

Research RES LEGAL – Grid issues

Country: Germany

1. Overview of grid issues

Overview of grid regulations	In Germany, systems for the generation of electricity from renewable sources shall be given priority connection to the grid. Furthermore, grid operators are obliged to give priority to electricity from renewable sources when purchasing and transmitting electricity. Moreover, those interested in feeding in electricity may demand that the grid operator expands his grid. These special provisions are set out in the Act on Granting Priority to Renewable Energy Sources (EEG). Further general provisions on energy are stipulated in the Energy Industry Act (EnWG).
Connection to the grid	System operators are statutorily entitled to immediate priority connection of renewable energy systems by the grid operators.
Use of the grid	System operators are statutorily entitled against the grid operators to the purchase and transmission of all electricity from renewable energy sources supplied. Grid operators shall not charge the system operators for the transmission of such electricity.
Grid expansion	Upon the request of those interested in feeding in electricity, the grid operator is obliged to immediately optimise, boost and expand his grid in accordance with the best available technology in order to guarantee the purchase, transmission and distribution of electricity from renewable sources (§ 9 par. 1 EEG). The grid operator is not obliged to optimise, boost or expand his grid if this is economically unreasonable.
Statutory provisions	EEG EnWG KraftNAV

2. Basic information on legal sources

Name of legal source (original language)	Gesetz für den Vorrang Erneuerbarer Energien (Erneuerbare-Energien-Gesetz)	Gesetz über die Elektrizitäts- und Gasversorgung (Energiewirtschaftsgesetz - EnWG)	Kraftwerks-Netzanschlussverordnung
Full name			Verordnung zur Regelung des Netzanschlusses von Anlagen zur Erzeugung von elektrischer Energie
Name of legal source (English)	Act on Granting Priority to Renewable Energy Sources (Renewable Energy Sources Act)	Energy Industry Act	Ordinance on the Connection of Power Plants to the Grid
Abbreviated form	EEG	EnWG	KraftNAV
Entry into force	01.01.2012	13.07.2005	26.06.2007
Last amended on	01.01.2012	24.11.2011	
Future amendments			
Purpose	To protect the climate, the act aims to increase the proportion of electricity from renewable energy sources in total energy supply from at least 35% in 2020 to at least 80% by 2050 and to integrate these quantities of electricity in the electricity supply system (§ 1 EEG).	Ensuring the safe, cost-efficient and consumer-friendly supply of the population with electricity and gas (§ 1 EnWG).	Regulating the procedure for the connection of power plants with a capacity of at least 100 MW to high-voltage grids with a voltage of at least 110 kilovolts.
Relevance for Renewable Energy	This act promotes renewable energy only.	This act stipulates supplementary provisions for the access of electricity from renewable sources to the grid.	This ordinance regulates the connection of renewable energy systems to the grid as laid down in the EEG.
Link to full text of legal source (original language)		http://www.bundesrecht.juris.de/enwg_2005/BJNR197010005.html	http://www.gesetze-im-internet.de/kraftnav/index.html
Link to full text of legal source (English)			

3. Further information

Institution (name)	Website	Name of contact person (optional)	Telephone number (head office)	E-mail (optional)
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)	http://www.bmu.de/		+49 301 830 50	service@bmu.bund.de
Federal Network Agency	http://www.bundesnetzagentur.de/		+49 228 140	info@bnetza.de
Federal Antitrust Agency (Bundeskartellamt)	http://www.bundeskartellamt.de/		+49 228 949 90	info@bundeskartellamt.bund.de
Geiser & von Oppen – PartG (law firm)	http://www.gvo-anwaelte.de/	Margarete von Oppen	+49 30 31 01 92 00	office@gvo-anwaelte.de

