



Table 1. Primary energy and electricity sources in exajoules, EJ (10<sup>18</sup> joules) and installed wind and solar capacity in GW for 2021 [7]. Electricity generation converted to EJ from TWh. 1 EJ= 277.8 TWh.

Country	World	China	U.S.A	India	UK
Oil, EJ	184.21	30.6	35.33	9.41	2.5
Natural Gas, EJ	145.35	13.63	29.76	2.24	2.77
Coal, EJ	160.1	86.7	10.57	20.09	0.21
<b>Total fossil fuel, EJ</b>	<b>489.66</b>	<b>130.93</b>	<b>75.66</b>	<b>31.74</b>	<b>5.48</b>
Actual delivered Wind, EJ	6.7	2.36	1.38	0.245	0.232
Actual delivered Solar, EJ	3.72	1.177	0.594	0.246	0.045
Nuclear, EJ	25.31	3.68	7.4	0.4	0.41
Hydro, EJ	40.26	12.25	2.43	1.51	0.06
Other, EJ	29.5	7.253	5.306	1.289	0.953
<b>Total Primary Energy, EJ</b>	<b>595.15</b>	<b>157.65</b>	<b>92.97</b>	<b>35.43</b>	<b>7.18</b>
<b>Electricity Generation</b>					
Installed wind capacity, GW	824.9	329	132.7	40.1	27.1
Installed Solar Capacity, GW	843.1	306.4	93.7	49.3	13.7
Total electricity generated, EJ	102.47	30.72	15.86	6.173	1.116

Other includes bioenergy, geothermal etc.

?1

??1 EJ=277.8 TWh ??? 1 kWh=860.6 kcal=3597kJ??

????????1kWh=2074kcal=8669kJ????????????????MJ????????kJ????????????????????????????????

??????????860.6 kcal?????1kWh????????????1kWh????????????2074kcal??1 kWh=860.6kcal????????????????????2.4??2????????????17%? 34%??

??2?3??



**2.2. ??????????????????????**

????????????????23300GW????????????????????????????????????

- 2500×10<sup>6</sup> tons?
- 12000×10<sup>6</sup> tons?
- 70×10<sup>6</sup> tons?? 2021????????0.21???
- 1.63×10<sup>6</sup> tons?
- 2.20×10<sup>6</sup> tons?

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????????????????23300GW????????????????????60% ?????????????????????  
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2025??  
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**2.3. ?????????????????????????????????????**

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 fuel????????????44????????????44????????  
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Jet/Kerosene????????10.0379EJ????14EJ????44?e-  
 fuel????14/0.44?31.8?32EJ????1000GW????0.4????2500  
 GW????

	Million barrels of oil equivalent, MBOE	Energy, exajoules, EJ	Volumetric lower calorific value, MJ/litre	Fuel Volume, billion litres
Gasoline	26.26	0.1607	32.5	4.94
Diesel/Gasoil	28.12	0.1721	36	4.78
Jet/Kerosene	6.2	0.0379	35	1.08
Residual Fuel Oil	6.2	0.0379	38	1.00
Other	32.75	0.2004		
<b>Total</b>	<b>99.53</b>	<b>0.6091</b>		

????????????????1??????1668GW?102.47EJ????????????32EJ????1668/102.47×32?520.9  
GW????????????????????????????????????

????????????????e-fuel????????????????????

????????????e-fuel????????????????????CO2????????????????????????????e-  
fuel????????????????????????

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fuel????????????????????????????????

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fuel????????????????????????????????e-  
fuel????????????????????????????

????????????????1?3??CO2????192????0.12ha????????

??36?40?????1  
ha????CO2??8.8????0.12ha??3??1ha??25????3????

????????2????1??6.2 MBOE????2263 MBOE????CO2????9.90??990×10<sup>6</sup>  
tons????????

0.12 ha × 990×10<sup>6</sup> t/? ÷ 3 t/? 39.6×10<sup>6</sup> ha

????????(489.66 EJ)????**2.8%**??????????????(35.7×10<sup>6</sup>  
ha)????????3????

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Posted in ???, ????? | No Comments »

### ????????CO2????????

?? ?? · Wednesday, December 21st, 2022

????????CO2????10????????CO2????????CO2????10????  
????????2030??CO2????????

????????CO2????7.1????????

????????HTT????????HTT????????

????????5kW?PV????4kWh????

	導入コスト	自家消費	年間メリット	試算諸元	回収年
PVシステム	150万円(5kW) 家庭用のPVシステム導入費30万円/kW、出力5kWと仮定。 <sup>[1]</sup>	30% 現在の住宅用太陽光発電の平均的な自家消費率実績 <sup>[2]</sup>	FIT期間中 12万円/年  FIT以降 6万円/年	資源エネルギー庁「地域活用要件について」(R1)に準じて試算 出力5kW×8,760h/年×設備利用率14% <sup>[3]</sup> =発電6,132kWh/年 ①自家消費分のメリット 6,132kWh×30%×系統単価24.76円/kWh <sup>[4]</sup> =45,548円/年 ②売電分のメリット(FIT期間中:~10年) 6,132kWh×70%×FIT単価(R1)21円/kWh=90,140円/年 ③売電分のメリット(FIT終了後、電力会社と個別に契約) 6,132kWh×70%×想定買取価格8円/kWh <sup>[5]</sup> =34,339円/年 ④運転維持費(定期点検・パワコン交換1回) ▲3,490円/年・kW <sup>[6]</sup> ×5kW=▲17,450円/年	15年
+蓄電池	75万円(4kWh) システム導入費18.7万円/kWh <sup>[7]</sup>	+20% <sup>[8]</sup>	3万円/年	①追加の自家消費分のメリット(充放電効率90%と仮定 <sup>[9]</sup> ) 発電電力量6,132kWh/年×充放電効率90%×自家消費20%×系統単価24.76円/kWh=27,329円/年 ②ピークカット+調整力運用のマルチユースを行った場合のメリット想定:2,400円/年(600円/年・kWと仮定 <sup>[10]</sup> ) ※夜間へのピークシフト運用は併用が難しいとして考慮せず	25年

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??????????CO2?????1kWh????177kg-CO2????????Kawamoto????3??

??5kW????????CO2?????

177×5=885kg

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2.19×5=10.95tCO2

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0.885/10.95=8.08%

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CO2????????8.08%????????

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7.1×(1+8.08%)=7.7

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Posted in ??????????, ??? | No Comments »



# CO2削減目標10%

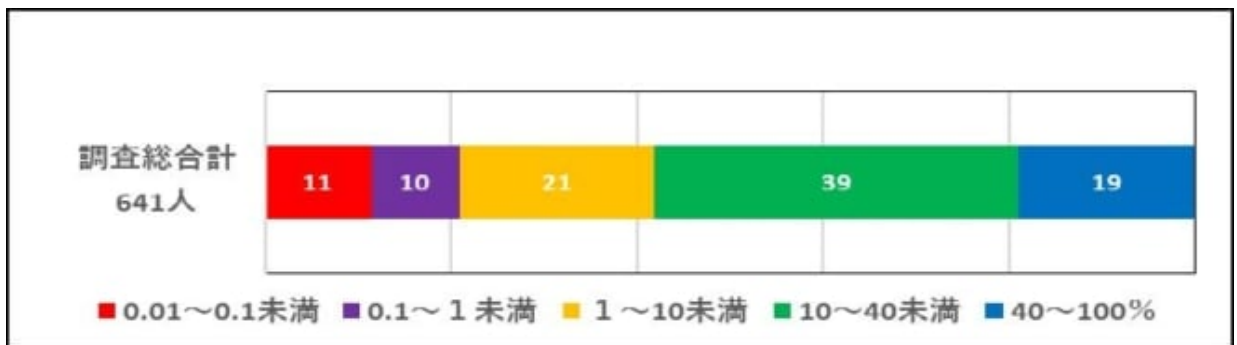
2022年12月20日 星期二



artisteer/iStock

## CO2削減目標10%の達成状況

2021年22%削減目標を達成した企業は641社、削減率10%未満の企業は11社、削減率0.1%未満の企業は10社、削減率1%未満の企業は21社、削減率10%未満の企業は39社、削減率40%以上の企業は19社

