Biofuel Technology Strategy in NEDO

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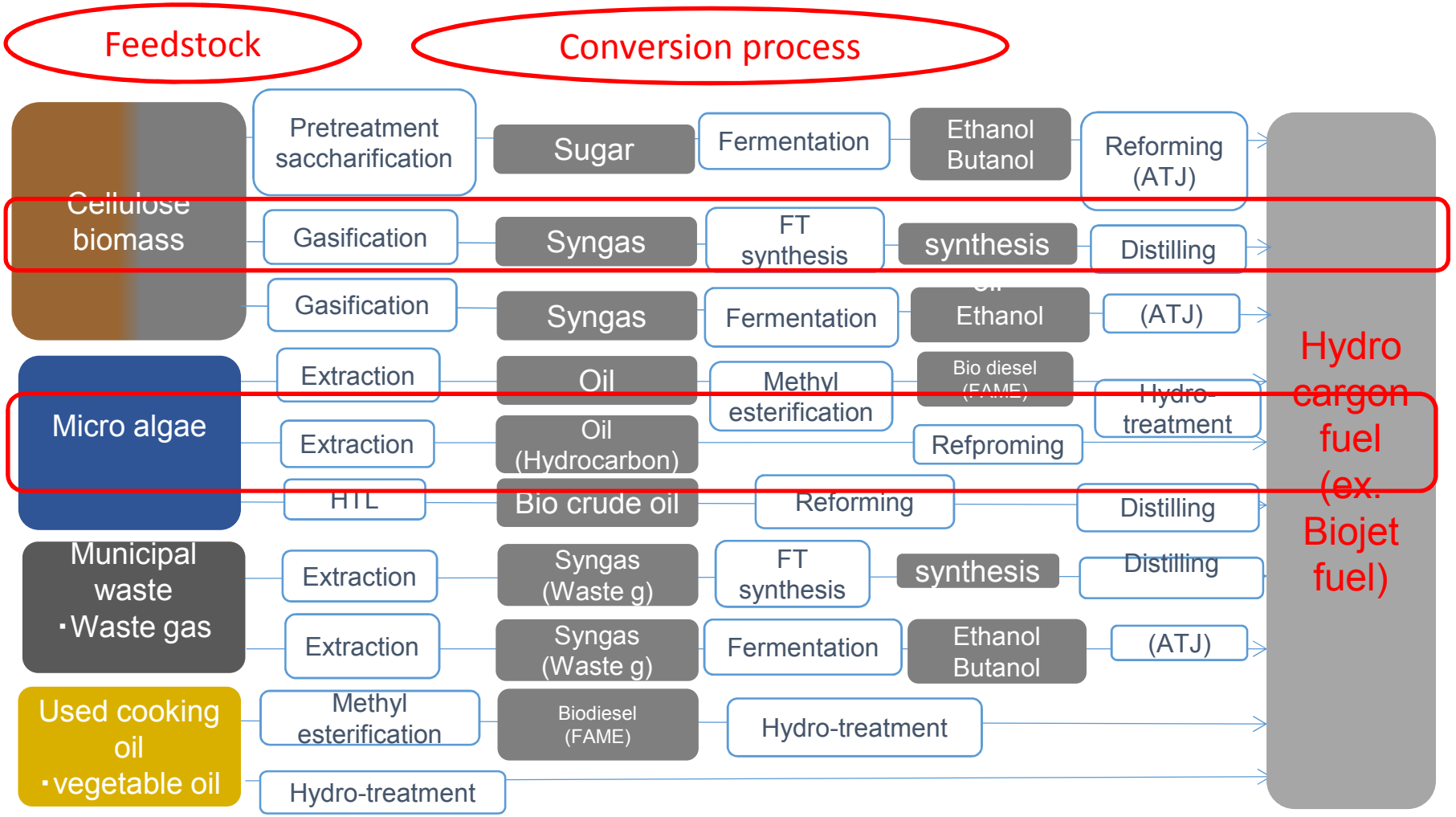
Type of Biofuels

	Social acceptance (Competition with foods)	Alternative to gasoline, light oil	Alternative to jet fuel	Status
First-generation biofuels (Biofuels made from food crops grown on arable land)	×	○	×	Commercialized
Second-generation biofuels (Ethanol made from cellulosic biomass, etc)	○	○	×	R&D～Demonstration
Next-generation biofules (Hydrocarbon)	○	○	○ (without oxygen)	R&D

R&D of Hydrocarbon Fuel

There are varieties of feedstocks and conversion processes.
NEDO's projects are Gasification & FT synthesis process and Micro algae process.

