Supporting Agriculture with Solar Energy (Solar Farm® Project in Mongolia)

SOLAR FARM® Project developed by Everyday Farm & Farmdo Group

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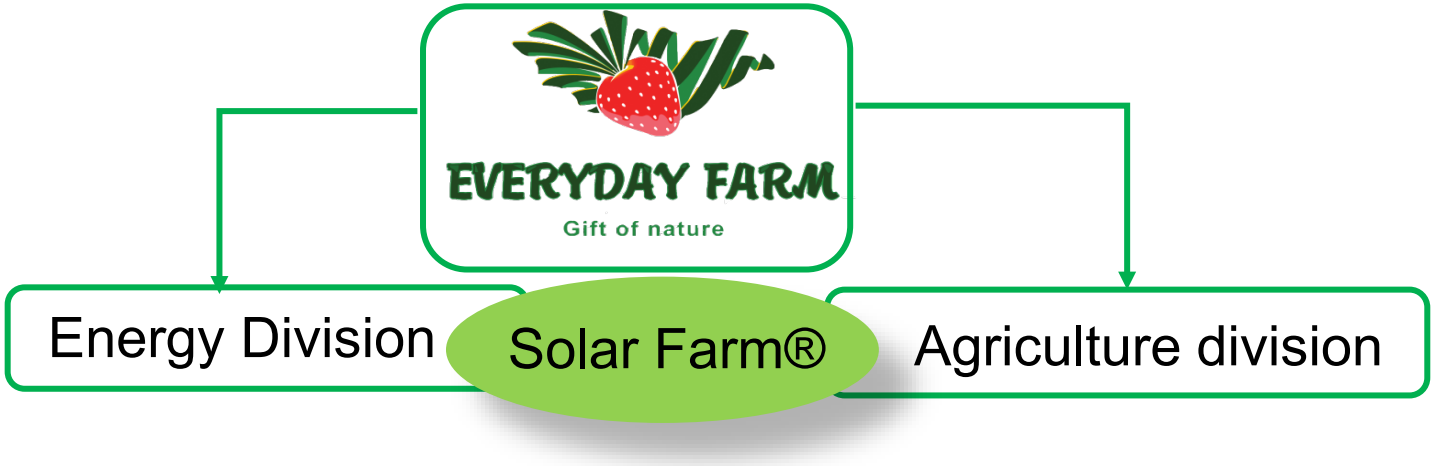
Outline of talk

- The concept (Solar Farm®)
  - Developing for Agriculture
  - SOLAR(energy) + FARM(agriculture)
- Project outline
  - Solar Farm® project in Mongolia
- Financing (Monnaran 10MW Solar power plant)
  - Support of Japanese Government (JCM)
  - Co-financing of Japanese Government and Private bank
- Legal environment of solar energy market in Mongolia
  - Current situation of large, medium, small-scale projects

The concept (Solar Farm®)

❖ Everyday Farm LLC (Introducing Solar Farm® technology in Mongolia)

➢ Joint venture of Farmdo and BRIDGE CORPORATION - since1991 -



❖ Our mission is to enrich Mongolian's life with a successful Solar Farm®.

➢ Utilize Renewable energy
➢ Provide fresh and safe vegetables
➢ Develop human resources that supports Mongolian agriculture
➢ Expand Solar Farm® (Mongolia, Chile, Uzbekistan…)

The concept (Solar Farm®)

