



INTERNATIONAL
TRADE
ADMINISTRATION

2016 Top Markets Report

Renewable Energy and Smart Grid

An Assessment Tool for Focusing
U.S. Government Resources

May 2016



I&A Top Markets Series

A Market Assessment Tool for U.S. Exporters and Policy-Makers

Helps exporters develop their business development strategies by comparing opportunities across borders

Helps policy-makers prioritize export promotion and trade policy objectives by focusing on areas of largest opportunity and subsectors most supportive of exports

Ranks projected *future* export markets for U.S. firms, rather than investment potential

Provides market intelligence to ITA's export-oriented clients



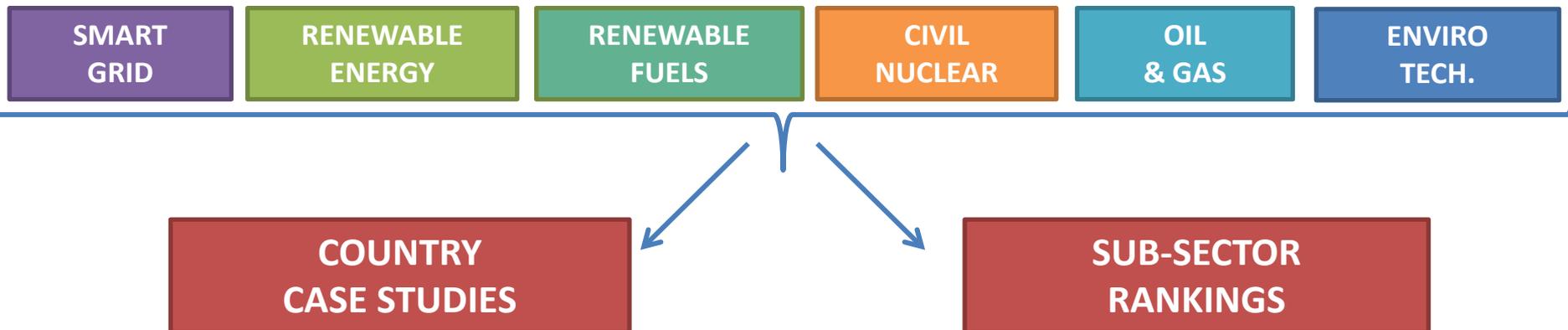
<http://trade.gov/topmarkets>



Energy & Environmental Industries

Top Markets Reports 2016 Update

- Each report is based on a detailed, sector-specific methodology for projecting exports and provides country case studies and sector snapshots.
- In April 2016, I&A updated the *Top Markets Reports* on Renewable Energy (geothermal, hydro, solar, and wind) and Smart Grid (T&D Equipment, ICT, energy storage).



Data Sources:

Surveys of posts worldwide; Bloomberg New Energy Finance; Business Monitor International; Global Trade Atlas Data; Platts

