

FLOATING POWER GENERATION SYSTEM AND SUPPORT ARRAY THEREOF

TECHNICAL FIELD

[0001] The present disclosure relates to the technical field of photovoltaic power generation,
5 in particular to a floating power generation system and a support array of the floating power generation system.

BACKGROUND

[0002] The existing floating power generation system mainly has the following two
10 structures. In a first structure, a pure floating body solution is adopted, the electric, cable, and photovoltaic modules in the power generation system are all arranged on the floating body, and the operation and maintenance channel is also formed by the floating body. The main drawback of this solution is that the compatibility is poor, and the required floating body specifications also change when the photovoltaic module specifications and the photovoltaic
15 module inclination angle change. In a second structure, a framework solution is adopted. Specifically, the various modules in the power generation system are supported by erecting a criss-cross frame network on the floating body. This solution has better compatibility, but has worse anti-surge capability than the pure floating body solution.

[0003] Therefore, how to provide a solution to overcome the above defects is still a
20 technical problem to be solved urgently by those skilled in the art.

SUMMARY

[0004] The object of the present disclosure is to provide a floating power generation system and a support array of the floating power generation system. The support array has advantages
25 of both the pure floating body solution and the framework solution in the conventional art, and the support array can overcome the defects of the two solutions. According to the present disclosure, high anti-surge capability and compatibility can be ensured, so that the support array has strong applicability in different regions.

[0005] In order to solve the above technical problem, a support array of a floating power

generation system is provided according to the present disclosure. The support array has a grid shape, and includes multiple first coupling beams spaced from each other and multiple second coupling beams spaced from each other. The first coupling beam is connected to the second coupling beam. The first coupling beam includes multiple connected floating bodies, the second coupling beam includes multiple connected tubular beams, and the tubular beams are mounted to the floating bodies.

[0006] According to the support array of the floating power generation system provided by the present disclosure, a floating body connection solution is applied to the first coupling beam, thereby providing strong anti-surge capability for the entire floating array. The second coupling beam connecting the two adjacent first coupling beams includes multiple tubular beams; and by adjusting a length of the tubular beam and a connection position, a spacing between the two adjacent first coupling beams can be conveniently adjusted to adapt to photovoltaic modules with different specifications, thereby greatly improving compatibility. In addition, the spacing between two adjacent first coupling beams is related to the specification of the photovoltaic module. Generally, the spacing is small, that is, the second coupling beam has a small span between the two adjacent first coupling beams, and the deformation of the frame-type second coupling beam can be effectively controlled.

[0007] In other words, the support array of the floating power generation system provided by the present disclosure, has the advantages of both the pure floating body solution and the framework solution in the conventional art, and the support array can overcome the defects of the two solutions. With the technical solutions according to the present disclosure, high anti-surge capability and compatibility can be ensured, so that the floating power generation system has strong applicability in different regions.

[0008] Optionally, the first coupling beam extends in a longitudinal direction, an upper surface of the floating body is provided with a mounting groove extending in a lateral direction, and the tubular beam is mounted in the mounting groove.

[0009] Optionally, groove bottom of the mounting groove is provided with a reinforcing structure.

[0010] Optionally, mounting positions are provided at both ends of the mounting groove. The floating power generation system includes a photovoltaic module and a combiner box. The mounting position is configured to mount a photovoltaic support of the photovoltaic

module and a confluence support of the combiner box.

[0011] Optionally, the mounting position is a mounting plate provided with mounting holes, and at least two lateral ends of a lower surface of the floating body have bevels that gradually incline upward from the inside to the outside.

5 **[0012]** Optionally, both ends of the floating body are provided with lugs, and two adjacent floating bodies are connected via the lugs.

[0013] Optionally, in the lugs on both ends of the floating body, the lug at one end protrudes longitudinally from the floating body to form an outer lug, and the lug at the other end does not protrude longitudinally from the floating body to form an inner lug. For two adjacent
10 floating bodies, the inner lug of one floating body is connected to the outer lug of the other floating body. After the two adjacent floating bodies are mounted together, adjacent end portions of the two adjacent floating bodies are abutted.