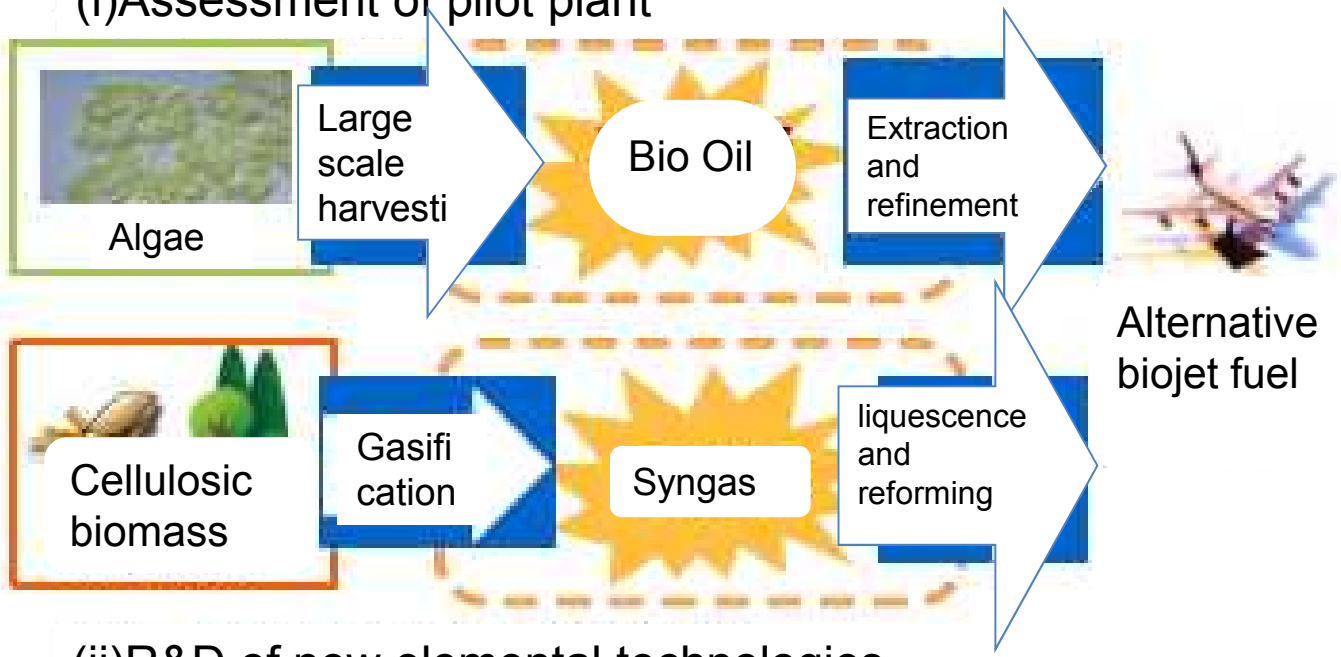


Biofuel Technology Strategy

- Two projects of pilot plant started from 2016.