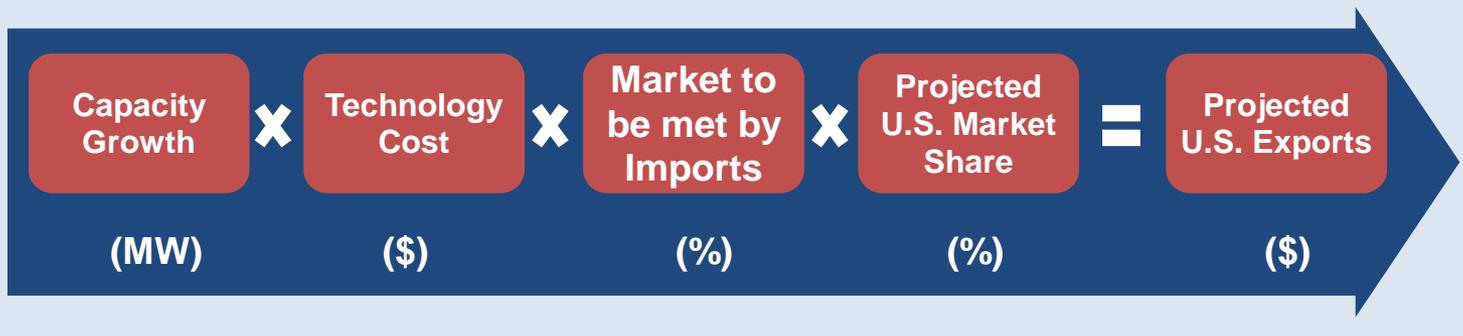


Renewable Energy Methodology

Projecting Power Generation Equipment Exports

The methodology used in the 2016 *Renewable Energy Top Markets Report* includes country-specific LCOE and \$/MW estimates from *Bloomberg New Energy Finance*, as well as updated capacity growth and market share projections. Geothermal projections were developed alongside the Geothermal Energy Association (GEA) to ensure additional accuracy for ITA's projections.

Methodology for Ranking Markets



Renewable Energy: Key Findings

Understanding the Rankings

Renewable Energy Export Rankings (2015-2016)

1. Canada	16. El Salvador
2. Japan	17. Philippines
3. India	18. UK
4. Kenya	19. Germany
5. Mexico	20. South Korea
6. Brazil	21. Ecuador
7. Chile	22. Guatemala
8. China	23. Egypt
9. France	24. Russia
10. Turkey	25. Peru
11. Indonesia	26. Honduras
12. Uruguay	27. Argentina
13. South Africa	28. Vietnam
14. Venezuela	29. Panama
15. Nicaragua	30. Thailand

- In total, 75 countries were ranked.
- Export markets with the strongest potential, in the top level of the rankings, tended to have substantial opportunities across multiple subsectors.
- A few markets had overwhelmingly strong prospects in particular subsectors.
- The renewable energy sector is so reliant on policy that any policy changes – either positive or negative—will have an almost immediate impact on a market’s attractiveness.
- U.S. exporters are expected to capture 4% of the world’s solar energy imports, 7% of its wind power imports, and 2% of its hydropower imports.
- U.S. exporters are relatively more competitive in the geothermal sector, though that sector remains far smaller than other renewable energy opportunities.



Renewable Energy Sub-Sector Rankings

Export Potential in 2016-2017

Rank	Geothermal	Hydro	Solar	Wind
1	Kenya	Canada	Japan	Canada
2	Mexico	India	India	Brazil
3	Indonesia	Venezuela	Canada	Mexico
4	Chile	Brazil	Chile	Uruguay
5	Turkey	Mexico	France	China
6	Nicaragua	Peru	China	South Africa
7	Guatemala	Russia	Turkey	South Korea
8	Philippines	Vietnam	Brazil	Chile
9	Canada	Philippines	Mexico	Egypt
10	Argentina	Malaysia	El Salvador	Honduras



Four Types of Markets

ITA's Analysis Allows a Differentiated Strategy by Market Type

The recognition of four types of markets, and related strategies, remains an important aspect of this year's version.

Large Market; Large Share

If a market is large and U.S. firms enjoy considerable market share, then exporters should focus on making as many connections as possible.

USG Activities:

- *Traditional trade missions*
- *Gold Key Service*
- *Remove remaining trade barriers*
- *International Buyers Program trade shows*

Large Market; Small Share

Consider whether the lack of market share is based on insufficient competitiveness; or, whether U.S. products are kept out of the market by protectionism. If a barrier exists, report it.; otherwise look for niche opportunities.

USG Activities:

- *Protect existing market share*
- *Find niche opportunities*

Small Market; Large Share

Exporters should participate in market development activities and position themselves for early success.

USG Activities:

- *Trade policy missions*
- *Technical capacity building*
- *Reverse trade missions*
- *Development assistance*

Small Market; Small Share

Finally, some markets are neither large nor support significant U.S. market share. Understand that opportunities could be sparse and expect few other American companies to succeed.



