** If the licensee of the energy generation plant to be certified employs more than 30 staff, it must establish a certified environmental management system (ISO 14001 or EMAS) or equivalent quality management system within five years of the initial certification of its production.

Legal compliance	<b>ZK-E7:</b> All technical, legal and other requirements for operating the plant that are necessary for generating energy must be met. Plants outside Switzerland must comply with not only local/national requirements but also with the standard applicable in Switzerland (adapted to country-specific conditions).
Energy management	<b>ZK-E8:</b> The producer uses an appropriate energy management system to safeguard its procedures and carries out appropriate measurement and monitoring activities.
(Re)certification documents	<b>ZK-E9:</b> The documents and information required for (re)certification must be submitted to the VUE executive office in a single, complete package in a timely manner. The required documents and information are listed under "Auditing provisions" in the naturemade Certification Guidelines.
Supplies to end customers	<b>ZK-E10:</b> Energy certified under the naturemade star or naturemade basic scheme may only be delivered to end customers physically or by certificate based on a naturemade-certified supply licence. This applies particularly to proofs of origin under the naturemade star and naturemade basic quality standards.
Prevention of multiple sales of biomethane/biogas	<b>ZK-E11:</b> The licensee/plant operator must disclose to the naturemade lead auditor the registers and supply contracts through which produced biomethane/biogas is marketed in order to prevent multiple sales. The sum of energy volumes sold under supply contracts and entered in relevant registers must not exceed the net energy produced by the certified plant.

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**ZK-E12:** naturemade accreditation provides a guarantee to end customers that the full added environmental value is sold together with the accredited naturemade-certified energy. Partial added value, in particular greenhouse gas savings, cannot be sold separately from naturemade-accredited energy or supplied to end customers. The sale to end customers concerns the supply/consumer level and does not impact on balances at the national level. End customers have an impact on balance levels in Switzerland's national climate protection targets, if naturemade-accredited energy was produced within Switzerland.

Approach to publicly subsidised renewable energy

naturemade accreditation of renewable energy from subsidised plants is available, if the subsidising body does not claim the full added environmental value at the supply/consumer level. VUE may request a relevant certificate.

Additionally for biomethane/biogas:

For biomethane/biogas, certification and compliance with the certification criteria always refer to the overall energy production of and the overall materials input into the plant.

Individual types of substrates (input materials) within a plant may be shown separately in the plant's energy balance and partial amounts may be allocated to the overall energy production in exceptional cases and upon the licensee's request. In these cases, a specific substrate mix that does not correspond to the plant's overall substrate mix is allocated to the volume sold under the naturemade star quality seal. In such approved exceptional cases, the licensee/plant operator must disclose to the lead auditor all supply contracts and register entries for biomethane/biogas volumes produced by the plant as part of the annual review audit and must also provide the following evidence:

- Biomethane/biogas from partial substrate volumes shown separately in the balance is not marketed multiple times.
  - All certification criteria, in particular the global criterion, are also complied with based on the specific substrate mix allocated to the volume sold under the naturemade star quality seal alone.
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# Electricity and heat generation from waste incineration plants

## General criteria

**AK-KVA1:** Waste incineration plants which generate energy from waste may be certified under the naturemade basic scheme.  
Energy sources in waste incineration plants Only the quantity of energy that corresponds to the energy portion of biogenic waste or other biogenic sources of energy in the overall energy used in the plant can be certified.

**AK-KVA2:** The biogenic waste portion is determined by the Swiss federal government ( Swiss greenhouse gas inventory); it equates to 50% of the total energy content. The biogenic waste portion forms the basis for the certifiable quantity of energy.  
Determination of the renewable waste portion  
A higher biogenic waste portion is acceptable if additional non-fermentable or non-compostable biogenic waste is verifiably incinerated.

**AK-KVA3:** Energy from waste incineration plants can only be certified if the plant achieves at least the total performance ratio for compensatory feed-in remuneration defined in the Swiss Energy Ordinance, Annex 1.5. If the total performance ratio required by the Swiss Energy Ordinance is adjusted in future, the adjusted performance ratio also applies to naturemade certification.  
Plant efficiency

**AK-KVA4:** Prices for waste disposal in waste incineration plants cover costs and reflect the polluter-pays principle to prevent the amount of slag being increased for commercial reasons.  
Slag

**AK-KVA5:** Plant operators provide evidence of compliance with the framework conditions of the regional waste management plans of their catchment areas.  
Separation quota  
Waste incineration plant operators verifiably endeavour to inform the public about waste sorting and recycling.

# Certification of energy generation

to the naturemade star quality standard



# Electricity generation from hydroelectric power plants

## **naturemade star certification criteria**

The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria are met.

No environmental impact without remediation Plant expansions and new plants may be awarded naturemade star certification if they do not impair natural or near-natural habitats, populations or landscapes. Exceptions from this rule are only allowed in case of full remediation.

## **Global criteria**

**GK-1:** The environmental impact caused by audited plants must not exceed half of the impact of a modern combined-cycle gas-turbine power plant.  
Environmental impact threshold value Hydroelectric power plants achieve this threshold value categorically.

## **Regional and local criteria**

**LK-WK1:** The regional and local criteria for hydroelectric power plants are based on science and have been developed in co-operation with the Swiss Federal Institute of Aquatic Science and Technology (EAWAG). The criteria are differentiated for various types of power plants and bodies of water. However, they provide a common standard for the ecological integrity of existing power plants.

The criteria are published in the "Ökostrom" documents, Volume 6.<sup>4</sup>

Compliance with regional and local criteria guarantees the minimal ecological function of the watercourses used and the landscape directly affected by the operation of the power plant. Furthermore, compliance with the criteria aims at establishing the same water and landscape conditions as are required for newly licensed plants. Compliance with local and regional criteria is not tied to the issue of any new license and cannot be a substitute for it.

Compliance with local and regional criteria must be verified as part of an expert audit conducted by accredited specialists.

<sup>4</sup> Ch. Bratrich & B. Truffer (2001): Ökostrom-Zertifizierung für Wasserkraftanlagen, Konzepte, Verfahren, Kriterien, ISBN 3-905484-05-6.

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## Conditions for hydroelectric power generation

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### **B-WK1: New power plants**

Power plant extensions and new plants

New power plants and power plant extensions can be awarded naturemade star certification if the impact of construction works and operation does not impair additional natural or near-natural habitats, populations or landscapes (prohibition of deterioration) or brings about an improvement. The licensor imposes or negotiates any compensatory measures, which VUE can, as a matter of principle, take into account when considering whether the prohibition of deterioration rule is complied with; such measures can also ensure that this rule is fully complied with.

The following are classified as **new plants**:

- Any power plant built after 1.1.2001 that uses previously unutilized bodies of water or gradients;
- Any renewal/re-commissioning of decommissioned power plants after 1.1.2001.

### **Extensions of existing power plants**

Extensions of existing hydroelectric power plants are classified as new plants if:

- Existing power plants utilize additional volumes of water (extension of utilizable discharge volumes, new reservoirs) after 1.1.2001;
- Existing power plants utilize additional gradients after 1.1.2001;
- Existing power plants extend their water reservoirs after 1.1.2001 (e.g. by increasing dam heights).

### **Renewals of existing power plants**

The more stringent requirements for new plants do not apply where existing water utilization is renewed after 1.1.2001 at the previous or a smaller scale.

### **Two-step process**

New hydroelectric power plants are awarded the naturemade star certification in a two-step process. Applicants first submit an application for preliminary vetting (step 1), which must satisfy the certifying agency of the following before the actual certification process (step 2) can be initiated:

- a. The listed criteria either do not apply to the project, or
  - b. The project does not impair the listed criteria.
- An application for preliminary vetting can also be submitted if the licensing process for the power plant has been completed.
-

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*Step 1:*

*Preliminary vetting documentation:*

- Key data of the power plant (location, plant description, year of construction, output, production, license)
  - Evidence of compliance with the prohibition of deterioration rule can be provided using the “Preliminary vetting criteria for naturemade star certification of new hydroelectric power plants”:
    - Project effects on morphologically and hydrologically intact bodies of water and bodies of water that have been or will be rehabilitated: the description of these factors must be based on an ecomorphological assessment in line with the sequential modular approach and on a description of the hydrological condition of the relevant body of water before and after utilization (part of the licensing process), taking into account the statutory obligations regarding water rehabilitation and/or existing rehabilitation plans;
    - Project effects on habitats and populations: the description must refer to spawning areas and crustacean habitats of national significance, in particular fish habitats and habitats of species that are highly endangered or in danger of extinction;
    - Project effects on waterfalls: the description must specify any affected waterfalls and project effects on water volumes in these waterfalls in detail;
    - Project effects on protected areas: the description must set out the objectives of protection and demonstrate that these are not impaired or that the situation is in fact improved;
  - Opinion on the project by local environmental organizations, to be submitted via an environmental organization represented within VUE.
- The VUE Board assesses the application. If the Board is not satisfied that a project meets the certification requirements, it notifies the applicant accordingly, providing written reasons.