4. Connection to the grid

<p>Legal source</p>	<p>EEG KraftNAV</p>	
<p>Overview</p>	<p>System operators are statutorily entitled against the grid operator to the connection of renewable energy systems to the grid (§ 5 par. 1 EEG). The grid operator shall not make the conclusion of a contract a condition for the fulfilment of his obligation to connect systems to the grid (§ 4 par. 1 EEG).</p> <p>A system operator is one who uses a system or installation for the purpose of power generation from renewable energy sources. Whether or not he owns the system is irrelevant (§ 3 no. 2 EEG). The person obligated is the grid operator who is most closely located to the system site and whose grid is technically suitable to receive electricity (§ 5 par. 1 EEG). Where connecting the system to a grid other than the most closely located one is technically and economically more favourable, another grid operator may be obliged to connect the system (§ 5 par. 1 EEG). Grid operators are entitled to assign a system a different grid connection point. Likewise, a system operator may choose another grid connection point. In cases where systems with a capacity of up to 30 kW are located on a plot of land which already has a connection to the grid, the grid connection point of this plot will be deemed to be the most suitable connection point (§ 5 par. 1 EEG). A grid is deemed to be technically suitable even if the grid operator has to expand his grid at an economically reasonable expense to import electricity (§ 5 par. 4 EEG).</p>	
<p>Procedure</p>	<p>Connection process</p>	<p>Low-voltage and medium-voltage grids: Only certain elements of the process of connecting systems to low-voltage and high-voltage grids are set out by law. Each grid operator may determine an individual connection process. The procedure and the required application forms are usually published on the grid operator's website. For technical reasons, the grid connection process involves the following steps:</p> <ul style="list-style-type: none"> - Those interested in feeding in electricity apply for connection to the grid ("grid system connection request") (§ 5 par. 5 EEG). - The grid operator shall, without delay, provide those interested in feeding in electricity with a precise timetable including the procedural steps for processing their connection requests and a list describing all information required by the grid operator to determine the grid connection points or to plan the expansion of the grid (§ 5 par. 5 EEG). - Everyone interested in feeding in electricity shall submit the required information to the grid operator. - The grid operator shall, without delay and within eight weeks after receipt of the information, submit to those interested in feeding in electricity a timetable for establishing grid connection, all information required by those interested in feeding in electricity to test the grid connection point and, upon request, a comprehensible and detailed estimate of the costs the system operators will incur for the establishment of grid connection and the grid system data required to

		<ul style="list-style-type: none"> - test grid compatibility (§ 5 par. 6 EEG). - The grid operator assigns a connection point. - The grid operator makes a connection offer. - The grid operator and the system operator conclude a connection agreement (optional). - The system is connected and electricity is exported to the grid. <p>High-voltage grids: Systems with a capacity of at least 100 megawatts that are connected to an electricity supply grid with a voltage of at least 100 kilovolts are subject to the following procedure (§ 2 no. 1 KraftNAV) unless it violates the provisions of the EEG (§ 1 par. 2 KraftNAV):</p> <ul style="list-style-type: none"> - The operator to be connected applies for connection (§ 3 par. 2 KraftNAV). - The grid operator shall inform the system operator on the required audits and the expected costs after a period of two weeks and request additional information within one week (§ 3 par. 2 KraftNAV). - The operator to be connected shall pay 25% of the expected costs (§ 3 par. 3 KraftNAV). - The grid operator shall announce the results of the grid stability test and grant connection within three months after the system operator has made the advance payment (§§ 3 par. 3; 4 par. 1 KraftNAV). - The grid operator and the system operator conclude a connection agreement (optional) (§ 4 par. 3 KraftNAV in conjunction with § 4 par. 1 EEG). - The grid operator and the system operator agree on an implementation roadmap (§ 4 par. 5 KraftNAV). - The system is connected and put into operation.
	<p>Deadlines</p>	<p>General information: Systems shall be connected to the grid immediately, i.e. without undue delay (§ 5 par. 1 EEG in conjunction with § 121 par. 1 BGB). Furthermore, after receipt of a connection request, the grid operator is obliged to submit, without delay, a detailed timetable for processing the grid connection request to the applicant (§ 5 par. 5 EEG). Moreover, the grid operator shall, after receipt of the necessary information and without delay, submit to the system operator a timetable for the immediate establishment of grid connection, the information required to test the grid connection point and, upon request, the grid system data required to test grid compatibility and a cost estimate within eight weeks. The EEG does not specify any deadlines by which the grid operator shall carry out the grid stability test. This test may take three weeks to three months, depending on the number of the grid operator's staff.</p>

