PV SYSTEMS
Floating Photovoltaics

Floating photovoltaics

FLOATVOLTAICS are PV systems supported by floating strutures on body of waters

Floating photovoltaics

Benefits

Land saving

Increased Efficiency (albedo, temperature)

Reduced Evaporation of water

Less dust effect

Impacts

Increased costs (anchoring, O&M)

Degradation (corrosion, soiling)

Environmental and socioeconomic impacts

Can be positive!!

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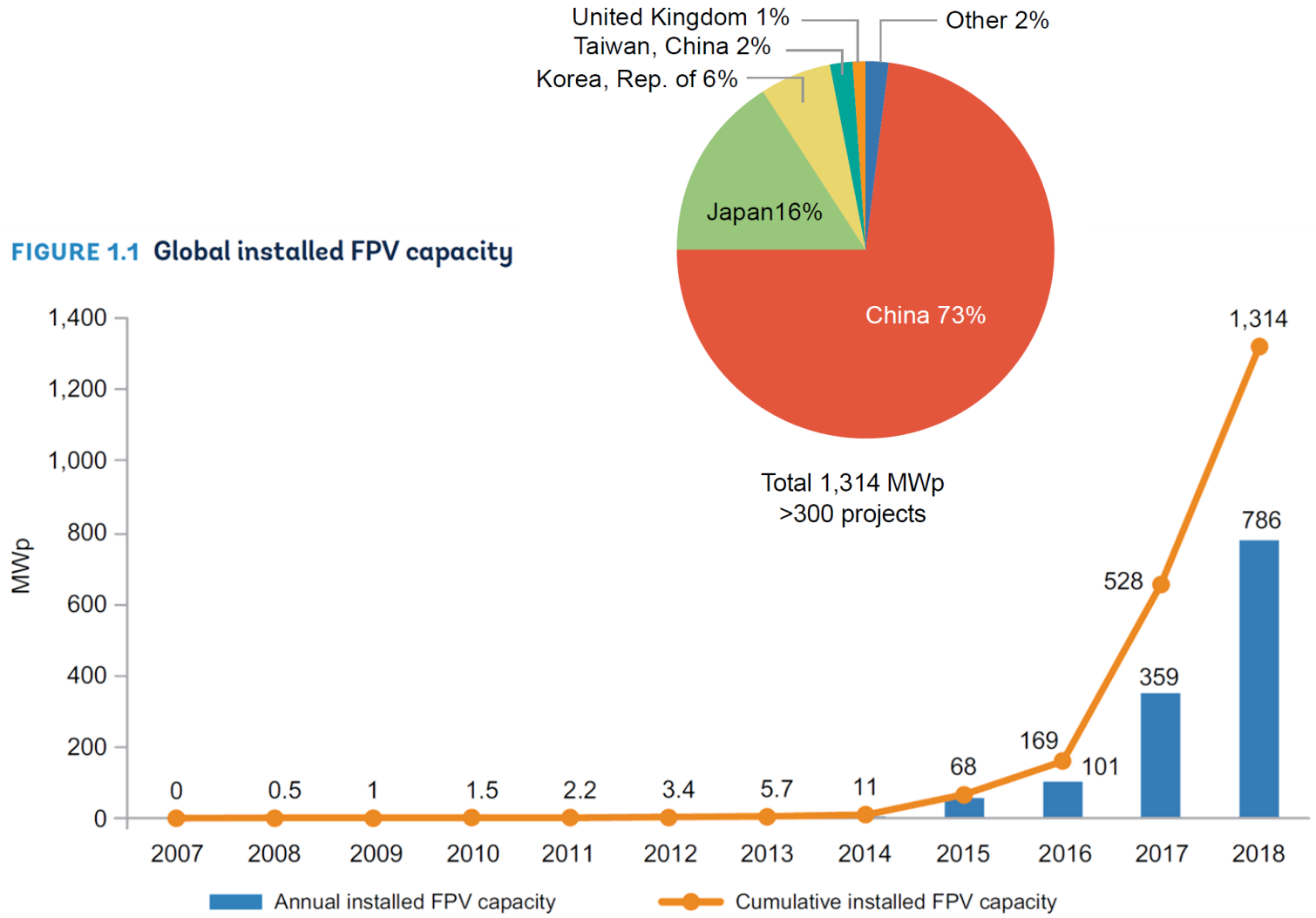

FIGURE 1.1 Global installed FPV capacity

Source: World Bank Group, ESMAP, and SERIS 2019.

