

CLAUDIA RINGLER & HUA XIE

SOLAR IRRIGATION

Selected findings from ILSSI

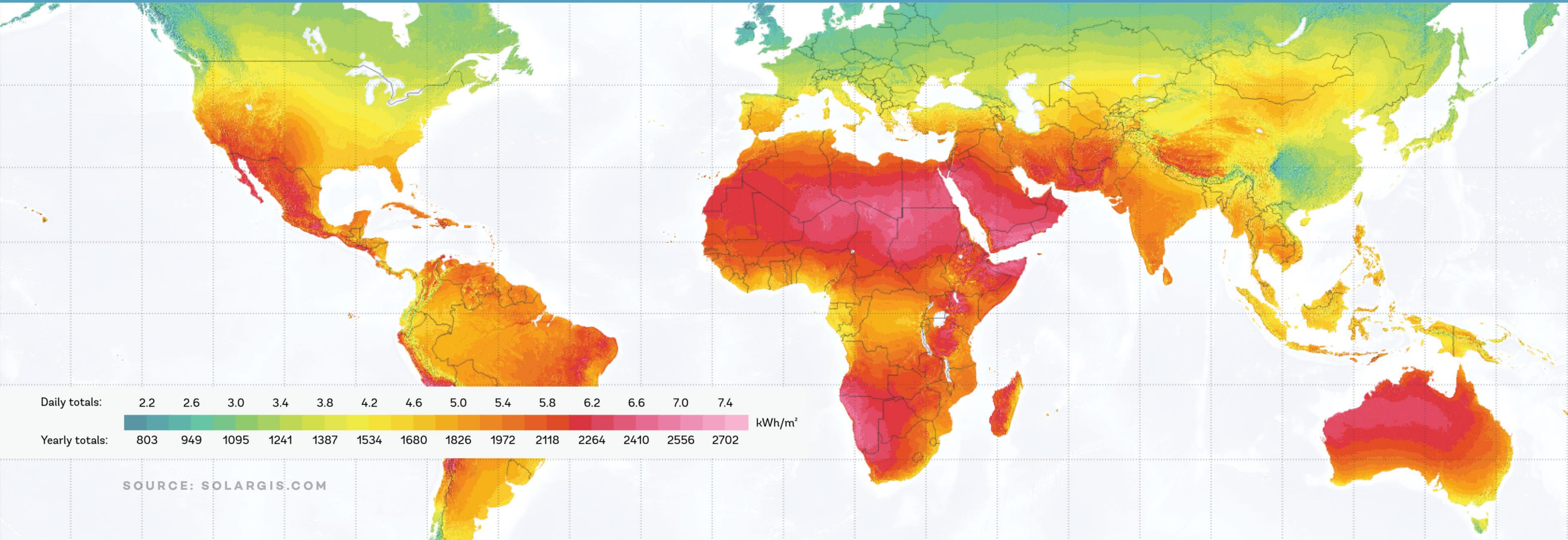
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GLOBAL SOLAR IRRADIATION MAP