		<p>High-voltage grids: Systems with a capacity of at least 100 megawatts are subject to the deadlines stipulated by KraftNAV (see procedure) unless they violate the provisions of the EEG (§§ 1 par. 2; 3; 4 KraftNAV).</p>
	<p>Obligation to provide information</p>	<p>General information: The grid operator shall provide the following information to the system operator:</p> <ul style="list-style-type: none"> - After receipt of the connection request: a precise timetable including the procedural steps for processing connection requests and a list describing all information required by the grid operator to determine the grid connection point or plan the expansion of the grid (§ 5 par. 5 EEG). - After the grid operator's receipt of the required information: <ul style="list-style-type: none"> o a timetable for establishing grid connection, o all information the applicant needs to test the connection point and, upon request, the grid system data required to test grid compatibility, o a comprehensible and detailed estimate of the costs the system operator will incur for the establishment of grid connection (§ 5 par. 6 EEG). <p>A system operator shall submit to the grid operator all information required to determine the grid connection point or to plan the expansion of the grid (§ 5 par. 5 EEG).</p> <p>High-voltage grids:</p> <ul style="list-style-type: none"> - Prior to the connection procedure, the grid operator is obliged to publish the following information on his website (§ 3 par. 1 KraftNAV): <ul style="list-style-type: none"> o information required to assess the application for connection and to estimate the available grid capacity; o standardised requirements for the conclusion of a connection agreement; o a diagram of the grid network and a load diagram for the entire network; - After receiving a system operator's connection request, the grid operator is obliged to inform the system operator about the required tests and the expected costs (§ 3 par. 2 KraftNAV); - During the tests, the grid operator is obliged to provide, upon request, the system operator with the grid system data necessary to independently assess the future grid load (§ 5 par. 1 KraftNAV); - After the tests have been carried out, the grid operator is obliged to inform the system operator about the test procedure and the test results (§ 3 par. 3 KraftNAV):

Priority to renewable energy (qualitative criteria)	(x) Priority to renewable energy () Non-discrimination	Systems for the generation of electricity from renewable sources shall be connected to the grid as a priority, i.e. prior to systems that generate electricity from traditional sources ("principle of priority", § 5 par. 1 EEG).
Capacity limits (quantitative criteria)	The grid operator is obliged to connect systems even where the purchase of electricity is only possible by optimising, boosting or expanding the grid (§ 5 par. 4 EEG). However, this obligation does not apply when optimising, boosting or expanding the grid is economically unreasonable (§ 9 par. 3 EEG). Whether the expansion of the grid is economically reasonable in a given case will be determined by weighing the system operator's interests against the grid operator's interests.	
Funding		
	State	
	Consumers	
	Grid operator	If the grid operator assigns to a system a grid connection point other than the most closely located or technically and economically most suitable one, he shall bear the resulting incremental costs (§ 13 par. 2 EEG).
	System operator	The system operator bears the costs of connecting the system to the most closely located or technically and economically most suitable grid connection point as well as the costs of the measuring devices necessary to record the electricity transmitted and received (§ 13 par. 1 EEG).
	Distribution mechanism	

