

## **Explanatory Memorandum**

### **I. General Provisions**

In Art. 2 (1) sentence 2 of the Renewable Energy Sources Act (EEG) of 29 March 2000, legislature authorised the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), in agreement with the Federal Ministry for Consumer Protection, Food and Agriculture and the Federal Ministry of Economics and Technology, to issue provisions, via ordinances subject to approval by the German Bundestag, specifying what substances and technical processes for biomass fall within the scope of application of the EEG and what environmental standards must be met. In fulfilment of this authorisation, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) submits the present draft.

The overarching objective behind the Biomass Ordinance – BiomasseV – is the task presented by the Renewable Energy Sources Act (EEG): to contribute to sustainable development of the energy supply in the interests of climate and environmental protection. In order to at least double the percentage share of renewable energy sources in total energy supply by the year 2010, the Renewable Energy Sources Act gives renewable energy sources priority status within the meaning of Directive 96/92/EC of the European Parliament and Council of 19 December 1996 concerning common rules for the internal market in electricity (cf. Art. 8 (3) of the Directive and Reason No. 28).

The Ordinance serves legal determination of the types of use of biogenic material in electricity generation to be covered by the provisions of the Renewable Energy Sources Act. The Renewable Energy Sources Act has changed the terms for sale to the grid of electricity from biomass in contrast to the relevant terms in the preceding law, the Act on the Sale of Electricity to the Grid (Stromeinspeisungsgesetz - StrEG). On the one hand, the Act now includes installations with an installed electricity capacity of over 5 megawatts (up to 20 megawatts, cf. Section 2 (2) No. 1 EEG). On the other hand, a higher minimum compensation for electricity from biomass now applies (cf. Section 5 EEG). The purpose of these changes is to increase use of biomass in electricity generation.

To guide the intended use of biomass along orderly pathways that are desirable and acceptable in terms of energy policy and environmental policy, and thus to prevent conceivable undesirable developments, it is necessary for the Ordinance to describe technologies that are considered useful in terms of energy and climate policy and to formulate minimum standards for these technologies.

With the new provisions of the Renewable Energy Sources Act as regards biomass, legislature builds on the existing provisions of the StEG. Delegation of legislative authority for BiomasseV to the executive branch of government does not constitute a departure from the existing legal situation or any intention to remove certain types of biomass use for electricity generation from the scope of application of the priority provision. In general, no negative experience, in terms of energy or environmental policy, has been had in practise with existing types of biomass use. Thus, the draft is based on the assumption that already practised procedures are basically in line with the required energy policy and environmental policy standards. On the other hand, new procedures and installations should at least meet these achieved standards. As a result, the Ordinance should also provide incentives for technological advancement.

The Ordinance's concept provides for regulation of environmental standards for processes for electricity generation from biomass via interaction between the Ordinance's definitions of requirements for biofuels (cf. Art. 2 and 3) on the one hand, and the relevant process technologies (cf. Art. 4) for other environmental standards prescribed by specialised provisions of environmental law (cf. Art. 5) on the other. With the exception of the special provisions of Art. 5 (2) and (3), the establishment of additional requirements for the relevant technologies, i.e. requirements that diverge from standards of relevant specialised provisions of environmental law, is intentionally avoided.

The requirements applied to the substances used (cf. Arts. 2 and 3) ensure that no admixtures of foreign substances whose combustion could undermine the purpose of the Renewable Energy Sources Act may be added to renewable energy sources. Specifically, this applies to admixtures of fossil origin.

Certain types of waste are also recognised as biomass. This will have some impact on the waste management sector. Inclusion of use for energy recovery of certain biogenic waste, within the priority provisions of the Renewable Energy Sources Act, is based solely on the energy and climate policy consideration that use of these fuels for electricity generation represents a useful contribution to substitution of conventional fuels and to the establishment of a sustainable energy supply system. Such inclusion is not based on intentions that originate with waste management. On the other hand, use of waste for electricity generation should not be permitted where this would result in undesirable developments in the waste management sector (such as greater environmental pollution or displacement of other types of waste recycling that are to be preferred for reasons of resources conservation).

From a technical standpoint (cf. Art. 4), relevant installations must not lag behind the current state of the art in electricity generation from biomass as regards the aims of climate and environmental protection. The intention here is to help initiate advancement.

Furthermore, it does not seem necessary, in terms of energy and environmental policy, to establish separate environmental standards that go beyond the environmental requirements established by specialised laws (cf. Art. 5). The establishment of such standards would also be problematical as regards the legal system and the fact that legislature has chosen to shape the legal situation, within the framework of the EEG, solely under civil law, i.e. to refrain from involving monitoring or control authorities. If this policy is to be continued, then establishment of specific environmental requirements for specific process technologies would require energy producers themselves to monitor compliance with these requirements, to make such compliance transparent for buyers of the generated electricity and, in cases of doubt, to prove such compliance. Through submission of suitable documents (such as licenses or other certification), it will be relatively simple for operators to prove, on a regular basis, their compliance with the requirements of specialised laws and with the provisions governing the nature of the material used in relevant installations. Any proof of compliance with special environment-oriented requirements would involve disproportionately greater effort.