[0014] Optionally, the support array further includes an anchoring device. The anchoring device includes a longitudinal anchoring truss and a lateral anchoring truss. The longitudinal
15 anchoring truss is mounted to the lugs of the floating body of the same first coupling beam, and the lateral anchoring truss is mounted to the lugs of the floating body of the two first coupling beams spaced longitudinally.

[0015] Optionally, two lateral ends of the floating body each are provided with a groove extending in an up-and-down direction.

20 **[0016]** Optionally, the second coupling beam further includes a cover plate, and two ends of the cover plate are respectively connected to two longitudinally adjacent tubular beams.

[0017] Optionally, a connection member is arranged between two laterally adjacent tubular beams, and the tubular beams are hinged to the connection member.

[0018] A floating power generation system including a support array is further provided
25 according to the present disclosure. The support array is the support array of the floating power generation system described above.

[0019] Optionally, the floating power generation system further includes a photovoltaic module and a combiner box. The photovoltaic module and the combiner box are both mounted to the first coupling beam, and a cable laying channel is formed between the
30 mounted combiner box and the corresponding first coupling beam.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] Figure 1 is a schematic structural diagram of a floating power generation system according to an embodiment of the present disclosure.

5 **[0021]** Figure 2 is a schematic structural diagram of a support array of the floating power generation system in Figure 1.

[0022] Figure 3 is a connection structural diagram of a floating body and a tubular beam.

[0023] Figure 4 is a top view of a floating body.

[0024] Figure 5 is a bottom view of a floating body.

10 **[0025]** Figure 6 is a connection structural diagram of a floating body and a photovoltaic support.

[0026] Figure 7 is a connection structural diagram of a floating body, a photovoltaic support, and a photovoltaic module.

[0027] Figure 8 is a connection structural diagram of a floating body and a combiner box.

15 **[0028]** Figure 9 is a schematic structural diagram of two adjacent first coupling beams in a case that the first coupling beam functions as an operation and maintenance channel.

[0029] Figure 10 is a connection structural diagram of first coupling beams and an anchoring device.

[0030] Figure 11 is a connection structural diagram of tubular beams and a cover plate.

20 **[0031]** Figure 12 is a connection structural diagram of two adjacent tubular beams and a connecting member.

[0032] The reference numerals in Figure 1 to 12 are indicated as follows:

1 first coupling beam, 11 floating body, 111 mounting groove, 111a reinforcement structure, 112 mounting plate, 112a mounting hole, 113 bevel, 114 lug, 114a outer lug, 114b
25 inner lug, 115 groove, 117 top support;

2 second coupling beam, 21 tubular beam, 22 cover plate, 23 connection number, 231 hinge shaft;

3 photovoltaic module, 31 photovoltaic support, 311 first outrigger, 312 second outrigger;

4 combiner box, 41 confluence support, 42 cable laying channel;

5 longitudinal anchoring truss, 51 main truss, 52 auxiliary truss; and

6 lateral anchoring truss.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0033] In order to make those skilled in the art better understand the technical solutions of the present disclosure, the present disclosure is further illustrated in detail with reference to the accompanying drawings and specific embodiments hereinafter.

[0034] "Multiple" as used herein refers to the number of objects is usually equal to or greater than two. In a case that "multiple" is used to indicate the number of components, it does not indicate the quantitative relationship of these components.

[0035] The words "first" and "second" are used herein to describe two or more structures or components that are identical or similar in structure, and do not indicate a particular limitation on the order.