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Choosing the site…

- Close to load and to the grid
- High solar irradiation and low wind (no freezing water)
- Preferrably fresh water
- No competition with recreational uses
- Avoid natural habitat of preserved species

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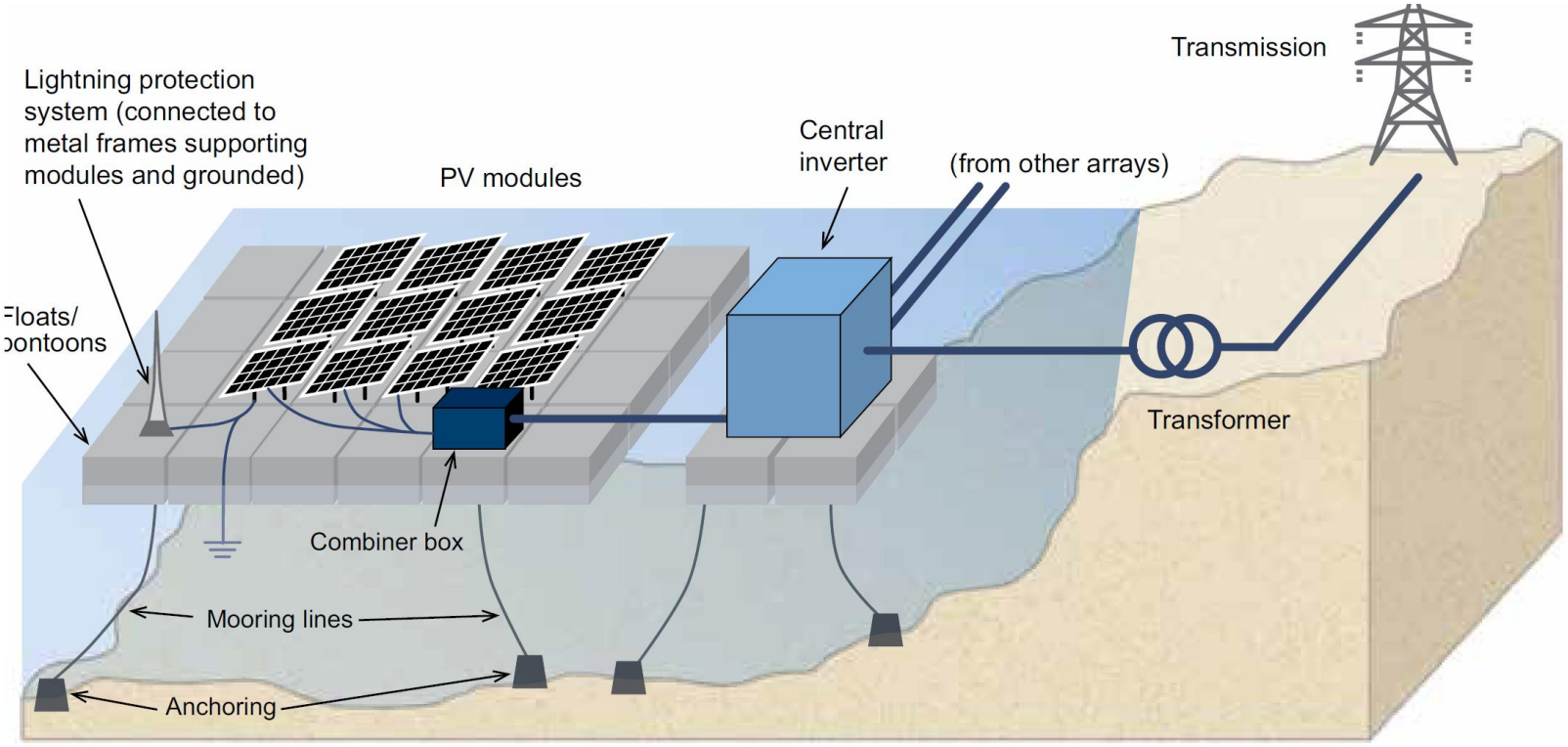