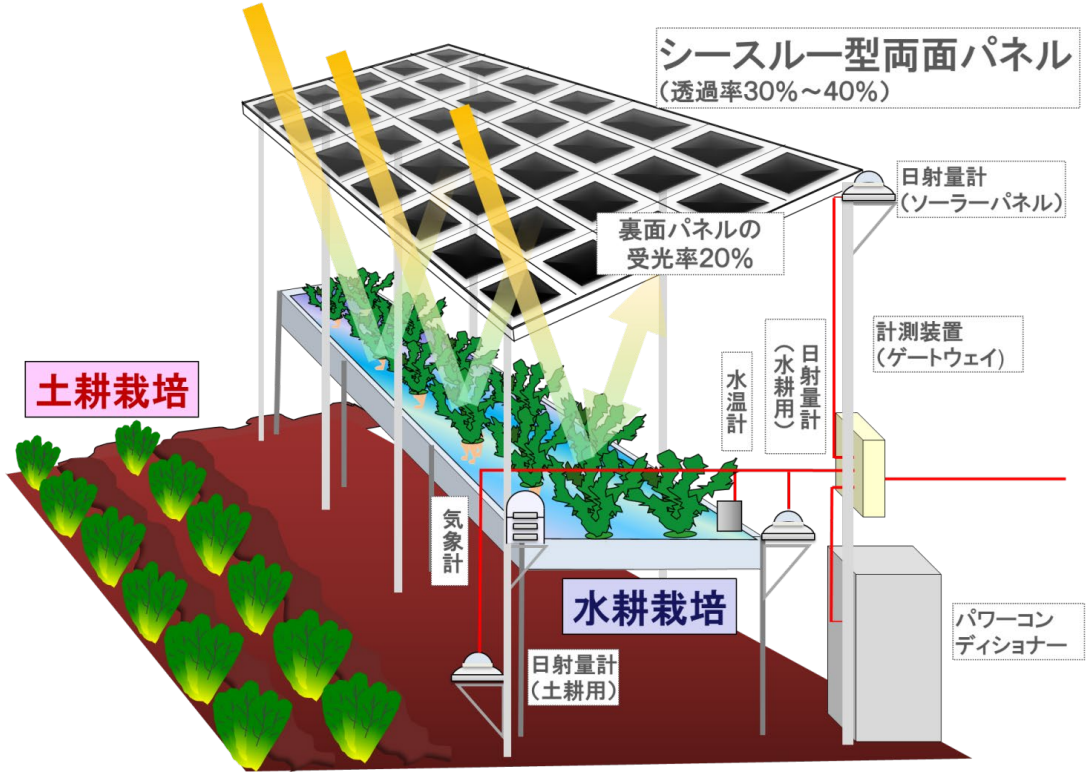
❖ Our way of thinking

New agriculture style that inspires a dream for young generation

❖ SOLAR (energy) + FARM (agriculture)

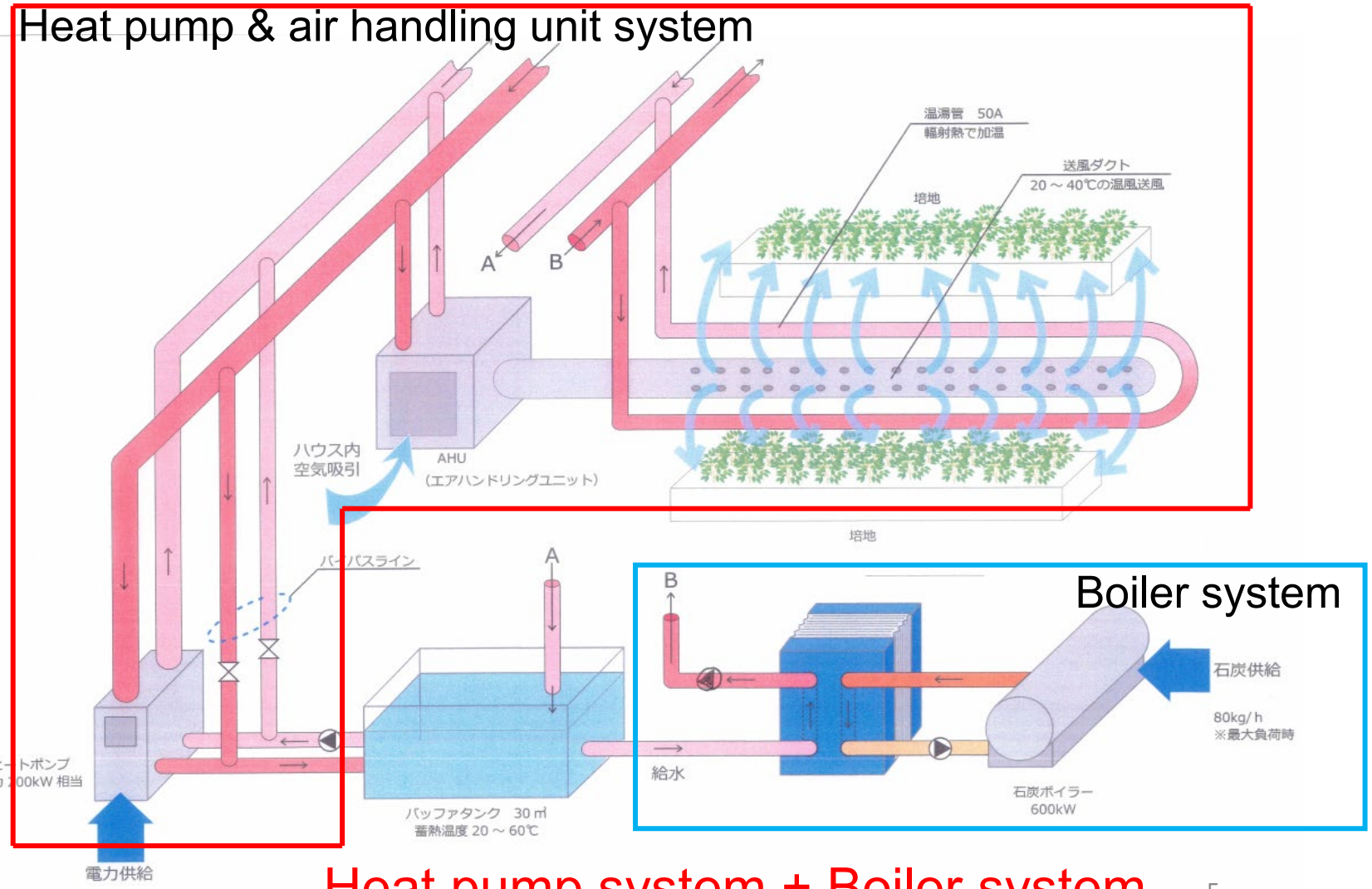
PV modules for greenhouse designed by Farmdo Holdings