Smart Grid Top Markets Report

Comparison 2015 v. 2016

Key Developments during 2015:

- Economic Downturn
- Global Oil Prices
- Climate Change Agreement

Biggest Overall Shifts y-o-y:

- Mexico: +9
- India +13
- Spain +16
- Singapore -14
- Brazil -13
- Colombia -10

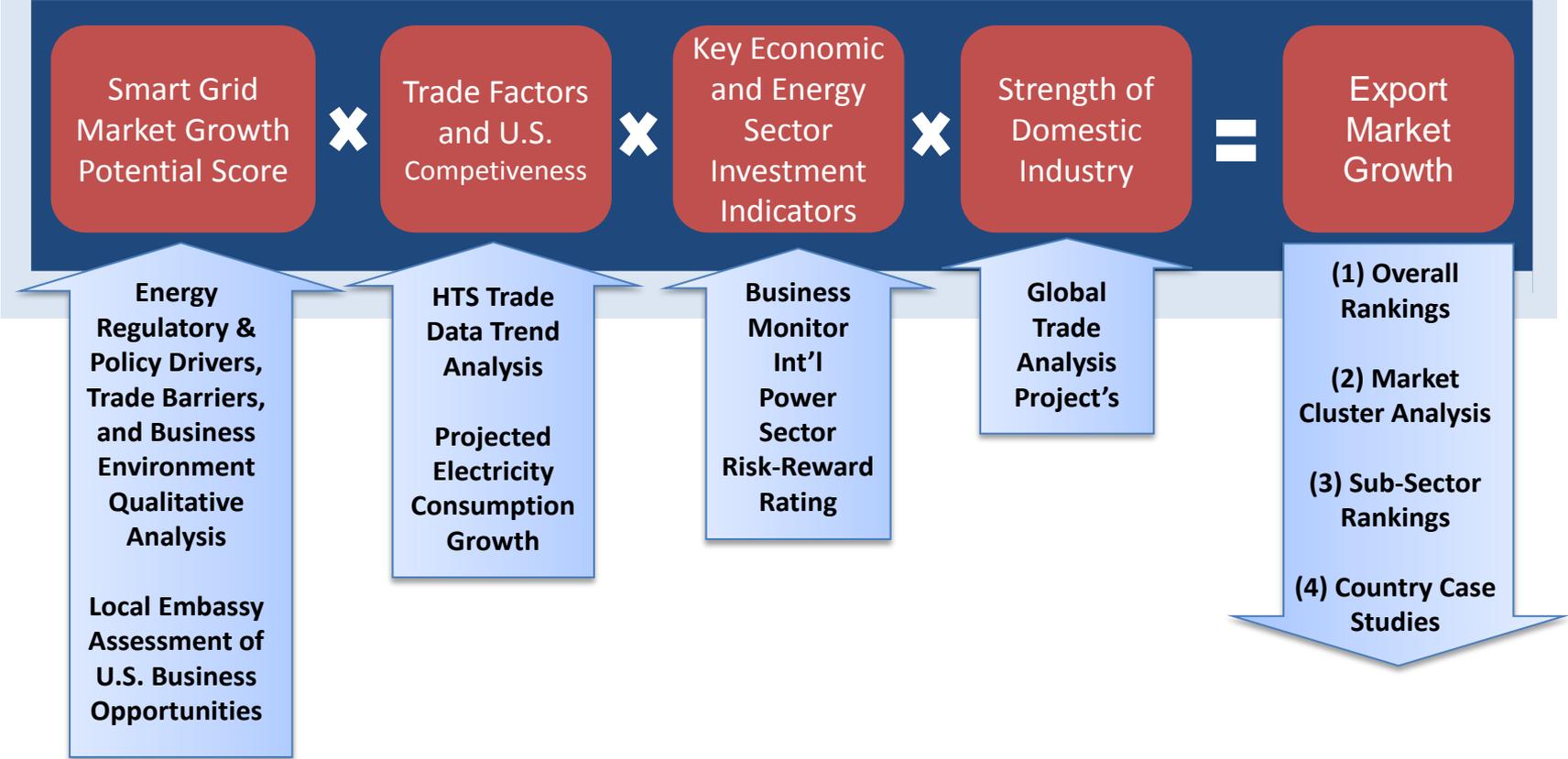
Smart Grid Export Market Projections, 2016