HIGH SOLAR IRRADIATION IN MUCH OF AFRICA



KEY POINT

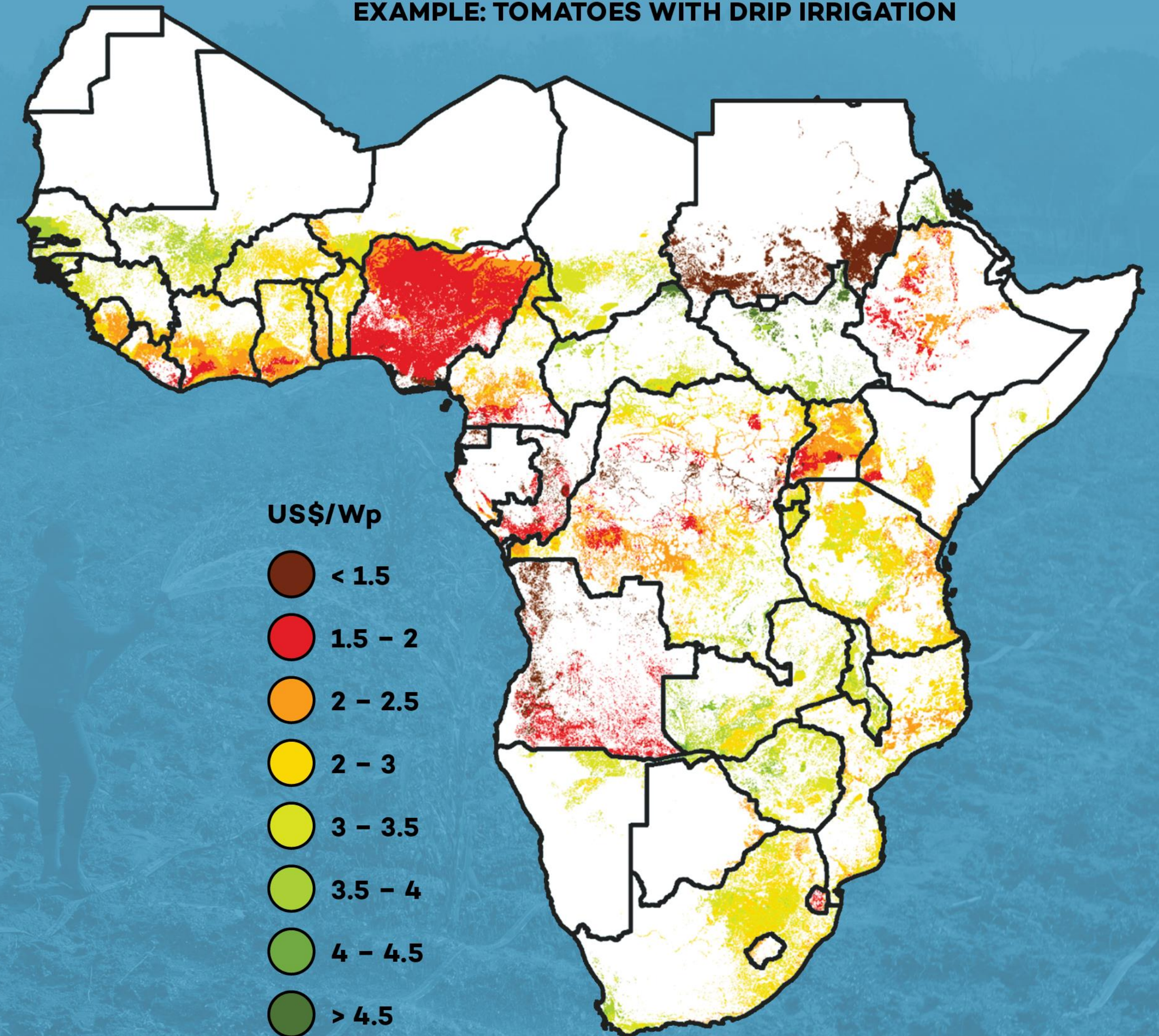
At ^{US}\$2 per watt,
peak solar is
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KEY POINT