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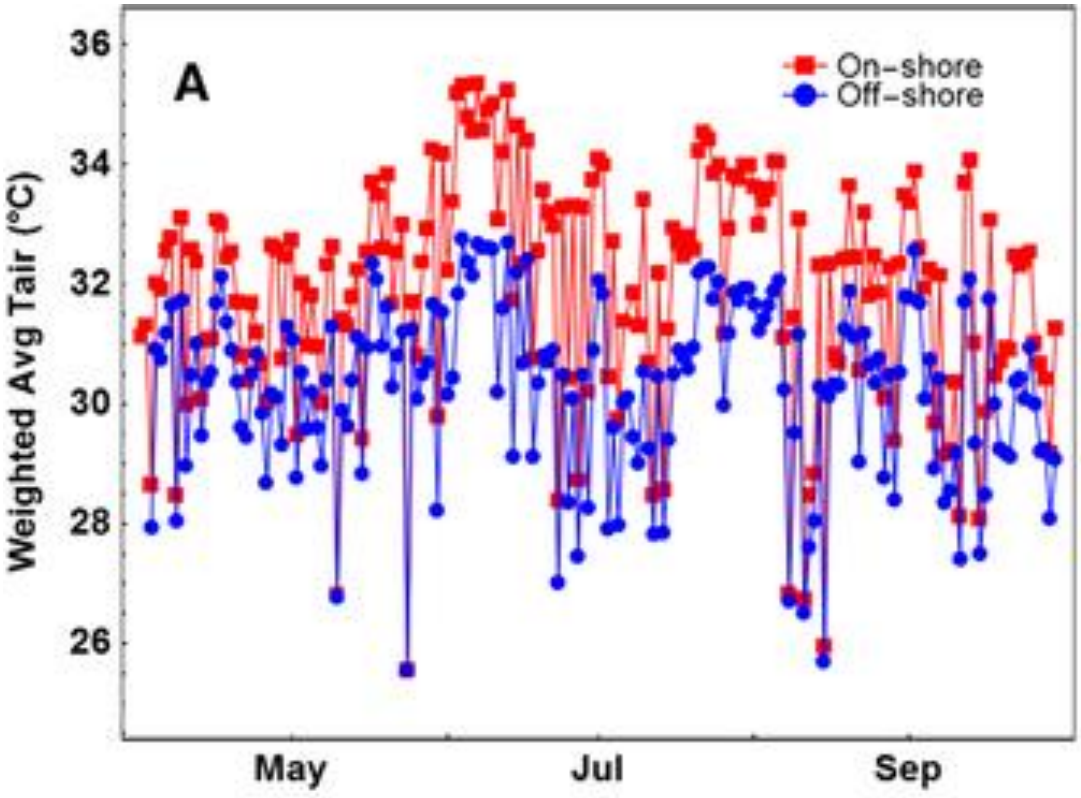
Relevant decrease in operating temperature >>> increased efficienct



Liu, H., et al (2018) wiley.com/doi/abs/10.1002/pip.3039.

