

Master Plan



Total Site Area: 36,877m²

Villa Type 1 (2 story) :17* 200 m²

Villa Type 2 (2 story): 17 *250 m²

Town House (2 story): 12 * 113 m²

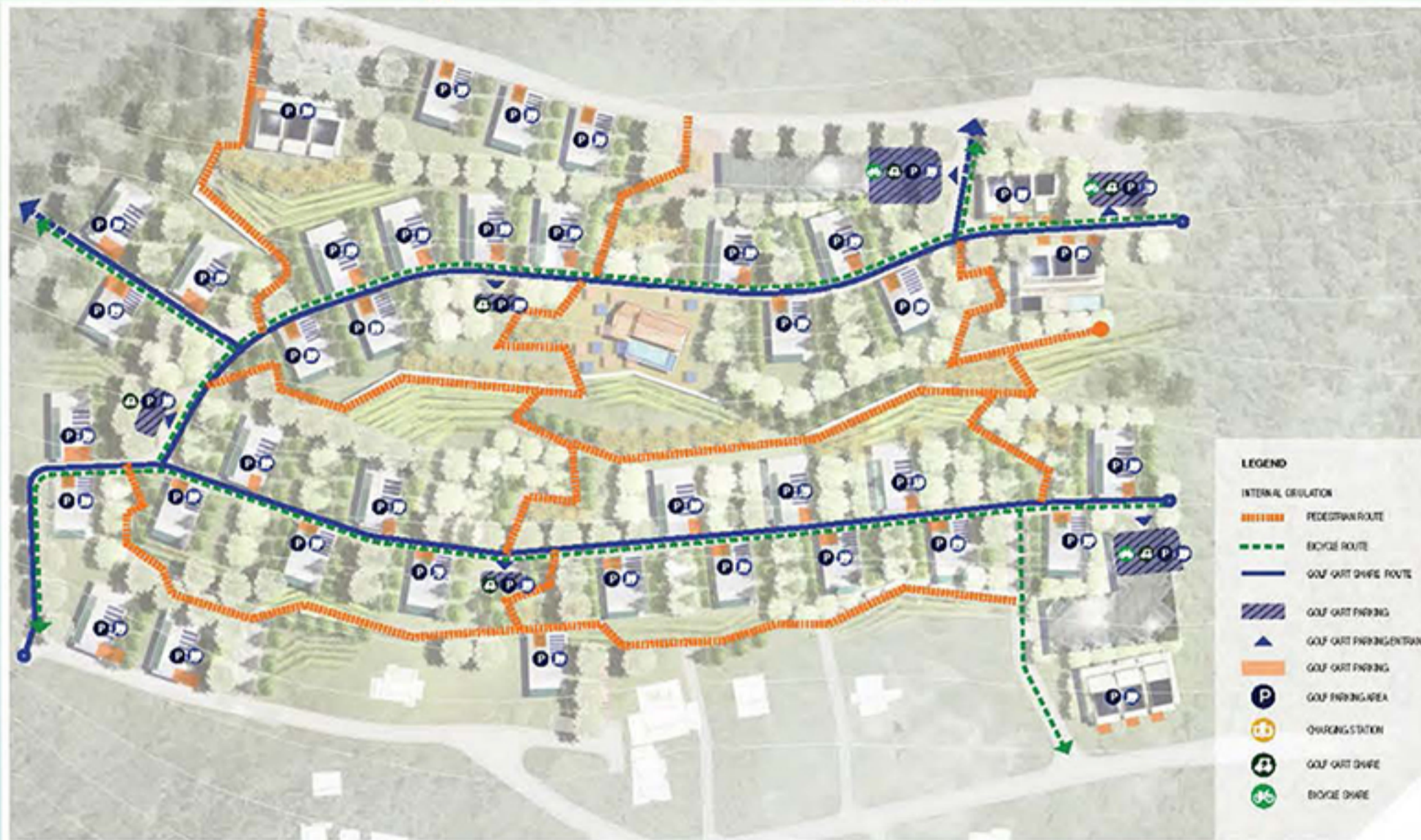
Club House (2 story): 1 * 300 m²

Total BGP: 9,306 m²

	LOT SIZE (m ²)	
UP 1	935.29	281
UP 6	696.17	209
UP 19	1181.35	591
Total BGP:	1,081m ²	