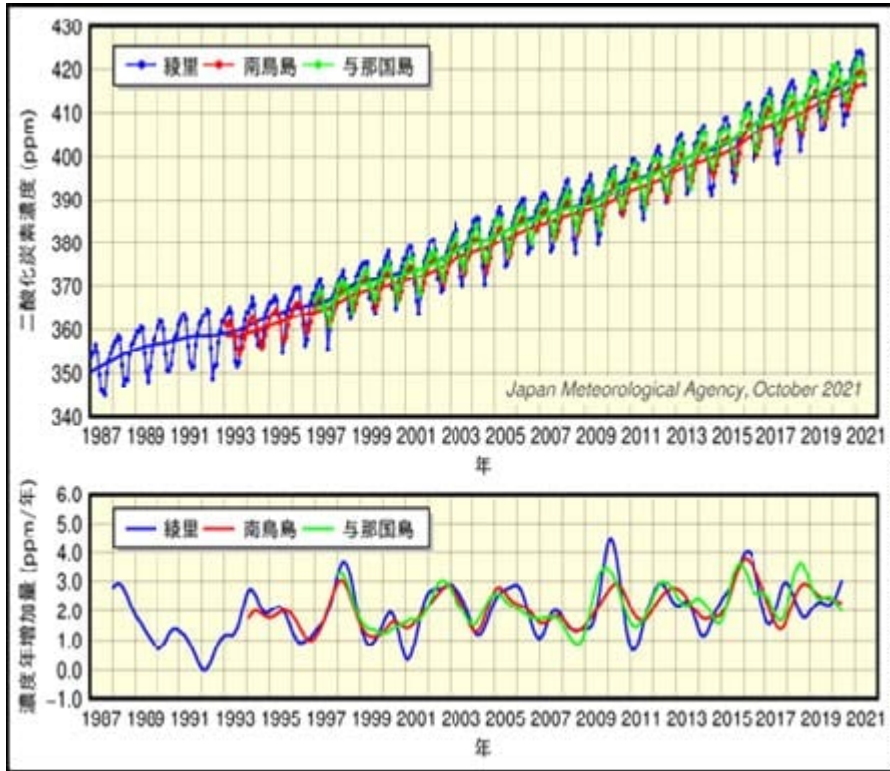


削減率80%以上の企業は20社、削減率60%以上の企業は6社、削減率78%以上の企業は21社、削減率1%未満の企業は10社

削減率10%未満の企業は39社、削減率40%以上の企業は19社、削減率10%以上の企業は21社、削減率10%以上の企業は39社、削減率40%以上の企業は19社

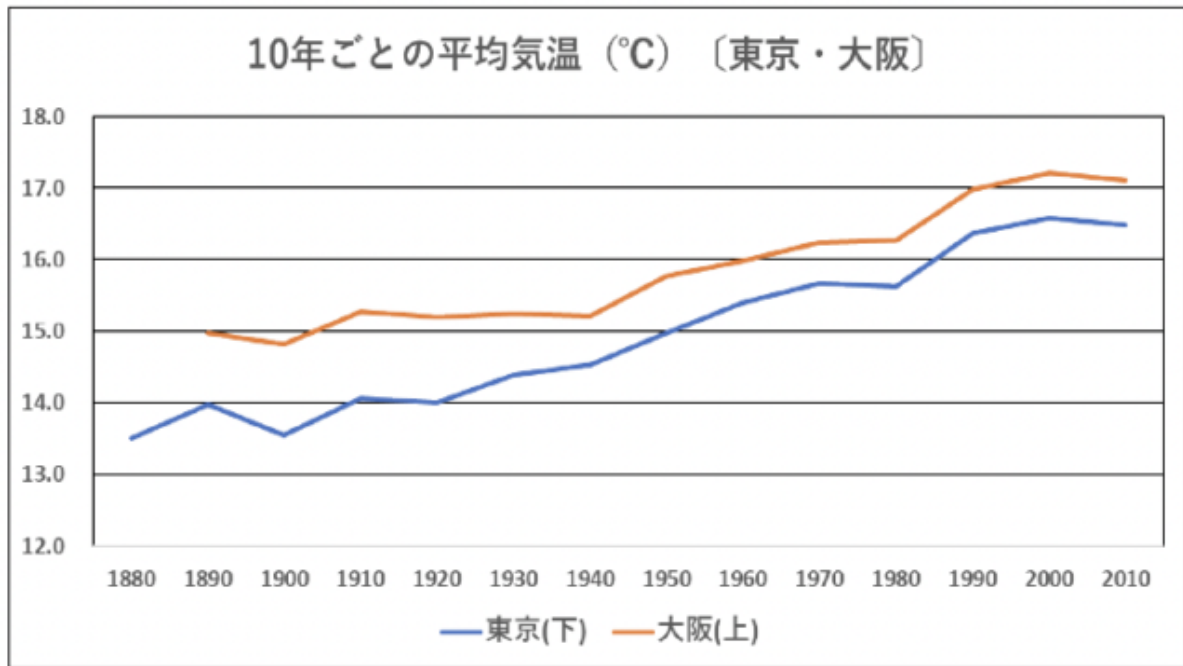


2000????CO<sub>2</sub>????????????????????????????????



????JMA?HP??????3????????????????????????????????CO<sub>2</sub>??1987??  
 ???1958??????????????????63??1958?2021??99ppm?316?415ppm????????????????????????1.57ppm/?  
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**?????????Spiral** **of**  
**Silence?**??  
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2000?????IPCC????????????????????????????COP????????????????????  
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Posted in [???](#), [?????](#), [?????](#) | [No Comments](#) »

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?? ? · Monday, December 19th, 2022

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COP25??  
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COP27?????11?9??  
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2022 COP27 1865=1970:31