*Step 2:*

If the preliminary vetting process is successful, *naturemade star* certification according to GK-1 and LK-WK1 can be initiated. Only projects already built can be certified.

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**B-WK2:** Old plants which are in the process of being environmentally upgraded to earn VUE naturemade star certification can only be awarded the naturemade basic quality seal until the upgrade is complete. Under certain conditions, which must be agreed in writing with VUE, operators may, however, communicate that they are seeking certification as a “green power plant” (e.g.: “XY City Electricity is building a green power plant here”). Evidence of a credible timeframe for the interim regulation must be provided.

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**B-WK3: Mixed utilisations** are:

Mixed utilisations Power plants which use water at different locations (minimum 2), running several parts of installations together; also plants which use a common diversion section; plants which directly use the process water from an upstream plant; plants which use a common reach. Cross-flow turbines (= use of residual flow to generate energy) cannot be certified under the naturemade star quality seal unless the main power plant is also certified.

As a matter of principle, the aim in cases of mixed utilisation should be to have all plants involved certified. However, the electricity generated by individual power plants/plant parts forming part of a complex system comprising several hydroelectric power plants (mixed utilisations) can be certified providing the following conditions are met:

**The (power) plant part to be certified:**

- fulfils the basic greenhydro requirements within its scope of effects and
- makes a significant contribution towards improving the environmental situation in the overall system.

The same criteria apply as in the case of certification of hydroelectric power plants. Measures deemed to improve the environmental situation include higher, seasonally adjusted residual flow allocations, reduced hydropeaking in the overall system, improved passages for fish migration and bedload, etc.

**Procedure:**

As part of the process of delineating the system, the scope of effects on aquatic ecology and the relevant, proportional basic *greenhydro* requirements must be defined for the (power) plant part to be certified. Since the aquatic ecological effects of the overall system can be distributed across all parts of a mixed system in a very complex manner, the overall effect of the mixed system is to be analysed first. The proportional scope of effects of the (power) plant part to be certified is then to be derived from this basis.

In order to establish clear-cut conditions at an early stage - and before embarking on the certification procedure - a positive preliminary decision is to be obtained from the VUE Board regarding the chosen system delineation and the determination of the relevant basic *greenhydro* requirements within the scope of effects of the (power) plant part to be certified.

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The relevant application (to be submitted to the VUE office seven weeks prior to an ordinary VUE Board meeting) must include:

- An overview of the overall system
- of all power plants and parts of plants involved in the mixed utilisation including a description of their key data and geographic boundaries (performance, production, license, day/annual storage etc.);
- Names of the operators of all plants involved in the mixed utilisation and their relationships with one another;  
A justification why it is not possible to certify the system as a whole (ongoing proceedings, financial reasons, schedule etc.);
- A proposal for a precise delineation of the system including a substantiated submission regarding its scope of effects and the *greenhydro* management areas perceived to be relevant and irrelevant respectively for the certification of the power plant/part of the power plant;
- A list of all environmental benefits and remaining environmental deficits (based on the *greenhydro* management areas of hydropeaking, bedload, residual flow etc.) of the overall system;
- A proposal for clearly differentiating the name of the power plant/plant part to be certified from the other power plants/plant parts involved in mixed utilisation and how to communicate this differentiation (e.g. by means of a notice board clearly visible to passers-by);
- A proposal for optimally involving local environmental organisations in the certification process (including the drafting of a management concept).

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**B-WK4:** As a rule, electricity production is certified at the transformer terminal (where the electricity is fed into the “public grid”). Certification at producer terminals (generators) are possible in the following cases:

- Micro-hydroelectric power plants and
  - Plants which affect a reasonably limited area in hydrological terms (e.g. a power plant located in a side valley, but forming part of a chain of plants).
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### Special requirements for hydroelectric power plants

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**S-WK1:** Hydroelectric power plants whose capacity exceeds 100 kW and all cross-flow turbines (even with a capacity < 100 kW) must establish an "environmental improvement fund" to obtain the naturemade star quality seal. This fund consists of regular financial contributions to be made towards environmental improvement measures by the operator of the certified plant.

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**S-WK2:** The environmental improvement fund is funded by the producer in the amount of a contribution of 1 centime per *certified kWh sold*. The contribution of 1 centime is based on the quantity (deletion of proof of origin with naturemade star quality) sold under the naturemade star quality seal.

The average exchange rate published by the European Central Bank for the relevant national currency and Swiss francs for the full prior quarter is to be used as the exchange rate for payments into the fund by power plants outside Switzerland. The "reference rate" applies.

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**S-WK3:** The plant operator is responsible for managing these eco-investment funds. The annual review audit includes a review of the management and correct use of the funds.

The accounting period for the environmental improvement fund should correspond to that of the hydroelectric power plant itself.

In the event of the licensing agreement being terminated, the following conditions apply to any unused fund capital:

1. The fund capital must be put to the same use as during the contractual term.
  2. The steering committee continues to exist and retains the same function until the fund capital is exhausted.
  3. The plant operator submits a written report to VUE as part of the annual fund survey, detailing measures taken, the costs incurred for these measures, any measures still to be taken and the remaining fund capital; the first such report is due a year after the agreement has expired.
  4. Wherever possible, the fund capital should be invested within a period of five years.
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**S-WK4:** Contributions from the environmental improvement fund are used to implement environmental improvement measures. Measures for the environmental improvement of the affected bodies of water (not only in the stretch covered by the license) and their hydrological catchment area always have highest priority. These include communication measures regarding environmental improvements made to the bodies of water. Fund monies may be used only to finance measures that go beyond the basic greenhydro requirements.

If no further reasonable environmental measures can be identified in the top priority category, investments may also be made in environmental improvement measures for other bodies of water (at regional and national level) and for endangered habitats of non-aquatic life (e.g. marshlands) at local level in the area around the hydroelectric power plant. Measures which can be integrated into overall regional or local improvement plans should always be given priority.

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**S-WK5:** Measures to be financed from the fund are negotiated between the power plant operator and the local (and, if necessary, regional) authorities and environmental organizations. A steering committee should be set up for this purpose. Steering committee members should be representatives of the power plant company, the local/regional authorities and environmental organizations active at local/regional level. Specialists in water ecology, representatives of the plant company's sales company and representatives of other key stakeholders may also be brought in.

The steering committee decides on the definition of measures and how they will be prioritized in practical terms.

Measures should correspond to the ecological state of the art and achieve an optimum cost/benefit ratio.

N.B: It is possible to invest explicitly in increasing residual flow quantities.

A preliminary list of selected measures must be available at the time of the certification audit. The power plant operator makes the list of measures publicly available.

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# Electricity generation from drinking water power plants

A simplified recertification procedure may be available for plants < 30 kVA upon application.

<b>naturemade star certification criteria</b>	
	The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria are met.
<b>Global criteria</b>	
Environmental impact threshold value	<p><b>GK-1:</b> The environmental impact caused by audited plants must not exceed half of the impact of a modern combined-cycle gas-turbine power plant.</p> <p>Drinking water power plants achieve this threshold value categorically.</p>
<b>Regional and local criteria</b>	
Turbines driven by drinking water	<p><b>LK-T1:</b> Electricity production is merely a side-benefit of the drinking water supply system.</p> <p>It must be shown conclusively that only drinking water provided for the local drinking water supply is used to drive the turbines.</p>
Sources used	<p><b>LK-T2:</b> As an annual average, a maximum of 80 l/s is drawn from each source used. If more than 80 l/s is drawn from any source, residual flow requirements must be complied with.</p>
Groundwater protection zones	<p><b>LK-T3:</b> Protection zones safeguard the long-term drinking water quality. The sources used lie within an approved or provisional groundwater protection zone. All protection measures in Protection Zone I are implemented.</p>
Surplus water	<p><b>LK-T4:</b> Surplus water from reservoirs and well chambers causes no hydraulic shock or erosion in the receiving watercourse throughout the year. The ratio of input quantity to outflow does not exceed 1:5.</p>
Flushing from reservoirs and well chambers	<p><b>LK-T5:</b> Flushing from reservoirs and well chambers into the receiving watercourse only takes place at high outflow rates. The water quality requirements are met (Water Conservancy Ordinance, Annex 2).</p>
Point of input to receiving watercourse	<p><b>LK-T6:</b> Input points are integrated into the bank area to minimise environmental impact.</p>
Machinery maintenance	<p><b>LK-T7:</b> Machinery and water basins are configured in such a way that there can be no water contamination from hydraulic oil and grease, including during maintenance work.</p>
Integration into the landscape	<p><b>LK-T8:</b> All parts of the plant are either housed in existing buildings or carefully integrated into the landscape by a suitable choice of material and/or design.</p>
Protection of sensitive biotopes	<p><b>LK-T9:</b> All parts of the plant are located outside listed or sensitive biotopes or are optimally integrated into them by sensitive choice of material and planting.</p>
Noise protection	<p><b>LK-T10:</b> The positioning of outlet apertures and acoustic insulation measures reduce noise emissions to a minimum. The Noise Abatement Ordinance is complied with.</p>

# Electricity generation from photovoltaic plants

A simplified (re)certification procedure may be available for plants < 30 kVA upon application.