Total BGP: 10,387 m²

Mobility Strategy - Circulation



INTERNAL CIRCULATION:

- 1 Golf cart per villa with charging station, 63 in total
- 10 Shared golf carts for entire site
- 31 Golf parking lots with charging stations
- Energy Daily Need: 3.3 kWh per golf cart per day



INTERNAL CIRCULATION:

- 30 Shared Bicycles



EXTERNAL CIRCULATION:

- 15 Shared electrical vehicles for external use
- 63 Vehicular parking lots with charging stations



EXTERNAL EV ENERGY NEED:

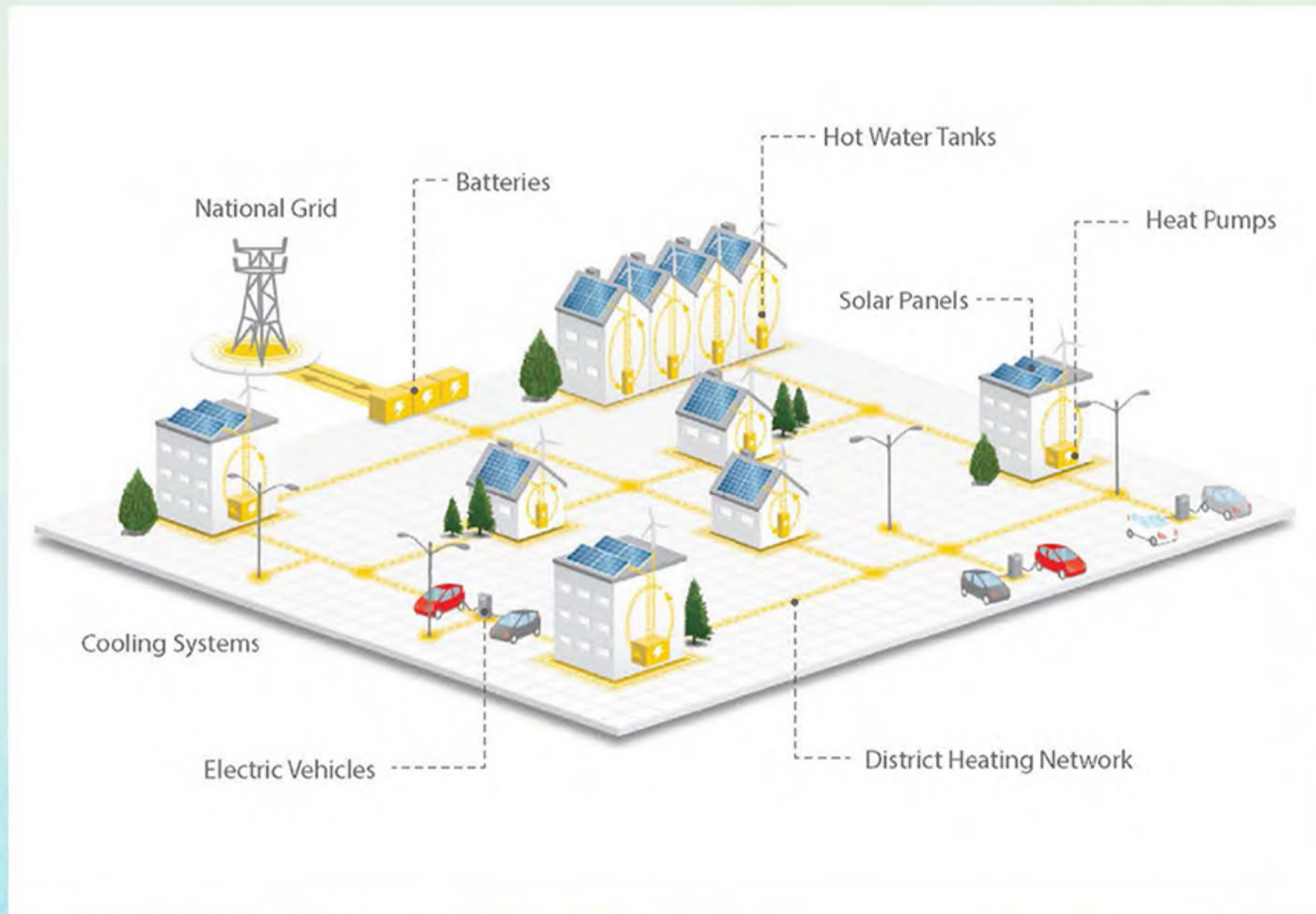
- Energy Need: 10 kWh/100 km per vehicle per day