IPCC COP 105

2022 12 2023 3 31 GDP 3 150 10

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1950=1995:130 2022 110

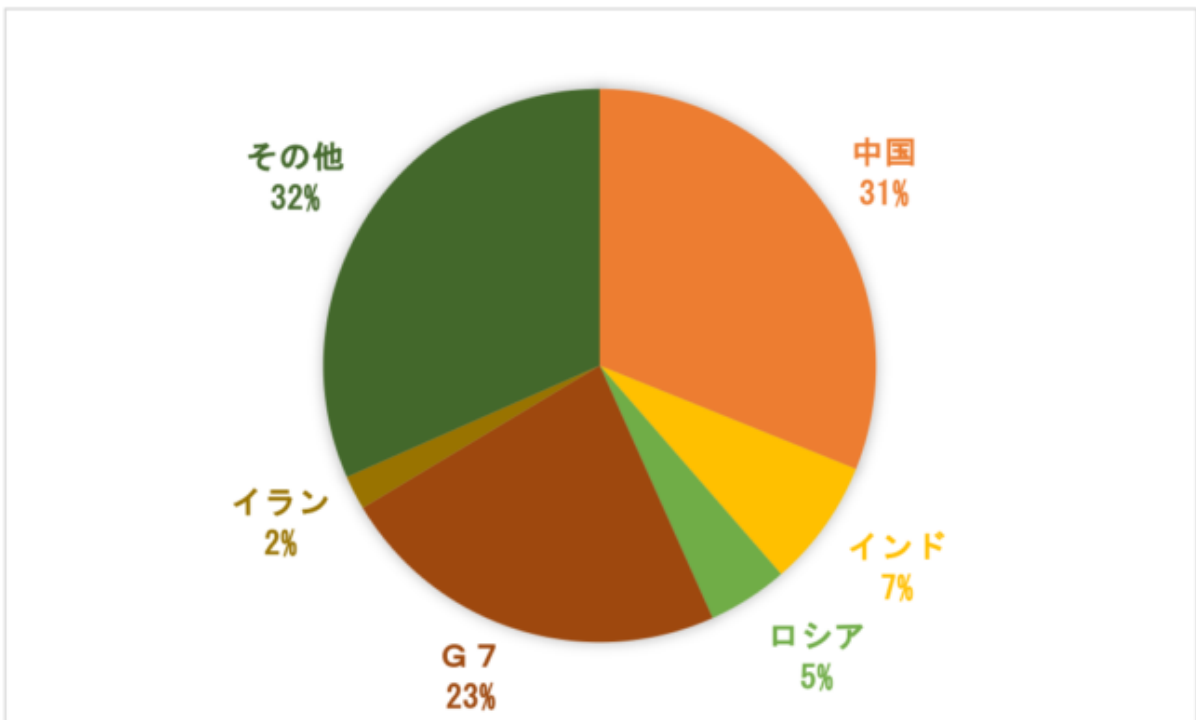
18 19

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2022 12 8 1751 10 0

16<sup>2)</sup>

1 2021 1



2021 BP

Global Note

**G7**

13.9 23.1 1.9 1.6 1.0 0.9 0.8  
23.2 43.3

G7 3.1 3.0 2.8  
3)

**universal (particular)**

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universal (particular)

COP27 GN GS

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IPCC COP

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7 100 2022

8 28 2050 1

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?10????????30????????4????560????????????????????????2022????????25????????????????????  
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?14??GN?GS????  
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?????15??<sup>5)</sup>

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?1????????????3.11??2012)????????????????????

?2????????6?100?????1????????

?3?2010????????????????????25????????????????????2010?12?1???50????????????????????  
?2012:91-93??

?4????????????????2022????

?5??  
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• Bernard,C.,1865,Introduction à l'étude de la médecine expérimentale .(?1970,????????????????).





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CO2??  
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2010????????????????10????????????????COP10????????????  
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2010??COP10??  
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??1?2????????????????????  
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?SDGs???????

Posted in ??????????, ??, ???? | No Comments »





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????????????????2001????2021????11,438????28,230????????????????57,000????????????20????  
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??10????????????????????20,000????203  
0????750,000????????????????

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Posted in [???????????](#), [???](#), [??](#) | [No Comments »](#)

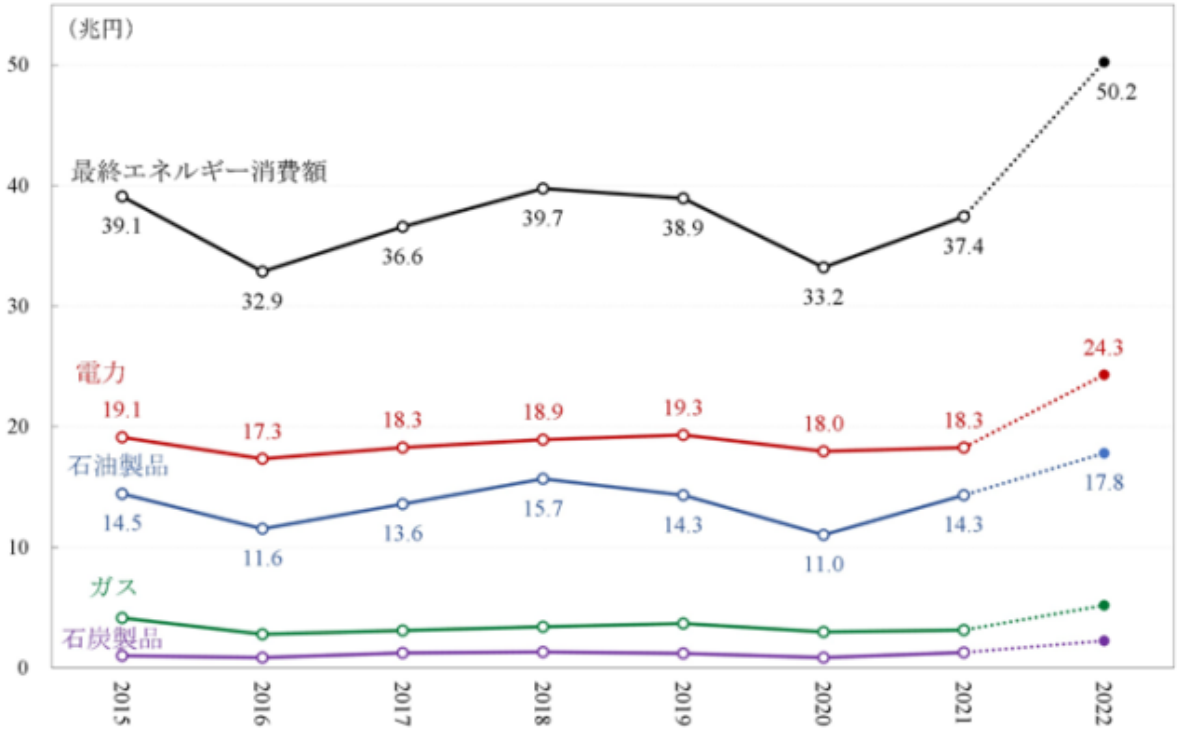
**????????????????????10???**

?? ?? · Monday, December 5th, 2022



# エネルギーコストの年次動向

- 2022暦年の最終エネルギー消費額（予測値）は50.2兆円、前年差で12.8兆円（前年比34.2%）の増加見込み。
- 2022暦年の電力消費額（予測値）は24.3兆円、前年差で6.0兆円（前年比33.1%）の増加見込み。



エネルギーコスト・モニタリング (ECM) ECM\_JPN\_202211 © 2022 慶應義塾大学産業研究所 野村研究室

単位：兆円。注：観測期間は2015年—2021年。2022年値は2022年10月値までを反映した予測値。

????????2022????????????????????????2021??????6??????????

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????9????????????????????????2.5????????????????????

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Posted in ??????????, ??? | No Comments »

**GX????????????????????**

?? ?? · Thursday, December 1st, 2022



y-studio/iStock

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??1????3??????



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??Wikipedia

1?????????????????2??BWR?82?kW????2021?9?????????????????1?????????????????  
?????2013?????????????2024??1?????????????????????????????1????????????????????

????3??ABWR?????????137.3?kW?????????????90?????????????????????3.11?????????  
???11??????????