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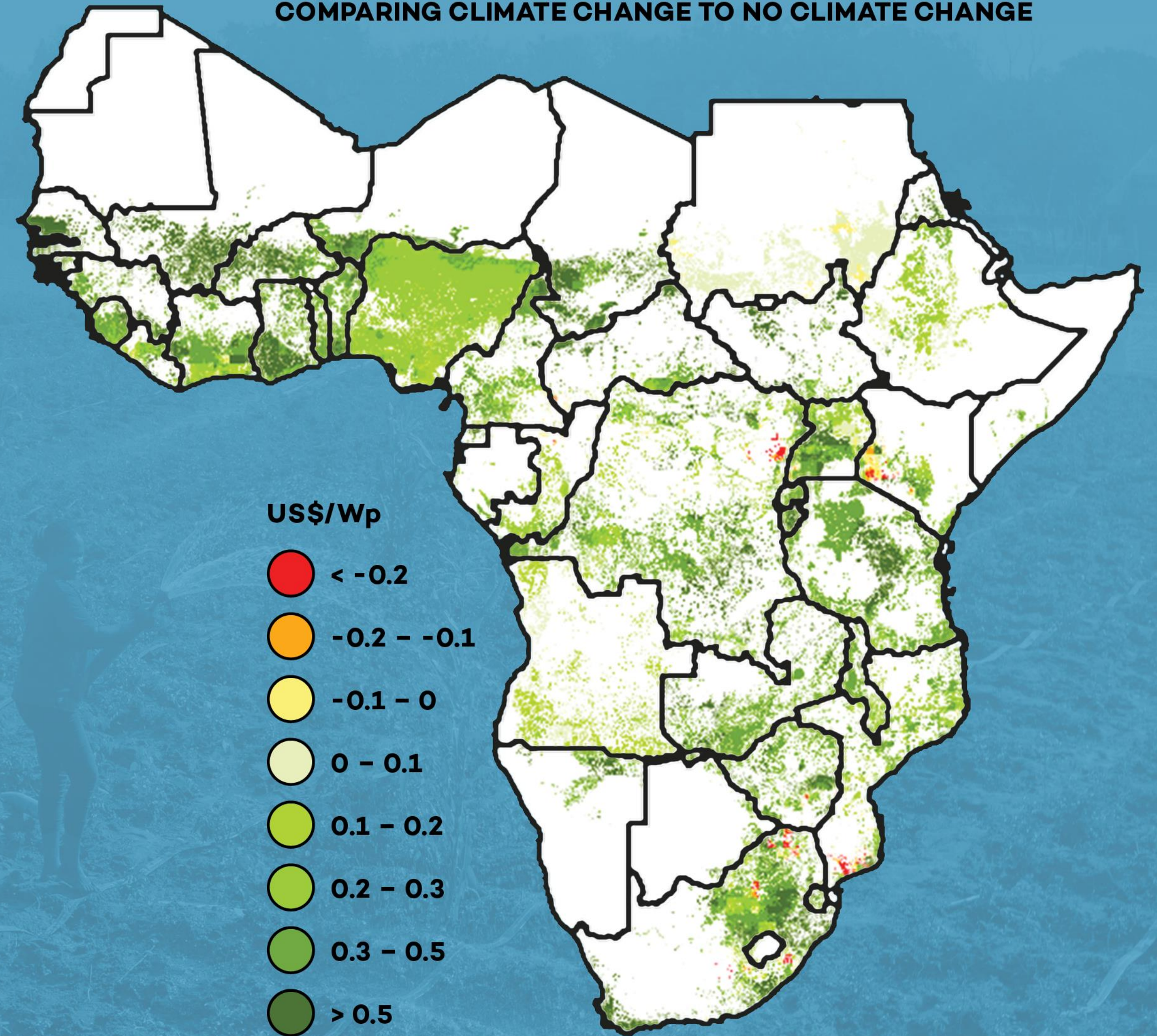
**US\$/WATT PEAK FOR SOLAR GROUNDWATER IRRIGATION IN AFRICA.
EXAMPLE: TOMATOES WITH DRIP IRRIGATION**



KEY POINT

With climate change, solar pump profitability increases relative to diesel irrigation.