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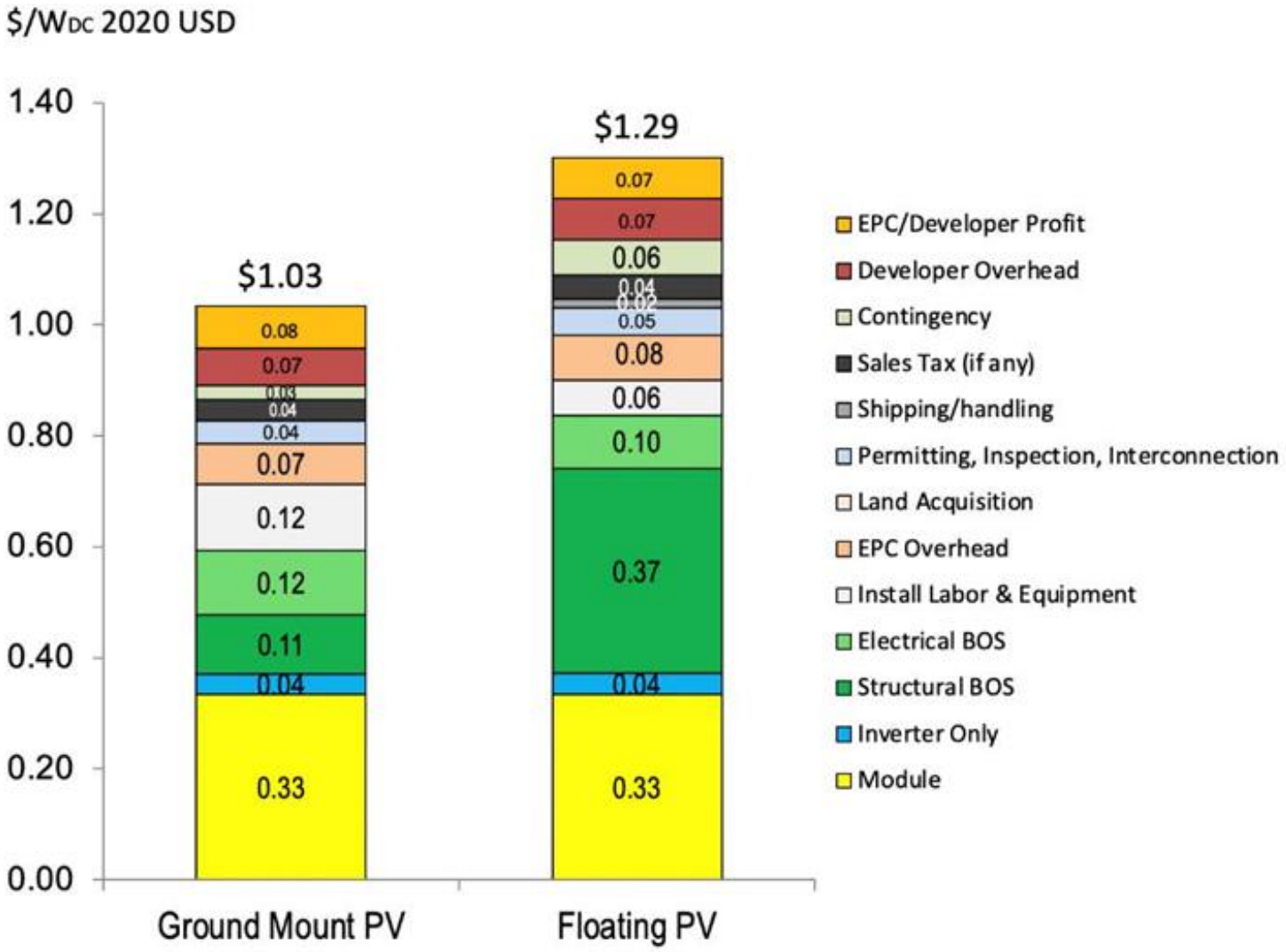

https://www.nrel.gov/docs/fy22osti/80695.pdf.

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Dropping from seabirds
may be a O&M challenge