5. Use of the grid

Legal source	EEG EnWG	
Overview	<p>System operators are statutorily entitled against the grid operator to the purchase and transmission of all electricity from renewable sources offered (§ 8 par. 1 EEG). The grid operator shall not make the conclusion of a contract a condition for fulfilling his obligation to purchase and transmit electricity (§ 4 par. 1 EEG).</p> <p>The claim for purchase and transmission arises when the system is connected to the grid. Upon request, a court may decide whether a given system operator is entitled to connection to the grid before his system is completed. Such a decision may be necessary to secure bank funding for the construction of the renewable energy system. For this reason, the grid operators provide guarantees that they will purchase the electricity offered.</p>	
Procedure	Procedure	<ul style="list-style-type: none"> - Grid connection The claim for purchase and transmission arises when the system is connected to the grid. - The grid operator then purchases and transmits the electricity.
	Deadlines	In general, the priority purchase obligation is unconditional and has to be fulfilled without undue delay (§ 8 par. 1 EEG).
	Obligation to provide information	
Priority to renewable energy (qualitative criteria)	<input checked="" type="checkbox"/> Priority to renewable energy <input type="checkbox"/> Non-discrimination	When purchasing and transmitting electricity, the grid operator shall give electricity generated from renewable sources priority over electricity from energy sources other than renewable ones ("principle of priority", § 8 par. 1 EEG). Electricity generated by CHP shall have the same priority (§ 8 par. 1 sentence 2 EEG).
Grid stability	<p>The grid operator may deny the purchase and transmission of electricity generated from renewable energy sources in the following cases:</p> <ul style="list-style-type: none"> • Feed-in management. Grid operators shall be entitled to take technical control over renewable energy systems that are equipped with a remote control device to avoid grid capacity shortage in the respective grid area including the upstream grid. The grid operator shall make sure that priority is given to electricity generated from renewable sources or by CHP unless other installations for the generation of electricity must remain connected to the grid in order to guarantee the safety and reliability of the electricity supply system. He shall also ensure that he has called up the data on the current feed-in situation in the relevant region of the grid (§ 11 par. 1 EEG). The grid operator shall assume control over solar energy systems with a capacity of up to 100 kW only after he has assumed control over other systems (§ 11 par. 1 sentence 2). Moreover, grid operators shall make sure that the largest possible quantity of electricity from renewable sources and by CHP is purchased (§ 11 par. 1 EEG). Prior to taking control over a system whose capacity exceeds 100 kW, the grid operator shall notify the operator no later than the day before, but otherwise without delay, of the expected date, the extent and the duration of the assumption of technical control, provided that it is predictable that the measure will be taken (§ 11 par. 2 EEG). After the control measures, the grid operator shall inform the system operator about the actual dates, the 	

	<p>respective extent, the duration and the reasons for the assumption of technical control and, upon request, provide evidence that the measure was necessary (§ 11 par. 3 sentence 1 EEG). The grid operator may inform the operators of solar energy systems with a capacity of no more than 100 kW only once a year about all control measures as long as the total duration of these measures did not exceed 15 hours per system (§ 11 par. 3 sentence 3 EEG). System operators that were not able to feed in electricity to the extent agreed upon are entitled to compensation from the grid operator (§ 12 par. 1 EEG). They may demand 95% of the lost tariffs and revenues less the expenses saved (e.g. fuel costs) (§ 12 par. 1 sentence 1 EEG). If, in one year, a system operator's lost income exceeds 1% of his income for that year, he shall receive compensation for 100% of his lost income from that date. In the event that the grid operator violates his obligations regarding feed-in management, system operators may demand compensation for the damage incurred (§ 12 par. 3 EEG).</p> <ul style="list-style-type: none"> • Agreement. The obligation to purchase and transmit renewable energy as a priority may be limited by a voluntary contractual agreement. Such an agreement may only be concluded if a system can thus be better integrated into the grid network (§ 8 par. 3 EEG). This would, for example, apply if the system operator and the grid operator agreed to reduce the system operator's electricity exports on a few days per year and could thus avoid a grid expansion. • Grid safety. After all, the principle of priority shall not apply if the safety and functionality of the grid can no longer be guaranteed, e.g. if the grid is on the brink of collapse (§§ 13 par. 2, par. 2a, 14 par. 1 EnWG). 	
Funding		
	State	
	Consumers	
	Grid operator	The costs arising from the purchase and transmission of electricity generated from renewable energy sources are borne by the grid operator.
	System operator	
Distribution mechanism	The grid operator shall not claim grid use charges for the purchase and transmission of electricity from the operators of renewable energy systems. According to the EEG, the grid operator is the buyer of electricity, as he does not only import electricity from the operators of renewable energy systems but also pays for it. For this reason, the grid operator has sole responsibility for the effects of this electricity on his grid as soon as he agrees to import it.	

