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Recent developments and new challenges in the renewable energy sector

By

Elizabeth Press, Director, Planning and Programme Support (PPS)

IRENA
International Renewable Energy Agency

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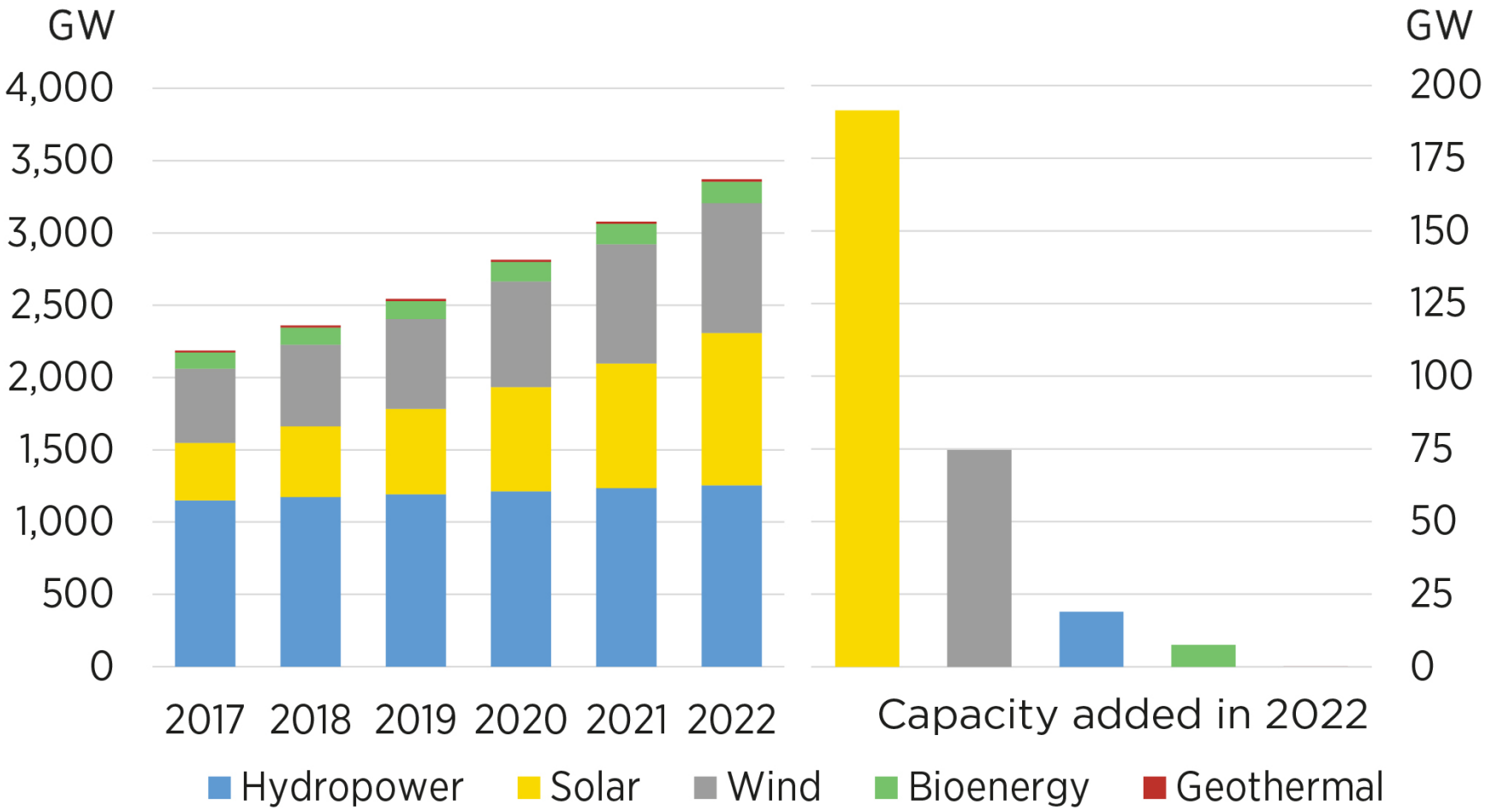
Renewable capacity trends (2017-2022)