Micro Grid

Decentralized energy grids that can balance supply and demand locally through the utilization of distributed energy resources.

SIDE -System: A SIDE-System is defined as a highly self-sufficient and sustainable micro grid, characterized by high degree of integration between heat and power technologies, resulting in a flexible and resilient energy system at the local level.

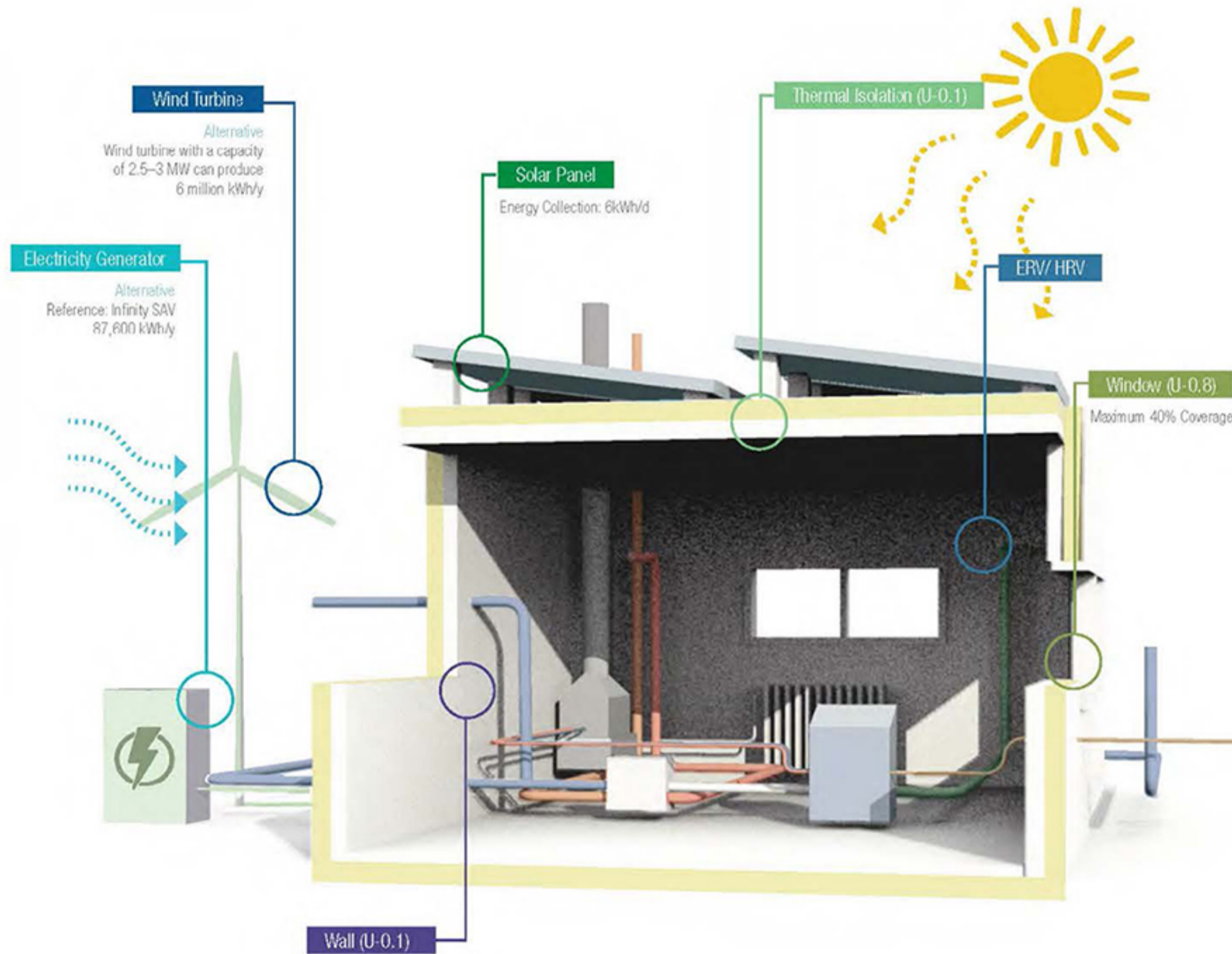
“ Micro grids have been identified as a key component of the renewable energy transition for improving power reliability and quality, and increasing system energy efficiency.”