- | | |
|-------------------|------------------|
| 1. Canada | 18. Germany |
| 2. Mexico | 19. New Zealand |
| 3. Japan | 20. Singapore |
| 4. Saudi Arabia | 21. Nigeria |
| 5. Australia | 22. Austria |
| 6. United Kingdom | 23. Israel |
| 7. China | 24. Denmark |
| 8. India | 25. Sweden |
| 9. Vietnam | 26. Indonesia |
| 10. France | 27. Italy |
| 11. Chile | 28. Thailand |
| 12. Turkey | 29. South Africa |
| 13. Korea | 30. Colombia |
| 14. Malaysia | 31. Poland |
| 15. Spain | 32. Brazil |
| 16. Netherlands | 33. Portugal |
| 17. Philippines | 34. Russia |



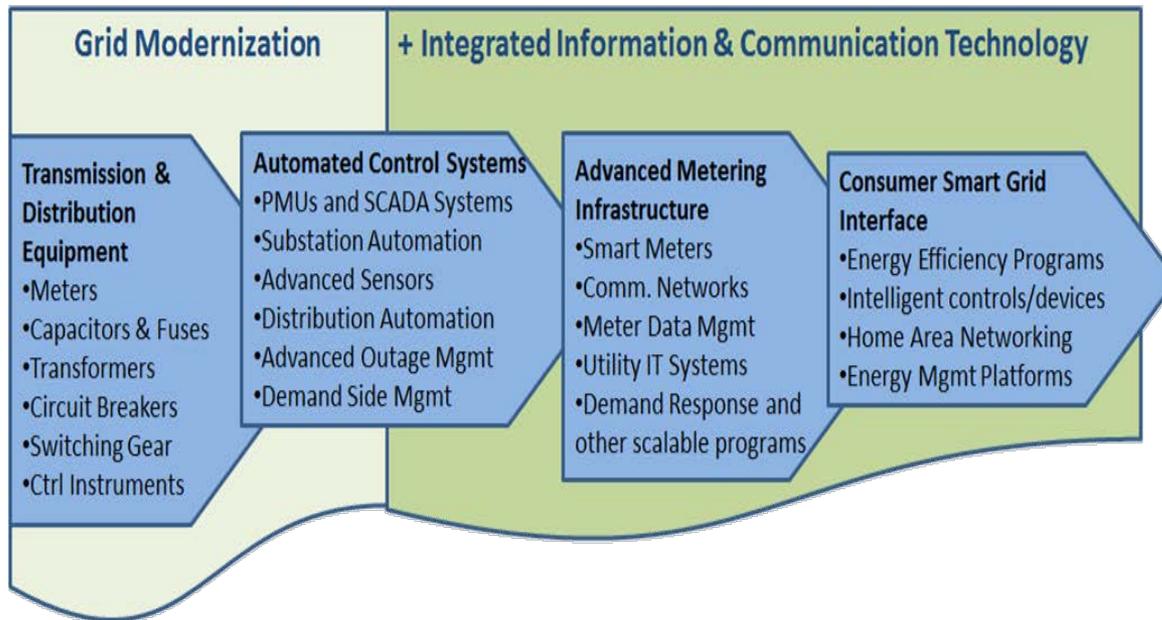
Methodology

Weighted Scorecard System Based on Four Sets of Data & Analysis



Smart Grid Sub-Sector Rankings

Covering the Full Range of Smart Grid Technologies



	T&D Equipment	Smart Grid ICT
1	Mexico	Canada
2	Vietnam	Japan
3	India	United Kingdom
4	Nigeria	Australia
5	Saudi Arabia	France
6	Malaysia	China
7	Chile	Mexico
8	Indonesia	New Zealand
9	Canada	Spain
10	Philippines	Netherlands
11	Turkey	Germany
12	Korea	Turkey
13	China	Korea
14	Singapore	India