In deviation from the described principle, Art. 5 (2) and (3) contain special requirements for the use of EEG compensation provisions for combustion of waste wood materials which contain toxic substances. Compensation under the EEG for electricity produced from biomass which involves combustion of waste wood materials containing toxic substances shall apply solely in cases where the strict requirements of the Ordinance Combustion of Waste and Similar Combustible Materials (17. BImSchV) are met without exception and

when the minimum requirements for electricity efficiency are met in specific installations with an electricity capacity of more than 5 megawatts. Thus, the provision also offers an indirect incentive for the use of particularly modern environmental technologies without the need to change or impose existing pollution control laws and without the need for autonomous proof of compliance. Through the submission of their license or other certification, EEG addressees can prove compliance with the requirements with a minimum amount of effort.

## **II. Specific Provisions**

### **1. Re. Art. 1**

Art. 1 describes the Ordinance's tasks as defined by the authorisation of the EEG (Section 2 (1) sentence 2). These tasks include:

- a) Definition of 'substances' which are biomass within the meaning of the EEG
- b) Definition of "technical processes" available for generation of electricity from biomass within the meaning of the EEG
- c) Definition of environmental standards which, when complied with, mean that the electricity generated from biomass with one of the defined processes falls under the EEG's priority provisions.

The meaning of the individual definitions of this Ordinance applies solely to the scope of application of the EEG.

### **2. Re. Art. 2**

#### **a) General Information**

The task of Art. 2 and 3 is to identify the types of biomass used in electricity generation that fall under the EEG's priority provisions. The spectrum of theoretically acceptable substances is limited by the specification of substance requirements to ensure that only those biomass types receive priority whose use in electricity generation conforms to the EEG's objectives. Only these types are considered "biomass" within the meaning of the Ordinance and, thus, of the EEG.

For reasons of climate protection and resources conservation, the granting of priority status can, in principle, be justified where biogenic substances that are not of fossil origin are involved. Thus fossil fuels can not be considered as biomass within the meaning of the EEG. In addition, the following are also excluded: use of substances or materials whose use of energy generation, from an environmental policy standpoint (for example, because substance use for recovery is preferred), is not desired or not desired with priority or whose use for energy generation does not require any additional financial impetus.

The objectives of the EEG preclude the inclusion of fossil fuels within the scope of application of the Ordinance. Therefore, it must be ensured that no fossil components may be mixed in with the desired substances. This is the only way to meet the exclusivity principle set forth in Section 2 (1) sentence 1 of the EEG, which, under the Act's priority provisions, prohibits inclusion of any fuels not listed in the relevant provision. This also

rules out any inclusion of waste incineration where the waste concerned is not *exclusively* biomass within the meaning of the Ordinance.

On the other hand, some types of biomass that fell under the priority provisions of the StrEG contained (minimal amounts of) unavoidable production-related or use-related components of fossil origin whose extraction is not possible or would require such great effort/expense that use of the remaining biomass would no longer be cost-effective, even taking the minimum compensation into account. Such necessary impurities are to be accepted (by exception).

In this light, a general definition of the term "biomass" within the meaning of the EEG is initially given in paragraph 1, sentence 1 and 2, but *without* permitting any inclusion of other substances (either as admixtures or impurities). Paragraph 2 contains special provisions for certain types of biomass that are typically used in electricity generation and that are already covered by the StrEG; in some of the cases mentioned in this provision necessary impurities are tolerated under certain conditions. The purpose of this approach is to ensure that types of biomass use that already fall under the priority provisions of the StrEG do not lose their priority status due to (unavoidable) impurities – and without making it possible for fossil fuels, as new types of "impurities", to be mixed with biomass with the aim of increasing its energy content. The same applies to the biomass types mentioned under paragraph 3; in those cases, the (unavoidable) degree of impurity may be so high that the biomass' qualification as such may be in doubt unless special provisions apply. Finally, paragraph 3 generally excludes certain substances and materials from the scope of application of the previous provision.

#### **b) Re. Para. 1**

**Sentence 1** contains a general definition of the term "biomass" for the scope of application of the EEG, a definition basically derived from common scientific terminology for biomass of plant and animal origin ("phytomass and zoomass"). No distinction has been made as to whether the substances should be exclusively of phytomass or zoomass origin or are made up of components of both sources of origin.

Pursuant to **sentence 2**, "biomass" includes products and by-products, residues and waste whose energy content, i.e. their available energy for electricity generation, also originates from phytomass and zoomass. This allows in particular the inclusion in some areas of desirable procedures for energy recovery from waste in line with energy and environmental policy.

This means that substances, products and mixtures whose energy content is partly of non-biogenic origin may not generally be considered biomass. This implements the exclusivity principle of Section 2 (1) sentence 1 of the EEG in respect of biomass. Admixtures of other thermally exploitable substances are not permitted. Other arrangements apply only where they are expressly permitted under special provision.

The context of sentence 1 refers not to "substances" but to "fuels", since the relevant substances are considered in their capacity as substances used for the generation of (electrical) energy.

The provision of paragraph 1 applies in all cases not covered by the special provisions of paragraphs 2 and 3. The general clause of paragraph 1 may be significant, especially with

regard to the development of new processes for exploiting the energy content of biofuels other than those commonly used in electricity generation to date.

### **c) Re. Para. 2**

Paragraph 2 contains special provisions for certain types of biomass that do not require any verification of compliance with the characteristics specified in sentence 1. This provision covers the great majority of biomass types used in electricity generation, but should not be seen as an exhaustive catalogue. Its non-exhaustive nature is expressed by the use of the word "especially".