Legend

 Solar PV panels	 District heating network
 Solar thermal panels	 Electric vehicles
 Heat pumps	 Electric heating (e.g. infrared panels)
 Batteries	 Heat recovery (ventilation, DHW)
 Hot water tanks	 Cooling systems

Passive House Plus



* A Passive house is a building, for which thermal comfort (IS 7730) can be achieved solely by post-heating or post-cooling of the fresh air mass, which is required to achieve sufficient indoor air quality conditions -without the need for additional recirculation of air.*

For Zagora Net Zero, the average heating / cooling energy consumption of Passive House Plus is envisioned as low as 10kWh/(m2yr).

Passive House Plus

Energy Saving:
Over 80%

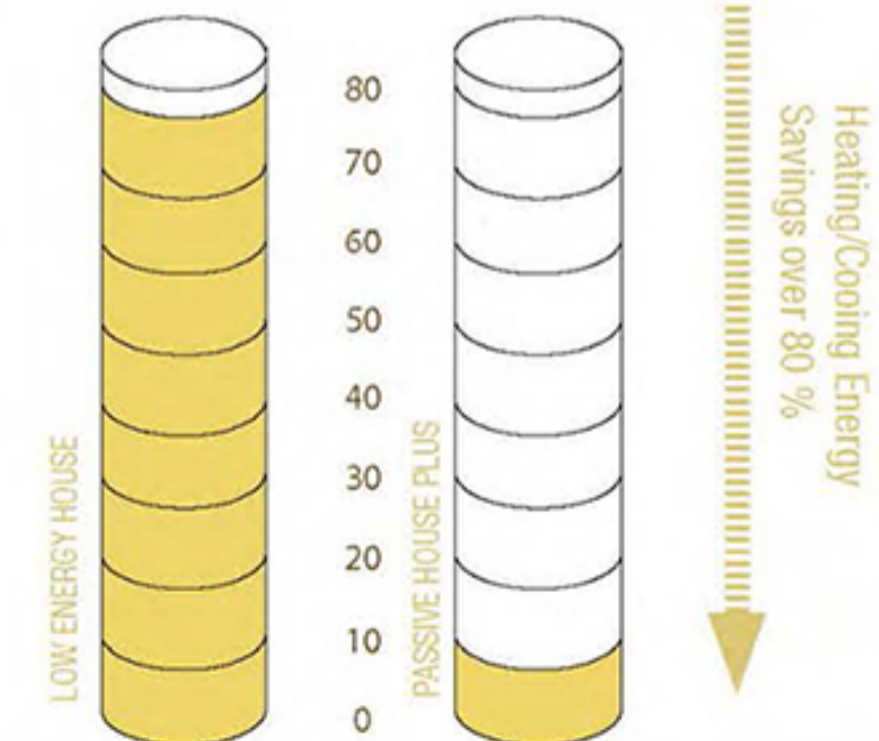
Energy Consumption in Total:
10kWh/(m2yr)

Solar Energy Generator:
6kWh

Typical House

Energy Consumption:
23.5 kWh per day
Oven - approx. 18kwh (estimate running 3 hours a day)
Washer - approx 1.5kwh
Dryer - approx 1.5kwh
Fridge - 1.5kwh
Water heater - approx 15kwh
Ancillary plug loads&lighting - 5-10kwh