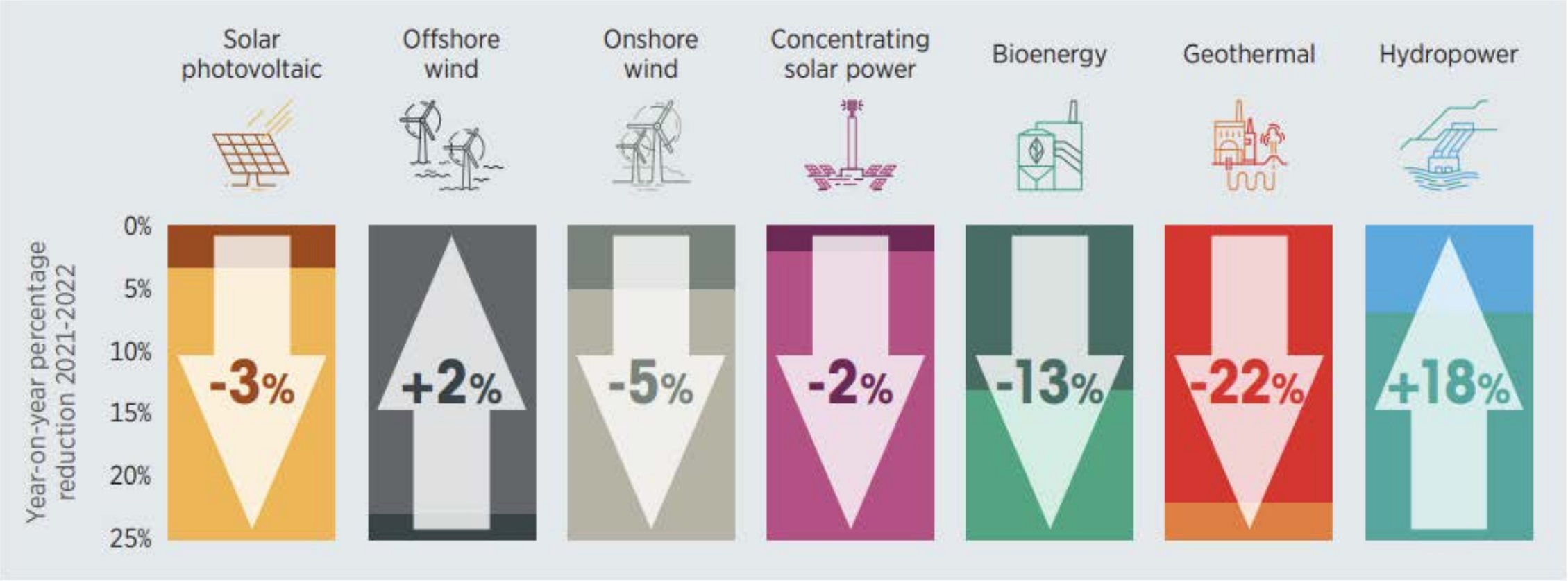


- Renewable generation capacity **increased** by 295 GW in 2022.
- **Solar** continued to **lead** capacity expansion, with an increase of **192 GW (+22%).**