[0036] Reference is made to Figures 1 to 12. Figure 1 is a schematic structural diagram of a floating power generation system provided according to an embodiment of the present disclosure. Figure 2 is a schematic structural diagram of a support array of a floating power generation system in Figure 1. Figure 3 is a connection structural diagram of a floating body and a tubular beam. Figure 4 is a top view of a floating body. Figure 5 is a bottom view of a floating body. Figure 6 is a connection structural diagram of a floating body and a photovoltaic support. Figure 7 is a connection structural diagram of a floating body, a photovoltaic support, and a photovoltaic module. Figure 8 is a connection structural diagram of a floating body and a combiner box. Figure 9 is a schematic structural diagram of two adjacent first coupling beams in a case that the first coupling beam functions as an operation and maintenance channel. Figure 10 is a connection structural diagram of first coupling beams and an anchoring device. Figure 11 is a connection structural diagram of tubular beams and a cover plate. Figure 12 is a connection structural diagram of two adjacent tubular beams and a connection member.

[0037] As shown in Figure 1 and Figure 2, a support array of a floating power generation system is provided according to the present disclosure. The support array has a grid shape, and includes multiple first coupling beams 1 spaced from each other and multiple second coupling beams 2 spaced from each other. The first coupling beam 1 is connected to the second coupling beam 2.

[0038] Different from the conventional art, in the present disclosure, the first coupling beam 1 includes multiple connected floating bodies 11, the second coupling beam 2 includes multiple connected tubular beams 21, and the tubular beams 21 are mounted to the floating bodies 11. With this structure, a floating body 11 connection solution is applied to the first coupling beam 1, thereby providing strong anti-surge capability for the entire floating array. The second coupling beam 2 connecting the two adjacent first coupling beams 1 includes multiple tubular beams 21; and by adjusting the length of the tubular beam 21 and the connection position, the spacing between the two adjacent first coupling beams 1 can be conveniently adjusted to adapt to the photovoltaic modules 3 with different specifications and different installation inclination angles, thereby greatly improving compatibility. In addition, the spacing between two adjacent first coupling beams 1 is related to the specification of the photovoltaic module 3. Generally, the spacing is small, that is, the second coupling beam 2 has a small span between the two adjacent first coupling beams 1, and the deformation of the frame-type second coupling beam 2 can be effectively controlled.

[0039] In other words, the support array of the floating power generation system provided by the present disclosure, has the advantages of both the pure floating body solution and the framework solution in the conventional art, and the support array can overcome the defects of the two solutions. With the technical solutions of the present disclosure, high anti-surge capability and compatibility can be ensured, so that the floating power generation system has strong applicability in different regions.

[0040] In addition, compared with the pure floating body solution and the frame solution in the conventional art, the number of the floating bodies 11 and the number of the frames (mainly referring to the tubular beam 21 in the embodiment of the present disclosure) in the support array provided by the present disclosure can be greatly reduced, so that the floating power generation system has a lower overall cost and is convenient for popularization. Moreover, because the number of frames is small, the floating array itself has a relatively

small load, thereby providing greater buoyancy. Especially in a case that the number of rows is increased, the ultimate buoyancy provided by the floating array does not decrease but increases, thereby better supporting the photovoltaic module 3 and so on.

[0041] Here, an angle between the first coupling beam 1 and the second coupling beam 2 is not limited in the embodiment of the present disclosure. Those skilled in the art may set the angle according to actual needs in an implementation.

[0042] In an embodiment, the first coupling beam 1 may extend in the longitudinal direction, and the second coupling beam 2 may extend in the lateral direction, that is, the angle between the first and second coupling beams is 90 degrees. It should be understood that the angle of 90 degrees here refers to approximately 90 degrees, and a certain installation error is tolerated.

[0043] The first coupling beam 1 may include multiple floating bodies 11, that is, the first coupling beam 1 may be a floating body beam. As shown in Figure 3 and Figure 5, the upper surface of the floating body 11 may be provided with a mounting groove 111 extending laterally, and the tubular beam 21 may be mounted in the mounting groove 111. In detail, the tubular beam 21 may be inserted into the mounting groove 111, the groove bottom of the mounting groove 111 is further provided with connection holes, and a connection member such as a screw, a bolt or the like is screwed to the connection hole to fix the tubular beam 21. The connection member here is preferably a plastic member to improve the flexible deformation capability of a joint between the tubular beam 21 and the floating body 11; in addition, the corrosion resistance capability of the joint can be improved to ensure the reliability of the connection between the tubular beam 21 and the floating body 11 during long-term use. Practically, the connection member may also be made of a metal such as stainless steel, which can also achieve the technical effects of connecting the tubular beam 21 and the floating body 11 and resisting corrosion.