If a material used as a biofuel falls within the catalogue of sentence 2, such material should be deemed biomass, including in cases where it may contain certain unavoidable impurities. This applies only where the relevant foreign substances are covered by the definition of the relevant applicable individual characteristic (No. 1 through No. 6) in terms of their type and their amount. The addition of other substances is not permitted.

If a substance does not fall within the catalogue of paragraph 2 (or of paragraph 3), it should be verified pursuant to paragraph 1.

**No. 1** mentions plants and plant parts. It does not matter whether such plants are cultivated especially for energy production or whether they are cultivated for other purposes.

**No. 2** deals with fuels produced from plant materials used especially for energy production (for example, rapeseed oil). Such fuels are included here only where the relevant production and processing processes do not add any non-biogenic substances. A special case that departs from this arrangement is covered by paragraph 3 (2).

**No. 3** and **No. 4** deal with certain waste types within the meaning of the Closed Substance Cycle and Waste Management Act (Kreislaufwirtschafts- und Abfallgesetz - KrW-/AbfG). Their formulations serve clarification of the relevant definitions, and the differentiation and useful linking of the two relevant legal areas.

In the case of **No. 3** (waste and by-products of plant and animal origin from agriculture, forestry and commercial fish production), the reasons for the inclusion of this provision in the catalogue of acceptable biomass types is self-evident. Acceptable substances include, for example, straw, liquid and solid manure from animal husbandry, left-over wood from forests, grass and bush cuttings. By-products are mentioned because it may be unclear whether certain substances possess "waste" characteristics (for example, wood from forestry, liquid manure as a potential fertiliser). The extent to which the use of such substances in installations for energy production is permissible depends on the relevant specialised statutory laws. For example, the requirements of Art. 6 (2) KrW-/AbfG must be complied with.

**No. 4** provides for the inclusion of other biological waste (not covered by No. 3) within the meaning of the Biological Waste Ordinance (Bioabfallverordnung - BioAbfV) issued pursuant to the Closed Substance Cycle and Waste Management Act (KrW-/AbfG). This can include, for example, biodegradable waste from food production, compostable waste from kitchens and cafeterias, separated waste from private households and small businesses, biodegradable waste from wood processing and finishing, and waste from landscape management. It must be remembered that use of such waste for energy

recovery must conform with the requirements pursuant to Art. 6 (2) KrW-/AbfG. This means, for example, that such waste must have a caloric value of 11,000 kJ per kg. The extent to which such substances are considered biomass within the meaning of this Ordinance is directly indicated by the BioAbfV. Use of terminology that deviates from common waste law terminology is not appropriate in this area and would create considerable practical problems.

In the area of biological waste, certain impurities cannot be avoided (for example, small pieces of paper in kitchen waste). The addition of such substances for the purposes of energy production is not permitted, however. Substances for which special regulations exist (for example, sewage sludges, cf. para. 3, no. 4) are also excluded.

**Nos. 5 and 6** list secondary fuels that are produced from biomass and that can be directly used for electricity generation. Due to the nature of their origin, these secondary fuels are also classified as biomass. In addition to gas produced from biomass within the meaning of para. 2, sentence 1, through gasification or pyrolysis, and of resulting products and by-products (No. 5), this also applies to alcohols produced from biomass within the meaning of para. 2, sentence 1, whose components and intermediate products have been produced from biomass (such as biomethanol and bioethanol). In connection with such substances, it must be ensured that neither the end product used for electricity generation nor any intermediate product contains any non-biogenic foreign substances.

#### **d) Re. Para. 3**

Paragraph 3 contains special provisions for areas in which compliance with biomass criteria within the meaning of paragraph 1 might be in doubt due to the presence of (unavoidable) foreign substance content that could have a certain impact on the energy content of the overall mass. Inclusion of the substance groups listed here is nonetheless desirable given the objectives of the EEG, as their use in electricity generation can contribute significantly to substitution of other fuels and, assuming compliance with environmental requirements of relevant specialised laws (cf. para. 5), does not present any major concerns – in other words, the relevant substance groups must be considered to have positive overall climate and environmental compatibility.

**Sentence 1, No. 1** deals with waste wood. A special provision is required in this area in that waste wood is considered waste pursuant to the provisions of the Closed Substance Cycle and Waste Management Act.

The provision provides a legal definition of the term "waste wood" within the meaning of the Ordinance. On the one hand, it can mean used products with a high proportion of wood content (used wood), while on the other, it can mean left-over wood and wood processing waste from the types of installations described in the provision (industrial wood waste). In the latter case, waste from composite materials is not included in the waste wood definition. In both cases, the materials must constitute waste, i.e. they must have the legally defined characteristics of waste. Untreated wood is biomass by default (cf. para. 2, sentence 1, no.1, and para. 1). In all other cases, wood can be a component of other biomass types (cf. for example para. 2, nos. 3 and 4).

Waste wood can contain not inconsiderable pollutants that dictate higher pollution control standards for the incineration of such wood. Pursuant to the concept of the Ordinance, waste wood is not included in the biomass definition where such waste wood – particularly due to its pollutant content – may not be used for energy recovery as "waste for recovery"

(cf. Art. 3) under the provisions of the Closed Substance and Waste Management Act (Kreislaufwirtschafts- und Abfallrecht). In addition, compliance with an especially high pollution control standard is required for the relevant waste wood categories as regards their pollutant potential (cf. Art. 5 (2)).