Source: Renewable Capacity Statistics 2023, IRENA

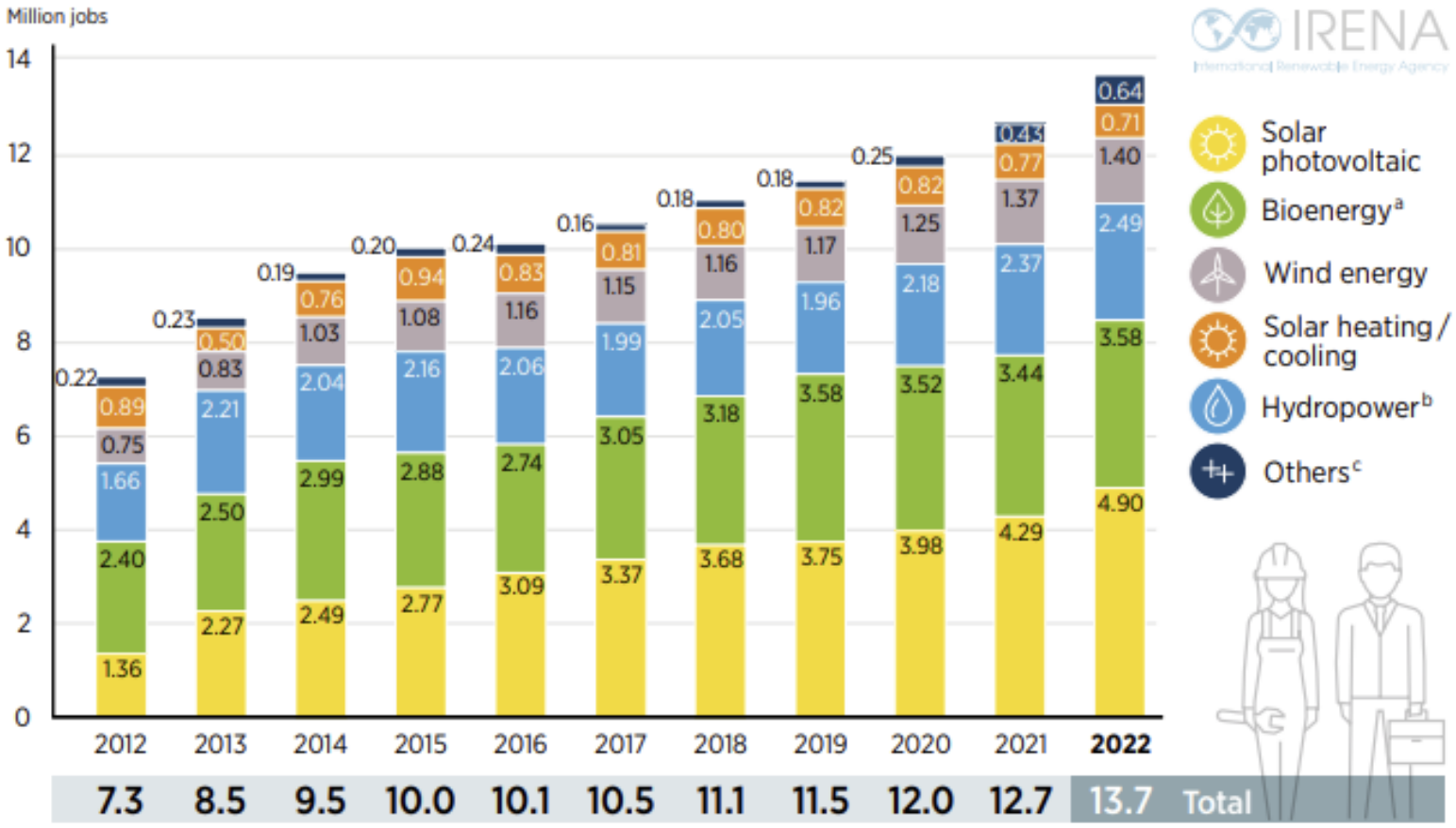
Falling power generation costs

Global LCOE from newly commissioned, utility-scale renewable power technologies, 2021-2022