## ***naturemade star* certification criteria**

The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria are met.

### **Global criteria**

**GK-1:** Environmental impact threshold value The environmental impact caused by audited plants must not exceed half of the impact of a modern combined-cycle gas-turbine power plant. This is verified using a standardised parameter model for photovoltaic plants. Photovoltaic plants with poly- or mono-crystalline cells which were constructed after 2000 and/or have an annual energy output of at least 500 kWh per kWp achieve this threshold value categorically.

### **Regional and local criteria**

**LK-P1:** Protection of surroundings Photovoltaic power plants can be certified if they are located in areas approved for building development. They can also be certified outside those areas if they are constructed on or attached to buildings, protective structures (e.g. avalanche and noise barriers) or on building or plant sections firmly attached to the ground. The main use of the plant or structure must be guaranteed in the long term. Secondary use by the photovoltaic plant must not predominate. There must be no lasting impairment of landscapes or habitats meriting protection or, if there is, their reinstatement must be possible. This also applies to the erection and operation of the ancillary plants necessary for generating the energy.

**LK-P2:** Photovoltaic plants on Minergie and MuKEn 2014 buildings Where plants certified under the naturemade star quality seal are counted towards Minergie compliance or were constructed to meet the requirements of the 2014 Model Cantonal Provisions in the Energy Sector (internal MuKEn electricity generation), only excess energy can be traded under the naturemade star quality seal. Excess energy is calculated as net energy minus own consumption according to the own consumption regulations.

# Electricity generation from wind turbines

A simplified recertification procedure may be available for plants < 30 kVA upon application.

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## **naturemade star certification criteria**

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The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria are met.

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### **Global criteria**

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**GK-1:** The environmental impact caused by audited plants must not exceed half of the impact of a modern combined-cycle gas-turbine power plant. This is verified using a standardised parameter model for wind turbines.

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### **Regional and local criteria**

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**LK-W1:** For wind turbines it must be ensured that the surrounding area remains protected. In this context, VUE adopts the exclusion criteria for wind turbines set out in the "Planning recommendation for wind turbines"<sup>5</sup> of the Swiss Federal Office for Energy. Wind turbines in areas listed in the Swiss Federal Inventory of Landscapes, Natural Sites and Monuments of National Importance (BLN) are excluded from naturemade certification as a matter of principle.

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<sup>5</sup> *Empfehlung zur Planung von Windenergieanlagen* (Planning recommendation for wind turbines): *Die Anwendung von Raumplanungsinstrumenten und Kriterien zur Standortwahl*, Federal Office of Energy, 2010

# Electricity, heat and biomethane/biogas generation from green waste fermentation plants

## **naturemade star certification criteria**

The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria are met.

Scope: biomethane/biogas production plants

Certification is available for biomethane/biogas energy volumes from production systems that result in a greening of the European gas grid:

- a) Biomethane production plants (biogas upgraded to natural gas quality) with gas feed into the European gas grid
- b) Biogas production plants with gas feed into the European gas grid
- c) Biogas production plants with local utilisation resulting in a reduction of natural gas consumption via the European gas grid:  
In these plants, biogas is physically used locally. Local use is connected to the European gas grid, and the gas usage from fossil sources is therefore reduced by the amount of biogas used.

### **Global criteria**

**GK-1:** Environmental impact threshold value

The life cycle impact caused by the plants to be audited must not exceed the limits defined in the "Certification conditions - Conditions concerning overall impact".

This is verified using a standardised parameter model for fermentation plants.

### **Regional and local criteria**

**LK-G1:** No impairment of landscapes

VUE assumes that a valid building permit for the construction of plants for the generation of energy from biogenic material in Switzerland precludes any impairment of landscapes.

**LK-G2:** Safeguarding biodiversity and compliance with IP Guidelines

If biogenic material is cultivated specifically for energy purposes, the Integrated Production (IP) Guidelines must be complied with.

**LK-G3:** Odour

The emission of odours which may occur during acceptance, processing and fermentation of materials should be avoided as far as possible. All possible odour reduction measures must be state of the art.

**LK-G4:** Exhaust gas emissions

Exhaust gas emissions may occur during acceptance and processing of materials; flue gas may be emitted when materials are used as BTTP fuel. Both types of emissions must satisfy the criteria of the Swiss Clean Air Ordinance (1985) in any event.

**LK-G5:** Noise

Noise emissions may occur during mechanical post-processing, post-composting, use of materials as BTTP fuel and during the distribution of the end product. Noise emissions must comply with the requirements of the Swiss Noise Abatement Ordinance (1986).

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**LK-G6:** Plants which generate energy from biogas using not only biogenic waste are eligible for naturemade star certification if:  
Energy sources for biogas plants

- The plant is demonstrably designed for generating energy from renewable energy sources;
- Biogenic waste accounts for at least 66 per cent of the plant's total energy consumption, as an annual average. The individual proportions of the plant's total energy consumption must be continuously recorded using appropriate measurement techniques;

Only the quantity of energy which corresponds to the biogenic waste portion of the plant's total energy consumption is eligible for certification.  
This rule applies in particular to plants where natural gas needs to be added to the BTTP due to poor biogas quality.

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**LK-G7: Electricity/Heat**

Gas emissions and methane leakage Spot (methane) measurements must be performed regularly (several times per year) and documented appropriately in order to avoid emissions.

**Biomethane/biogas**

At rated operation, the emission of defined off-gas from the treatment facility may not contain more than 1% of the methane contained in the biogas. Proof of compliance with this threshold is governed by the requirements of SVGW Guideline G209.

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# Electricity, heat and biomethane/biogas generation from agricultural biogas plants

## **naturemade star certification criteria**

The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria are met.

Scope: biogas production plants

Certification is available for biogas energy volumes from production systems that result in a greening of the European gas grid:

- a) Biomethane production plants (biogas upgraded to natural gas quality) with gas feed into the European gas grid
- b) Biogas production plants with gas feed into the European gas grid
- c) Biogas production plants with local utilisation resulting in a reduction of natural gas consumption via the European gas grid:  
In these plants, biogas is physically used locally. Local use is connected to the European gas grid, and the gas usage from fossil sources is therefore reduced by the amount of biogas used.

### **Global criteria**

**GK-1:** Environmental impact threshold value

The life cycle impact caused by the plants to be audited must not exceed the limits defined in the "Certification conditions - Conditions concerning overall impact".

This is verified using a standardised parameter model for fermentation plants.

### **Regional and local criteria**

**LK-LB1:** No impairment of landscapes

VUE assumes that a valid building permit for the construction of plants for the generation of energy from biogenic material in Switzerland precludes any impairment of landscapes.

**LK-LB2:** Safeguarding biodiversity and compliance with IP Guidelines

If biogenic material is cultivated specifically for energy purposes, the Integrated Production (IP) Guidelines must be complied with.

**LK-LB3:** Odour

The emission of odours which may occur during acceptance, processing and fermentation of raw materials should be avoided as far as possible. All possible odour reduction measures must be state of the art.

**LK-LB4:** Farm fertilizer management , Reduction of ammonia emissions

For agricultural biogas plants, ammonia emissions are monitored via a farm fertilizer management system and reduced by appropriate measures, including covering liquid manure pits, using biofilters and distributing liquid manure close to the ground. The farm fertilizer management includes measures recommended by the Swiss Federal Institute for Agricultural Economics and Engineering (ART) to reduce ammonia losses<sup>6</sup>.

**LK-LB5:** Fuel oil consumption

Fuel oil consumption in dual-fuel BTTPs must not exceed 10 per cent of the total energy input.

**LK-LB6:** Co-substrate restriction

Agricultural biogas production is based on an upper limit of 50 per cent co-substrate (relative to fresh mass).

<sup>6</sup> Cf. Frick, F. & Menzi, H. (1997): *Hofdüngeranwendung: Wie Ammoniakverluste vermindern? Auch einfache Massnahmen wirken.* FAT reports, No. 496.

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**LK-LB7:** Plants which generate energy using both biogenic waste and other energy sources are eligible for naturemade star certification if:

Energy sources for biogas plants

- The plant is demonstrably designed for generating energy from renewable energy sources;
- Biogenic waste accounts for at least 66 per cent of the plant's total energy consumption, as an annual average. The individual proportions of the plant's total energy consumption must be continuously recorded using appropriate measurement techniques;
- No more than 10% propane gas is added to the biomethane to adjust its fuel value (only relevant for biomethane production).