In all other cases, there is no requirement, either in the interests of climate protection or environmental protection, for further limits on potentially usable waste wood. Given the efforts to introduce substitutes for conventional fuels in electricity generation, it would be illogical not to provide an incentive for electricity generation from thermal exploitation of these relatively high energy content substances when – ensured by the high environmental standards and additionally by the provisions of Art. 5 (2) – there are no grounds to fear diversion of the pollutant loads into the air or waterways.

The environmental compatibility review carried out in preparation of this Ordinance has shown that, given such requirements, there are no basic grounds to preclude the use of railway ties, pressboard with synthetic components and other pollutant-containing woods in electricity generation (the reasoning of the EEG sees such use as possibly undesirable). Since the legislature – in keeping with the objectives of the EEG – must give decisive attention to the environmental/climate compatibility of each relevant procedure, there was no need for general exclusion of the aforementioned biomass types from the definition of biomass.

If, at the current level of development in environmental technology (and always in compliance with strict pollution control standards), use of pollutant-containing woods in energy production is seen as an acceptable form of pollutant disposal, then it would be illogical to hamper such use by removing it from the priority provisions of the EEG. However, it must be ensured that enhancement of environmental technologies is promoted rather than hampered by such an approach. Furthermore, overcapacities should be avoided.

In order to prevent undesirable developments in this direction, sentence 2 sets forth that the group of waste woods that contains residues of preserving agents or whose coatings contain halogenorganic compounds shall only apply to installations that go into operation within three years from the date this Ordinance enters into force. The categories mentioned include common types of waste wood like window frames, window surrounds, exterior doors, outdoor building timbers, structural timbers, timber and demolition timber with pollutant impurities, railway ties, articles from garden and landscape construction, garden furniture, painted, varnished, and veneered furniture, waste wood from bulk waste (mixed).

The purpose of the time restriction – in keeping with the idea of Art. 9 (1) EEG – is to focus on the fact that the energy generation installations must go into operation by the date stated. As the installations which may be considered for incineration of the types of waste wood described are installations that are subject to certification within the meaning of the Federal Immission Control Act (cf. Art. 5 (2)), it is thus feasible, in legal and planning terms, to link this not to the actual date an installation goes into operation, but rather to the date authorisation is granted for the establishment and bringing into operation of an installation (full authorisation within the meaning of Art. 4 in conjunction with Art. 6 or similar amendment authorisation within the meaning of Art. 16 BImSchG; cf. Art. 2 of 17 BImSchV). This will ensure that any delay in the date an installation goes into operation due to legal certification processes will not impact on the application of BiomasseV in cases where the courts later determine the legality of the certification. If focus were to be

placed on the legality of the certification, there would be a danger that a legally safe installation would not fall within the three-year period because of the postponing effect of any claims (including unjustified claims).

The use of such biomass will remain possible in these installations beyond the date stated.

The government agency issuing the ordinance is called upon to closely monitor further developments in this sector, to evaluate such developments from a climate and environmental protection standpoint and, in the interests of avoiding undesirable developments, to make subsequent provision for such installations. Special consideration should be given to innovative processes with particularly positive environmental protection effects.

**Sentence 1, No. 2** deals with gas produced from waste wood. Where appropriate, the same restrictions apply as for the direct use of waste wood. The provision therefore expressly refers to the restrictions in Sentence 3 and of Art. 3, No. 4. In compliance with sentence 3, the time restriction for installations for the direct use of waste wood containing certain pollutants prescribed in sentence 2 shall also apply to installations that use gas produced from the respective contaminated waste wood. Thus equal treatment of waste wood gas and incineration of waste wood is achieved.

In **Sentence 1, No. 3**, plant-oil methyl esters are listed separately. These are fuels (such as rapeseed oil methyl ester (RME)) produced from plants specially cultivated for energy production (such as rapeseed) which were already covered by the provisions of the StrEG and have, to a certain extent, already come into use as fuels for electricity generation. Current processes for the production of plant-oil methyl esters make use of methanol of fossil origin. Such processes should be retained to ensure that existing incentives for use of biomass (in nearly biomass-only form) in electricity generation are not abolished before commercially viable alternatives have been found. This approach is justified from a climate protection and resources conservation standpoint, as the manufacturing process for plant methyl ester produces similar amounts of biogenic glycerine and thus permits substitution of glycerine of fossil fuel origin. The overall result is thus a reduction in the use of conventional fuels.

In the longer term, however, such circumstances are unsatisfactory. The use of plant-oil methyl ester in electricity generation is given particular consideration because a certain need is seen for the enhancement of suitable engines for other types of plant oils that could be used. It can be assumed that suitable processes for electricity recovery from plant oils will be available by the date stated. Thus, sentence 4 of the provision also prescribes a time restriction on the use of plant-oil methyl ester. The restriction in turn is formulated with regard to types of installations (as in sentence 2 with regard to waste wood and in sentence 3 in respect of gas produced from waste wood), since any other approach would not have guaranteed the necessary investment protection. In other words, in installations that go into operation within three years from the date this Ordinance enters into force, plant-oil methyl ester will continue to count, even after this date, as biomass within the meaning of this Ordinance. Attention should be given, however, to the fact that certain of the respective installations may be subject to certification within the meaning of the Federal Immission Control Act. In such cases, the deciding factor should not be the time the installation goes into operation, but rather the granting of the license (full or operational) as defined in Art. 4 in conjunction with Arts. 6 and 16 of the BImSchG.