Patent No. 5791215
Patent No. 5791211



Solar Farm® development practices in Mongolia

Solar panels for electricity + Air Handling Unit +Air curtain for heat insulator



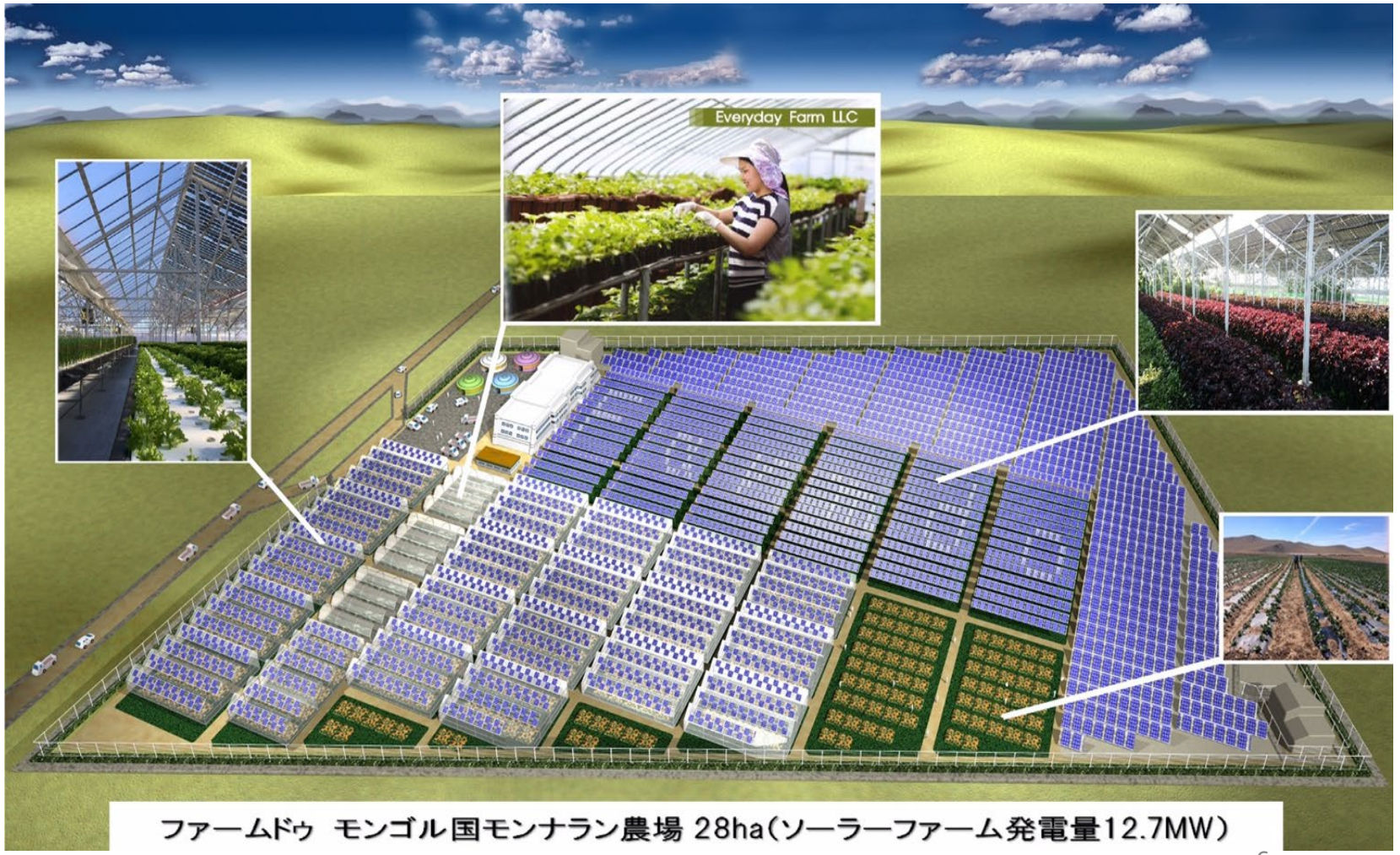
Heat pump system + Boiler system

Solar Farm® development practices in Mongolia

- Total site area is 28.6 [ha] covered by Solar power plant and Greenhouse
  - AC10MW/ DC12.7MW PV plant in 24.8 [ha] area.

- 1st phase 2.4MW
  - PV plant over 4.2ha

- 2nd phase 10.3MW
  - Area 20.6 [ha]
  - 4MW PV plant
  - 6.3MW Solar Farm® over 12.1ha area



Solar Farm® development practices in Mongolia

Green

Certificate

БАЙГАЛЬ ОРЧИН, АЯЛАЛ ЖУУЛЧЛАЛЫН ЯАМ

НОГООН ГЭРЧИЛГЭЭ

"ЭВРИДЭЙ ФЕРМ" ХХК

БАЙГАЛЬ ОРЧИНД ЭЭЛТЭЙ ДЭВШИЛТЭТ ТЕХНОЛОГИ НЭВТРҮҮЛСЭН БАЙГУУЛЛАГА

Монгол Улсын Засгийн газрын 2017 оны 290 дүгээр тогтоолоор батлагдсан "Байгаль орчинд ээлтэй дэвшилтэт арга, технологи нэвтрүүлсэн иргэн, аж ахуйн нэгж, байгууллагыг урамшуулах журам"-ын шаардлага хангасан тул **НОГООН ГЭРЧИЛГЭЭ** олгов.

БАЙГАЛЬ ОРЧИН, АЯЛАЛ ЖУУЛЧЛАЛЫН САЙД Н.ЦЭРЭНБАТ

ОЛГОСОН: 2019.12.20 ХҮЧИНТЭЙ ХУГАЦАА: 2022.12.20

For further information, search for
"Farmdo case: large scale solar sharing project" on Youtube.

Environmental contribution

❖ Contribution to Environment

Total installed capacity of PV plant: AC 10MW inverters/ DC 12.7MW PV modules

Electricity production is equal to the total consumption of 6500 Mongolian households

[21,300 ton CO2/year] expected amount of **GHG** emission reduction

[16,600 ton coal/year] expected amount of conserving **COAL** consumption

100 ton truck ×166 = 16,600 ton coal

[103,900 ton water/year] expected amount of conserving **WATER** use