Only the quantity of energy which corresponds to the biogenic waste portion of the plant's total energy consumption is eligible for certification.

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**LK-LB8: Electricity/Heat**

Gas emissions and methane leakage

Spot (methane) measurements must be performed regularly (several times per year) and documented appropriately in order to avoid emissions.

**Biomethane/biogas**

At rated operation, the emission of defined off-gas from the treatment facility may not contain more than 1% of the methane contained in the biogas. Proof of compliance with this threshold is governed by the requirements of SVGW Guideline G209.

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**LK-LB9:** An operation log must be kept to document all plant disruptions. A facility for burning off gas (e.g. in flares or burners) must be permanently installed in the plant or must be available for use at any time respectively in order to prevent gas from leaking in case of plant disruptions.

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# Electricity, heat and biomethane/biogas generation from sewage gas

## **naturemade star certification criteria**

The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria are met.

Scope: biogas production plants Certification is available for biogas energy volumes from production systems that result in a greening of the European gas grid:

- a) Biomethane production plants (biogas upgraded to natural gas quality) with gas feed into the European gas grid
- b) Biogas production plants with gas feed into the European gas grid
- c) Biogas production plants with local utilisation resulting in a reduction of natural gas consumption via the European gas grid:  
In these plants, biogas is physically used locally. Local use is connected to the European gas grid, and the gas usage from fossil sources is therefore reduced by the amount of biogas used.

### **Global criteria**

**GK-1:** Environmental impact threshold value The life cycle impact caused by the plants to be audited must not exceed the limits defined in the "Certification conditions - Conditions concerning overall impact".  
This is verified using a standardised parameter model for sewage gas.

### **Regional and local criteria**

**LK-KG1:** Exhaust gas emissions Waste gas is emitted during the use of biogas in BTTPs. These emissions must satisfy the criteria of the Swiss Clean Air Ordinance (1985) in any event.

Where organic waste is used as co-substrate, the exhaust gas emissions from the transport of this co-substrate must be taken into account.

**LK-KG2:** Noise Noise emissions must comply with the requirements of the Swiss Noise Abatement Ordinance (1986).

Where organic waste is used as co-substrate, the noise emissions from associated truck traffic must be taken into account.

**LK-KG3:** Odour The emission of odours which may occur during acceptance and processing of co-substrates should be avoided as far as possible. All possible odour reduction measures must be state of the art (e.g. paved surfaces with waste water catchment).

**LK-KG4:** Energy strategy An energy strategy must detail all the energy flows in a plant. A schedule of efficiency measures is to show which activities are planned and implemented at what time.

**LK-KG 5: Electricity/Heat**  
Methane leakage No additional requirements.

### **Biomethane/biogas**

At rated operation, the emission of defined off-gas from the treatment facility may not contain more than 1% of the methane contained in the raw gas. Proof of compliance with this threshold is governed by the requirements of SVGW Guideline G209.

# Electricity and heat generation from wood fuels and waste timber

## **naturemade star certification criteria**

The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria are met.

### **Global criteria**

**GK-1:** Environmental impact threshold value The life cycle impact caused by the plants to be audited must not exceed the limits defined in the "Certification conditions - Conditions concerning overall impact".  
This is verified using a standardised parameter model for wood fuels and waste timber.

### **Regional and local criteria**

**LK-H1:** Annual efficiency CHP-plants for generating electricity and heat from wood fuel and waste timber can be certified under the naturemade star scheme if they achieve an annual overall efficiency that meets the minimum requirements shown in the graph on page38.

**LK-H2:** Energy strategy The plant has an energy strategy to reduce its electricity and thermal energy requirements for its overall operations.

**LK-H3:** Origin of wood fuels The operator of a plant for generating electricity and heat from wood fuel and waste timber provides a self-declaration stating the origin of the wood fuels.

**LK-H4:** Multicyclone Plants equipped with a multicyclone and no other cleaning filters use only untreated (freshly cut) wood or waste wood from first-level processing. This is verified during the annual review audit based on the declaration.

**LK-H5:** Waste wood Tropical wood may only be used as fuel if it is waste wood. Any tropical wood used must come from FSC-certified cultivation.

**LK-H6:** Untreated wood The origin of untreated wood meets a standard equivalent to FSC certification

# Thermal energy generation from wood fuels and waste timber combustion > 70kW

## **naturemade star certification criteria**

The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria must be met.

### **Global criteria**

**GK-W1:** The environmental impact caused by audited plants must not exceed half of the impact of a condensing natural gas boiler (> 100 kW).  
LCA threshold value  
This is verified using a standardised parameter model for wood fuels and waste timber.

### **Regional and local criteria**

**LK-WHF1:** Plants for generating thermal energy must have a capacity of at least 70 kW.  
Plant capacity

**LK-WHF2:** The plant was constructed and optimised based on the quality management standards for wood-fired thermal plants, including the completion of a feasibility study, taking into account the framework conditions for energy planning and the situation and condition of the building.  
Quality management

**LK-WHF3:** The overall system (plant and thermal supply network) must achieve an annual overall efficiency of at least 75% (see graph on page 38).  
Annual efficiency

**LK-WHF4:** The operator of a plant for generating thermal energy from wood fuel and waste timber declares the origin of the wood fuels.  
Origin of wood fuels

**LK-WHF5:** Waste wood from tropical wood must come from FSC-certified cultivation. Mixed wood which includes tropical wood may not be used in certified plants.  
Waste wood

**LK-WHF6:** The origin of untreated wood meets a standard equivalent to FSC certification.  
Untreated wood

# Electricity and heat generation from wood fuels and waste timber with downdraft co-current fixed-bed gasifier and dry gas cleaning

## **naturemade star certification criteria**

The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria are met.

### **Global criteria**

**GK-1:** Environmental impact threshold value The life cycle impact caused by the plants to be audited must not exceed the limits defined in the "Certification conditions - Conditions concerning overall impact".

This is verified using a standardised parameter model for wood fuels and waste timber with downdraft co-current fixed-bed gasifier and dry gas cleaning.

### **Regional and local criteria**

**LK-HV1:** Annual efficiency Plants for generating energy from wood fuel and waste timber can be certified under the naturemade star scheme if they achieve an annual overall efficiency that meets the minimum requirements shown in the graph on page38.

**LK-HV2:** Energy strategy The plant has an energy strategy to reduce its electricity and thermal energy requirements for its overall operations.

**LK-HV3:** Origin of wood fuels The operator of a plant for generating electricity and heat from wood fuel and waste timber declares the origin of the wood fuels.

**LK-HV4:** Multicyclone Plants equipped with a multicyclone and no other cleaning filters use only untreated (freshly cut) wood or waste wood from first-level processing. This is verified during the annual review audit based on the declaration.

**LK-HV5:** Waste wood Tropical wood may only be used as fuel if it is waste wood. Any tropical wood used must come from FSC-certified cultivation.

**LK-HV6:** Untreated wood The origin of untreated wood meets a standard equivalent to FSC certification.

**LK-HV7:** Waste water Waste water as a by-product is subjected to wet oxidation treatment in a special waste water disposal plant. If another waste water treatment method is used, evidence of appropriate disposal and/or treatment must be provided.

# Electricity and heat generation from biomethane/biogas cogeneration plants

## **naturemade star certification criteria**

The fundamental requirement for the award of the naturemade star quality seal is that all naturemade basic certification criteria are met.