Another important aspect as regards the use of plant oil methyl ester is that the ordinance issuer should be called upon, after evaluating experience with the current ordinance, to issue a suitable subsequent regulation for installations that go into operation after that date.

**Sentence 1, No. 4** deals with flotsam that accumulates as waste in connection with management and care of waterbodies and shoreline areas. Such flotsam consists predominantly of biogenic substances (such as algae, plant cover remains, see grass, sedge, wood). It may also contain foreign substances (such as small bits of waste that have collected in shoreline areas). The sorting out of such foreign substances can achieve a biomass portion of over 90%.

**Sentence 1, No. 5** deals with biogas. Such gas, as indicated by the legal definition for the scope of application for this Ordinance, consists of gas mixtures generated by anaerobic fermentation. Substances used in such fermentation may contain certain amounts of foreign substances of synthetic origin – substances for which no cost-effective method of separation is currently available (for example, synthetic formic acid which cannot be chemically differentiated from natural formic acid). Nonetheless, biogas should be classified as biomass within the meaning of the EEG, since, due to its origin, it is composed predominantly of biogenic material and can make an important contribution to substitution of conventional fuels.

The general definition of biogas also applies to gas from landfills and sewage treatment installations. The EEG, however, contains special provisions for compensation in this area. The formulation chosen here indicates that such gases, for the purposes of such special provisions, cannot be considered biomass within the meaning of the EEG. The purpose here is to ensure that gas mixtures produced from municipal solid waste, harbour sludge, other waterbody sludges and sediments, animal carcasses, parts of animal carcasses and products within the meaning of Art. 1 (1) of the Animal Carcass Disposal Act (Tierkörperbeseitigungsgesetz) which, in accordance with that act and ordinances issued on the basis of that act, are to be disposed of in licensed slaughter houses, and substances produced as a result of their disposal or which occur otherwise or are produced with more than 10% by weight of sewage sludge. Such substances are not considered biomass in accordance with Art. 3, Nos. 3, 6, 7 and 9. The purpose of the 10% clause for the mixing of sewage sludge is to acknowledge an already practised and safe process. Restricting the portion to 10% by weight ensures that the special compensation rate anchored in the EEG is not circumvented.

The exclusivity principle set out in Art. 2 (1) sentence 1 of the EEG in no way hinders this approach as it serves the general removal of the use of a mixture of conventional and renewable fuels from the scope of applicability of the Act. The aim is the use of mixtures of various renewable fuels. Since the EEG lacks a special provision for compensation in cases where such (authorised) mixtures are used, but this type of mixing in the use of sludge gas (fuel produced from anaerobic fermentation of sewage sludge) and biogas (fuel produced from anaerobic fermentation of biomass) is of certain practical relevance, it is feasible to dictate a limit up to which sewage sludge portions in biomass within the meaning of the Act can be expected/are acceptable.

If the sewage sludge portion of the source material exceeds 10% by weight, the gas produced is no longer considered biomass within the meaning of this Ordinance. In consequence, the compensation rate for biogas of this constellation cannot be applied. In

such cases, the compensation rate is prorated relative to biomass within the meaning of this Ordinance and to the sewage sludge content.

#### **e) Re. Art. 4**

The provisions of Art. 2 (4) are based on the protection of the sphere of trust towards operators of existing installations for electricity recovery from biomass which are already covered by the StrG. The cost-effectiveness of such installations should not come under question by the substance-related requirements of BiomasseV. No exceptions will be made for reasons of environmental protection to the exclusivity provisions for certain types of waste wood (Art. 3 No. 4). Art. 5 (2) should thus not apply. Otherwise the sphere of trust provision would effectively be redundant. A phased alignment with enhanced pollution reduction technologies will take some time as the respective installations, in accordance with general pollution control laws, are subject to the state of available technology (cf. Art. 5 (1) of this Ordinance and Art. 5 (1) No. 2 BImSchG) and could thus be subject to subsequent directives (cf. Art. 17 BImSchG).

This provision is expected to be of only minimal importance as the substance-related provisions of BiomasseV do not restrict the spectrum of substances considered as biomass in the practice of the StrG (with the exception of sludge and landfill gas whose energy recovery is subject to a special compensation rate, cf. Art. 4 EEG). The clarification provided by the provision will avoid unnecessary disputes in the transition period for the application of the EEG. The formulation generally serves as a collective clause.

#### **3. Re Art. 3**

Art. 3 identifies biomass types which might theoretically be accepted in this context but shall not be considered biomass within the meaning of the EEG.

For reasons of environment and energy policy, all types of fossil fuels, including their by-products and end products, are excluded (**No. 1**: see the general remarks in this connection). This applies especially to coal, mineral oil, natural gas, bitumen, tar sand, shale oil and stack gas. For reasons of clarification, **No. 2** handles the exclusion of peat separately.

**No. 3** contains the clarification, derived from the exclusivity principle set out in Art. 2 (1) sentence 1 of the EEG, that mixed settlement waste and comparable waste mixtures are not biomass.

**No. 4** deals with the exclusion of certain waste woods. Under letter c), the provision contains a general collective provision, and under letters a) and b) it contains special provisions for certain types of waste wood.

