CLAIMS

[Claim 1]

A substrate processing apparatus for processing a substrate, comprising:

a power receiver including a power reception coil to which power is transmitted in a non-contact manner from a power transmission coil located outside the substrate processing apparatus,

wherein the substrate processing apparatus is configured to supply power to at least one unit or member that uses power from the power receiver, and

wherein the substrate processing apparatus is configured to be movable such that the power receiver faces the power transmission coil.

[Claim 2]

The substrate processing apparatus of claim 1, wherein the unit or member that uses power from the power receiver comprises an upper electrode of the substrate processing apparatus.

[Claim 3]

The substrate processing apparatus of claim 1 or 2, wherein the unit or member that uses power from the power receiver comprises a lower electrode of the substrate processing apparatus.

[Claim 4]

The substrate processing apparatus of any one of claims 1 to 3, further comprising:

a power storage for storing power supplied from the power receiver,

wherein, between the power storage and an AC power supply source that supplies power to the power transmission coil, impedance at frequencies other than a frequency of transmitted AC power is set higher than impedance of the frequency of the transmitted AC power, and

a conversion part that converts AC power from the power reception coil into DC power is connected to the power storage.

[Claim 5]

The substrate processing apparatus of any one of claims 1 to 3, further comprising:

a power storage for storing power supplied from the power receiver,

wherein, between the power storage and an AC power supply source that supplies power to the power transmission coil, impedance at frequencies other than a frequency of transmitted AC power is set higher than impedance of the frequency of the transmitted AC power,

a frequency conversion circuit that converts a frequency of power supplied from the AC power supply source to the power transmission coil into a transmission frequency and transmits power, and

a rectifying circuit and a smoothing circuit that rectify and smooth power supplied from the power reception coil to the power storage.

[Claim 6]

The substrate processing apparatus of claim 4 or 5, wherein the power storage is a capacitor element or a battery.

[Claim 7]

A substrate processing system having a plurality of substrate processing apparatuses for processing a substrate, comprising:

a power receiver including a power reception coil to which power is transmitted in a non-contact manner from a power transmission coil located outside the substrate processing system,

wherein the system is configured to supply power to at least one of the substrate processing apparatus, a unit or a member that uses power from the power receiver, and

wherein the substrate processing system is configured to be movable such that the power receiver included in the substrate processing system faces the power transmission coil.

[Claim 8]

The substrate processing system of claim 7, further comprising:

a power storage for storing power supplied from the power receiver,

wherein, between the power storage and an AC power supply source that supplies power to the power transmission coil, impedance at frequencies other than a frequency of transmitted AC power is set higher than impedance of the frequency of the transmitted AC power, and

a conversion part that converts AC power from the power reception coil into DC power is connected to the power storage.

[Claim 9]

The substrate processing system of claim 7, further comprising:

a power storage for storing power supplied from the power receiver,

wherein, between the power storage and an AC power supply source that supplies power to the power transmission coil, impedance at frequencies other than a frequency of transmitted AC power is set higher than impedance of the frequency of the transmitted AC power,

a frequency conversion circuit that converts a frequency of power supplied from the AC power supply source to the power transmission coil into a transmission frequency and transmits power, and

a rectifying circuit and a smoothing circuit that rectify and smooth power supplied from the power reception coil to the power storage.

[Claim 10]

The substrate processing system of claim 8 or 9, wherein the power storage is a capacitor element or a battery.

[Claim 11]

The substrate processing system of any one of claims 7 to 10, wherein the power receiver is disposed on a bottom of the substrate processing system.

[Claim 12]

The substrate processing system of any one of claims 7 to 10, wherein the substrate processing system comprises one or more processing modules, a transfer module, a load lock module, and a loader module, and

the power receiver is disposed on a bottom of at least one among the processing modules, the transfer module, the load lock module, and the loader module.

[Claim 13]

The substrate processing system of any one of claims 7 to 10, wherein the substrate processing system comprises one or more processing modules, a transfer module, a load lock module, and a loader module,

the power receiver is disposed at least one among the processing modules, the transfer module, the load lock module, and the loader module, and

power supplied to the power receiver is distributed to the processing modules, the transfer module, the load lock module, and the loader module.