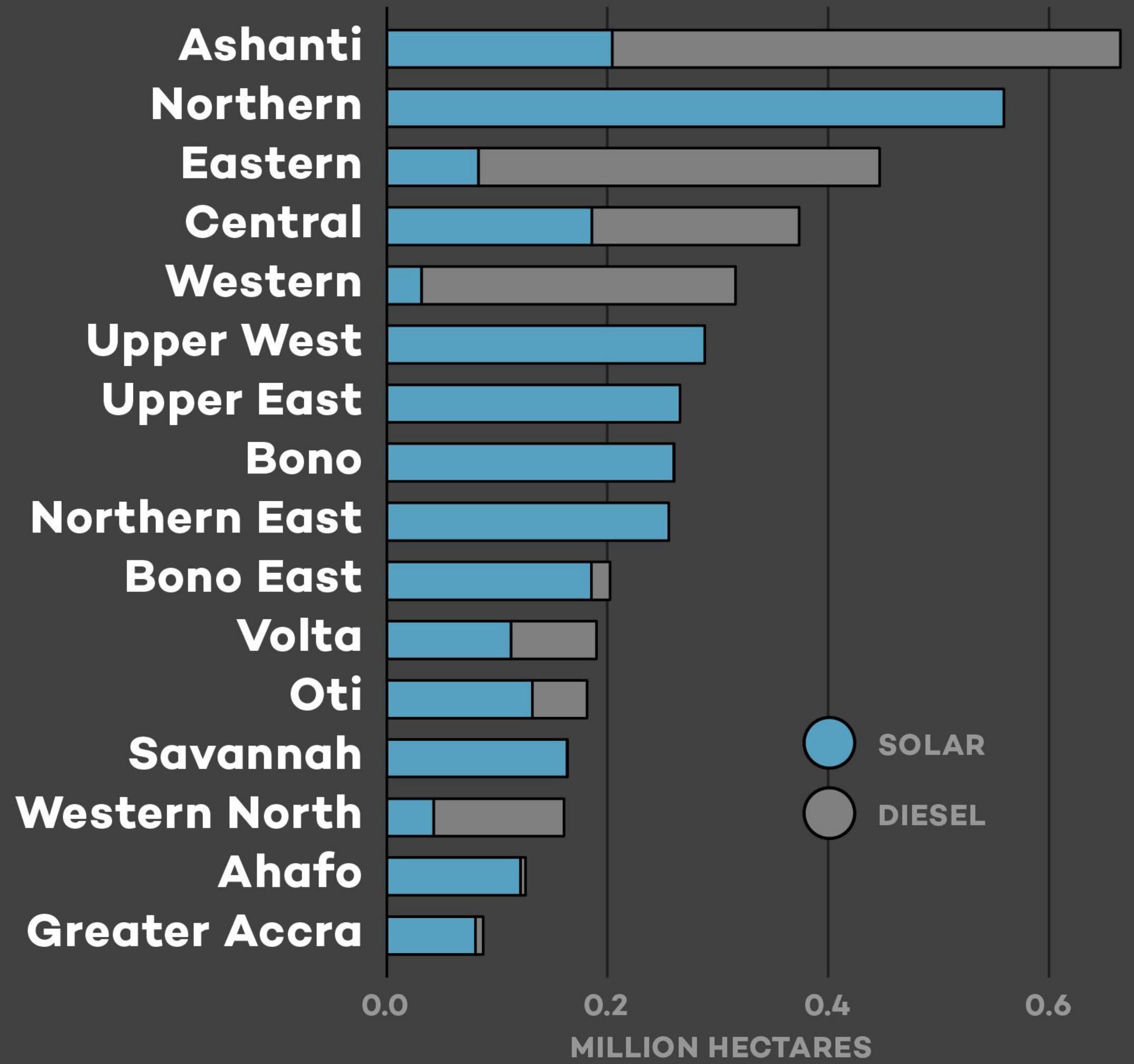
**DIFFERENCES IN US\$/WATT PEAK
COMPARING CLIMATE CHANGE TO NO CLIMATE CHANGE**