Letter c) mandates that waste wood may not be considered biomass when its use in energy generation as waste for recovery is prohibited by the Closed Substance Cycle and Waste Management Act (KrW-/AbfG). For such exclusion to become effective, a general blanket legal provision is required pursuant to which such use in energy generation as waste for recovery is not permitted. This is the case, for example, when the provision implies that, due to its nature or type, substance recycling is to be given priority for the relevant waste wood or only processing as waste for disposal is permitted. In such cases, granting priority status within the framework of the EEG is not justified since the EEG

should not countermand the aims of the Close Substance Cycle and Waste Management Act.

In differentiating waste "for recovery" from waste "for disposal", and in determining priority for "substance" or "energy" recycling, considerable problems have arisen in the practical application of the KrW-/AbfG. The underlying law uses in the main vague legal terminology that requires interpretation and can generate disputes. The decisive issue in the distinction between energy recovery and disposal is whether the relevant measure, in terms of its main purpose, focuses on the use of substances contained in the material or on the disposal of pollutants (cf. Art. 4 (3) and (4)). Among the types of recovery available, priority status is given to the most environmentally compatible type of recovery (cf. Art. 6 (1) sentence 1 and 2 KrW-/AbfG); priority status of a specific type of recovery can be determined through issuance of a suitable ordinance (cf. Art 6 (1) sentence 4 KrW-/AbfG).

Given the fact that considerable uncertainty results from classification of specific types of waste which are made on the basis of these vague legal terms, we should not rely solely on those terms. To ensure a high degree of legal certainty, users of the provision, in terms of inclusion of waste wood within the scope of application of the term "biomass", should be able to make valid assumptions regarding the nature of the relevant biomass unless waste law provisions expressly preclude this.

In using the phrase "on the basis of" (in contrast to "through"), letter c) is thus designed to express the fact that qualification as biomass is not automatically ruled out when the provisions of the KrW-/AbfG have to be interpreted or subsumed in such a manner that the respective waste is deemed as waste for disposal or waste primarily for substance recycling; such disqualification is not prescribed until a more specific provision is issued on the basis of the KrW-/AbfG.

Requirements of closed substance cycle and waste management law on the handling of waste wood should soon be specified by a waste wood ordinance that refers to Art. 5 (3) KrW-/AbfG. Issue of such an ordinance is currently being prepared. The waste wood ordinance could be significant with regard to application of the provision under letter c) and should thus provide additional legal certainty.

Letters a) and b), on the other hand, deal with special cases. In dealing with waste wood that contains PCB/PCT, letter a) touches on an area in which the relevant material has been declared waste "for disposal" in an EU Directive implemented by the PCB/PCT Waste Management Act of 26 June 2000 (Federal Law Gazette I, p. 932). Letter b) concerns a special type of waste wood which contains mercury, a special pollutant. When such wood is burned, particularly when it has high mercury concentrations, stricter requirements must be imposed as regards the cleaning of contaminated exhaust air. Furthermore, elimination of the pollutant is normally the central focus of any thermal processing of such wood. This provision serves in particular the exclusion of kyanised waste wood, i.e. waste wood impregnated with mercury compounds such as cable masts, hop poles and vineyard poles.

For paper, cardboard and pasteboard (**No. 5**), substance recycling plays a particularly significant role in respect of energy and CO<sub>2</sub> balances. In addition, electricity-oriented incineration of waste paper collections which do not lend themselves to substance recycling requires no priority status within the framework of the EEG.

The incineration of sewage sludge (**No. 6**) and harbour sludge and other waterbody sludges and sediments (**No. 7**) for the purpose of electricity generation likewise requires no priority status within the framework of the EEG. Whereas for harbour sludge, the main purpose of incineration is to dispose of pollutants, incineration of sewage sludge, when considering the entire process, provides no significant energy gain. Furthermore, gas produced from sewage sludge is subject to the special compensation provision in Art. 4 (1) EEG.

For textiles (**No. 8**), priority is given to reuse and substance recycling. The term textiles is to be interpreted in its broadest sense. Thus, textiles include not only articles of clothing, but also interior and flooring textiles. In the case of incineration for electricity generation, there is no apparent need for priority status within the framework of the EEG. If textiles were included as biomass within the meaning of the EEG, difficulties would arise in differentiating between textiles made of biogenic materials and textiles of synthetic origin. Nonetheless, the presence of natural textiles as an unavoidable impurity – for example, in biological waste – does not lead to disqualification as biomass.

**No. 9** determines that animal carcasses, parts of animal carcasses and products which, pursuant to the Animal Carcass Disposal Act, must be disposed of in licensed slaughter houses, are not recognised as biomass. Thus, the formulation does not cover substances of the relevant type for which the Animal Carcass Disposal Act permits processing, sale or disposal in places other than licensed slaughter houses. The provision thus also excludes such substances from the term "biomass" as are produced in the course of disposal or occur otherwise (for example, meat and bone meal, animal digest, animal fat). An important aspect is the fact that, together with incineration, the term "disposal" used in the provision, and within the meaning of the Animal Carcass Disposal Act, also covers the treatment and recycling of animal carcasses, parts of animal carcasses and products (cf. Art. 1 (2) of the Animal Carcass Disposal Act). The term "disposal" thus is not compatible with the same term used in the Waste Management Act (Abfallrecht).

Exclusion of the relevant substances listed in No. 9 from the scope of application of this Ordinance is particularly justified in that to date no satisfactory experience has been gained in the production of electricity from such substances which could reliably indicate the relevant effect of its use for electricity recovery pursuant to the objectives of Art. 1 EEG.