### **Global criteria**

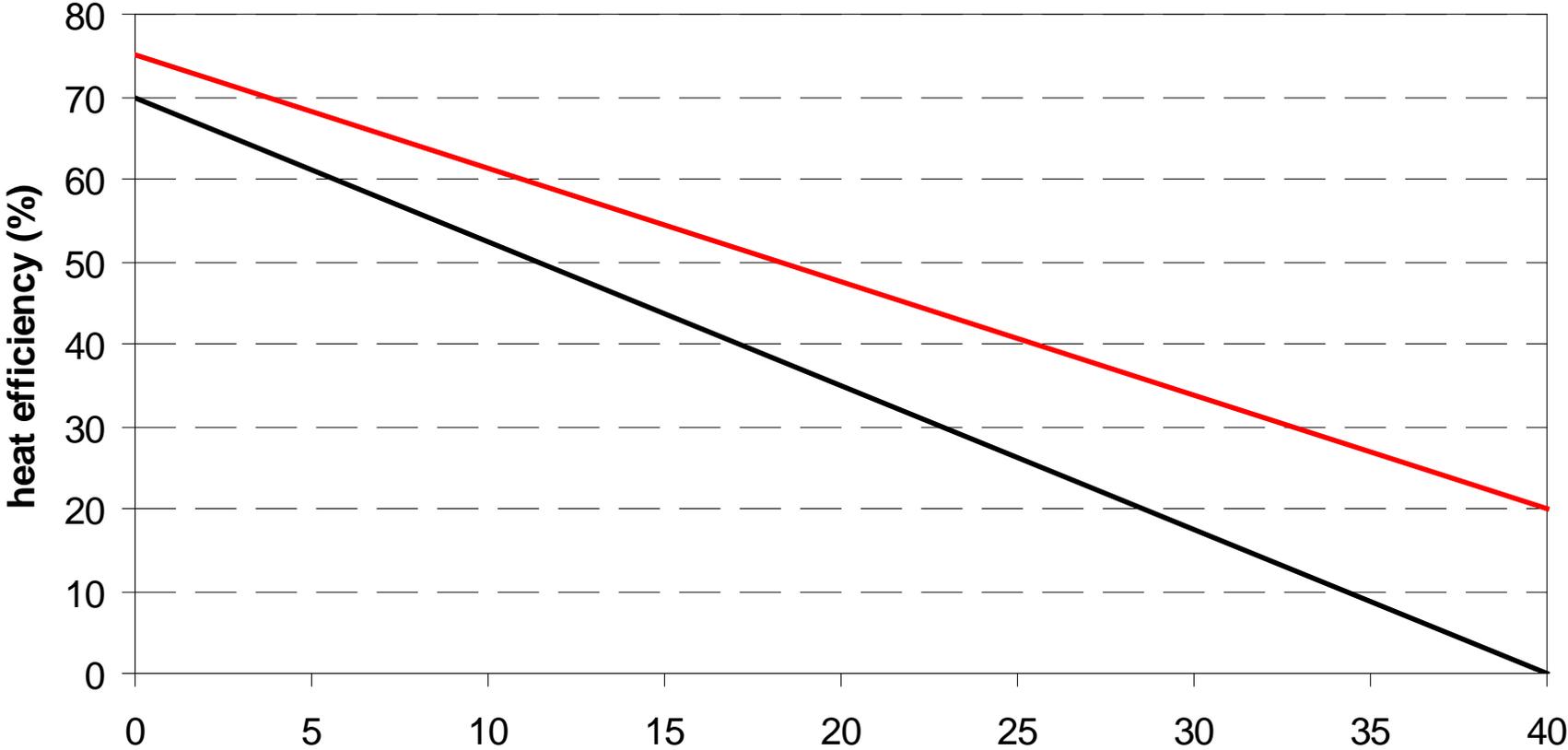
**GK-1:** No additional requirements apply in terms of life cycle assessment.  
LCA threshold value

### **Regional and local criteria**

**LK-WKK1** Only naturemade star-certified biomethane/biogas is used for  
Gas origin cogeneration. The biomethane/biogas plant(s) in which the biomethane/biogas used is generated and the cogeneration plant are interconnected via a gas network. Biomethane/biogas supplies are tied to physical supplies.

**LK-WKK2:** The overall system (plant and thermal supply network) must achieve an  
Annual efficiency annual overall efficiency of at least 80%.

### Minimum annual efficiency requirement



- naturemade  
75% from wood-fired thermal plants, min. 20% heat efficiency from CHP plants, independently of electricity efficiency
- Requirements for electricity refunded by cost-covering feed-in tariff

# Certification of energy generation

to the naturemade resources star quality standard



## General criteria for naturemade resources star

### Certification criteria for naturemade resources star

**Note:**

The following criteria RS-E1 to RS-E7 are based on the naturemade basic criteria ZK-E4 to ZK-E10 for energy generation plants. They are largely consistent with the naturemade basic criteria, but additionally take into account the certification of recovered reusable materials.

<b>RS-E1:</b> Declaration of origin	Generated energy and recovered materials can be traced back to a clearly defined origin (plants, third-party processors or suppliers).
<b>RS-E2:</b> Corporate policy	Maintaining and promoting the sustainable supply and efficient use of energy and materials must form a core part of licensee's corporate policy, with corporate policy on sustainability making explicit reference to the company as a whole. To satisfy this criterion, VUE may require the implementation of an environmental management system independently of the requirements of criterion RS-E3.
<b>RS-E3:</b> Environmental management system	If the licensee of the plant to be certified employs more than 30 staff, it must establish a certified environmental management system (ISO 14001 or EMAS) or equivalent quality management system within five years from the initial certification of its production.
<b>RS-E4:</b> Legal compliance	All technical, legal and other requirements for operating the plant that are necessary for supplying energy and materials must be met.
<b>RS-E5:</b> Energy and materials management	The producer uses an energy and materials management system appropriate to the company in order to safeguard its procedures and carries out appropriate measurement and monitoring activities.
<b>RS-E6:</b> Certification documents	<p>The documents and information plant operators need to provide to VUE for certification purposes comprise the following:</p> <ul style="list-style-type: none"> <li>a) Application for certification: This contains the main information about the enterprise and the future licensee.</li> <li>b) Declaration: This contains all relevant information about the plant.</li> <li>c) Certification audit report: This confirms adherence to and compliance with all relevant certification criteria.</li> </ul>
<b>RS-E7:</b> Supplies to end customers	Where naturemade resources star-certified energy and/or materials are supplied to end customers, this may only be done through naturemade resources star-certified supply licenses.

# Specific criteria for waste incineration plants

## Certification criteria for naturemade resources star

### Global criteria

**GK-KVA1:**  
Life cycle impact limit

- The life cycle impact caused by the plant to be audited must not exceed the life cycle impact limit defined by VUE. The life cycle impact limit is calculated by adding the following:
- Disposal function limit:  
Life cycle impact that would be caused by disposing of a volume of inert materials that is equivalent to the volume of waste processed by the waste incineration plant.<sup>7</sup>
  - Energy limit:  
One quarter of the life cycle impact which the production of the volume of energy (electricity and heat) sold by the waste incineration plant would cause if it was generated by a modern, combined gas-steam power plant.<sup>8</sup>
  - Reusable materials limit:  
One quarter of the life cycle impact that would be caused by the primary production of the recovered volumes of reusable materials (deducting any treatment processes that may be necessary).<sup>9</sup>

This is verified using a standardised model for waste incineration plants (parameter model).

For waste incineration plants that receive compensatory feed-in remuneration (KEV) for the portion of renewable electricity they generate, the portion of electricity produced from renewable sources is not taken into account in the parameter model.

Where processes for recovering reusable materials accounted for in the parameter model are outsourced to other plants, the licensee ensures that these plants meet the licensee's legal and environmental requirements.

**GK-KVA2:**  
Certifiable product volumes

- Once a plant is certified, 100% of its net products, i.e. energy and material products, can be certified under the naturemade resources star quality seal.
- However, for waste incineration plants that receive compensatory feed-in remuneration (KEV) for the portion of renewable electricity generated, only the portion of electricity produced that is not subject to compensatory feed-in remuneration can be certified.

<sup>7</sup> The life cycle impact of disposing of inert materials in landfill is 0.88 millipoints per kg (Eco-indicator 99 assessment method).

<sup>8</sup> Reasons for the quantification of the energy limit: For naturemade star plants, this is based on the principle that the life cycle impact of electricity and heat from renewable sources must not exceed 50% of the life cycle impact of electricity and heat from natural gas. The reference system used is the currently available state-of-the-art technology (combined natural gas-steam power plant or a modulating, condensing natural gas boiler respectively). Since about 50% of the energy generated from waste incineration plants is renewable, only this portion is put in relation to 50% of the life cycle impact of electricity and heat generated from natural gas. As a result, the energy generated and sold by a waste incineration plant can be related to 25% of the life cycle impact that would be caused if the same volume of energy was generated by a modern, combined natural gas-steam power plant.

<sup>9</sup> Reasons for the quantification of the reusable materials limit: For the production of metals, life cycle assessment data are only available for average plants rather than for currently available state-of-the-art fossil technologies, as is the case with energy production. Metals such as aluminium, copper and zinc are often extracted and produced in countries outside Europe with low environmental requirements. The limit for reusable materials relative to current production from fossil sources has therefore been set twice as stringently as for energy, that is at a quarter of the life cycle impact that would be caused by primary production.

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## Regional and local criteria

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**LK-KVA1:**  
Framework conditions and  
duty to provide information<sup>10</sup>

Plant operators provide evidence of compliance with the framework conditions of the regional waste management plans of their catchment areas.

Waste incineration plant operators verifiably endeavour to provide information about waste prevention, waste sorting and recycling to the public and within their collection region.

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**LK-KVA2:**  
Prices for receiving waste<sup>11</sup>

The prices for disposal in the waste incineration plant are transparent and comprehensible in keeping with the "polluter pays" principle, and they promote recycling.

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**LK-KVA3:**  
Supply conditions and quality  
assurance

The plant imposes supply conditions containing provisions regarding the composition of waste. These conditions establish targets for sorting recyclable waste portions and preventing the acceptance of non-approved or hazardous waste.