Same volume to 100,000 ton Loadable Oil Tanker

Monnaran 12.7MW Solar Farm® Project

- Foreign Direct Investment:
  - Direct investment from Farmdo Group (Gunma, Japan)

- Green Development: Supported by Japanese Government
  - (JCM) JOINT CREDITING MECHANISM PROGRAM

  Monnaran 12.7MW Solar PV Project under JCM
  [149,582,299 kWh] generated clean energy since 2017.
  [119,470 ton CO2] GHG emission reduction since 2017.

- Co-financing of Government and Private banks of Japan
  - (JBIC) Japan Bank of International Cooperation
  - (TOWA) Local bank in Gunma Prefecture, Japan

Small-scale solar PV systems:









EPC business

- Design and install small-scale PV systems for household and private facilities

Legal Environment of Solar Energy

- Large-scale projects: (tied to the transmission network)
  - (2007 - 2015) Law on Renewable energy
    Existing RE projects are developed by Private Sector (Wind:3, PV: 7).
  - (2019) Revision of the Law on Renewable energy
    Project proposals are only initiated by the Government.

- Medium-scale projects: (Legal Environment is now yet established)
  - No permission is needed to build clean energy source up to 1.5MW capacity for self-consumption but not tied to the central grid.

- Small-scale projects: (installed at the end-users facilities)
  - (2020 - 2025) Regulation on supplying consumer's renewable energy sources to the distribution network. (under 20kW for households)
    Grid connection process involves complex multi stages, often costly and gives no incentives for the end-users.
  - (2026) Currently, revising the regulation to promote small-scale PV's.

Thank you for your kind attention