Landfill gas (**No. 10**) and sewage gas (**No. 11**) are excluded from the scope of application of the term "biomass" within the meaning of this Ordinance because the EEG contains a special priority provision with a special compensation provision for these two substance classes (cf. Art. 4 sentence 1 EEG).

#### **4. Re Art. 4**

##### **a) Para 1.**

Art. 4 (1) defines the technical processes for generation of electricity from biomass within the meaning of the Ordinance and thus of the EEG. Only generation of electricity from biomass by one of the installation types referred to or described in Art. 4 (1) falls within the scope of application of the EEG.

In order to simplify legal application, the possible technical processes are described and defined by reference to the standard installation types. While the wording of the ordinance

authorisation contains definitions of "technical processes", the technical processes for electricity generation are clear by reference to or description of the relevant installation types. Therefore, it does not exceed the bounds of the legal authorisation to use "installation" as the point of legal reference, as is done here. In practical terms, this approach is useful as it uses the same point of legal reference as underlies the provisions of the Federal Immission Control Act, which is normally the standard for certification of installations.

The installations referred to in **Nos. 1 through 4** thus refer to those technical processes for electricity generation that are currently available.

**No. 5** contains a collective provision for other types of installations and other processes for electricity generation. This provision is needed to ensure that reference to already tested installation types will not hinder research and development. The rather broad legal phrase used by the provision: "using other technical processes which are comparable with those listed in Nos. 1 through 4 and are operated with respect to the aim of climate and environmental protection", matches the objective of the EEG and serves to describe the required minimum standards in terms of energy and environmental policy. Substandard technologies are excluded from the scope of support provided by the EEG. Certification of installations will be subject to the prevailing specialised laws.

#### **b) Re Para. 2**

Paragraph 2 permits the use of non-biogenic substances for ignition and combustion support purposes where technically possible using only substances other than biomass. In cases where gaseous biomass is used, the provision permits the use of diesel engines in electricity generation (injection). The use of diesel engines enables higher levels of electricity exploitation to be achieved, particularly in decentralised biogas installations whose energy production is typically low. The exception for support combustion is also required as the use of smaller amounts of fossil fuels is sometimes unavoidable – for example, in maintaining combustion as such or in stabilising a combustion temperature that is required under pollution control law.

#### **c) Re Para. 3**

Sewage gas and synthesis gas produced from the gasification of sewage sludge is not as such covered by the term biomass. The proportional mixture of sewage gas or synthesis gas from the gasification of sewage sludge in the generation of electricity from biomass (for example, in the use of waste wood) would, however, appear both safe from a climate policy standpoint and useful in terms of research policy given that the technical process allows combined use of biomass with sewage gas or synthesis gas produced from the gasification of sewage sludge which results in a development potential – primarily in cogeneration – which would otherwise not exist. However, mixing in electricity generation can only be recognised within the meaning of the Biomass Ordinance when the portion of biomass is proportionally high and only sewage sludge is used to produce synthesis gas. This is the only way to steer this technically feasible innovation in the desired direction.

### **5. Re Art. 5**

#### **a) Re Para. 1**

The provision expresses the fact that the priority provision pursuant to the EEG is not intended as any exemption from requirements of relevant specialised environmental protection laws. In its choice of words, the provision refers to several terms used in environmental law. It uses the broad term "pollution prevention and control" from the EU's IPC Directive, thereby emphasising its reference to all types of pollution of environmental media (air, soil, water, human well-being). This includes environmental protection with respect to climate protection, resources conservation and nature conservation.

For the sake of emphasis – and not restriction – reference is also made to special protection orientations of the Immission Control Act (protection and precaution against harmful environmental impacts), the Closed Substance Cycle and Waste Management Act (resources conservation and ensuring environmentally compatible handling of waste) and the general laws governing prevention of danger (protection and precaution against dangers and nuisances from third parties). This includes accident prevention provisions and work safety provisions.

The provision contains no restriction on certain types of environmental protection provisions (for example, installation-specific provisions). In some cases, substance-specific provisions might also be involved (for example, provisions of waste, fertiliser and food laws).

The failure of the provision, apart from the provisions of paragraphs 2 and 3, to set forth separate provisions on environmental protection is justified for the following reasons of legal technicality:

In the relevant legislative concept, the EEG, which underlies BiomasseV, neither provides for nor permits public monitoring of compliance with environmental standards. As a result, separate environmental standards would have to be "enforced" directly by the users of the EEG (electricity providers, on the one hand, and electricity purchasers, on the other). Those potentially required to accept the electricity could block feeding of the electricity into the grid if the relevant requirements were not met. In cases of doubt, civil proceedings would be required to determine whether the electricity generated from biomass was generated in accordance with the provisions. Definition of environmental standards that diverged from the relevant specialised laws would thus produce considerable uncertainty and could prove counterproductive to achieving the aims of the EEG.

The provisions of BiomasseV may be revised as necessary, particularly with respect to amendment of existing ordinances, or issue of new ordinances relative to other specialised laws (for example, of pollution control and waste management law). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) has been charged with observing and revealing respective developments. Economically and ecologically useful processes that are still under development should not be excluded; any undesirable developments should be corrected as necessary. Changes may be made as necessary within the framework of alignments to BiomasseV.