Source: Renewable Power Generation Costs in 2022, IRENA

Evolution of global renewable energy employment by technology, 2012-2022



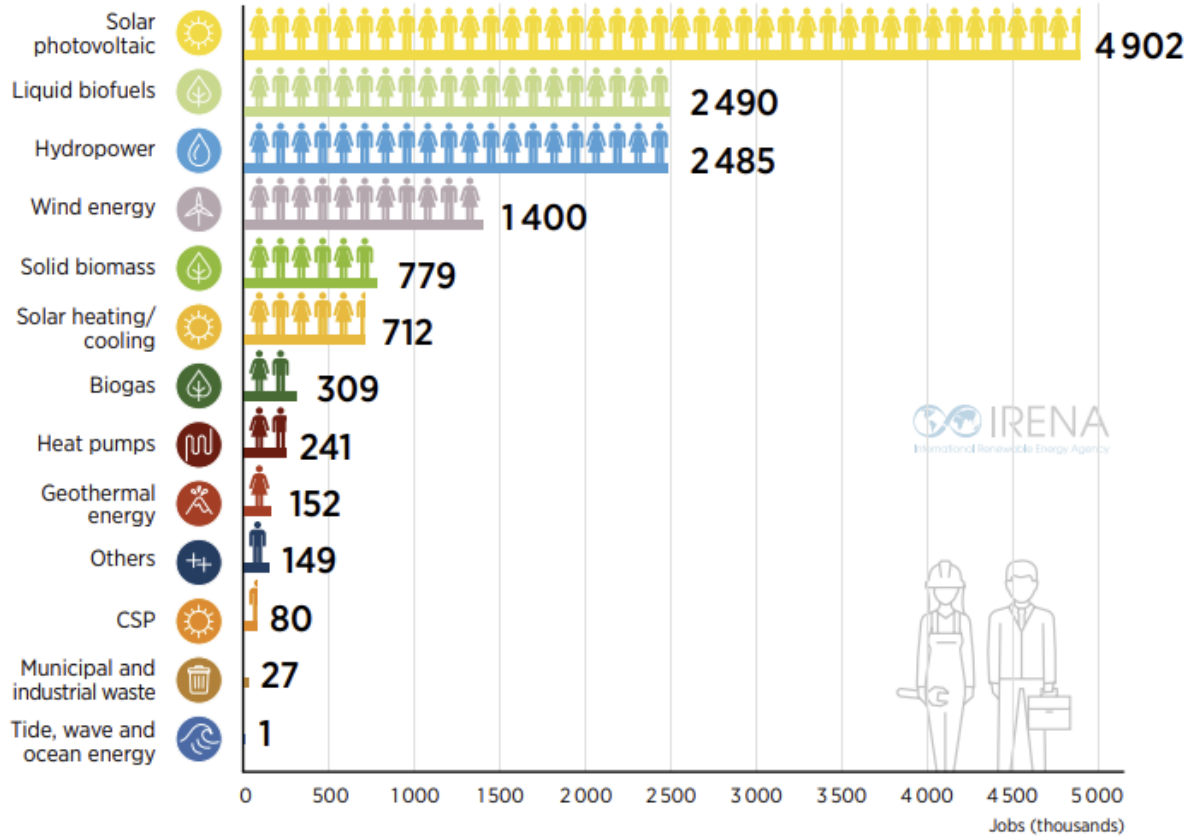
a Includes liquid biofuels, solid biomass and biogas.

b Direct jobs only.