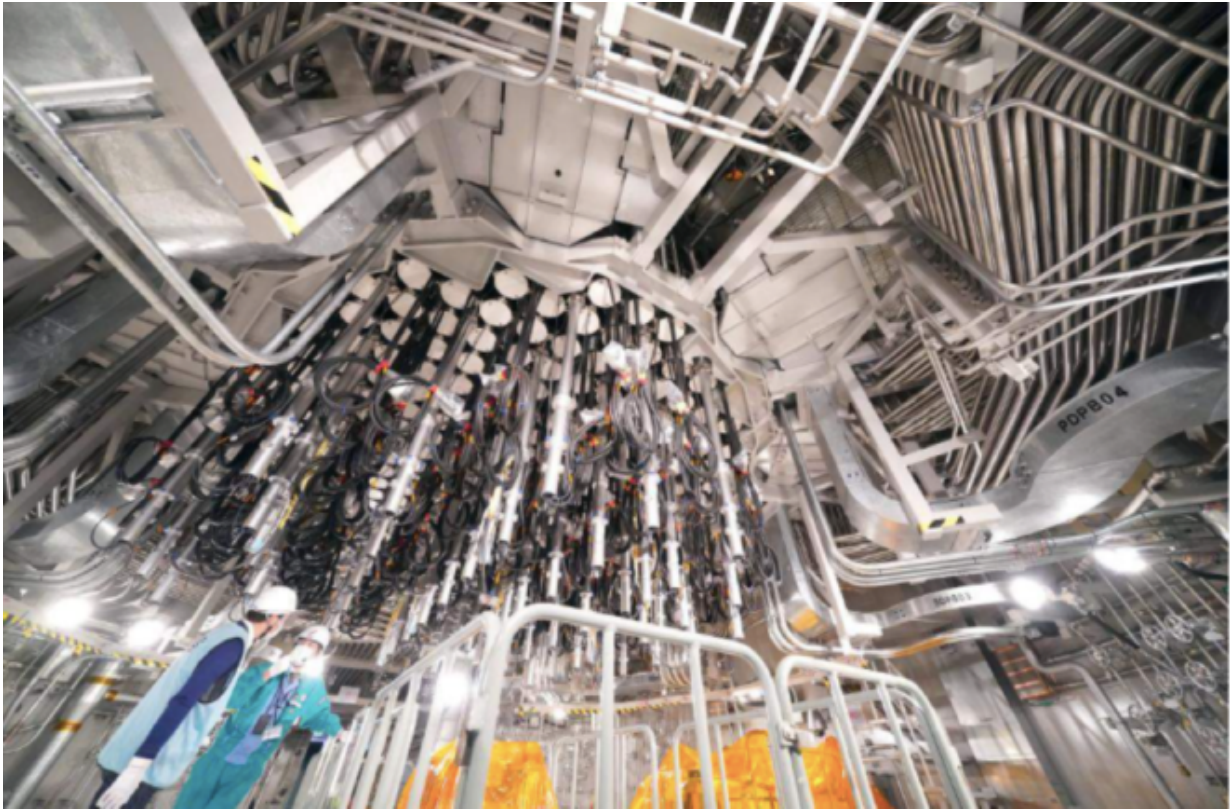
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?3.11????????????3????????????????????????3????????????????????????????????????3??  
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3???——????????????????????????3.11?????????????  
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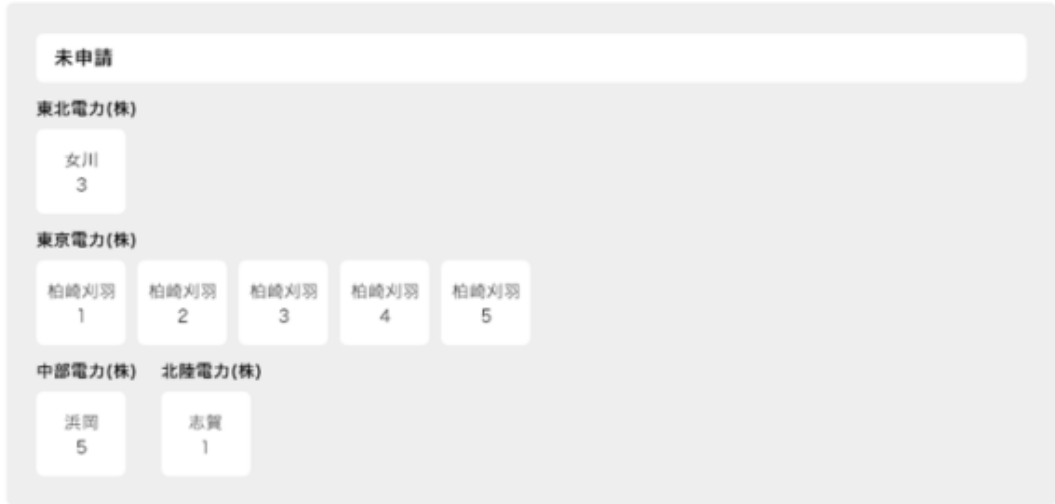
??????67??  
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??8????????????????? ?????????1????5?????????——?????????

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 ?????6?440?kW????????????????????????

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**GX????????????????**

11?24??GX????????????????????

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5. ?????????????????????????????

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?2019????????????30km????????????????????????2018?9?26????????????????????  
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Posted in ??????????, ??? | No Comments »

# ????COP??????

?? ?? · Tuesday, November 29th, 2022

COP27??COP????????????????????????C  
OP??CO  
P??



dinn/iStock

## COP27???

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??COP????EU????

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??COP????1????  
????COP28????

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- ??????????2190??CO2?????????????????531??CO2?????????4.1????CO2????????? ?????????????CO2?????2020??????0.441kg-CO2/kWh?????
- ??????????????3070??CO2?????????????????662??CO2????????????????????????????? ?????1????????2?????????????????????????1?????????302??CO2?????????8.8??CO2?????????????C O2????????????????????CO2?????????5.7?????????
- ??????????????2020?????????????????2030?????????????????????????????????250kg- CO2/kWh????????????CO2?????????????????7.3????????????10.1?????

??CO2????????????????????CO2???????? ??????????????7?????????????10?????????????????????

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Tyranny????????????????????COP27????????COP????????????????????????

Posted in ???, ????? | No Comments »

**COP27????????????????????**

?? ?? · Friday, November 25th, 2022

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**????????????????2022?11?20????????????????????**

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- ??CO2????????????????????3?2????????????60%????????????2025????  
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??2010=2010:278????????????  
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M1??8?????????1?18??

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2022?  
9?20??2022?12?????????  
??2025?4??????????????????

??2022a??  
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?1??1kWh????????????????2020??2030????????????????????????????????????

	2020年	2030年(1)	設備稼働年数	設備利用率	2030年(2)
原子力	11.5円	11.7円	40年	70%	14.4円
太陽光（事業用）	12.9円	8.2～11.8円	25年	17.2%	18.9円
太陽光（住宅用）	17.7円	8.7～14.9円	25年	13.8%	
陸上風力	19.8円	9.9～17.2円	25年	25.4%	18.5円
洋上風力	30.3円	26.1円	25年	30%(33.2%)	
石炭火力	12.5円	13.6～22.4円	40年	70%	13.9円
LNG火力	10.7円	10.7～14.3円	40年	70%	11.2円

2020年2030年  
 2021年2022年  
 2023年2024年  
 2025年2026年  
 2027年2028年  
 2029年2030年

2030年

2030年2030年  
 2030年2030年

2030年2030年  
 2030年2030年

	原子力発電	石炭火力発電	LNG火力発電
CO <sub>2</sub> 対策費	0	3.9	1.8
社会的費用	1.9		
（事故リスク対応費用）	0.6		
（政策経費）	1.3		
発電原価	9.6		
（燃料費）	1.7	4.2	6.4
（追加的安全対策費）	1.3		
（運転維持費）	3.3	2.3	1.2
（資本費）	3.3	2.0	1.3
合計	11.5円kWh	12.5円kWh	10.7円kWh

2030年

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????????LNG??10.7?kWh????????12.5?kWh????????11.5?kWh????????1???