Industry & Analysis' (I&A) staff of industry, trade and economic analysts devise and implement international trade, investment, and export promotion strategies that strengthen the global competitiveness of U.S. industries.

These initiatives unlock export, and investment opportunities for U.S. businesses by combining in-depth quantitative and qualitative analysis with ITA's industry relationships. For more information, visit [***www.trade.gov/industry***](http://www.trade.gov/industry).

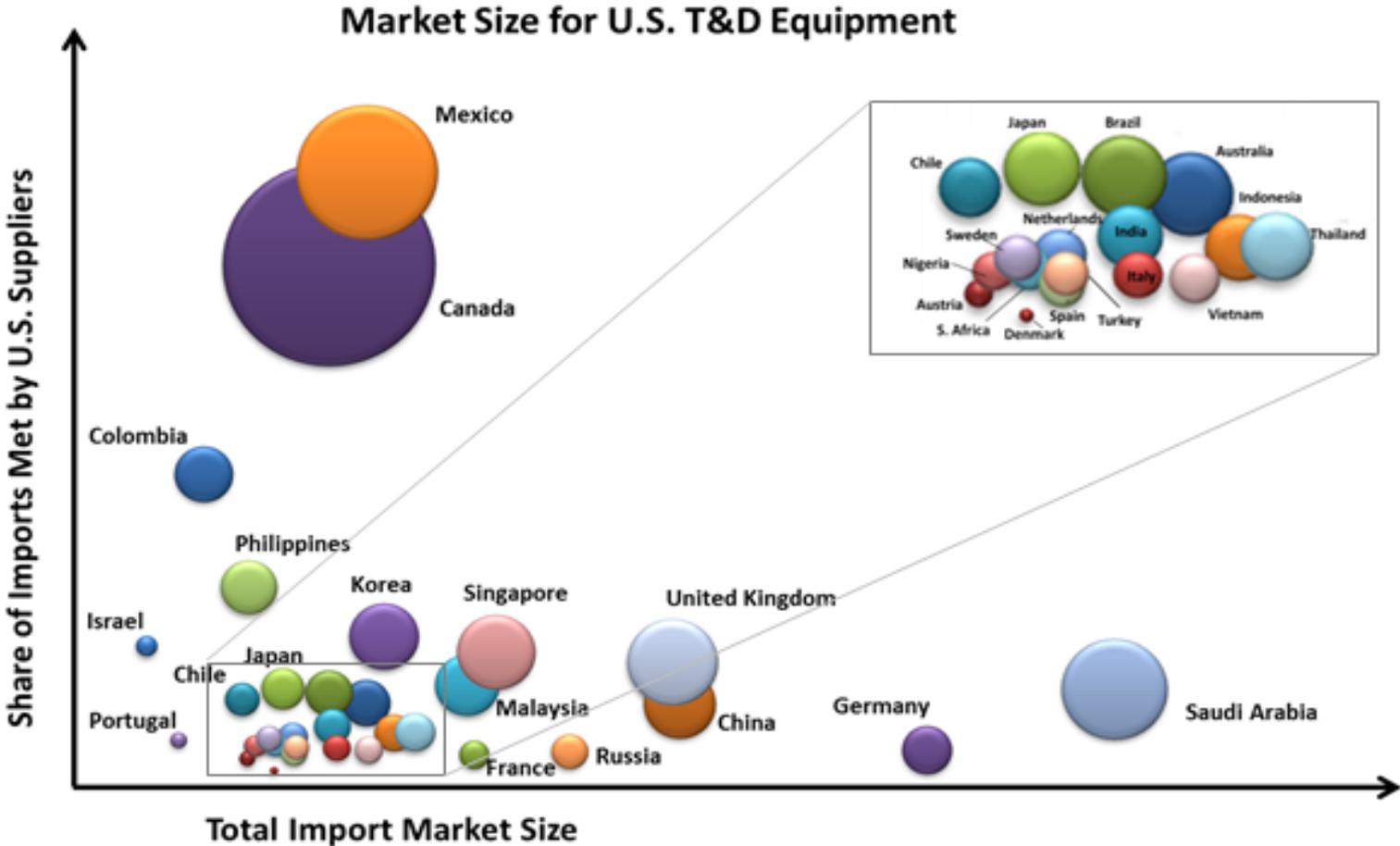
I&A is part of the **International Trade Administration**, whose mission is to create prosperity by strengthening the competitiveness of U.S. industry, promoting trade and investment, and ensuring fair trade and compliance with trade laws and agreements.