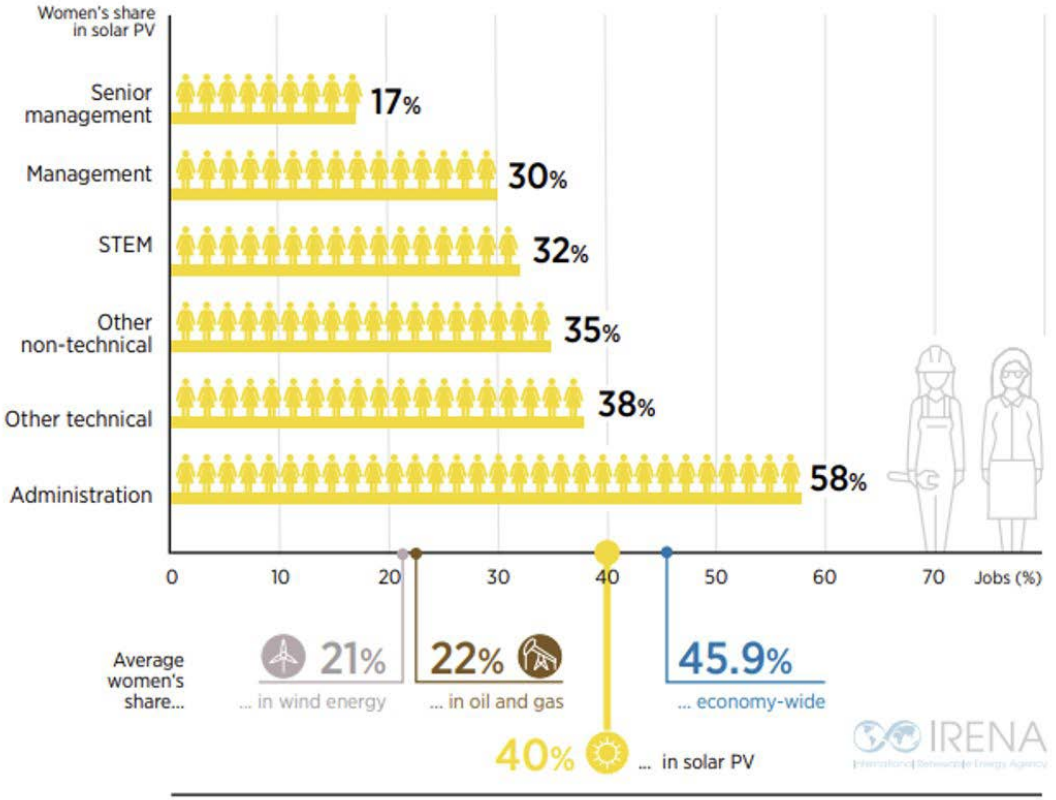
c "Others" includes geothermal energy, concentrated solar power, heat pumps (ground based), municipal and industrial waste, and ocean energy.

Source: Renewable Energy and Jobs Annual Review 2023, IRENA

Global renewable energy employment, by technology, 2022



Note: CSP = concentrated solar power; "Others" include jobs not broken down by individual renewable energy technologies.