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????????????????????????????25????????????183.9MW?18?3900kW????????  
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????????????????????????expressive????????????????????????instrumental?  
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# COP27????????14????????

?? ?? · Wednesday, November 23rd, 2022



imagedepotpro/iStock

????????COP27????????

## COP27? “????” ??????????NHK?

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????????CO2????????CO2????????CO2????????

COP27????????

????????COP27????????

????????46????????

The cover decision, known as the **Sharm el-Sheikh Implementation Plan**, highlights that a global transformation to a low-carbon economy is expected to require investments of at least USD 4–6 trillion a year. Delivering such funding will require a swift and comprehensive transformation of

??4?6?????????GDP??

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22. *Notes with grave concern*, according to information in the contributions of Working Groups II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, the growing gravity, scope and frequency in all regions of loss and damage associated with the adverse effects of climate change, resulting in devastating economic and non-economic losses, including forced displacement and impacts on cultural heritage, human mobility and the lives and livelihoods of local communities, and *underlines* the importance of an adequate and effective response to loss and damage;

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and also welcomes the adoption of decisions -/CP.27<sup>12</sup> and -/CMA.4,<sup>13</sup> on matters relating to funding arrangements responding to loss and damage associated with the adverse effects of climate change;

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30. *Highlights* that about USD 4 trillion per year needs to be invested in renewable energy up until 2030 to be able to reach net zero emissions by 2050,<sup>18</sup> and that, furthermore, a global transformation to a low-carbon economy is expected to require investment of at least USD 4–6 trillion per year;<sup>19</sup>

????????????????????????????2030?????5.8????5.9????????????

32. *Notes with concern* the growing gap between the needs of developing country Parties, in particular those due to the increasing impacts of climate change and their increased indebtedness, and the support provided and mobilized for their efforts to implement their nationally determined contributions, highlighting that such needs are currently estimated at USD 5.8–5.9 trillion<sup>20</sup> for the pre-2030 period;

????????????????????????????????CO2????????????????????3????????????????????Nationally Determined Contribution??

2030?????????6????????????????2024????2029????6????????????????1????????????

??1????????????????????????????????????

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7. *Decide to establish new funding arrangements for assisting developing countries that are particularly vulnerable to the adverse effects of climate change, in responding to loss and damage, including with a focus on addressing loss and damage by providing and assisting in mobilizing new and additional resources, and that these new arrangements complement and include sources, funds, processes and initiatives under and outside the Convention and the Paris Agreement;*

8. *Also decide, in the context of establishing the new funding arrangements referred to in paragraph 2 above, to establish a fund for responding to loss and damage whose mandate includes a focus on addressing loss and damage;*

Transitional  
Committee COP28 10 14

**III. Composition**

4. The Transitional Committee shall have 24 members, to be nominated no later than 15 December 2022, comprising 10 members from developed country Parties and 14 members from developing country Parties, with geographical representation as follows:

- a) Three members from Africa, including a representative of the President of COP 27;
- b) Three members from Asia and the Pacific, including a representative of the incoming President of COP 28;
- c) Three members from Latin America and the Caribbean;
- d) Two members from small island developing States;
- e) Two members from the least developed countries;
- f) One member from a developing country Party not included in the categories listed above.

COP28 UAE 1

1000

COP21 in 2015 in Paris. The \$1 trillion per year is a very different concept – it is a requirement based on an analysis of the investment and actions necessary and the domestic finance potentially available, for an internationally agreed and vital purpose. The \$1 trillion is not the new \$100 billion. The latter was negotiated, not deduced from analyses of what is necessary for a purpose.

1000 Nature





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Posted in ???, ????? | No Comments »

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?? ?? · Tuesday, November 22nd, 2022



Olga Burkova/iStock

????????COP27????????COP26????????????????????????????????????  
????????????(loss and damage)????????????

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????(adaptation)????????????????

1997????????????????????????????????????(mitigation)????????????  
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COP26????????????????????????????????????1????????????  
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COP27??EU?1.5????????????????????????????????????  
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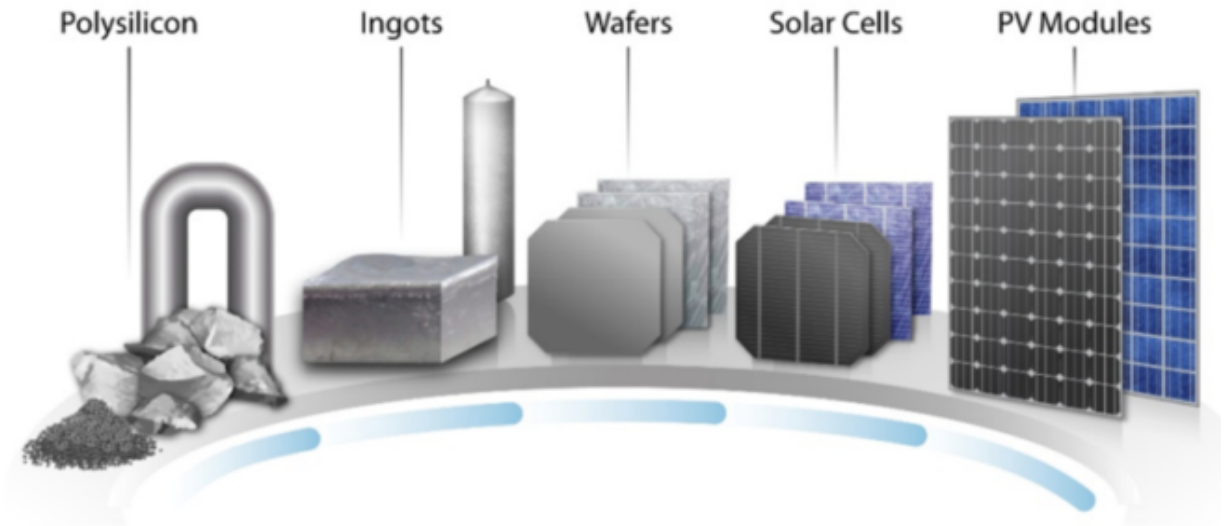
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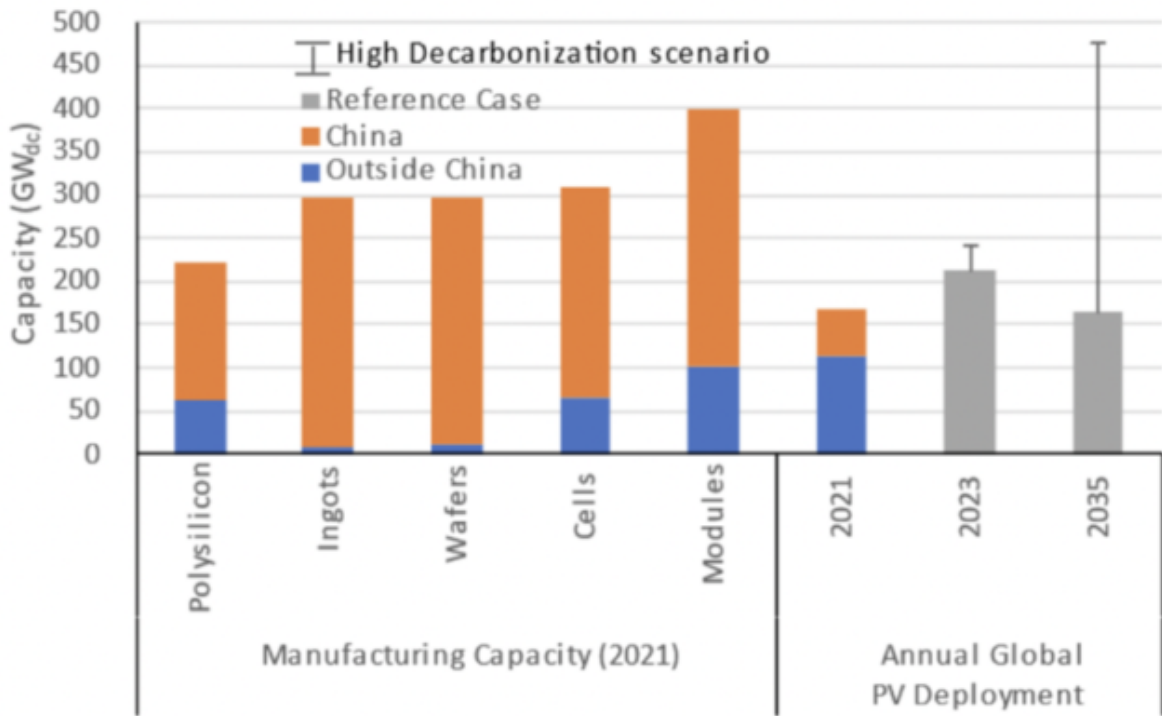