[0044] It should be noted that the solution for providing the mounting groove 111 to position and mount the tubular beam 21 is only a preferred solution of the embodiment of the present disclosure, and is not explained to limit the implementation scope of the support array provided by the present disclosure. In a case of meeting the condition of reliability, other connection solution may also be adopted between the tubular beam 21 and the floating body 11. For example, the above mentioned mounting groove 111 may not be provided. In this case,

the tubular beam 21 may be directly mounted to the upper surface of the floating body 11 via a connection member such as a screw, which can also achieve connection and fixing between the tubular beam 21 and the floating body 11.

[0045] The groove bottom of the mounting groove 111 may be provided with a reinforcement structure 111a. The reinforcement structure 111a may be of a groove type, which can improve the deformation resistance capability of the floating body 11 during processing, and can prevent the shrinkage of a groove bottom plane of the mounting groove 111 to a large extent during the processing of the floating body 11, and the relative positional offset of the connecting hole caused by the shrinkage.

[0046] The two ends of the mounting groove 111 may be provided with mounting positions. The floating power generation system may further include a photovoltaic module 3 and a combiner box 4, and the photovoltaic module 3 and the combiner box 4 may be installed at the mounting positions. That is to say, the floating body 11 can serve as a supporting floating body for both the photovoltaic module 3 and the combiner box 4, thereby greatly reducing the types of the floating bodies 11, to simplify the processing and installation process, and being beneficial to further improve the compatibility. For the specific structures of the photovoltaic module 3 and the combiner box 4, one may refer to the conventional art, and details are not described herein.

[0047] In detail, as shown in Figure 6 and Figure 7, the photovoltaic module 3 may be mounted at the mounting position by the photovoltaic support 31. The photovoltaic support 31 may include a first outrigger 311 and a second outrigger 312. The heights of the two outriggers may be different, so that the photovoltaic module 3 can be mounted to the first outrigger 311 and the second outrigger 312 at a set angle. Here, the specific value of the set angle is not limited in the embodiment of the present disclosure, and the value is related to the installation latitude and the solar illumination angle of the floating power generation system. In an implementation, those skilled in the art may set the angle according to actual needs.

[0048] A pressing block may be provided above the first outrigger 311 and the second outrigger 312, and the pressing block may form a bayonet. The photovoltaic module 3 may be clamped in the bayonet of the pressing block to perform a preliminary positioning on the photovoltaic module 3, and then the photovoltaic module 3 can be fixed by means of a connection member such as a screw, a bolt or the like. For the structure of the pressing block

and the installation structure of the pressing block and the photovoltaic module 3, one may refer to the existing design, and details are not described herein.

[0049] As shown in Figure 8, the combiner box 4 may be mounted at the mounting position by the confluence support 41, and a gap between the combiner box 4 and the floating body 11 forms a cable laying channel 42 for laying the cable. That is to say, the floating body 11 can also provide support for the cable, so that the cable supporting floating body in the conventional art can be omitted to further reduce the types of the floating bodies 11.

[0050] The photovoltaic support 31 and the confluence support 41 may be metal supports or plastic supports, which may be determined according to actual installation requirement. In a case that the support is a metal support, the mounting position may be further provided with a flexible backing plate. The flexible backing plate may be a flexible component such as a plastic backing plate or a rubber backing plate, so as to reduce the wear of the mounting position of the floating body 11 caused by the metal support, and prolong the service life of the floating body 11. In a case that the support is a plastic support, the reinforced polymer resin may be used to improve the capability of bending deformation resistance and corrosion resistance.