GHANA REGIONAL POTENTIAL

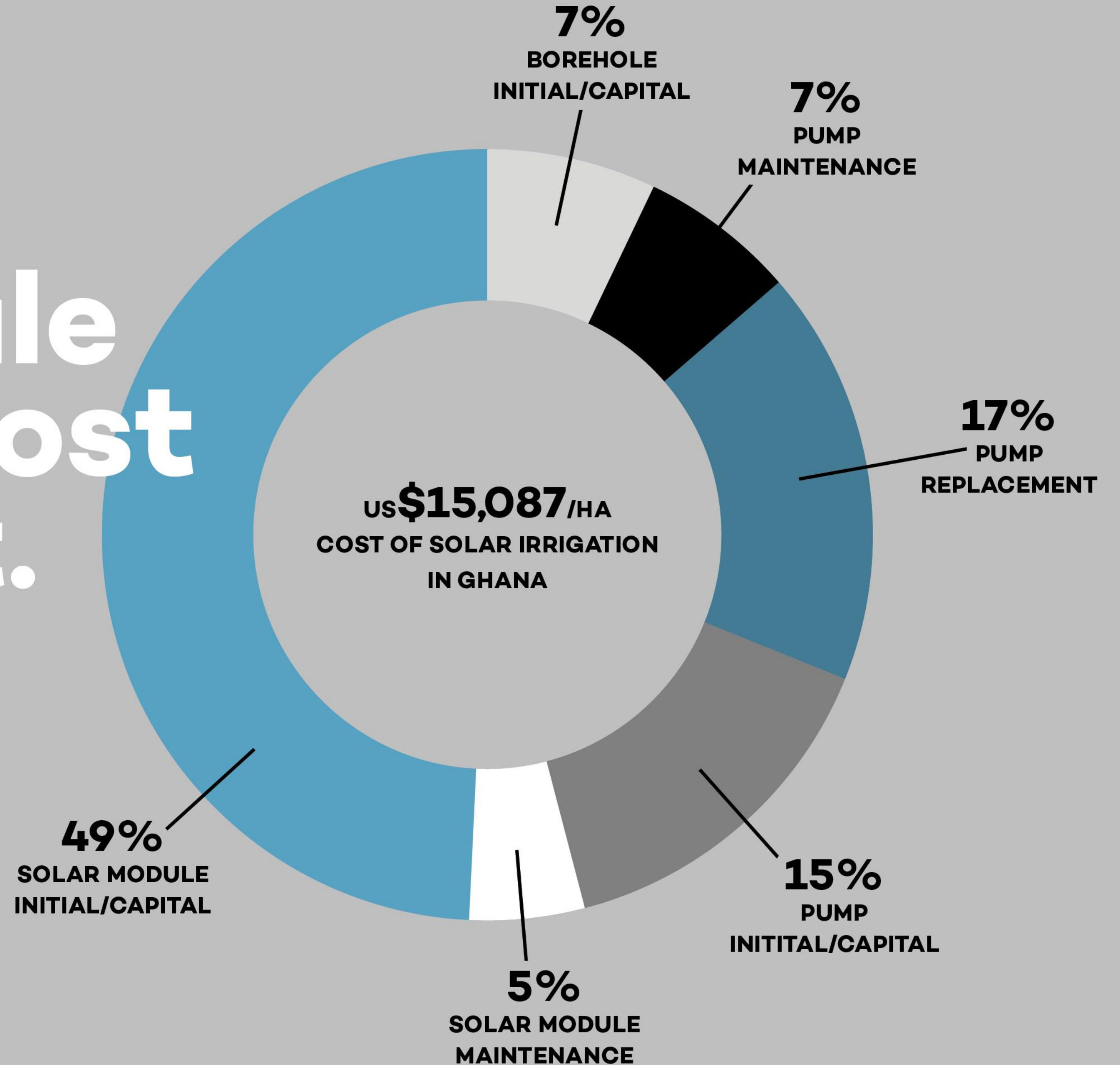
Largest solar potential is in northern Ghana.