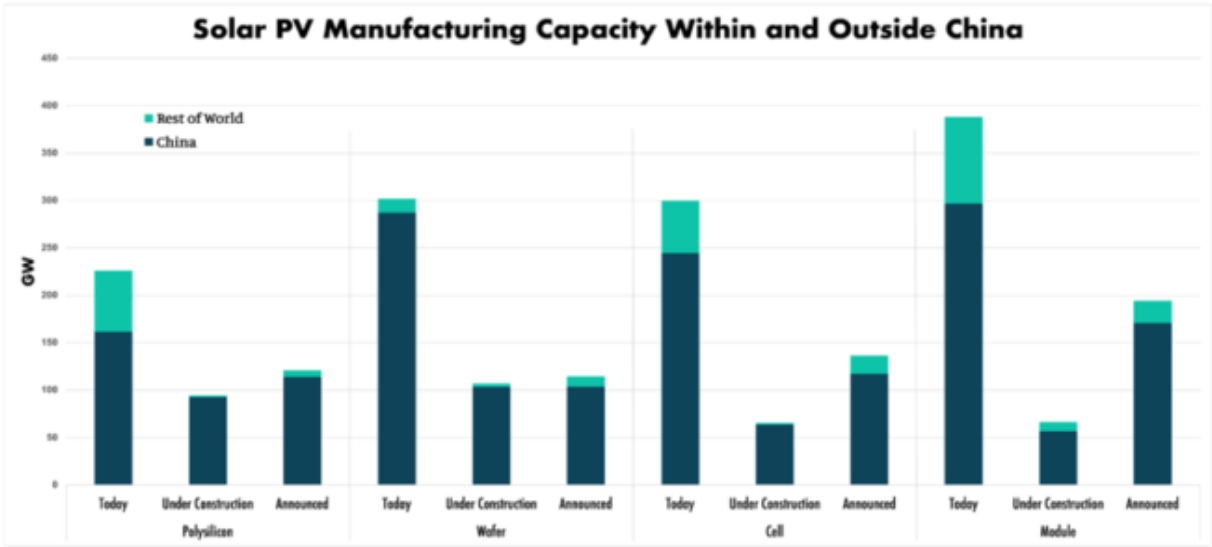


5????????????????2021??



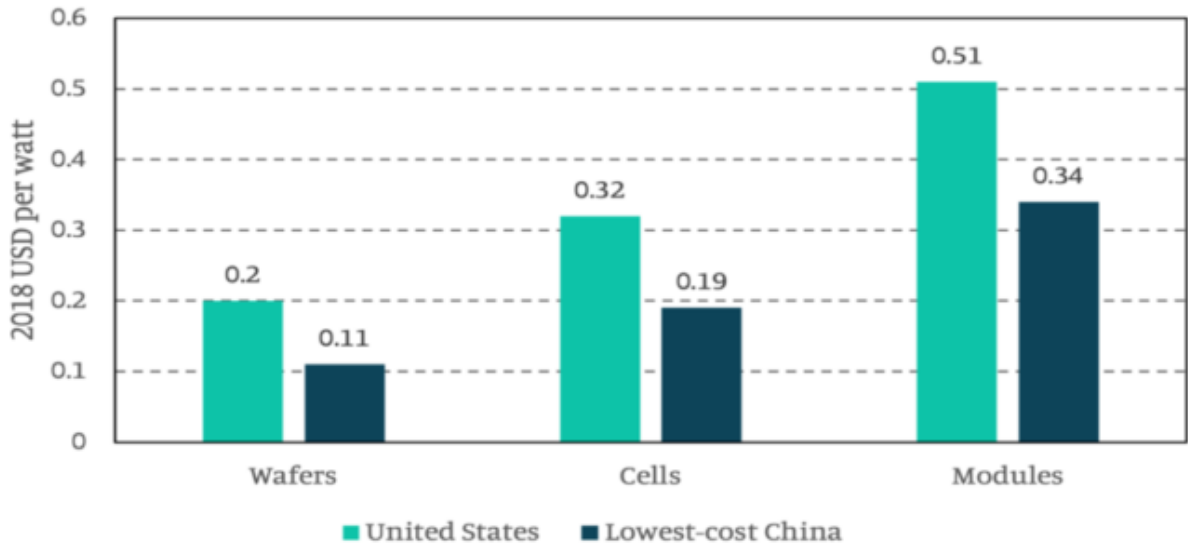
????????????????????????????????Xinjiang????????????????????????KWh????6??????????





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### Minimum Sustainable Price (MSP)



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?? ? · Saturday, November 19th, 2022



Nastco/iStock

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CO2

2

2021 BP 82.3% 489.66 EJ / 595.15 EJ 1.75%

Table 1. Primary energy and electricity sources in exajoules, EJ (10<sup>18</sup> joules) and installed wind and solar capacity in GW for 2021 [7]. Electricity generation converted to EJ from TWh. 1 EJ= 277.8 TWh.

Country	World	China	U.S.A	India	UK
Oil, EJ	184.21	30.6	35.33	9.41	2.5
Natural Gas, EJ	145.35	13.63	29.76	2.24	2.77
Coal, EJ	160.1	86.7	10.57	20.09	0.21
<b>Total fossil fuel, EJ</b>	<b>489.66</b>	<b>130.93</b>	<b>75.66</b>	<b>31.74</b>	<b>5.48</b>
Actual delivered Wind, EJ	6.7	2.36	1.38	0.245	0.232
Actual delivered Solar, EJ	3.72	1.177	0.594	0.246	0.045
Nuclear, EJ	25.31	3.68	7.4	0.4	0.41
Hydro, EJ	40.26	12.25	2.43	1.51	0.06
Other, EJ	29.5	7.253	5.306	1.289	0.953
<b>Total Primary Energy, EJ</b>	<b>595.15</b>	<b>157.65</b>	<b>92.97</b>	<b>35.43</b>	<b>7.18</b>
<b>Electricity Generation</b>					
Installed wind capacity, GW	824.9	329	132.7	40.1	27.1
Installed Solar Capacity, GW	843.1	306.4	93.7	49.3	13.7
Total electricity generated, EJ	102.47	30.72	15.86	6.173	1.116

Other includes bioenergy, geothermal etc.

1

BP IEA

$$1 \text{ EJ} = 10^{18} \text{ joules} = 10^{12} \text{ Wh} = 277.8 \text{ TWh} = 1 \text{ EJ} = 10^{18} \text{ J}$$



2.778x10<sup>-7</sup>kWh??10<sup>18</sup>????????????????????????????????