Heating/Cooling Energy 10 kWh/(m2 yr)



Energy Summary

Energy Consumption		Total (kWh/d)	Details		
			Item	Sub-total (kWh/d)	
1	Energy requirement for 63 villas	1,480.5	63(Number of villa)* 23.5		
2	Energy requirement for public amenity & common facilities	762.0	Street Lighting	52.5	175 W* 25 (Quality of lights)*12 h
			Golf Cart	61.5	3.3 kWh/d * 60% *31(Quantity of parking lots)
			Electrical Vehicles	120	10kWh/d * 80% *15 (Quantity of vehicles)
	Water Purification	528	11kWh/d * 12 (hours) * 4 (Quantity of Generator)		
Energy Total Consumption		2242.5	1,480.5 kWh/d + 762 kWh/d		
Energy Consumption per Villa		35.6			
Resort Solar Energy Generation		Total (kWh/d)	Details		
1	Solar Panels on Villas	2,646.0	6 kWh/d * 7 hours * 63 (Number of villa)		
2	Solar Panels for Common Areas (parking lots)	1,000.0			
Total Resort Generation		3,646.0	2646 KWh/D (Villas) + 1000 KWh/d (Parking Lots) = 3646 KWh/d		
ENERGY BALANCE		1,403.5	Total Energy Resort Solar Generation: 3646 kWh/d - Total Energy Resort Consumption: 2242.5 kWh/d		

NOTE: THIS IS PRELIMINARY ESTIMATE ONLY AND DOES NOT INCLUDED PUMPING WATER TO AND WITHIN THE SITE



Existing Technology:
Solar Panel



Existing Technology:
ERV / HRV



Alternative Technology: CENTRIFUGAL BOILER iSAV - Infinity SAV
Total capacity: 20,000W (thermal energy)
The consumption of electricity will be about 200 W/h for Work maintenance, while the Consumer receives up to 20 kW of thermal power



Alternative Technology: MAGNETIC ENERGY GENERATOR - Infinity SAV
Total capacity: 13050W/6550W
Efficiency rate kWh/ year) per 10kW * 24h * 365 days = 87,600 kWh/ year

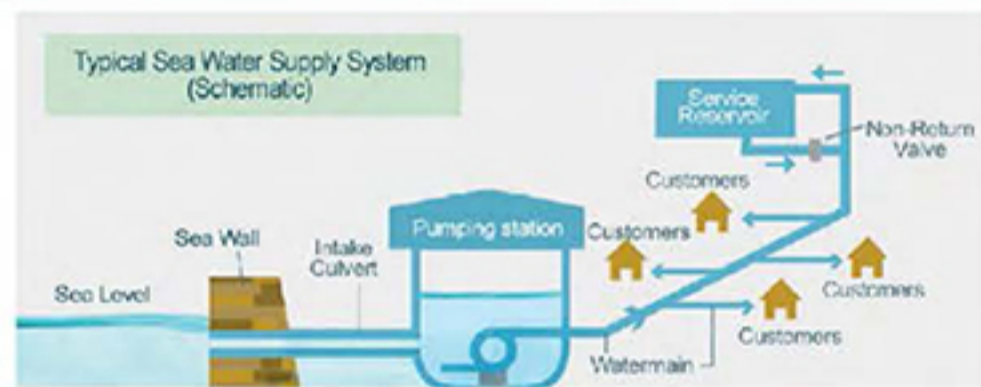


Alternative Technology: AIR TO WATER HEAT PUMP - Dalkin
Excellent zoning flexibility with 1-to-1 and 1-to- multi connections
Broader diversity with ability to provide cooling and heating in up to 9 zones
Connecting solar collectors to the heat pump system further increases efficiency and savings.