[0051] The mounting position may be a mounting plate 112. The mounting plate 112 may be provided with mounting holes 112a through which the photovoltaic support 31 and the confluence support 41 can be fixed. The mounting plate 112 may be separately provided, and then integrated with the floating body 11 when the floating body 11 is processed. Alternatively, the plate-shaped mounting plate 112 may be formed simultaneously when the floating body 11 is processed. In order to facilitate the processing, at least the two lateral ends of the lower surface of the floating body 11 may have bevels 113 which gradually incline upward from the inside to the outside, that is, the lower surface of the floating body 11 may present a V-shape as a whole, to reduce the thickness of the two lateral ends of the floating body 11, thereby reducing a draw ratio of the floating body 11 at the mounting plate 112, so that the floating body 11 can be processed more conveniently.

[0052] The floating body 11 may be further provided with a top support 117 connecting a top surface and a bottom surface, to improve the overall structural rigidity of the floating body 11, and also prevent bulging caused by a temperature difference between the inside and the outside of the floating body 11, thereby ensuring the structure stability of the floating body 11

during long-term use.

[0053] The two ends of the floating body 11 may be provided with lugs 114. The lugs 114 of the two adjacent floating bodies 11 can be docked, and the connection members such as screws and bolts can be used to connect the two floating bodies 11 adjacent in the longitudinal direction. The connection member here is preferably a plastic member to improve the flexible deformation capability of the joint of the adjacent floating bodies 11, and the corrosion resistance capability of the joint can be improved to ensure the reliability of the connection of the two adjacent floating bodies 11 during long-term use. Practically, the connection member may also be made of a metal material such as stainless steel, which can also achieve the technical effect of connecting the two adjacent floating bodies 11 and resisting corrosion.

[0054] Referring to Figure 4, in the lugs 114 on both ends of the floating body 11, the lug 114 at one end may protrude from the floating body 11 in the longitudinal direction to form an outer lug 114a, and the lug 114 at the other end does not protrude from the floating body 11 in the longitudinal direction (that is, there is no extension in the longitudinal direction) to form an inner lug 114b. During assembling, for two adjacent floating bodies 11, the inner lug 114b of one floating body is connected to the outer lug 114a of the other floating body. After the two adjacent floating bodies are mounted together, the adjacent end portions of the two adjacent floating bodies 11 are abutted, thereby improving the stability of the connection between the two adjacent floating bodies 11.

[0055] It should be noted that the two adjacent floating bodies 11 may be abutted in multiple manners, and are not necessarily limited to the design of the outer lug 114a and the inner lug 114b. Other forms of design may also be used by those skilled in the art in an implementation. For example, the floating body 11 may be provided with only the inner lug 114b; and by means of a plate-shaped connection member, the two floating bodies 11 can be connected and the ends of the floating bodies can be abutted.

[0056] In the above description, the floating body 11 is mainly configured to support the photovoltaic module 3 and the combiner box 4. In addition, the floating body 11 may have other functions.

[0057] In an embodiment, as shown in Figure 9, the first coupling beam 1 composed of the floating body 11 can also function as an operation and maintenance channel. In this case, the upper surface of the floating body 11 may be provided with anti-slip patterns (not shown in

the figure) to improve the roughness of the upper surface of the floating body 11, thereby preventing the worker from slipping when walking on the floating body 11 to a large extent.

[0058] In another embodiment, as shown in Figure 10, the support array of the floating power generation system provided by the present disclosure may be further provided with an anchoring device. The anchoring device may include a longitudinal anchoring truss 5 and a lateral anchoring truss 6 for fixing the mounting position of the support array on the water surface.

