

## 自然エネルギー専門家会議

自然エネルギー：世界は何を論じているのか？

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### On their potentials...

- ▲ “Renewables 2011, Global Status Report” REN21
- ▲ Papers and studies by IRENA and REEEP
- ▲ Ecofys based WWF report: “The Energy Report-100% renewable Energy by 2050”
- ▲ ” Pathways towards a 100 % renewable electricity system by 2050”, a scenario proposed by the German Advisory Council on the Environment (SRU) on January 2011.  
[http://www.umweltrat.de/SharedDocs/Downloads/EN/02\\_Special\\_Reports/2011\\_01\\_\\_Pathways\\_Chapter10\\_ProvisionalTranslation.html](http://www.umweltrat.de/SharedDocs/Downloads/EN/02_Special_Reports/2011_01__Pathways_Chapter10_ProvisionalTranslation.html)
- ▲ IPCC’s “Special Report on Renewable Energy Sources and Climate Change Mitigation” (SRREN), “Summary for Policymakers”  
[http://www.env.go.jp/press/file\\_view.php?serial=17514&hou\\_id=13786](http://www.env.go.jp/press/file_view.php?serial=17514&hou_id=13786)  
[http://www.env.go.jp/press/file\\_view.php?serial=17513&hou\\_id=13786](http://www.env.go.jp/press/file_view.php?serial=17513&hou_id=13786)
- ▲ “Renewable energy can power the world, says landmark IPCC study” Fiona Harvey, The Guardian 9 May, 2011  
<http://www.guardian.co.uk/environment/2011/may/09/ipcc-renewable-energy-power-world>
- ▲ Solar May Produce Most of World’s Power by 2060, IEA Says  
By Ben Sills - Aug 29, 2011 9:10 PM GMT+0900  
<http://www.bloomberg.com/news/2011-08-29/solar-may-produce-most-of-world-s-power-by-2060-iea-says.html>

### On investment race...

- ▲ “Who’s Winning the Clean Energy Race?” Pew Charitable Trusts
- ▲ March 29, 2011, “Clean Energy Investment Is Up, but U.S. Lags” From “Repower America” April 20, 2011  
By [Shuchi Talati](#), Energy Analyst  
...The race for clean energy investment is one the United States cannot afford to lose. Yet a Pew Charitable Trusts report entitled “Who’s Winning the Clean Energy Race?” was released last week, and the unfortunate truth is that the United States has slipped to third place among G-20 economies in attracting private investment, with \$34 billion invested in its clean energy sector. China was in the lead, with \$54.4 billion. Germany surpassed us as well, with \$41.2 billion. It’s important to remember that the United States used to be in first place in the clean energy race. In 2009, however, we were overtaken by China.

2010 Rank	Country	2010 Investment (billions of \$)	2009 Investment (billions of \$)	2009 Rank
1	China	54.4	39.1	1
2	Germany	41.2	20.6	3
3	United States	34.0	22.5	2
4	Italy	13.9	6.2	8
5	Rest of EU-27	13.4	13.3	4
6	Brazil	7.6	7.7	7
7	Canada	5.6	3.5	9
8	Spain	4.9	10.5	6
9	France	4.0	3.2	12
10	India	4.0	3.2	11

▲ “Global Trends in Renewable Energy Investment 2011”

UNDP

**On a new trend...**

▲ US Army to Establish Energy Initiatives Office Task Force for Large-Scale Renewable Energy Projects, ...Concern over rising costs of fossil fuel prompted the Army action. ( Aug.10, 2011).

<http://www.defense.gov/releases/release.aspx?releaseid=14726>

**On how to get to a fully renewable power system**

▲ “How to get to a fully renewable power system” David Roberts Grist, 26 May 2011