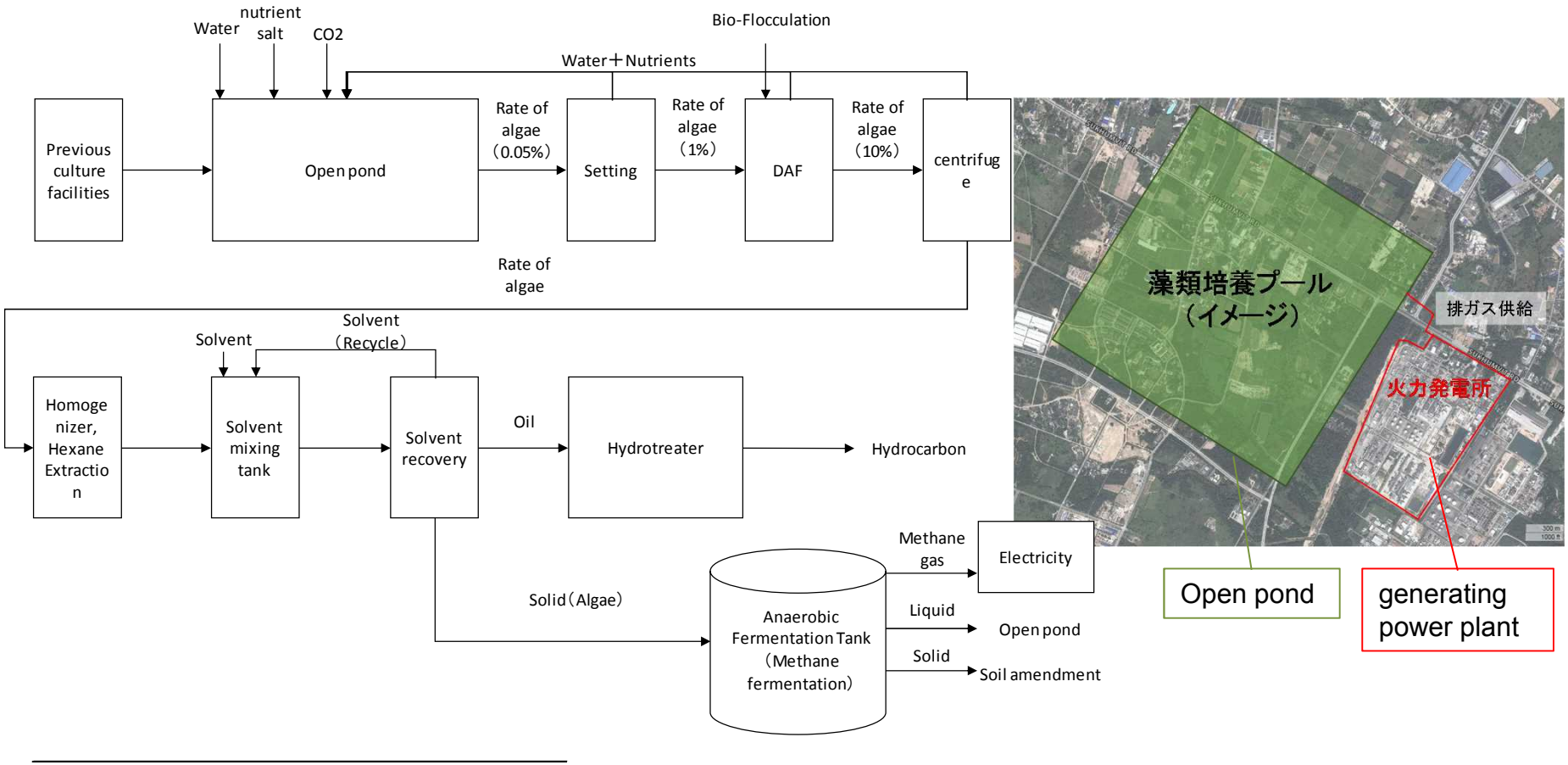
➢Biojet fuel

(i)Assessment of pilot plant



(ii)R&D of new elemental technologies from the listed technologies of next page

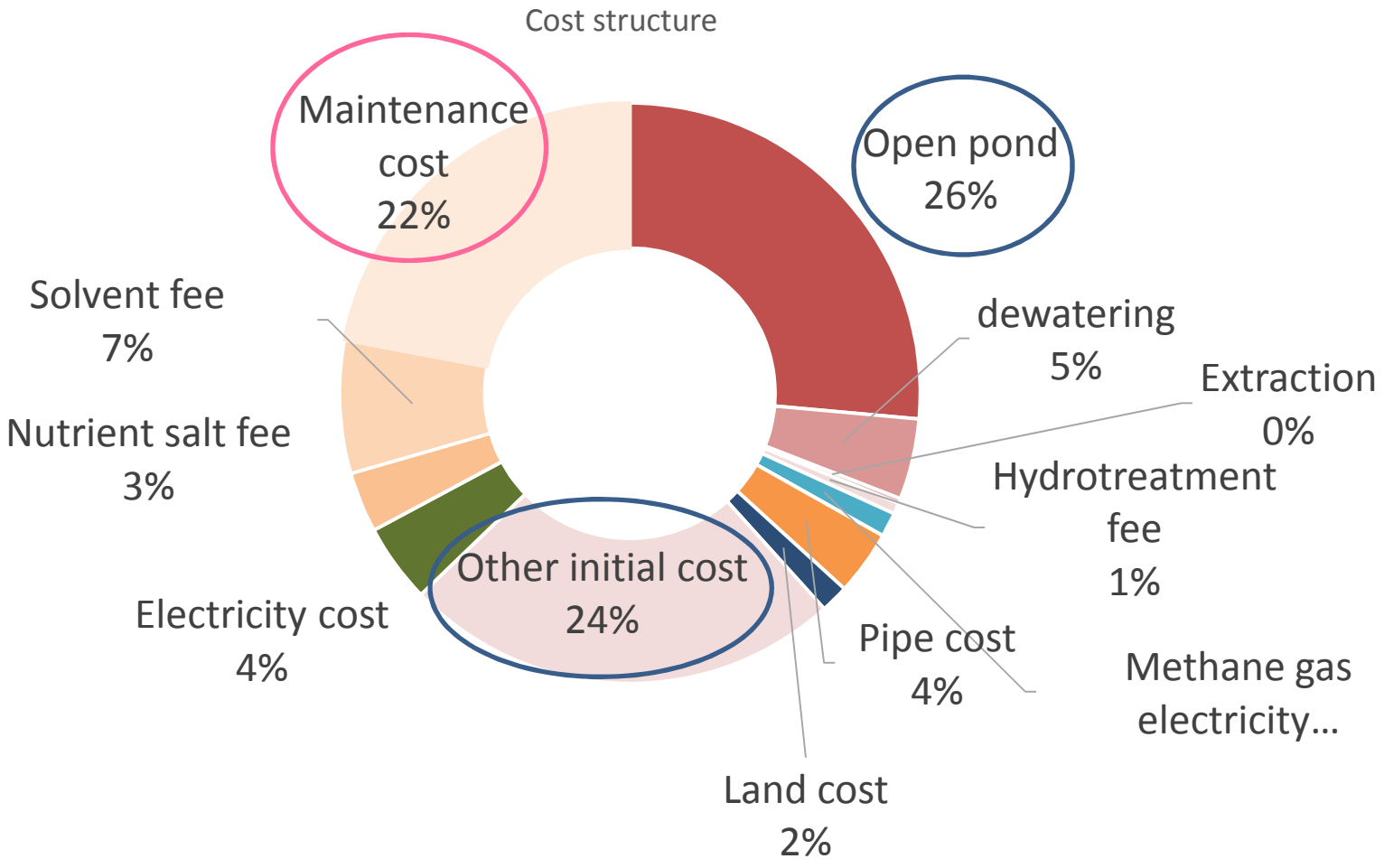
Process flow　G)Hydrocarbon fuel from micro algae model case



Condition	Model case	Hydrocarbon fuel from micro algae		
	Algae productivity	25g/m2/d	Amount of production	9,501kl/y
	Essential oil efficiency	93%	Lipid content	25w/w%
	Number of years	20年	capacity utilization	90%
	Area of pond	500ha	Maintenance cost	3%-CAPEX/year