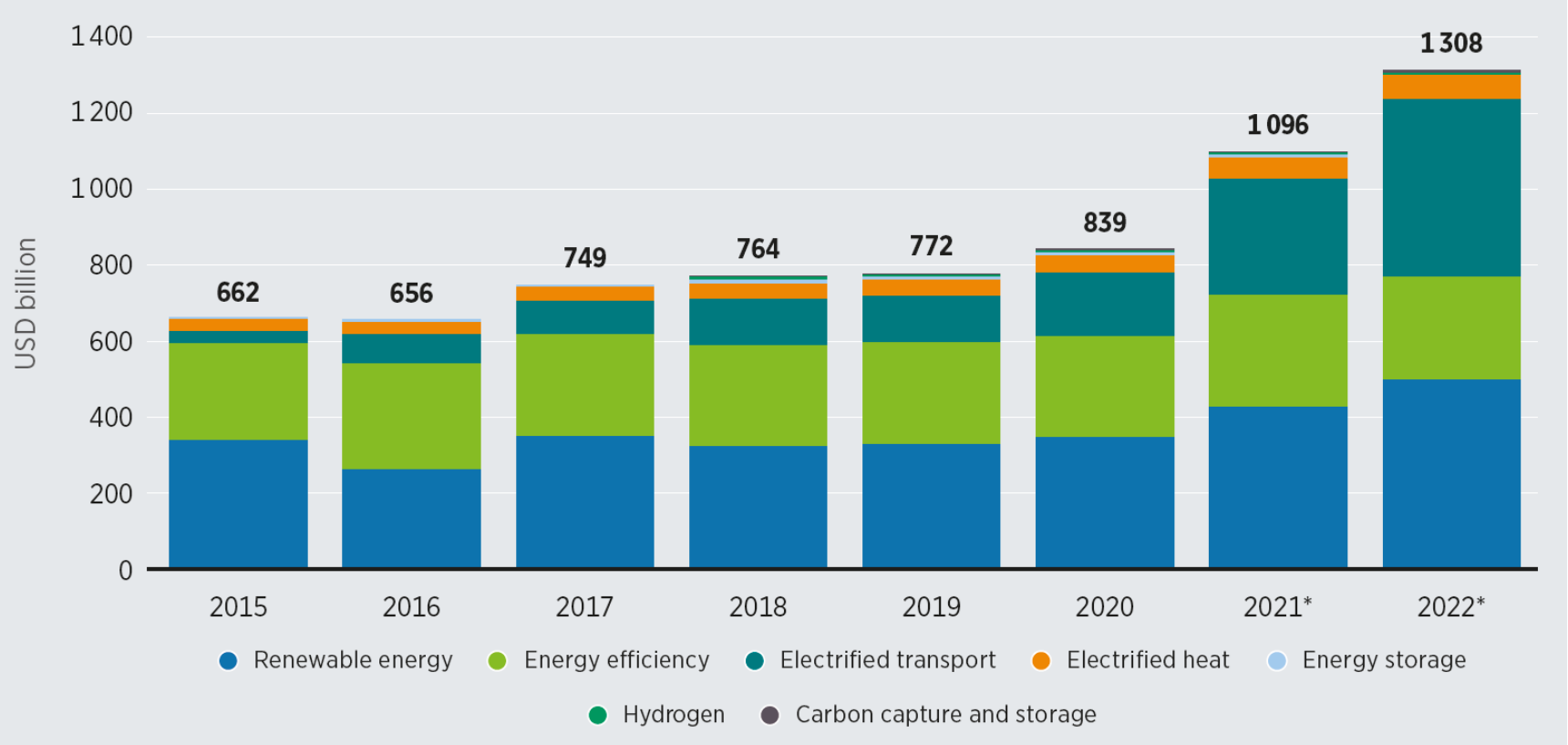


Source: IRENA, 2022a.

Note: PV = photovoltaic; STEM = science, technology, engineering and mathematics.

Source: Renewable Energy and Jobs Annual Review 2023, IRENA

Global investment in energy transition technologies



- In 2022, global investment in the energy transition **grew 70%** from before the pandemic
- They need **to more than quadruple to achieve the 1.5°C target**

Based on: IEA (2022a) and BNEF (2023a).