[0059] In installation, the longitudinal anchor truss 5 may be mounted to the lugs 114 of the floating body 11 of the same first coupling beam 1. In detail, the longitudinal anchor truss 5 may include a main truss 51 and an auxiliary truss 52. The main truss 51 may extend in the longitudinal direction, and the auxiliary truss 52 may extend in the lateral direction. The auxiliary truss 52 may be connected to the two lugs 114 at the same end of the floating body 11, and the main truss 51 may be connected to the two auxiliary trusses 52. Referring to Figure 10, the auxiliary trusses 52 at both ends of the longitudinal anchoring truss 5 may be mounted on the same floating body 11, or may be mounted on different floating bodies 11 of the same first coupling beam 1, which may be determined according to parameters such as the length of the main truss 51. The lateral anchoring truss 6 may be mounted on the lugs 114 of the floating body 11 of the two first coupling beams 1 spaced longitudinally. Similarly, the two ends of the lateral anchoring truss 6 may be connected to the two adjacent first coupling beams 1 (the solution in Figure 10), or may be connected to the two first coupling beams 1 which are not adjacent. Alternatively, the lateral anchoring truss 6 may be connected to three or more first coupling beams 1, which is determined according to parameters such as the lateral length of the lateral anchoring truss 6.

[0060] The two lateral ends of the floating body 11 each are provided with a groove 115 extending in an up-and-down direction. On one hand, the groove 115 can prolong the lengths of the two sides of the floating body 11 in the length direction (that is, the longitudinal direction), to increase the strength of the long side of the floating body. On the other hand, the groove 115 can also function as a limiting structure for packaging to facilitate packaging and transportation of the floating body 11. Here, the number of the grooves 115 arranged at the lateral ends of the floating body 11 is not limited in the embodiment of the present disclosure. In an implementation, those skilled in the art may set the number of the grooves according to

actual needs.

[0061] According to the above description, in the support array of the floating power generation system provided by the present disclosure, the floating body 11 may simultaneously provide installation connection points for the photovoltaic module 3, the combiner box 4, the cable, and the anchoring device, and can also function as an operation and maintenance channel. The floating body 11 truly achieves all-in-one multi-purpose, thereby reducing the types of the floating bodies 11 in the support array to the maximum extent, greatly facilitating the production, manufacturing, transportation and management of the floating body 11 products, reducing the difficulty of installation, generating a positive effect on improving the installation efficiency, and thus greatly reducing the overall cost.

[0062] As shown in Figure 11, the second coupling beam 2 may further include a cover plate 22. Both ends of the cover plate 22 may be respectively connected to two tubular beams 21 adjacent in the longitudinal direction. The cover plate 22 may cooperate with the two tubular beams 21 to form an operation and maintenance channel, for the staff to maintain the photovoltaic module 3, the combiner box 4 and the cable and so on. Here, the cover plate 22 may be a plastic grille, a cover plate floating body, a metal wire mesh, and the cover plate 22 may be connected and fixed to the tubular beam 21 by a connection member such as a bolt, a hoop or the like.

[0063] In the lateral direction, one second coupling beam 2 includes multiple tubular beams 21. A connection member 23 may be provided between the two adjacent tubular beams 21, and the tubular beam 21 may be hinged to the connection member 23. In this way, the tubular beam 21 and the connection member 23 can relatively rotate at a hinge shaft 231, and the flexible deformation capability of the joint between the tubular beam 21 and the connection member 23 can be greatly improved, thereby improving the anti-surge capability of the second coupling beam 2. Practically, in manufacturing, the tubular beam 21 may be made of a material such as a thermosetting polymer reinforced resin, so that the tubular beam 21 itself has certain flexibility. As long as the flexibility can meet the requirements of use, the connection manner between two adjacent tubular beams 21 is unnecessary to be limited strictly.

[0064] A cross-sectional shape of the tubular beam 21 may be a shape of a character "□", a C shape, or a U shape, and may be set according to actual needs.

[0065] A floating power generation system including a support array is further provided according to the present disclosure. The support array may be the support array described in the above embodiments. The technical effect of the support array mentioned above can also be achieved by the floating power generation system according to the present disclosure, and is not described herein.