Water Strategy

Reducing Demand Strategy for Desalinations:

- Water Capture
- Water Store
- Water Detention
- Water Reuse/ Water Recycle
- Desalination



Water Storage

Storage per Villa: 30-50 m³

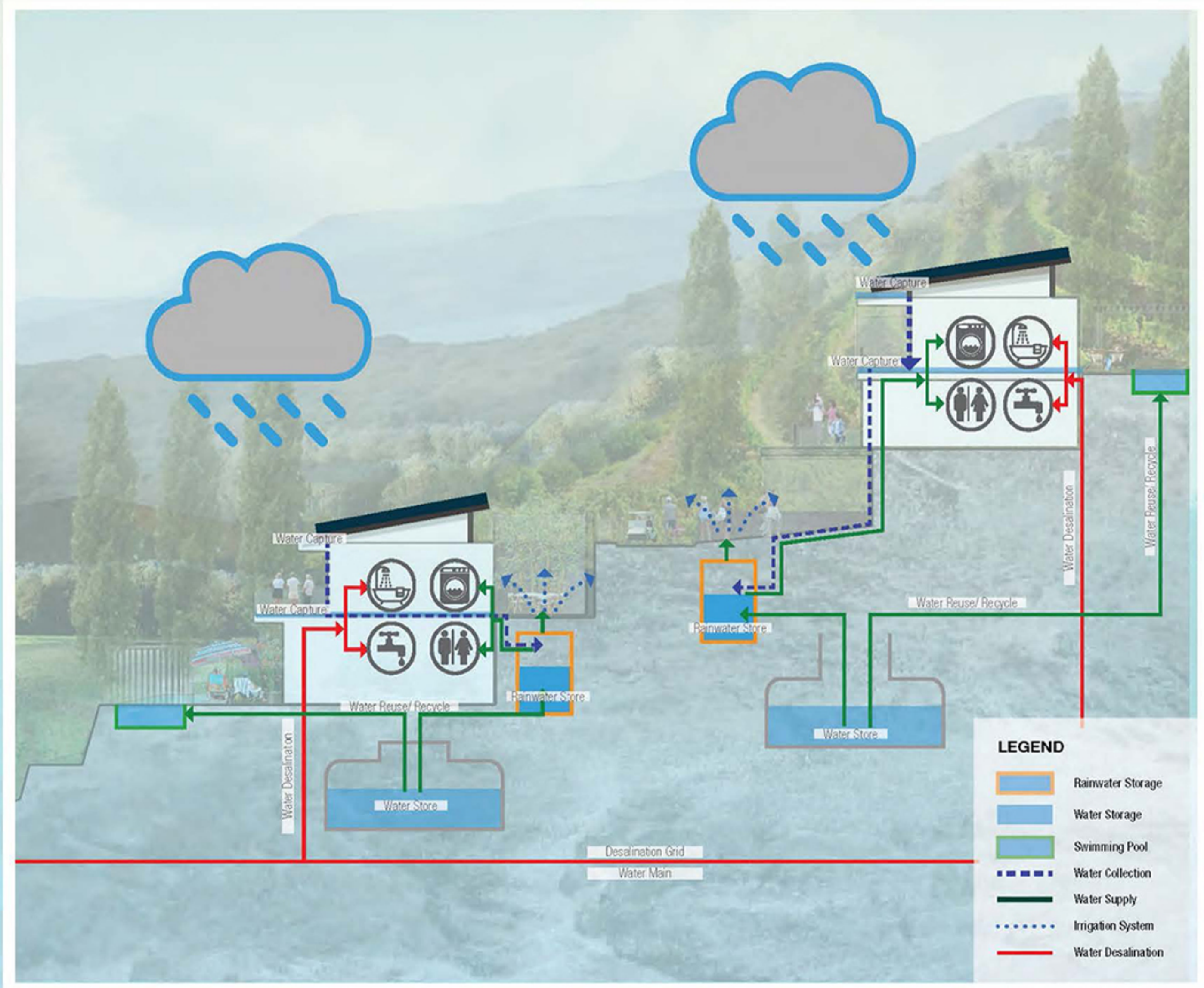
Water Consumption

Daily Water Use: 80 liter per person per day.



Water Purification

Volume of Desalination/ Purification System: 4000L/Day (100m³/Day) for 11kWh Energy Consumption



Smart City Sandbox

- By IBI Group

"We believe resorts must be designed with intelligent systems, sustainable buildings, efficient infrastructure, and the human touch."

Energy Monitoring
Technology Security