Disparities in investments between regions

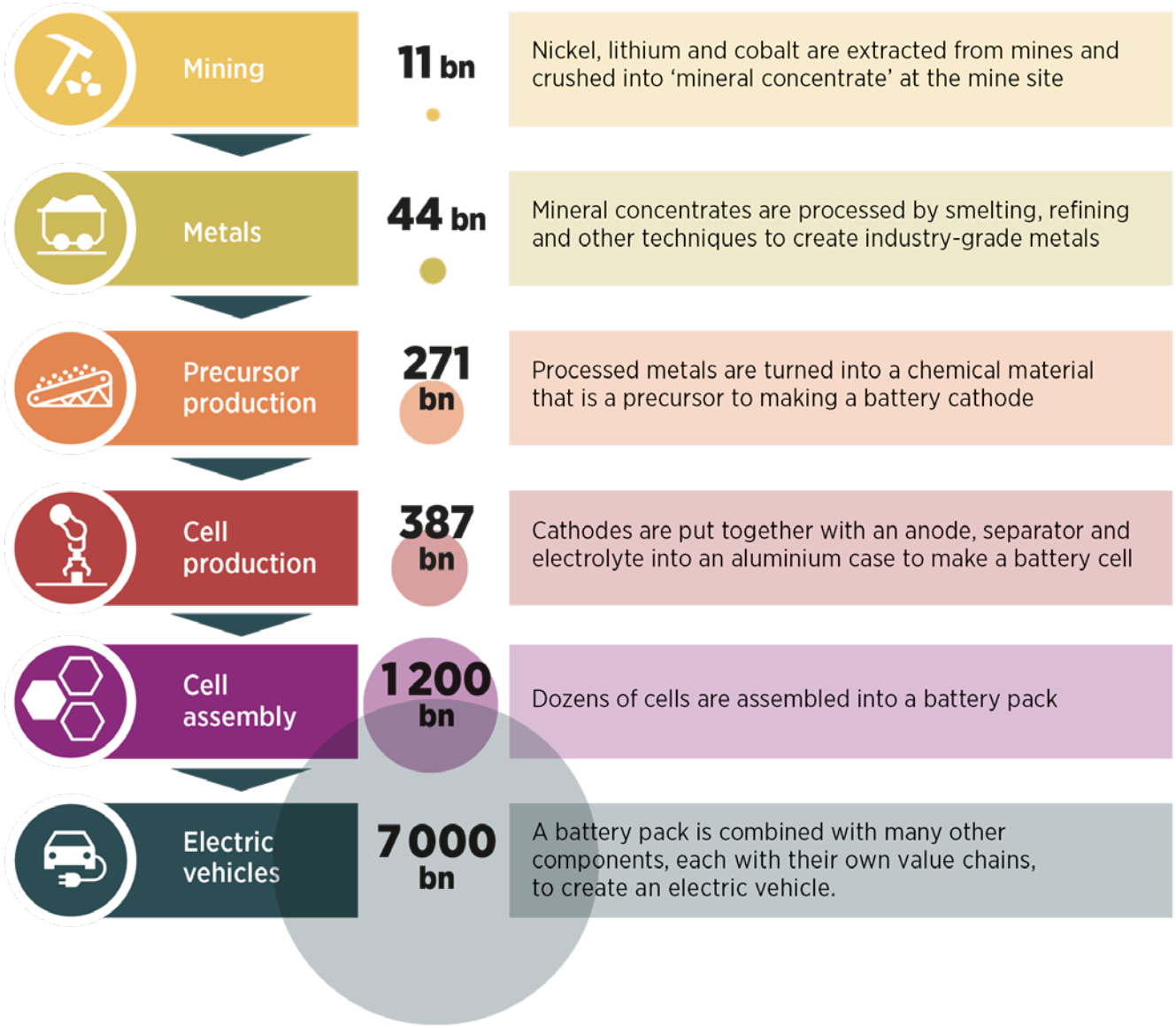
Region	Investment per capita (USD/population)			Population growth
	2015	2021	Percentage change (%)	Percentage change (%)
East Asia and Pacific	**88**	**105**	**19%**	**3%**
(excl. China and Japan)	61	64	4%	6%
(excl. China)	94	75	-20%	5%
China	85	124	46%	2%
Japan	276	140	-49%	-1%
South Asia	**9**	**7**	**-26%**	**7%**
South Asia (excl. India)	*20*	*5*	**-76%**	**9%**
India	*6*	*8*	**34%**	**6%**
North America (excluding Mexico)	**161**	**179**	**11%**	**4%**
Europe	**154**	**127**	**-17%**	**1%**
Eurasia	**28**	**3**	**-90%**	**2%**
Latin America and Caribbean	**53**	**31**	**-41%**	**5%**
Sub-Saharan Africa	**7**	**1**	**-91%**	**17%**
Others *(incl. Eurasia, Other Asia, MENA, and Oceania)*	**26**	**11**	**-55%**	**8%**

Percentage change in investment per capita (%) > 10% 0% < 10% < 0%

Based on: investment data from Wood Mackenzie (2022) and population data from World Bank (n.d.)

- In 2015, investment per capita in **North America (excl. Mexico) and Europe** was **22 times higher** than that of **Sub-Saharan Africa**
- In 2021, investment per capita in **Europe was 127 times that in** Sub-Saharan Africa and **North America** was **179 times more**

Estimated value of the battery mineral and electric vehicle value chain by 2025



Adapted from: (UNECA and Diene et al., 2022; UNECA, 2021)

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Thank you!

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