[0066] The floating power generation system mentioned above may further include a photovoltaic module 3 and a combiner box 4. The photovoltaic module 3 and the combiner box 4 may be mounted on the first coupling beam 1. For the specific installation solution, one may refer to the above content, and details are not described here.

[0067] Only preferred embodiments of the present disclosure are described above, and it should be noted that those skilled in the art can make multiple improvements and modifications without departing from the principles of the present disclosure. These improvements and modifications should be regarded to fall in the protection scope of the present disclosure.

CLAIMS

1. A support array of a floating power generation system, wherein the support array has a grid shape and comprises:

5 a plurality of first coupling beams (1) spaced from each other; and

a plurality of second coupling beams (2) spaced from each other,

wherein the first coupling beam (1) is connected to the second coupling beam (2); the first coupling beam (1) comprises a plurality of connected floating bodies (11), the second coupling beam (2) comprises a plurality of connected tubular beams (21); and the tubular
10 beams (21) are mounted to the floating bodies (11);

wherein the first coupling beam (1) extends in a longitudinal direction, an upper surface of the floating body (11) is provided with a mounting groove (111) extending in a lateral direction, and the tubular beam (21) is mounted in the mounting groove (111);

wherein mounting positions are provided at both ends of the mounting groove (111); and

15 the floating power generation system comprises a photovoltaic module (3) and a combiner box (4), and the mounting position is configured to mount a photovoltaic support (31) of the photovoltaic module (3) and a confluence support (41) of the combiner box (4);

wherein the mounting position is a mounting plate (112) provided with mounting holes (112a); and

20 at least two lateral ends of a lower surface of the floating body (11) have bevels (113) that gradually incline upward from inside to outside.

2. The support array of a floating power generation system according to claim 1, wherein a groove bottom of the mounting groove (111) is provided with a reinforcement structure (111a).

25 3. The support array of a floating power generation system according to claim 1, wherein both ends of the floating body (11) are provided with lugs (114), and two adjacent floating bodies (11) are connected via the lugs (114).

4. The support array of a floating power generation system according to claim 3, wherein in the lugs (114) on both ends of the floating body (11), the lug (114) at one end protrudes

longitudinally from the floating body (11) to form an outer lug (114a), and the lug (114) at the other end does not protrude longitudinally from the floating body (11) to form an inner lug (114b); and

5 for two adjacent floating bodies (11), the inner lug (114b) of one floating body is connected to the outer lug (114a) of the other floating body, and adjacent end portions of the two adjacent floating bodies (11) are abutted after the two adjacent floating bodies are mounted together.

5. The support array of a floating power generation system according to claim 3, further comprising: an anchoring device,

10 wherein the anchoring device comprises a longitudinal anchoring truss (5) and a lateral anchoring truss (6); and

the longitudinal anchoring truss (5) is mounted to the lugs (114) of the floating body (11) of the same first coupling beam (1), and the lateral anchoring truss (6) is mounted to the lugs (114) of the floating body (11) of two first coupling beams (1) spaced longitudinally.

15 6. The support array of a floating power generation system according to claim 1, wherein two lateral ends of the floating body (11) each are provided with a groove (115) extending in an up-and-down direction.

7. The support array of a floating power generation system according to any one of claims 1 to 6, wherein the second coupling beam (2) further comprises a cover plate (22), and
20 two ends of the cover plate are respectively connected to two longitudinally adjacent tubular beams (21).

8. The support array of a floating power generation system according to claim 7, wherein a connection member (23) is arranged between two laterally adjacent tubular beams (21), and the tubular beams (21) are hinged to the connection member (23).

25 9. A floating power generation system, comprising: a support array, wherein the support array is the support array of a floating power generation system according to any one of claims 1 to 8.

10. The floating power generation system according to claim 9, further comprising:
a photovoltaic module (3); and

a combiner box (4),

wherein the photovoltaic module (3) and the combiner box (4) are both mounted to the first coupling beam (1), and a cable laying channel (42) is formed between the mounted combiner box (4) and the corresponding first coupling beam (1).