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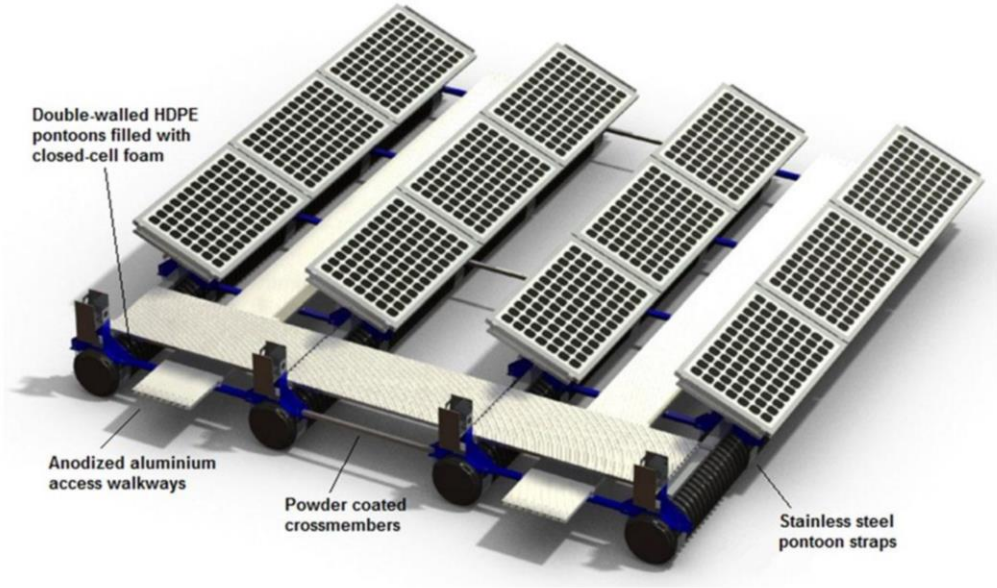

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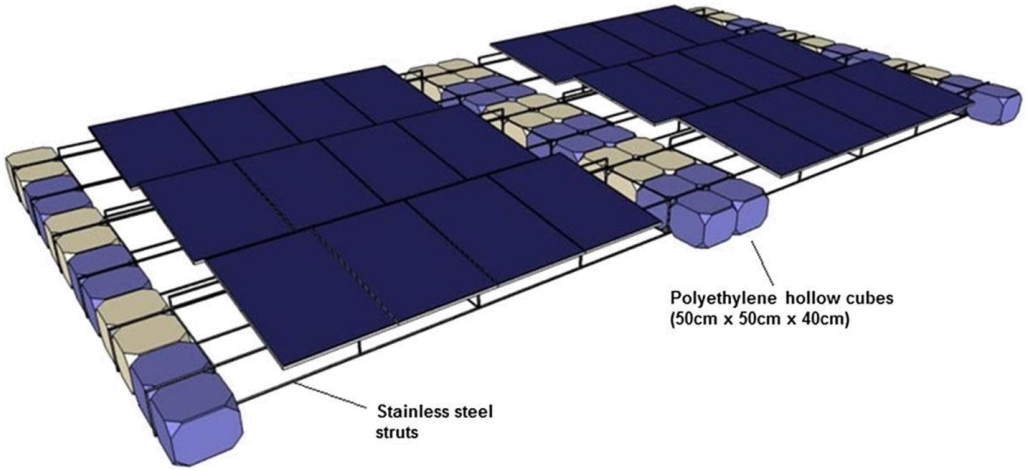