6. Grid expansion

Legal source	EEG	
Overview	<p>Upon request of those interested in feeding in electricity, the grid operator is obliged to immediately optimise, boost and expand his grid in accordance with the best available technology in order to guarantee the purchase, transmission and distribution of electricity from renewable sources (§ 9 par. 1 sentence 1 EEG). This obligation shall not only exist for grid operators whose grid the systems are immediately connected to, but also for upstream grids with a maximum voltage of 110 kV, provided that the expansion measures are necessary to guarantee the purchase, transmission and distribution of electricity (§ 9 par. 1 sentence 2 EEG). System operators are entitled to the expansion of the grid only if it is economically reasonable (§ 9 par. 3 EEG). Whether the expansion of the grid is economically reasonable in a given case will be determined by weighing the system operator's interests against the grid operator's interests. The grid operator shall not make the conclusion of a contract a condition for the fulfilment of his obligation to expand the grid (§ 4 par. 1 EEG).</p>	
Procedure	Procedure	There is no formal procedure for expanding the grid in order to connect systems.
	Enforcement of claims	<p>Claim for expansion: A given system operator may take legal action against the grid operator to claim the expansion of the grid if the connection of a system or the export of electricity would otherwise be at risk.</p> <p>Damages: If the grid operator does not boost and expand his grid even though he is obliged to do so, those interested in feeding in electricity may demand compensation for the damage incurred. The grid operator is not liable to pay compensation if he can prove that the violation of his obligation was neither deliberate nor negligent (§ 10 par. 1 EEG).</p>
	Deadlines	The grid operator has to fulfil his obligation to expand the grid immediately, i.e. without undue delay. He may require additional time for licensing procedures. In certain cases, time-consuming administrative procedures may be necessary (e.g. for ground-mounted systems). The late delivery of parts required for the grid expansion may also cause considerable delay.
	Obligation to provide information	<p>Obligation to provide information: The grid operator is obliged to inform the system operators whether and to what extent he met his obligation to optimise, boost and expand the grid. However, he only has to do so if there is evidence to substantiate the assumption that he did not fulfil his obligation and if this information is necessary to establish whether a system operator is entitled to compensation against him (§ 10 par. 2 EEG).</p>
Incentives for grid expansion		

Funding	State	
	Consumers	The costs for optimising, boosting and expanding the grid are borne by the consumers.
	Grid operator	
	System operator	
	Distribution mechanism	<p>Grid operator – utility companies. The costs for optimising, boosting and expanding the grid are first borne by the grid operator (§ 14 EEG). He may include the costs of grid expansion works in the grid use charges. Thus, he may pass on these costs to the utility companies.</p> <p>Utility companies – final consumers. Utility companies can pass on the costs of the expansion of the grid, which they pay through the grid use charges, to the consumers by adjusting the electricity price accordingly.</p>
	Grid studies	<ol style="list-style-type: none"> 1. dena Grid Study: German version: http://www.dena.de/fileadmin/user_upload/Download/Dokumente/Projekte/ESD/netzstudie1/dena-Netzstudie_I.pdf English Summary: http://www.dena.de/fileadmin/user_upload/Download/Dokumente/Projekte/ESD/netzstudie1/dena-grid_study_summary.pdf 2. dena Grid Study II German version: http://www.dena.de/fileadmin/user_upload/Download/Dokumente/Studien___Umfragen/Ergebniszusammenfassung_pdf-Format.pdf