[Claim 14]

The substrate processing system of claim 7, wherein the substrate processing system is configured to automatically move to face the power transmission coil by receiving an external control signal in a non-contact manner.

[Claim 15]

The substrate processing system of claim 7, wherein the substrate processing system comprises one power receiver and a plurality of power storages connected in parallel to the power receiver, and

power supplied to the one power receiver is configured to be stored in the plurality of power storages.

[Claim 16]

The substrate processing system of claim 15, wherein the substrate processing system comprises one or more processing modules, a transfer module, a load lock module, and a loader module, and

power stored in the plurality of power storages is supplied to each of the processing modules, the transfer module, the load lock module, and the loader module.

[Claim 17]

The substrate processing system of claim 15 or 16, wherein capacity of the plurality of power storages corresponds to power usage of the processing modules, the transfer module, the load lock module, and the loader module.

[Claim 18]

The substrate processing system of claim 7, wherein the substrate processing system comprises one or more processing modules, a transfer module, a load lock module, and a loader module, and

each of the processing modules, the transfer module, the load lock module, and the loader module has at least two or more power storages.

[Claim 19]

The substrate processing system of claim 18, wherein the two or more power storages included in each of the processing modules, the transfer module, the load lock module, and the loader module are configured to be switchable.

[Claim 20]

A power supply system for supplying power to at least one of a substrate processing system, a substrate processing apparatus, a unit or a member using power, the system comprising:

a power transmitter including a power transmission coil to which power is supplied from an AC power supply source, and

a power receiver including a power reception coil to which power is transmitted from the power transmission coil in a non-contact manner,

wherein power is supplied from the power receiver to at least one of the substrate processing system, the substrate processing apparatus, the unit and the member, and

wherein the substrate processing system is configured to be movable such that the power receiver included in the substrate processing system faces the power transmission coil.

[Claim 21]

The power supply system of claim 20, further comprising:

a power storage for storing power supplied from the power receiver,

wherein, between the power storage and an AC power supply source that supplies power to the power transmission coil, impedance at frequencies other than a frequency of transmitted AC power is set higher than impedance of the frequency of the transmitted AC power, and

a conversion part that converts AC power from the power reception coil into DC power is connected to the power storage.

[Claim 22]

The power supply system of claim 20 or 21, wherein the unit or member is provided in the substrate processing system including a plurality of units, and

the power receiver is disposed in each of the plurality of units.

[Claim 23]

The power supply system of claim 22, wherein the power transmitter is disposed on a bottom surface or under a bottom where the unit is installed.

[Claim 24]

The power supply system of claim 20 or 21, wherein the unit or member is provided in the substrate processing system including a plurality of units, and

the power receiver is disposed in the substrate processing system.

[Claim 25]

The power supply system of claim 24, wherein the power transmitter is disposed on a bottom surface or under a bottom where the substrate processing system is installed.

[Claim 26]

The power supply system of claim 20, further comprising:

a power storage for storing power supplied from the power receiver,

wherein, between the power storage and an AC power supply source that supplies power to the power transmission coil, impedance at frequencies other than a frequency of transmitted AC power is set higher than impedance of the frequency of the transmitted AC power,

a frequency conversion circuit that converts a frequency of power supplied from the AC power supply source to the power transmission coil into a transmission frequency and transmits power, and

a rectifying circuit and a smoothing circuit that rectify and smooth power supplied from the power reception coil to the power storage.

[Claim 27]

The power supply system of claim 21 or 26, wherein the power storage is a capacitor element or a battery.

[Claim 28]

A power supply method for supplying power to at least one of a substrate processing system, a substrate processing apparatus, a unit or a member using power, comprising:

supplying power from the power receiver to at least one of the substrate processing system, the substrate processing apparatus, the unit or the member, by using a power supply system including a power transmitter including a power transmission coil to which power is supplied from an AC power supply source, and a power receiver including a power reception coil to which power is transmitted from the power transmission coil in a non-contact manner,

wherein the substrate processing system is configured to be movable such that the power receiver included in the substrate processing system faces the power transmission coil.