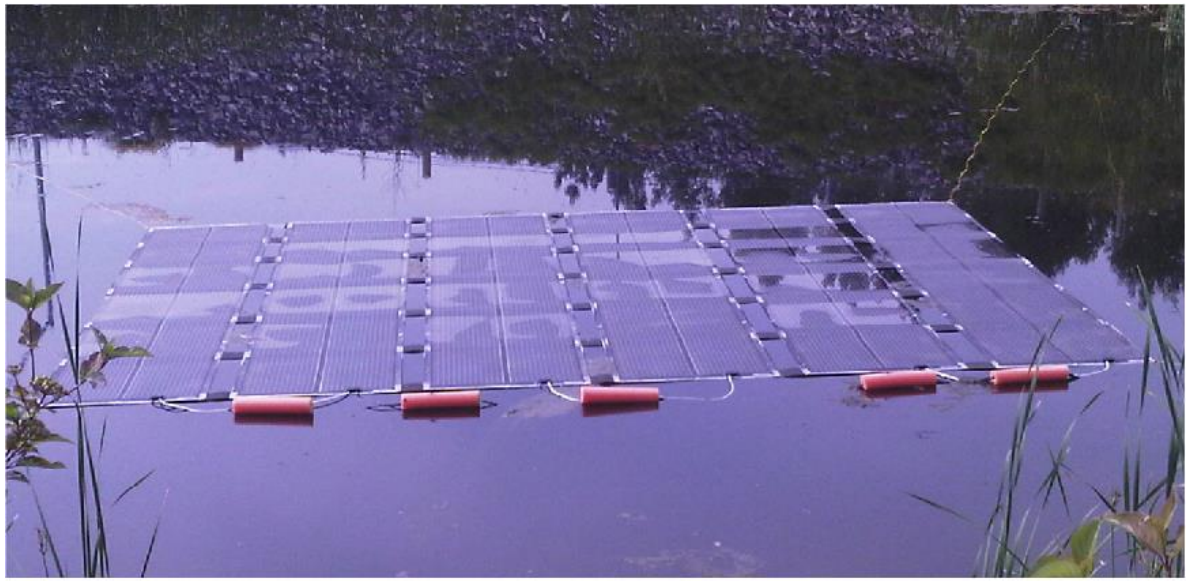

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Wind protection solutions

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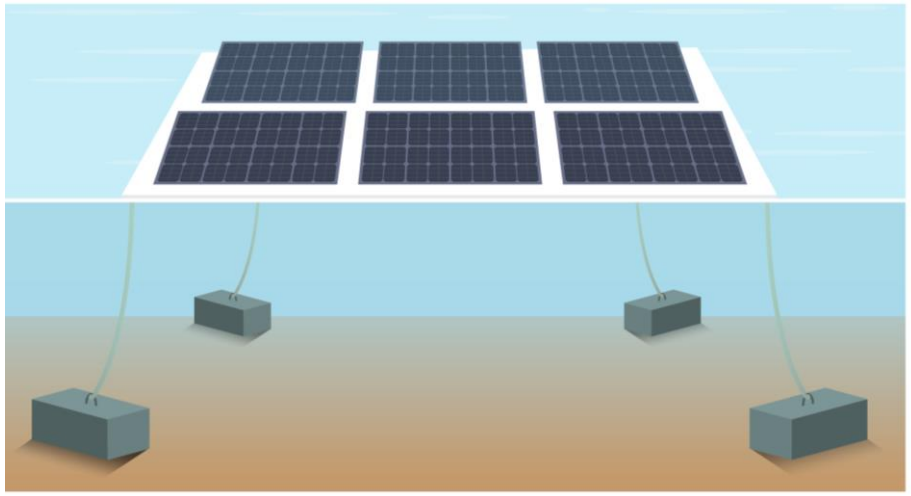