??????1kWh????????????????????1kWh = 860.6kcal = 3.6kJ????100????????????????????100????????????????????40????????

?????1kWh???860.6kcal????860.6kcal???1kWh????????????????Wh????????

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????????????????????Wh????????????J or cal????????????41.5%????????????IEA????????????10????33? ?????100????????????

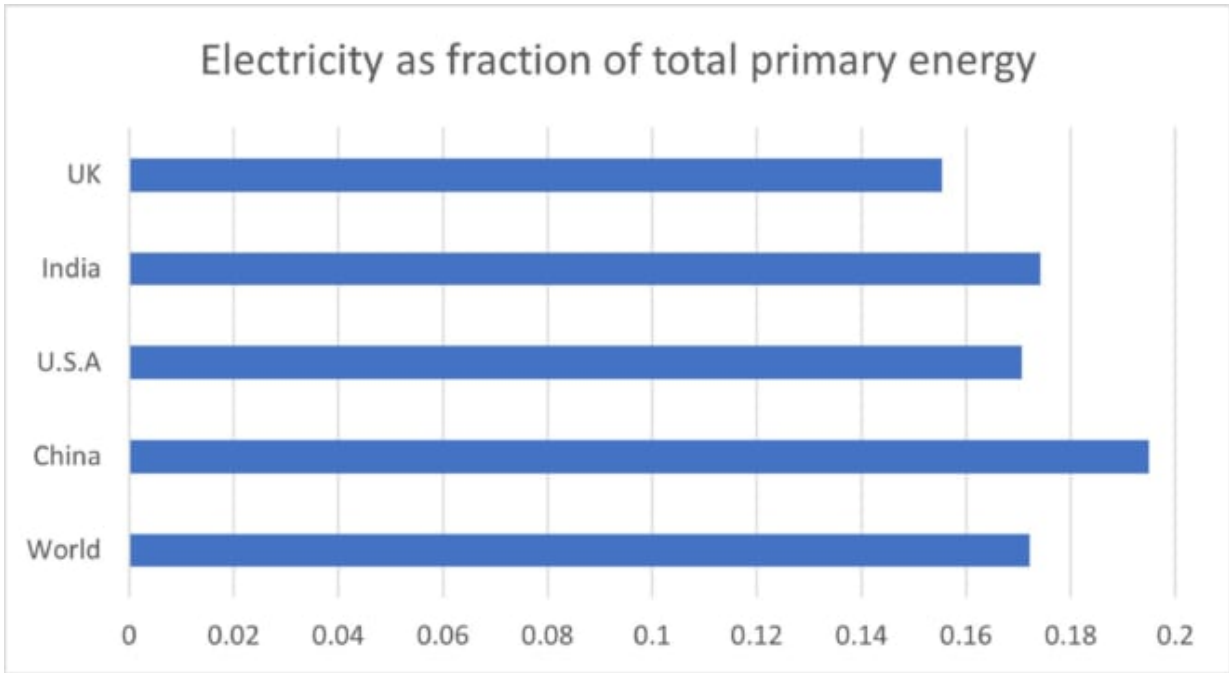
????????????????BP????1kWh = 860.6kcal = 3.6kJ?IEA????????????41.5%????0.415???1kWh = 2074kcal = 8.67kJ????????????0.415????????

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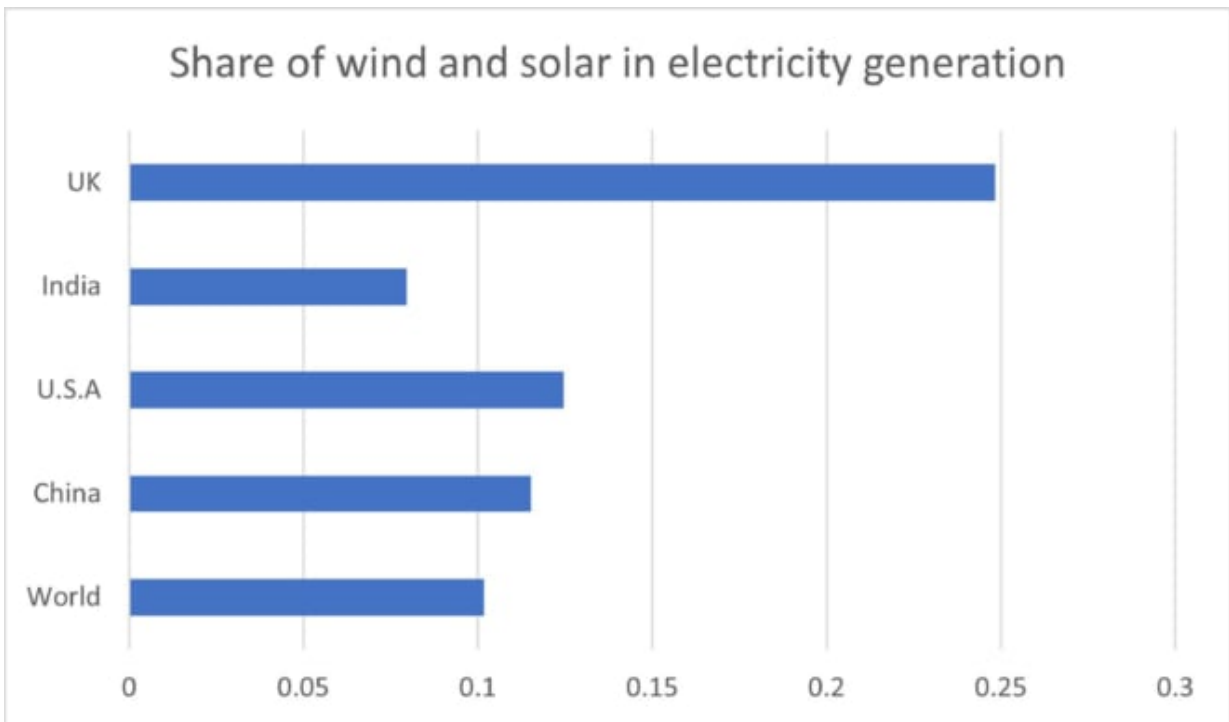
????????1????????489.66EJ????105.49EJ?254.19EJ????0.415????2.4????5 95.15EJ?743.85EJ????17.7%?=106.49/595.15????34.2%?=254.19 /743.85????

?2????????10????????2???????? 34.2% ?????40????