LOCATION OF SOLAR IRRIGATION IN GHANA
~ 3 M HA POTENTIAL



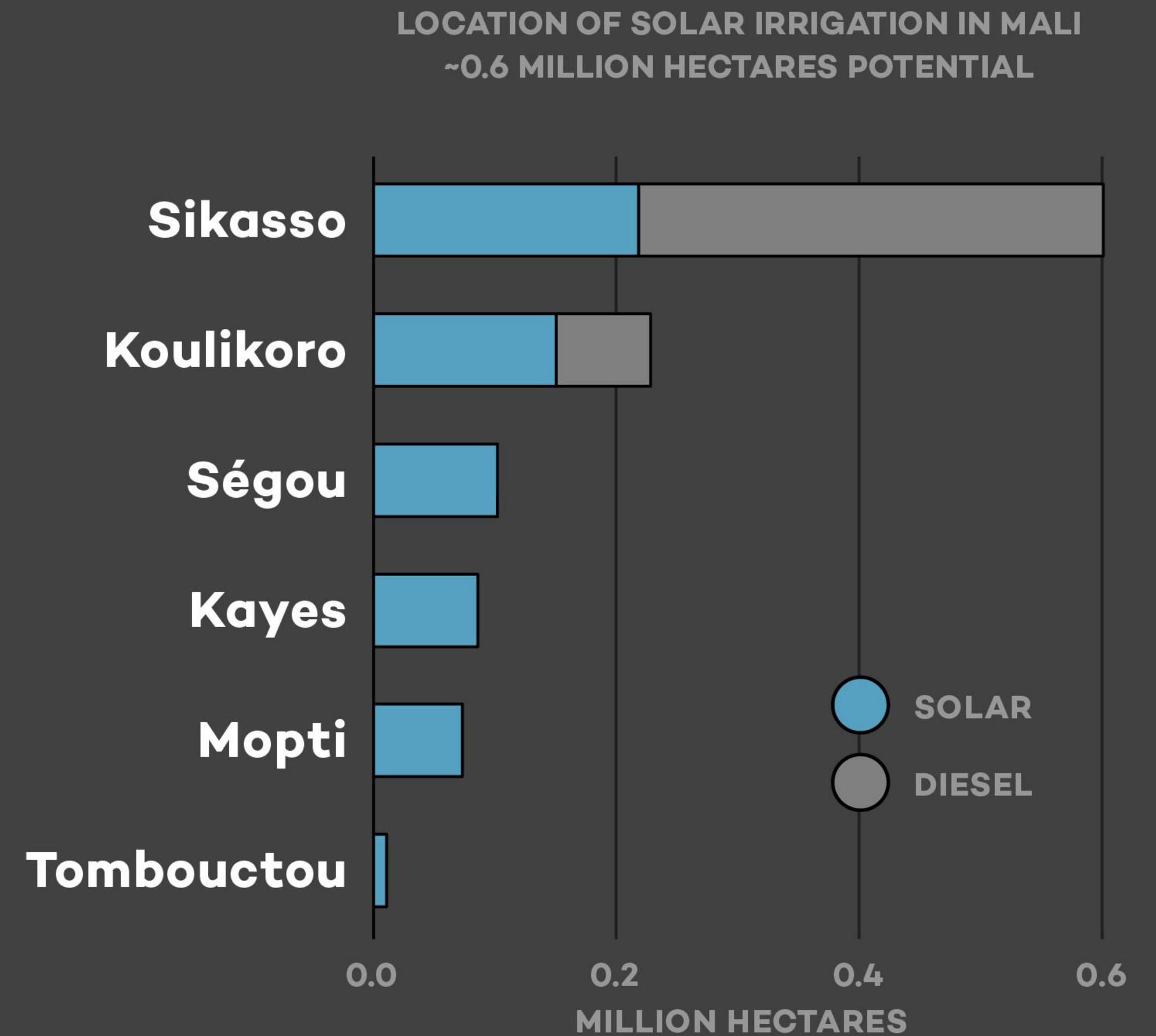
GHANA COSTS

**Solar module
is largest cost
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MALI REGIONAL POTENTIAL

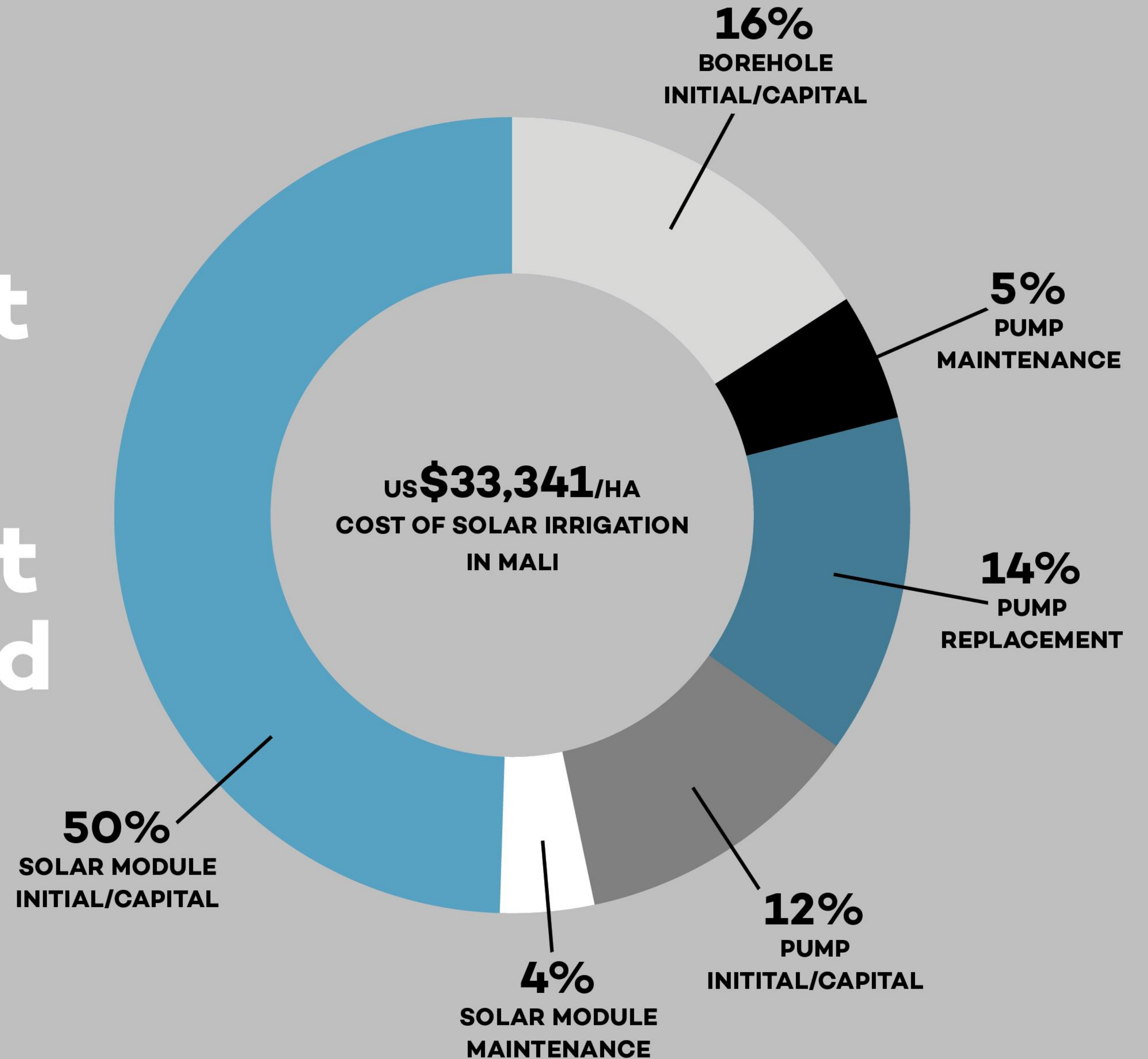
Mali's solar irrigation potential is limited by lack of sustainable groundwater resources.



MALI COSTS

Solar module is the largest cost component.

Well investment larger compared to Ghana.



KEY POINT

HOW TO GET FROM POTENTIAL TO UPTAKE?



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- **Directly target and market to WOMEN farmers**



HOW TO GET FROM POTENTIAL TO UPTAKE?

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- **Directly target and market to WOMEN farmers**
- **Provide after-sale SUPPORT**



HOW TO GET FROM POTENTIAL TO UPTAKE?

- Develop new **FINANCING** models such as asset-based financing — subsidies are unlikely to reach poor farmers
- Directly target and market to **WOMEN** farmers
- Provide after-sale **SUPPORT**
- Remove diesel **SUBSIDIES**



HOW TO GET FROM POTENTIAL TO UPTAKE?

→ Develop new **FINANCING** models such as asset-based financing — subsidies are unlikely to reach poor farmers

→ Directly target and market to **WOMEN** farmers

→ Provide after-sale **SUPPORT**

→ Remove diesel **SUBSIDIES**

→ Build **CAPACITY** on irrigation



HOW TO GET FROM POTENTIAL TO UPTAKE?

- Develop new **FINANCING** models such as asset-based financing — subsidies are unlikely to reach poor farmers
- Build **CAPACITY** on irrigation
- Promote and develop the entire solar **VALUE CHAIN**
- Directly target and market to **WOMEN** farmers
- Provide after-sale **SUPPORT**
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HOW TO GET FROM POTENTIAL TO UPTAKE?

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- Remove diesel **SUBSIDIES**
- Build **CAPACITY** on irrigation
- Promote and develop the entire solar **VALUE CHAIN**
- Initiate further assessment of **ECONOMIC** viability
- Look **BEYOND** solar irrigation with additional targeted solarized advice



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FEED THE FUTURE INNOVATION LAB FOR SMALL SCALE IRRIGATION

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