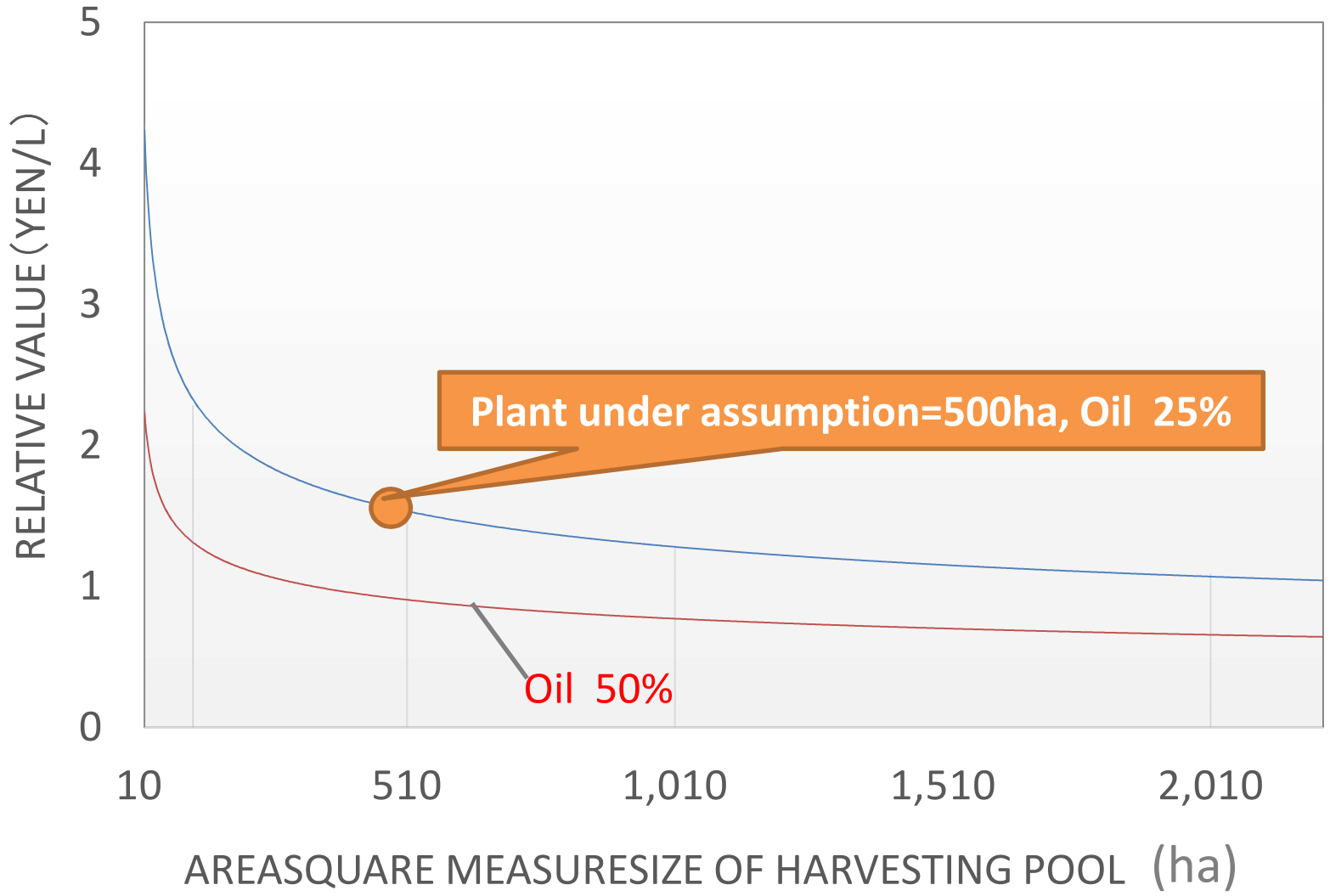
Cost structure　G)Hydrocarbon fuel from micro algae model case

- Equipment cost 50%(Open pond 26% and Initial cost 25%)、Maintenance cost 20%



Sensitive analysis- Scale merit - G)Hydrocarbon fuel from micro algae model case

- It takes more than 400ha to reduce cost in case of this model.
- The larger the amount of oil included in algae is, the cheaper fuel cost is.



Thank you

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