The licensee ensures compliance with supply conditions as follows: Detailed quality assurance checks are performed on at least 0.5% of (the number of) waste supplies or at least 5 times per working week, on average. A detailed check involves checking an entire supply for compliance with the set supply conditions, using a quantifiable method. All detailed checks are documented.

The licensee imposes sanctions for any breaches of the supply conditions. Depending on the severity of any breach, the licensee will reject supplied waste and impose a supply ban on the responsible supplier, issue the supplier with a written complaint or bring charges against the supplier.

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**LK-KVA4:**  
Logistics

The quality of vehicles in terms of energy efficiency and impact on air quality is an important procurement criterion for logistics suppliers and vehicles used on the premises. Where logistics services go to tender, fleet quality in terms of energy efficiency and impact on air quality constitutes a criterion for awarding the contract.

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**LK-KVA5:**  
Net energy efficiency (NEE)

The waste incineration plant achieves a net energy efficiency (NEE) of at least 0.65.

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**LK-KVA6:**  
Waste water discharge

The effects of waste water discharge according to the discharge conditions have been analysed and the description contains a precise account of the discharged substances.

The licensee verifies compliance:

- d) with all limits according to the regional operating license or
- e) with the reference values according to the Swiss Water Protection Ordinance (Appendix 3.2, No. 36 Water Protection Ordinance) where there is no operating license with defined limits

based on at least 3 measurements performed throughout the year. Where a measurement establishes that limits are not complied with, the waste incineration plant undertakes to examine and implement relevant corrective action. The relevant approach and dates are set down during the audit. This applies to all instances where limits are not complied with, i.e. also to isolated events.

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<sup>10</sup> The LK-KVA1 criterion is largely consistent with the naturemade basic criterion AK-KVA5 Separation quota.

<sup>11</sup> The LK-KVA2 criterion is largely consistent with the naturemade basic criterion AK-KVA4 Slag.

## Certification of energy supply

to the naturemade star, naturemade basic and naturemade resources star quality standards



***naturemade basic, naturemade star and naturemade resources star certification criteria***

**ZK-L1:** Origin of energy The energy product to be certified can be traced back to clearly described, identifiable sources (own plants or third-party suppliers). Sources must be clearly indicated in the “Declaration for energy products” form.

In the case of third-party suppliers, the proof must be in the form of energy supply contracts. If no physical delivery takes place, or if only the “added environmental value” of the energy is procured, evidence must be provided through an appropriate quality assurance system (e.g. a certificate system).

Evidence must also be provided that there is no double sale of “added environmental value”.

The quantity of energy for which proof of origin has been issued may be entered in naturemade-certified electricity supplies.

Properties of naturemade-certified energy products naturemade accreditation provides a guarantee to end customers that the full added environmental value is sold together with the accredited energy. Partial added value, in particular greenhouse gas savings, cannot be sold separately from naturemade-accredited energy or supplied to end customers. The sale to end customers concerns the supply/consumer level and does not impact on balances at the national level. End customers have an impact on balance levels in Switzerland’s national climate protection targets, if naturemade-accredited energy was produced within Switzerland.

Approach to publicly subsidised renewable energy  
naturemade accreditation of renewable energy from subsidised plants is available, if the subsidising body does not claim the full added environmental value at the supply/consumer level. VUE may request a relevant certificate.

naturemade star energy products Energy products which the supplier wishes to have certified under the naturemade star quality seal must consist exclusively of naturemade star-certified energy.

naturemade basic energy products Energy products which the supplier wishes to have certified under the naturemade basic quality seal must consist exclusively of naturemade basic-certified or naturemade star-certified energy.

naturemade resources star energy products Energy products which the supplier wishes to have certified under the naturemade resources star quality seal must consist exclusively of naturemade resources star-certified energy

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Inclusion of electricity subsidised under the KEV scheme for compensatory feed-in remuneration in naturemade electricity supplies

In **naturemade basic**-certified products, electricity subsidised under the KEV scheme may be included to comply with the support scheme requirements.

In **naturemade star and naturemade resources star**-certified products, electricity subsidised under the KEV scheme may be included in terms of legal compliance, if the KEV portion in the naturemade star/naturemade resources star electricity product is upgraded with sufficient certificates for naturemade star/naturemade resources star-certified quality to cover the KEV portion.

Note on naturemade star and naturemade resources star products

If the KEV portion is not upgraded, it must be supplied to end customers separately from the product.

Licensees are responsible for diligent and correct communication with their end customers.

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Sale of certified products via sublicensees

Certified energy products may be sold to end customers via sublicensees. In this case, the licensee is responsible for the correct handling of processes. Where energy is supplied through a sublicensing scheme, the following conditions must be contractually agreed between the licensee and sublicensee and complied with:

- The composition of the energy product may not be altered by the sublicensee.
- The naturemade criteria must be complied with by all parties, especially the criteria relating to the funding scheme (FM-1 ff.), product information (ZK-L8) and communication principles (ZK-L11).
- There is an obligation to provide information to the licensee and VUE, above all regarding product sales.

**Naming of sublicensed end products**

- The sublicensee may rename the certified product under the following conditions:
  - The sublicensee notifies the licensee of the name.
  - The sublicensee refers to the parent product in all of its communications regarding the energy product (licensee, license number or licensed name respectively).
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Promotion and improvement

**ZK-L2:** Maintaining and promoting the sustainable and efficient supply of energy must be an essential part of the licensees' corporate policy.

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Legal compliance

**ZK-L3:** All technical, legal and other conditions necessary to supply the energy must be met.

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Energy management

**ZK-L4:** The supplier uses an appropriate energy management system to safeguard its procedures and carries out appropriate measurement and monitoring activities.

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Availability and synchronization	<p><b>ZK-L5a:</b> Within an annual accounting period, the energy supplier must achieve a balance between the certified energy it procures and sells.</p> <p>Annual synchronization of procurement and consumption (sales) applies, as ongoing synchronization would be very demanding in terms of regulatory mechanisms and monitoring.</p>
Excess demand	<p><b>ZK-L5b:</b> The certified energy sold each year must not exceed the certified energy generated in the same year.</p> <p><b>Electricity:</b></p> <p>Any excess supply or demand must be balanced similarly to the method prescribed for the validity of proofs of origin (HKS Article 1 (4)). The years of production and consumption must be identical.</p> <p><b>Heat and biomethane/biogas:</b></p> <p>In exceptional cases, excess demand in one year may equal a maximum of 15% of the quantity sold in the same year.</p> <p>This can either be offset against unsold certified energy from the previous year or reduced in the course of the following year.</p> <p>In case of excess supply, VUE will, in exceptional cases, allow heat and biomethane/biogas that has been purchased but not yet sold to be carried forward to the following year. This carry-forward may not exceed 15% of the energy sold in the year of procurement.</p>
<b>(ZK-L6 Deleted)</b>	
Supply guarantee	<p><b>ZK-L7:</b> Energy suppliers must ensure that guarantees for the supply of energy from renewable sources (i.e. the maximum validity period of the license) extend over a period that is longer than the term of the energy supply contracts concluded.</p>
Product information	<p><b>ZK-L8:</b> Energy suppliers must provide end customers with consistent product information supplementing the certificate. This information must contain certain data prescribed by VUE and be issued to customers upon the sale of certified energy.</p> <p>The product information must cover at least the following points:</p> <ul style="list-style-type: none"> <li>– Composition of energy sources used in per cent;</li> <li>– naturemade logo for the relevant quality in an appropriate form;</li> </ul>

(Re)certification documents	<p><b>ZK-L9:</b> The documents and information that energy suppliers are required to submit to VUE for <b>certification</b> by VUE comprise the following:</p> <ul style="list-style-type: none"> <li>– Application for certification and energy product declaration This contains the main information about the enterprise and the future licensee, the energy product including its composition and declaration of origin, and a confirmation that the criteria are met.</li> </ul> <p>The documents and information required for <b>recertification</b> by VUE that an accredited auditor needs to submit to VUE comprise the following:</p> <ul style="list-style-type: none"> <li>– Application for recertification</li> <li>– Declaration for energy products</li> <li>– Recertification audit report This confirms compliance with all relevant naturemade certification criteria.</li> </ul>
Compliance with the support scheme	<p><b>ZK-L10:</b> Electricity suppliers that sell naturemade basic-certified electricity to end customers must implement the naturemade support scheme.</p> <p>There is no support scheme for naturemade star-certified products (electricity, thermal energy, biomethane/biogas). These products intrinsically support the development of additional plants and green energy.</p> <p>There is no funding scheme for naturemade resources star-certified products (electricity, heat).</p>
Compliance with communication principles	<p><b>ZK-L11:</b> All energy suppliers that sell naturemade-certified energy products must follow the communication and design guidelines defined by VUE.</p>
<b>naturemade basic support scheme for electricity products</b>	
<b>Basic conditions</b>	
Implementation of support scheme	<p><b>FM-1:</b> The naturemade support scheme must be implemented by all electricity suppliers selling naturemade basic-licensed electricity products to end customers or sub-licensees.</p> <p>For all naturemade basic electricity products, the quantity of electricity covered by the support scheme must be sold as part of the product. naturemade basic electricity products are therefore always mixed products.</p>
Implementation obligation	<p><b>FM-2:</b> The naturemade basic support scheme must be implemented every year.</p> <p>Shortfalls in coverage of no more than 1% of the quantity sold can be compensated for in the following year.</p>
Rules for traders	<p><b>FM-3:</b> The electricity sold to traders is irrelevant for the calculation of the support scheme portion.</p>

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### Conditions for mandatory quota

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**FM-4:** Calculation basis The naturemade support scheme must be complied with for each naturemade basic-certified product and is linked to the **quantity** of naturemade basic-certified electricity **actually sold** to end customers (equivalent to 100 per cent).