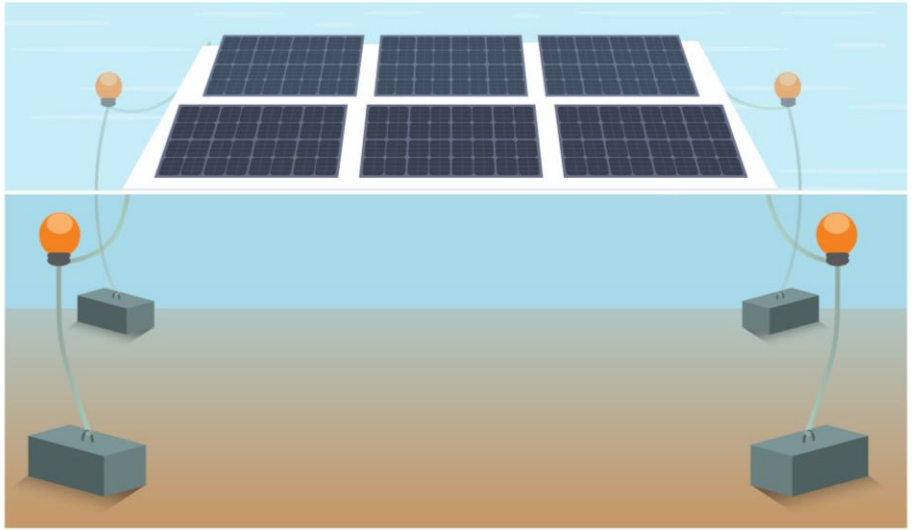

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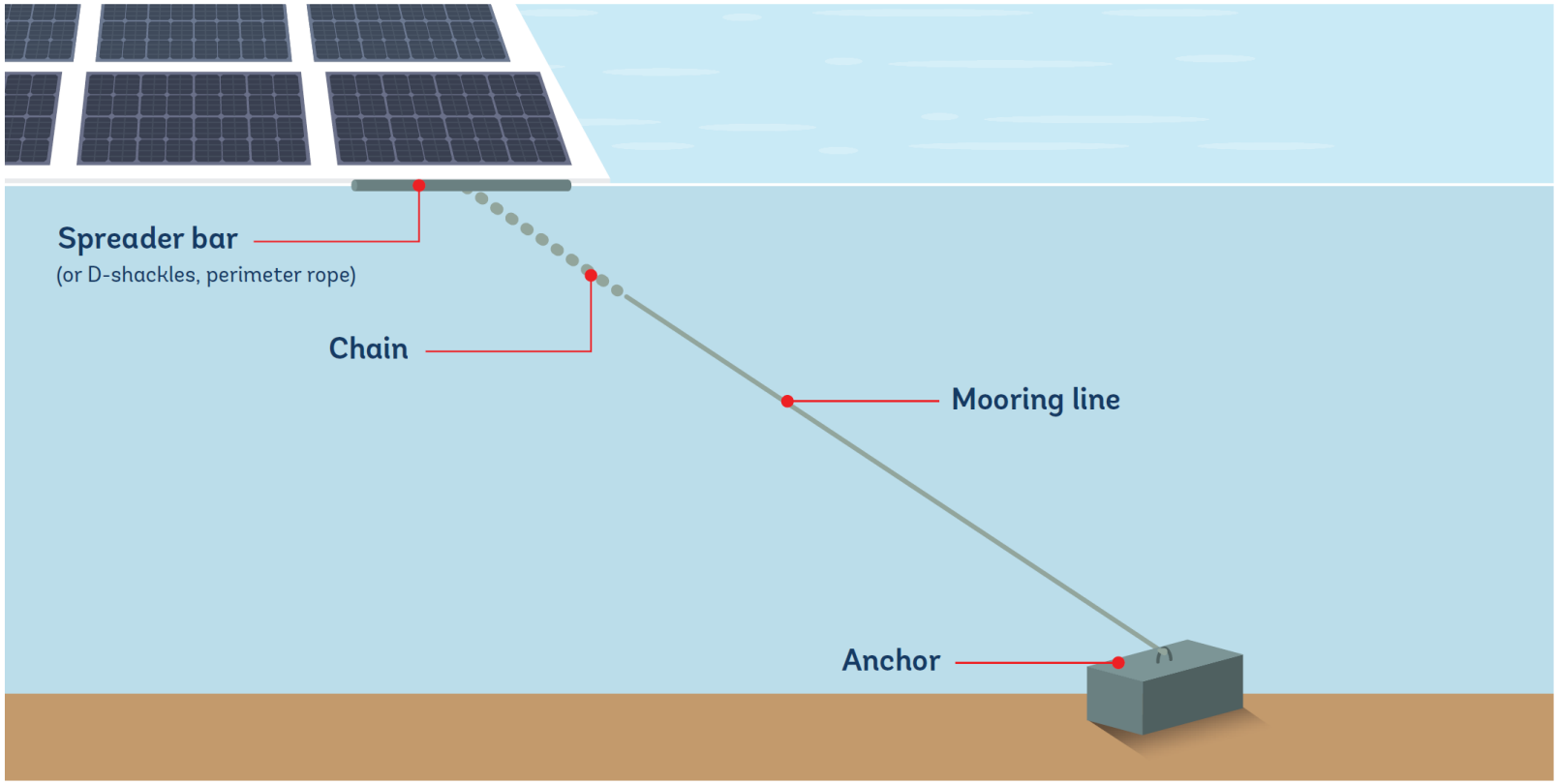

Source: Adapted from Ciel & Terre International.