## **b) Re Art. 2**

The provision makes the use of the special provisions of the EEG in cases where certain waste wood types are used for electricity generation subject to compliance with special requirements. This applies, on the one hand, to waste wood that contains residues of wood preservatives and to waste wood that contains halogenorganic compounds in its coating on the other.

Current provisions of pollution control law apply differing standards in respect to various types of waste wood. The highest standards are formulated in the Ordinance Combustion of Waste and Similar Combustible Materials (17. BImSchV), which currently applies when the material for incineration contains residues of wood preservatives (cf. Art. 1 (2) sentence 1, and (3) of 17 BImSchV). If the content of such types of waste wood is below 25%, the requirements for pollution control apply proportionately (so-called "mixing provision", cf. Art. 1 (2) sentence 1, Art. 5 (3) of 17. BImSchV).

Sentence 1 provides that the requirements of 17. BImSchV also apply in respect of waste wood with halogenorganic compounds in its coating, as such materials will, pursuant to the new Directive 2000/76/7/EC of the European Parliament and the Council of 4 December 2000 on the Combustion of Waste (ABL. EG Nr. L 332 of 28.12.2000, p. 91), anyway be included in the scope of application of 17. BImSchV. Further, in order to ensure particularly high environmental standards in the generation of electricity from the relevant types of waste wood, no use of the mixing provisions set forth in 17. BImSchV shall be made for the two waste wood categories covered by the scope of application of BiomassV. Pursuant to sentence 2, the same shall apply to cases in which gas produced from either of the types of waste wood mentioned is used for the purposes of electricity generation.

The recommended provisions will result in the fact that incineration for electricity generation of the two types of waste wood described (and the relevant use of gas produced from them) can only be compensated for under the provisions of the EEG when their incineration takes place in an installation which is certified pursuant to 17. BImSchV and for which no "mixing provisions" were applied in their certification. Thus, in such cases, a requirement is necessary which determines that, in consideration of pollution reduction, incineration should take place in specially designed and highly sophisticated installations.

Fulfilment of these special provisions can reasonably be expected from the operators from an economic standpoint. As a rule, the pollution control authorities in the individual *Länder* (states) automatically apply appropriate requirements in their certification process as, from a technical standpoint, it cannot be ruled out that the proportion of the especially pollutant-bearing combustion material would not at times exceed 25%.

The provision remains legally restricted to the scope of application of the EEG. It covers neither material nor does it have a formal impact on existing pollution control law. The provision constitutes no independent administration authority, but rather serves as an indirect incentive to "over fulfilment" of pollution control law standards and thus effects a mere refocusing of installation operators' interests in case scenarios which are anyway required under the certification process.

The provision has no effect on other cases of application of 17. BImSchV.

The recommended provision is also practical in terms of the application of the EEG. The installation operators can provide the buyer of the electricity proof of compliance with the requirements by showing the respective certification or amendment authority and the respective determining act of administration.

### **c) Re Para. 3**

Paragraph 3 contains further requirements for the scope of application of paragraph 2 to installations with an installed electrical capacity output of over 6 megawatts, in order to ensure a high degree of energy efficiency in the overall balance. Thus, the respective installations, in cases where the heat produced in electricity generation is not utilised (that is, where cogeneration is not utilised), must prove/demonstrate a reasonably high electricity efficiency level.

Sentences 1, 2 and 3 contain provisions for the event that despite provision for the application of Art. 8 sentence 1 of 17. BImSchV as set forth in para. 2, no obligation exists to utilise the heat produced in the installation itself and such heat is not passed to a third party. This is feasible when the use of the heat in the installation itself is not technically possible due to the type and location of the installation or is unreasonable or incompatible with the obligations set forth in Art. 5 (1), nos. 1 through 3 of the Federal Immission Control Act (cf. Art. 8 sentence 1 of 17. BImSchV).

In the area of electricity generation from waste wood, relatively high electricity efficiency levels can be achieved through the use of modern technologies. The higher the installed electrical output, the better the achievable level of efficiency. Against this background, sentence 1 requires compliance with specific minimum electricity efficiency levels and thus differentiates between the size of the respective installations. In such cases, consideration must be given to the fact that there is usually a correlation between particularly high standards as regards pollutant control and reductions in efficiency levels. The required environmental standards give consideration to both issues.

Pursuant to sentence 2, the same shall also apply to the condensation-only operating mode of installations that mostly operate in condensation-only mode. This requirement targets in particular installations that only partly recover heat to supply district heating networks or end customers (buyers). These installations usually operate only 2,000 to 3,000 hours per annum with cogeneration, but operate for the remainder of the year in condensation-only mode. Due to the low temperature level of the recovered heat, design changes can reasonably be expected to achieve the same electricity efficiency levels in condensation-only operation as in installations of similar sizes that are designed purely for condensation-only operation. It is therefore appropriate to require that such installations, during the time in which they operate using condensation-only mode, achieve the same minimum electricity efficiency level as installations that operate solely in condensation-only mode.

Where the respective installations mainly operate in cogeneration mode, it is illogical to require compliance with specific electricity efficiency levels as the overall energy balance is already improved through heat recovery and heat recovery can also lead to a reduced electricity efficiency level.

Sentence 3 defines the term "electricity efficiency level" for the scope of application of the provision.

## **6 Re Art. 6**

The provision contained in Art. 6 governs the Ordinance's entry into force.