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**FM-5a:** Support scheme composition for companies subject to energy source labelling requirements The naturemade basic support scheme for electricity products comprises at least 10 per cent electricity from new renewable sources of energy and naturemade star green power (new renewables and hydropower). As previously, it comprises a fixed portion of naturemade star-certified electricity from new renewable sources of energy, which is now supplemented by a regularly increasing portion of naturemade star green power and the legally required portion of subsidised electricity. The following minimum requirements apply here:

Relative to the **quantity of a naturemade basic-certified electricity product effectively sold to end customers** (equivalent to 100%):

- At least 2.5% must continue to be naturemade star-certified electricity from new renewable sources;
- At least 3.5% must additionally be naturemade star-certified electricity. ;
- Subsidised electricity (maximally the KEV portion in the respective year of supply).
- The funding scheme will be increased from 2020. Licensees currently accredited under Accreditation Guidelines 2.6 and higher must implement the relevant adjustments.

VUE defines electricity from the following energy systems as energy from new renewable sources:

- Electricity generation from wind energy
- Electricity generation from photovoltaic processes
- Electricity generation from green waste fermentation
- Electricity generation from agricultural biogas
- Electricity generation from wood fuels and waste timber

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**FM-5b:** Support scheme composition for companies not subject to energy source labelling requirements The requirements regarding the support scheme composition are identical to those described under FM-5a above, except for the KEV portion. Licensees are responsible for customers receiving the relevant portion of subsidised electricity.

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**FM-6:** Building of additional plants Electricity suppliers can include all plants which generate electricity from new renewable sources in order to fulfil the required 2.5 per cent from new renewable energy sources. The plants must be certified under the naturemade star quality seal.

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### Support scheme for plants outside Switzerland

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**FM-7:** The electricity quantities required for the naturemade support scheme can be procured from generation plants outside Switzerland.

Inclusion of plants outside Switzerland

The following framework conditions apply:

- Electricity procured internationally for the naturemade support scheme must be certified under the naturemade star scheme.
  - No more than 50 per cent of the required quantity of electricity from naturemade star new renewable energy sources and naturemade star hydropower may be procured from the European Network of Transmission System Operators for Electricity (ENTSO-E).
  - Suppliers must provide evidence that there is no double set-off of the environmental added value. Plants outside Switzerland which have been removed from subsidy and development programmes of their respective countries due to their age cannot be counted towards the naturemade support scheme.
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# Certification Guidelines

according to the naturemade efficiency quality standard



### Definitions

- “Target agreements” (TAs) By signing a target agreement, an enterprise having such a target agreement determines, in collaboration with a monitor, the extent to which energy is to be reduced on a mandatory or voluntary basis (so-called target pathway).
- “Excess efficiency capacities” (EECs) Efficiency improvements that go beyond the target pathways defined in the TA schemes recognised by VUE (based on the EM-E1 to EM-E5 criteria) constitute excess efficiency capacities that are eligible for efficiency certificates.
- “Efficiency certificates” (ECs) Excess efficiency capacities are converted into efficiency certificates once suppliers have paid the appropriate financial compensation to the relevant enterprises with target agreements.
- “Energy protocol” (under development) An energy protocol is a set of tools for quantifying, measuring, managing and reporting the energy consumption of an organisation or enterprise (“purchaser”). It sets down standards for achieving energy neutrality and the use of efficiency certificates.
- “Energy neutrality” of the purchaser Energy neutrality within the meaning of these Certification Guidelines is achieved where the energy consumption of a purchaser (or its products or services) as determined by means of the energy protocol is offset by efficiency certificates of *naturemade efficiency* quality. Where this is the case, the by-line “energy-neutral” is added to the quality seal.
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**Roles within the efficiency marketplace**

Enterprise with a target agreement An enterprise that has made a target agreement (TA) under a TA scheme recognised by VUE (based on the EM-E1 to EM-E5 criteria) and generates excess efficiency capacities.

Monitor Monitors are operators of TA schemes recognised by VUE that certify annual excess efficiency capacities for enterprises with target agreements.

Monitor's auditor The Swiss Federal Office for Energy (BFE) and the Swiss cantons are audit bodies. The BFE assesses and recognises monitors' schemes and tools. Target agreements as such continue to be audited by the BFE and, to some extent, by the cantons (for large consumers). Implementation audits are performed by the BFE on a random basis.

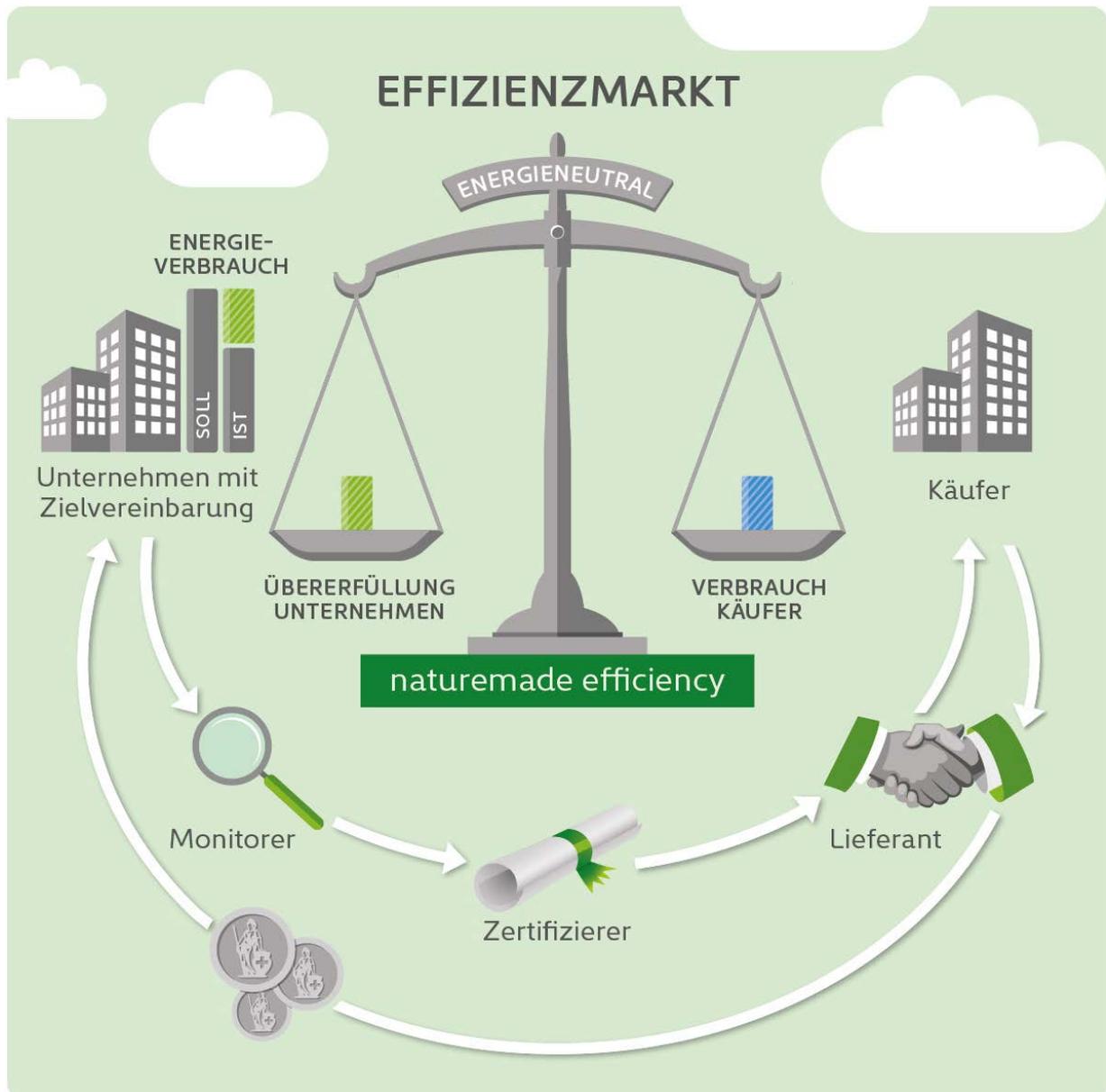
Supplier's auditor The auditors accredited by VUE conduct audits among suppliers (see "Auditing provisions").

