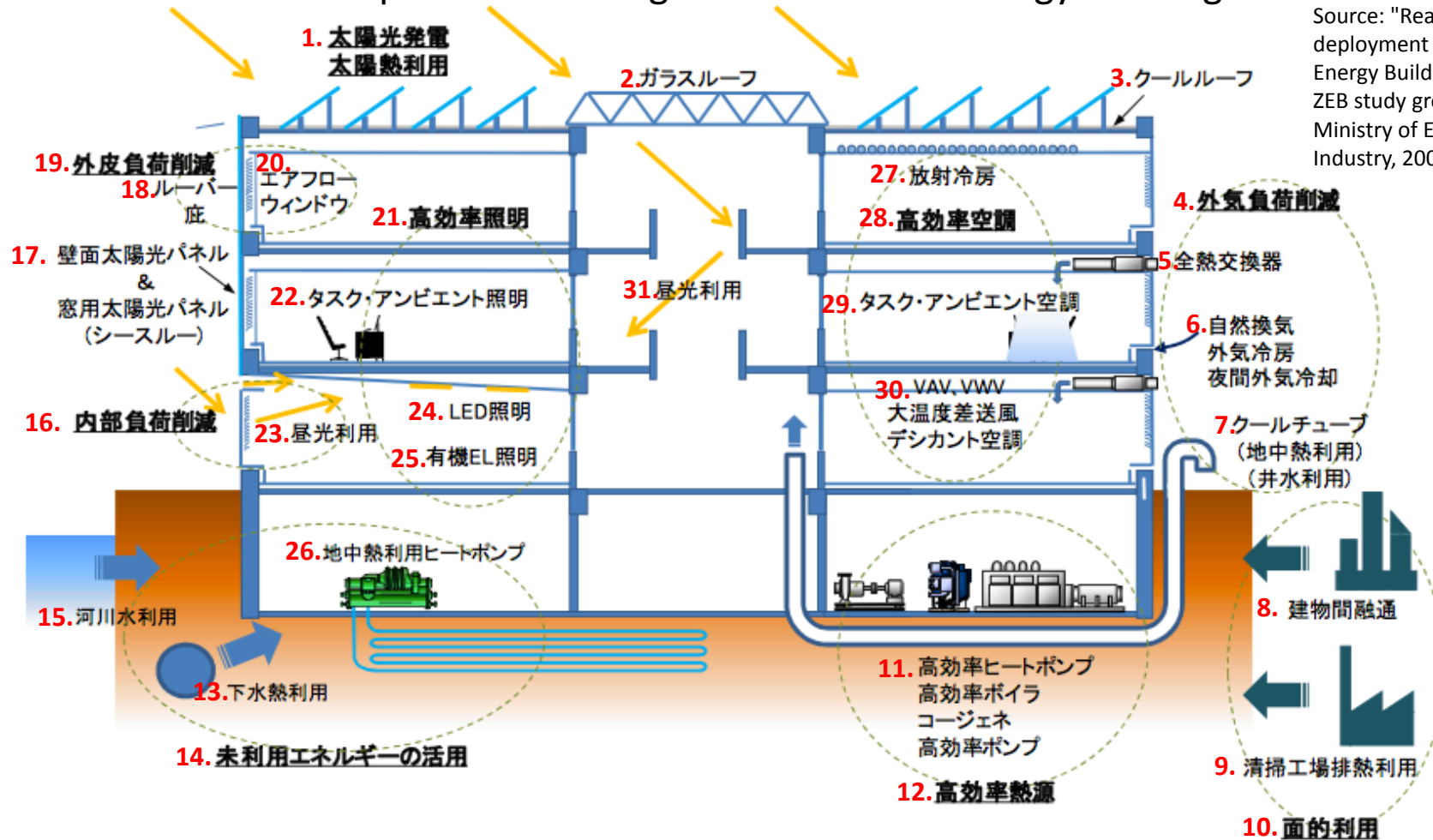


Comprehensive design to realize Zero Energy Building

Source: "Realization and deployment of ZEB (Net Zero Energy Building)", A report by ZEB study group in Japanese Ministry of Economy, Trade and Industry, 2009 November



1. PV generation, passive solar
2. Glass roof
3. Cool roof
4. Load reduction of outer atmosphere
5. Whole heat exchanger
6. Natural air-conditioning, Cooling by outer atmosphere (at night)
7. Cool tube (geo thermal, well water)
8. Interchange between buildings
9. Waste heat of garbage incineration plant
10. Wide area utilization

11. High efficiency heat pump, high efficiency boiler, cogeneration, high efficiency pump
12. High efficiency heat source
13. Utilization of waste water
14. Utilization of unused energy
15. Utilization of river water
16. Load reduction of inner equipments
17. PV panel for wall, PV panel for window (see-through)
18. louvre window
19. Load reduction of outer surface
20. Air flow window

21. High efficiency lighting
22. Task-ambient lighting
23. Daytime natural light,
24. LED lighting
25. Organic electroluminescence lighting
26. Heat pump for geo thermal
27. Emission cooling
28. High efficiency air conditioning
29. Task-ambient air conditioning
30. VAV, VWV, air flow by large temperature difference, desiccant air conditioning
31. Daytime natural light