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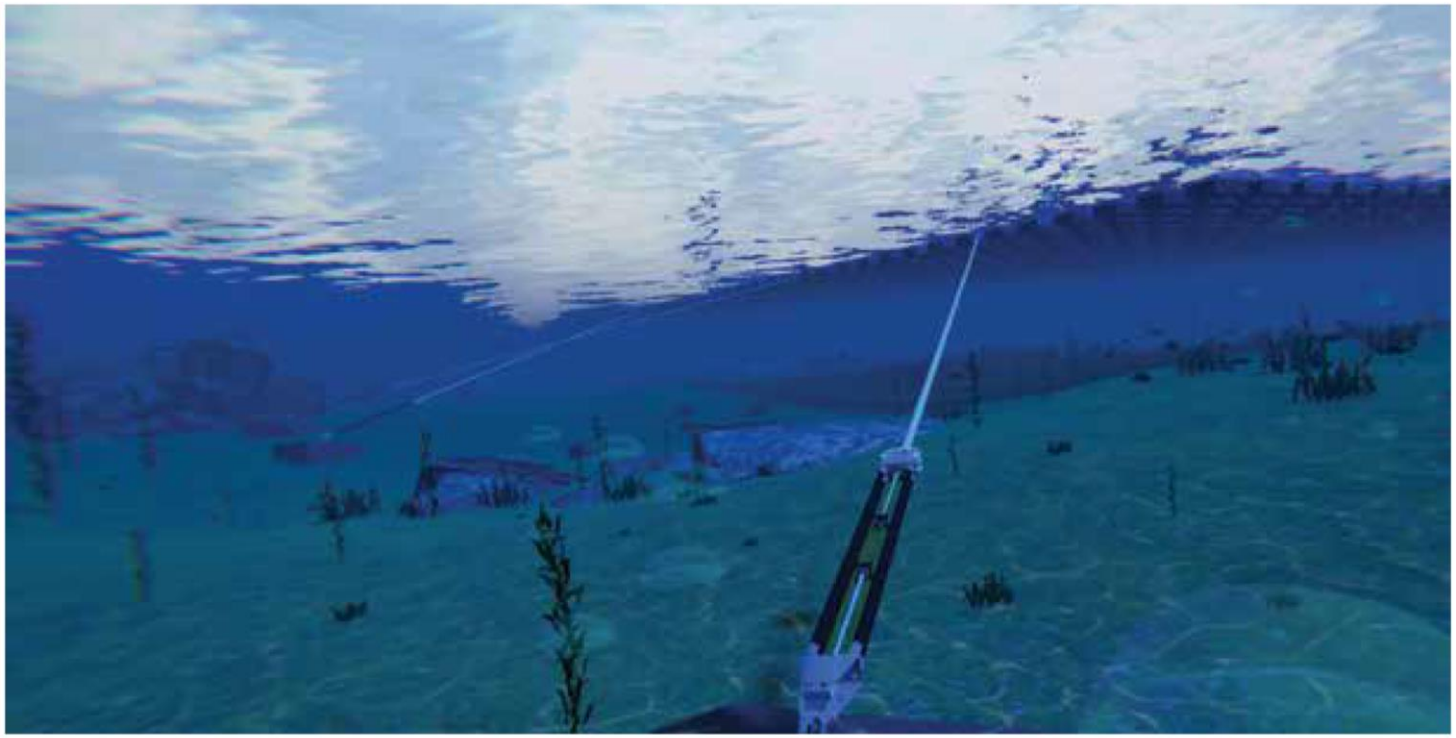

Source: © Seaflex.

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In summary

- Floating PV is an emerging market with **high growth potential**
- Increased system costs may be justified by **higher generation** and **land savings**
- Very convenient synergy with **hydropower** generation
- **Environmental impacts** are site specific
- **Lifetime** to be tested