Certification body VUE develops standards for the use of efficiency certificates and verifies compliance. It is also responsible for recognising TA schemes suitable for the efficiency marketplace.

Supplier Suppliers purchase excess efficiency capacities from enterprises with target agreements and thus generate efficiency certificates. ECs can be sold to purchasers via defined products.

Purchaser Purchasers purchase services consisting of efficiency certificates from suppliers.

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# Certification conditions

## Specific conditions for the efficiency marketplace

**Scope** The Certification Guidelines of the Association for Environmentally Sound Energy (VUE) apply to the following:

- a) Operators of target agreement schemes that certify excess efficiency capacities eligible for efficiency certificates (“monitors”)
- b) Suppliers (e.g. energy suppliers) that purchase excess efficiency capacities and thus generate efficiency certificates, which they then sell on to third parties (“suppliers”)

**Quality** Efficiency certificates (ECs) are of *naturemade efficiency* quality.

**Mandatory licensing agreement with VUE for monitors and suppliers (“licensees”)** Monitors: Monitors are only authorised to release excess efficiency capacities eligible for ECs to suppliers once they have signed a licensing agreement. Monitors are issued with so-called package certifications to avoid individual certifications needing to be issued for each enterprise with a target agreement.

Suppliers: Suppliers may only use the *naturemade efficiency* quality seal for ECs and services offered together with ECs once they have signed a licensing agreement. Suppliers are responsible for having the quantities of ECs purchased deleted from the VUE register.

**VUE membership** Membership of the Association for Environmentally Sound Energy (VUE) is a prerequisite for certification as a monitor or supplier. The application for membership may be submitted together with the audit documentation. Membership fees are set in accordance with the relevant provisions in the VUE Charter, as amended.

**Funding** Funding is subject to the “Financial contributions regulations” adopted by VUE, as amended.

**Sublicenses** If sublicenses are issued to suppliers, both the licensed supplier and any sublicensees must comply with the certification criteria. Licensees must be able to demonstrate compliance during audits and are responsible for their sublicensees’ compliance with the certification guidelines.  
Sublicensing agreements must be submitted to VUE for information.

**Sale of excess efficiency capacities to suppliers by enterprises with target agreements** Monitors may sell excess efficiency capacities to suppliers within the year of certification and until 31 March of the following year, converting them into ECs. The year of certification is the calendar year following the year during which the relevant measures were implemented. Compliance with this requirement is ensured at two levels:

By monitors through the correct registration of excess efficiency capacities achieved in the VUE register for the given year

By VUE through the clearing of the register on 31 March of every year

The validity period of ECs (i.e. excess efficiency capacities for which suppliers have paid compensation) is defined in criterion EM-L1.

## Auditing provisions

**Auditors of suppliers** Only auditors and audit bodies accredited by VUE may conduct audits. They are responsible for audits and the review of all certification criteria and may be freely chosen by the suppliers to be audited.

## Certification audits

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General provisions	Certification audits must comply with the certification guidelines established by VUE. Certification audits involve verification that all certification criteria are met. A certification audit concludes with the certification audit report, which demonstrates how the certification criteria are being met.
Specific provisions	Monitors: Monitors are audited by bodies recognised by VUE and therefore do not need to undergo an additional audit with an auditor. Compliance with the criteria EM-E2 to EM-E5 is verified by the VUE executive office. Suppliers: Suppliers need to undergo a certification audit with an auditor every five years.

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### **Review audits**

Monitors	Monitors are exempted from review audits. However, they need to enter the certified excess efficiency capacities in the VUE register by 31 May of each certification year.
Suppliers	Auditors conduct annual review audits. Suppliers may have individual audits conducted to verify the appropriate implementation of the energy protocol upon a purchaser's request.

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<b>Content of supplier review audits</b>	Supplier review audits are conducted based on the VUE certification criteria. They focus on the following areas, above all: <ul style="list-style-type: none"> <li>– Suppliers have procured at least as many ECs as they have supplied to purchasers (including random checks of the financial compensation paid for ECs to enterprises with target agreements and checks whether suppliers have deleted ECs in the VUE register in a timely manner).</li> <li>– Random checks of the correct implementation of the energy protocol.</li> </ul>
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# Certification criteria for naturemade efficiency

## Production

**EM-E1:** Monitors are service providers instructed to implement target agreements by the Swiss Federal Office for Energy (BFE) under the Swiss CO<sub>2</sub> and Energy Law. Only monitors' TA schemes can be recognised by VUE.

Recognised TA models

The criteria defined in EM-E2 and EM-E5 must additionally be complied with before a TA scheme can be recognised by VUE. These criteria (excluding EM-E1) are audited by the VUE executive office every five years.

**EM-E2:** Shortfall efficiency capacities occur when an enterprise with a target agreement fails to comply with the target pathway of the relevant TA scheme. The following fundamental principle applies to shortfall efficiency capacities on the efficiency marketplace:

Handling of shortfall efficiency capacities

All shortfall efficiency capacities accrued since the time a target agreement was made with a monitor must be balanced first before an enterprise may have excess efficiency capacities eligible for ECs certified (regardless when the enterprise entered the efficiency marketplace).

**EM-E3:** Only efficiency measures count towards achieving excess efficiency capacities, i.e. purchases of renewable energy (green power, biogas) and efficiency certificates do not count. If the procurement of green power, biogas or ECs counts as a measure for the purposes of monitoring a target agreement, purchased green power, biogas or ECs are therefore deducted from any excess efficiency capacities in the corresponding amount. This is to ensure that excess efficiency capacities are only achieved by actually implementing reduction measures.

Eligibility of green power, biogas or ECs for achieving excess efficiency capacities

**EM-E4:** Enterprises with target agreements that have achieved certified excess efficiency capacities are free to choose both the supplier they wish to sell to and the number of excess efficiency capacities they wish to sell.

Freedom of choice of enterprises with target agreements

**EM-E5:** Monitors need to obtain the written consent of enterprises with target agreements that they agree to having the data required for handling sales published in the VUE register.

Data protection

## Supply

**EM-L1:** 1 EC corresponds to 1 MWh saved weighted energy (acc. to criterion EM-L5).  
Units and validity of efficiency certificates

ECs are valid to 31 December of the second year following their generation (i.e. following payment of financial compensation for the certified excess efficiency capacities by the supplier). An EC generated in 2013, for example, is valid until 31.12.2015.

**EM-L2:** Suppliers who have made a relevant licensing agreement with VUE may freely trade ECs among them as long as the ECs are valid.  
Tradeability of ECs

**EM-L3:** ECs may only be sold for the purposes intended by VUE. ECs may be sold in the following ways:  
Sales options

- Supply of ECs to purchasers with the intention of achieving energy neutrality according to an energy protocol
- Supply of ECs without the intention of achieving full energy neutrality. Any other intended purposes require the prior approval of the KGE (Koordinationsgruppe Effizienzmarkt/Efficiency Marketplace Coordination Group).

ECs cannot be counted towards meeting the requirements defined in target agreements (in analogy to EM-E3).

**EM-L4:** The two levels, i.e. efficiency and quality, are intentionally kept separate, and no requirements have therefore been defined regarding the quality of the energy (electricity, heat, fuel) consumed by purchasers (e.g. *naturemade star* for electricity), if the equivalent amount is offset by ECs.  
Quality of saved energy

**EM-L5:** Weighting factors are applied to the various energy sources when generating ECs, as primary energy is assessed generically. Electricity savings are not calculated based on the actual electricity mix, but rather on the basis of a national average in order to simplify calculations. The guiding factors for the relevant calculations are defined in the document "Guidelines on target agreements for increased energy efficiency with the federal government" of the Swiss Federal Office for Energy (BFE).  
Weighting factors

The same factors must be applied whether ECs are used in energy products or to offset energy consumption.

VUE is aware and accepts that enterprises with target agreements are also able to use renewable energies in order to achieve their efficiency targets (substitution), because these are also taken into account via weighting factors (> 0).

**EM-L6:** Participants in the efficiency marketplace must achieve a balance between the certified energy they procure and sell within any annual accounting period, i.e. marketplace participants may not have any shortfall in ECs at the end of the year. A shortfall of no more than 15% is accepted during the marketplace introduction phase ("borrowing").  
Shortfalls

**EM-L7:** All technical, legal and other conditions necessary for the procurement and supply of ECs must be met.  
Legal compliance