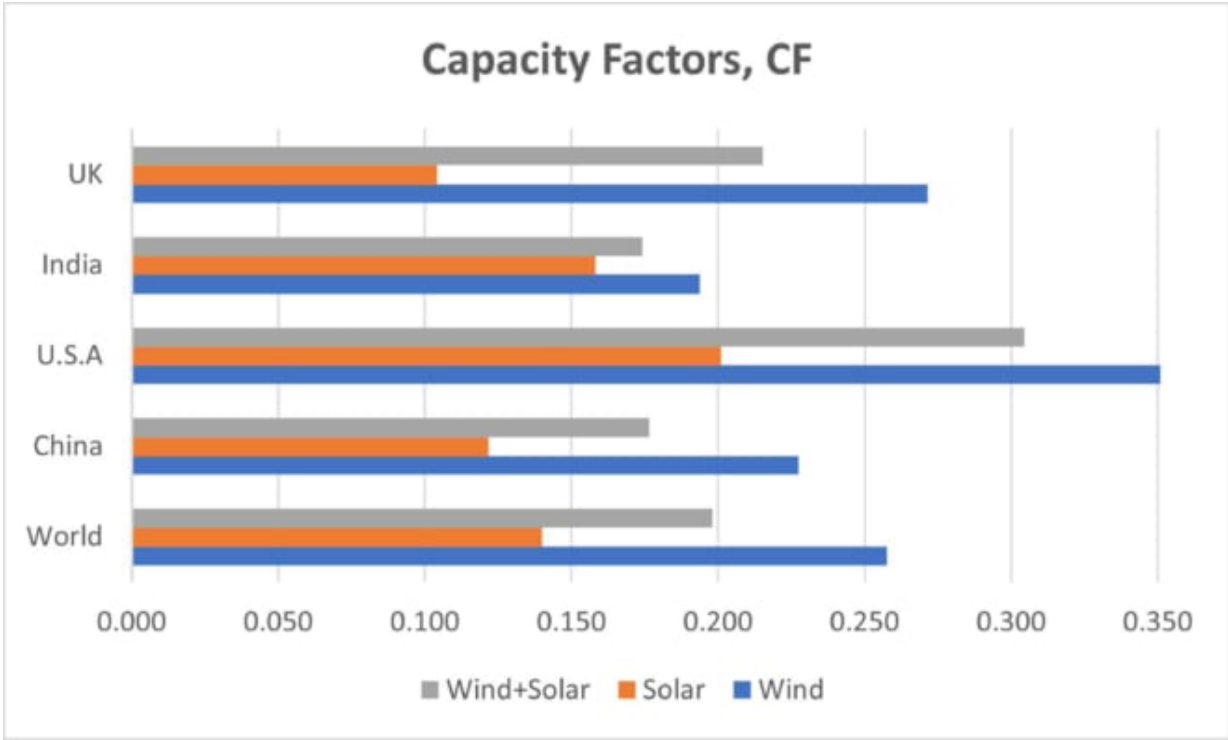
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Posted in ???, ????? | No Comments »

**??140????????COP27??????????????**  
 ?? ?? · Wednesday, November 16th, 2022



fergregory/iStock

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Posted in ???, ??? | No Comments »

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?? ?? - Saturday, November 12th, 2022



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Posted in ??????????, ??, ?? | No Comments »

### ????CO2????????????????????0.1?

?? ?? · Thursday, November 10th, 2022



hanibaram/iStock

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Posted in ???, ????? | No Comments »

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?? ?? · Thursday, November 3rd, 2022



bee32/iStock

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Posted in ????????????, ??? | No Comments »

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?? ?? · Monday, October 31st, 2022

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兵研施設で技術者らと言葉を交わす金正恩・朝鮮労働党委員長。写真はKCNAが2016年3月配信。

©?Reuters

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Posted in ???, ?? | [No Comments](#) »

**????????COP27**

?? ? · Sunday, October 30th, 2022

11??7??18????????????????????COP27????????????1????????????COP????????????17????

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Heiness/iStock

**????????COP26????????**

COP27????????????????????????????????

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**COP27????????????????????**

COP27????????????????????COP26????????????????????COP27????????????????????  
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Posted in ???, ????? | No Comments »



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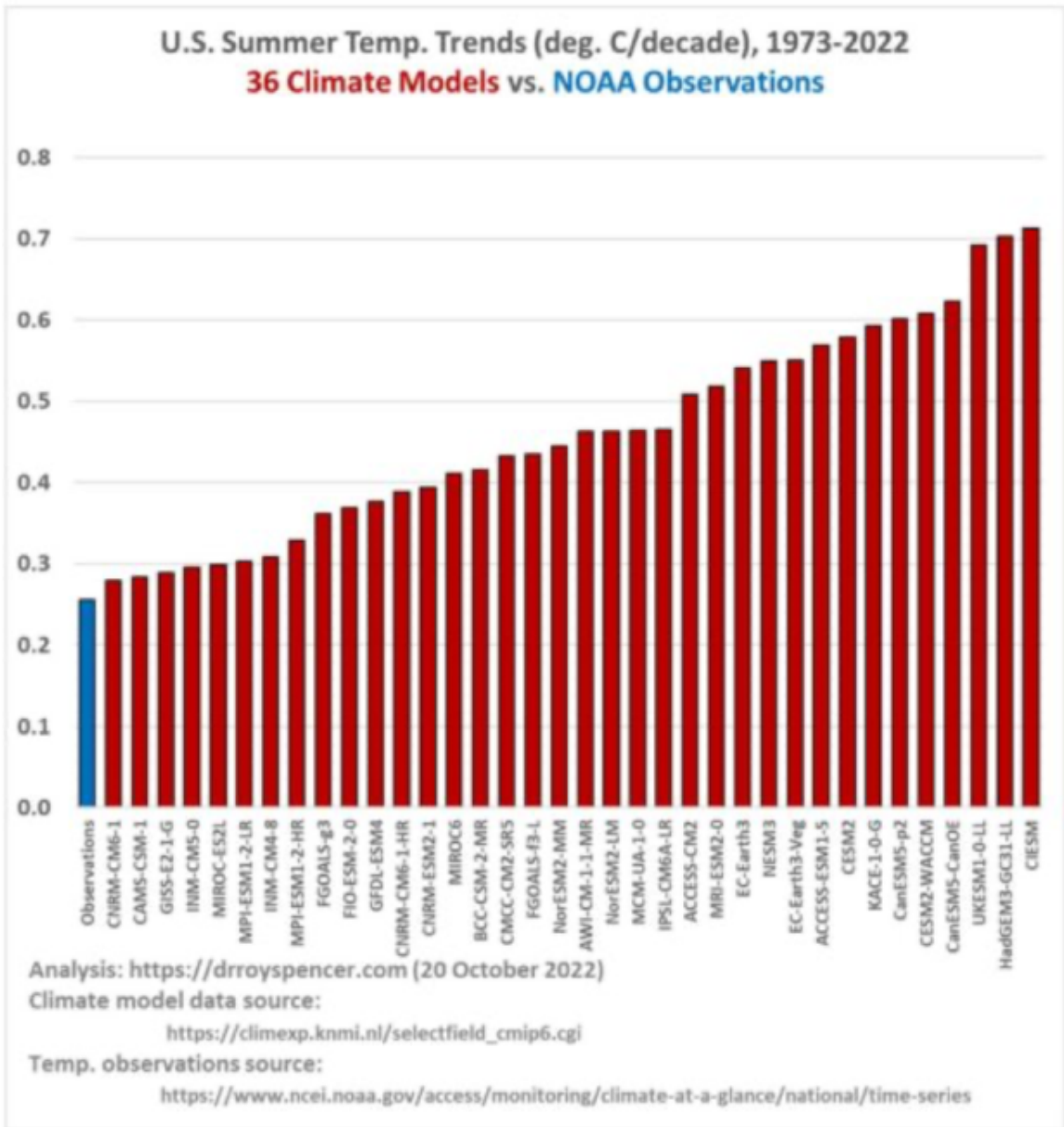
?? ?? · Friday, October 28th, 2022



Tr6/iStock

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Posted in ???, ????? | No Comments »

## ESG????????????????????

?? ?? · Friday, October 28th, 2022



AleksandrVS/iStock

??21????????????????ESG????????????????????

**??21????????????????ESG???????????**

ESG??The Epoch Times????????????????????????????

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Research????????????????????????????ESG??  
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**ESG Watch: Banks' net-zero pledges in the spotlight at Climate Week New York**

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????UBS????????????????????????????????700????585????????

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**AG Paxton Demands BlackRock Account for its Underperforming, Potentially Illegal ?'ESG' State Pension Fund Investments**

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**Governor Ron DeSantis Eliminates ESG Considerations from State Pension Investments**

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