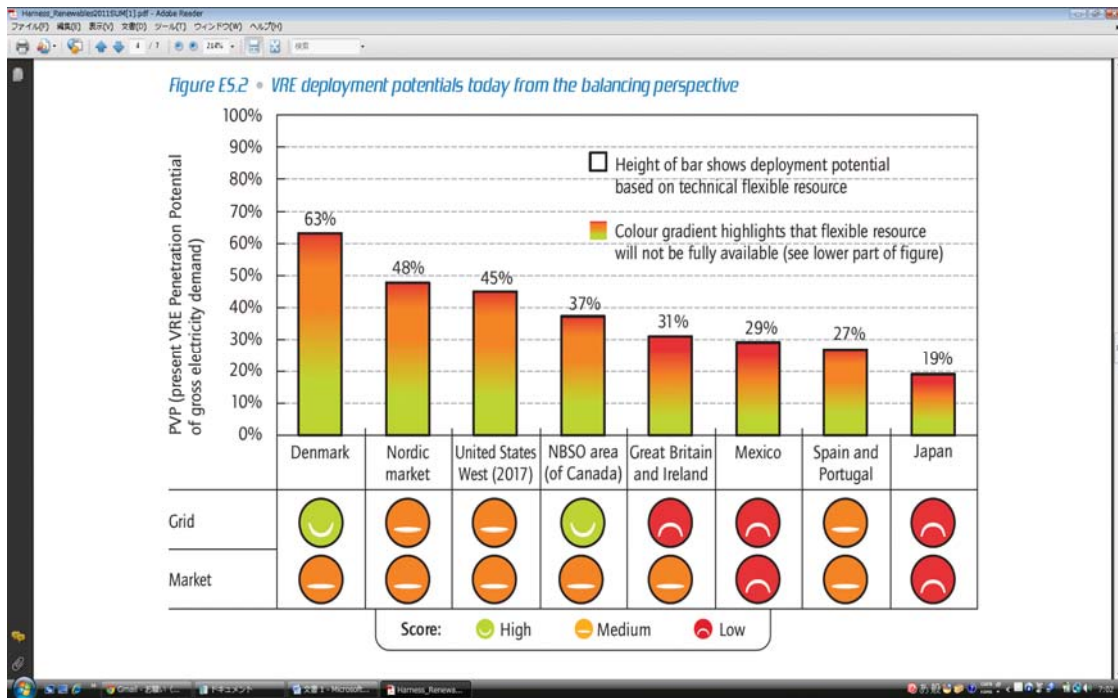
<http://www.grist.org/renewable-energy/2011-05-26-how-to-get-to-a-fully-renewable-power-system>

▲ ” Harnessing Variable Renewables: a Guide to the Balancing Challenge” IEA 2011

[http://www.iea.org/publications/free\\_new\\_Desc.asp?PUBS\\_ID=2403](http://www.iea.org/publications/free_new_Desc.asp?PUBS_ID=2403)

...The analysis has identified characteristics which will constrain the incorporation of renewables into the power system....grid strength and market design are the most important for the increased integration.

However weak both in grid and market, Japan can integrate renewables up to 19% even NOW!!



Harnessing Variable Renewables: page18

### On nuclear perspective...

▲IEA's WEO 2011 "Are we entering a golden age of gas?" talks about GAS Scenario and attributes 7-8% for nuclear in the 2035 projection of world primary energy demand (page 21).

[http://www.iea.org/weo/docs/weo2011/WEO2011\\_GoldenAgeofGasReport.pdf](http://www.iea.org/weo/docs/weo2011/WEO2011_GoldenAgeofGasReport.pdf)

▲IEA's WEO 2011 presents A "Lower-Nuclear Case" analyzing "...what a rapid slowdown in the use of nuclear power would mean for the global energy landscape".

[http://www.iea.org/speech/2011/Tanaka\\_Low\\_Nuclear\\_Case.pdf](http://www.iea.org/speech/2011/Tanaka_Low_Nuclear_Case.pdf)

Table 1.2 ▶ World primary energy demand by fuel and scenario

	2008		GAS Scenario		New Policies Scenario WEO-2010	
	Demand (Mtoe)	Share in energy mix	2035 Demand (Mtoe)	2035 Share in energy mix	2035 Demand (Mtoe)	2035 Share in energy mix
Coal	3 315	27%	3 666	22%	3 934	23%
Oil	4 059	33%	4 543	27%	4 662	28%
Gas	2 596	21%	4 244	25%	3 748	22%
Nuclear	712	6%	1 196	7%	1 273	8%
Hydro	276	2%	477	3%	476	3%
Biomass	1 225	10%	1 944	12%	1 957	12%
Other renewables	89	1%	697	4%	699	4%
<b>Total</b>	<b>12 271</b>		<b>16 765</b>		<b>16 748</b>	

Regional demand trends

IEA's WEO 2011 page 21.

### 結論的に...膨大な世界の議論は収斂へ

1. 自然エネルギーが世界需要の大きな部分を充足出来る。
2. コストは長期に逡減。化石燃料等が長期に上昇。投資回収は十分可能。
3. 成長、雇用、技術革新の原動力→新しい競争の局面
4. 大幅な省エネは不可欠。しかし賢い省エネで対応。
5. FIT 等の政策措置が有効。
6. 分散電力の統合化は蓄電とグリッド強化で可能。市場再構築等がカギ。
7. 目先のコスト意識から”Vision Issue”へ：グローバルな新文明に乗るのか、先導するのか、傍観するのか？
8. Vision の宣教師、ベンチャー資本、軍産複合体、中国との競争意識→米国にあるが日本に欠けているもの。