Economic & Energy Sector Investment

Indicator: BMI Power Sector Risk/Reward Index



T&D Equipment Market Mapping



Smart Grid Top 2016 Market Report

Overall Ranking year-on-year comparison

Ranking	2015	2016	Change
1	Canada	Canada	---
2	Japan	Mexico	+9
3	Saudi Arabia	Japan	-1
4	Australia	Saudi Arabia	-1
5	UK	Australia	-1
6	Singapore	UK	-1
7	China	China	---
8	Chile	India	+13
9	Philippines	Vietnam	+1
10	Vietnam	France	+3
11	Mexico	Chile	-3
12	Turkey	Turkey	---
13	France	Korea	+4
14	Malaysia	Malaysia	---
15	Netherlands	Spain	+16
16	Germany	Netherlands	-1
17	Korea	Philippines	-8
18	Austria	Germany	-2
19	Brazil	New Zealand	New in 2016
20	Colombia	Singapore	-14
21	India	Nigeria	+1
22	Nigeria	Austria	-4
23	Denmark	Israel	New in 2016
24	Sweden	Denmark	-1
25	Indonesia	Sweden	-1
26	Thailand	Indonesia	-1
27	Portugal	Italy	+3
28	Poland	Thailand	-2
29	South Africa	South Africa	---
30	Italy	Colombia	-10
31	Spain	Poland	-3
32	Russia	Brazil	-13
33	Israel (unranked)	Portugal	-6
34	New Zealand (unranked)	Russia	-2

Smart Grid Top 2016 Market Report

T&D Sub-Sector Rankings year-on-year comparison

Ranking	2015	2016	Change
1	Saudi Arabia	Mexico	+11
2	Canada	Vietnam	+5
3	Colombia	India	+15
4	China	Nigeria	+4
5	Singapore	Saudi Arabia	-4
6	Chile	Malaysia	+3
7	Vietnam	Chile	-1
8	Nigeria	Indonesia	+3
9	Malaysia	Canada	-7
10	Japan	Philippines	+5
11	Indonesia	Turkey	+2
12	Mexico	Korea	+5
13	Turkey	China	-9
14	Australia	Singapore	-9
15	Philippines	Australia	-1
16	Brazil	Colombia	-13
17	Korea	Thailand	+2
18	India	Israel	New in 2016
19	Thailand	Poland	+4
20	Germany	U.K.	+5
21	Netherlands	Netherlands	---
22	Austria	Spain	+10
23	Poland	Japan	-13
24	Sweden	France	+2
25	U.K.	Austria	-3
26	France	Germany	-6
27	South Africa	South Africa	---
28	Denmark	Denmark	---
29	Portugal	Portugal	---
30	Italy	Sweden	-6
31	Russia	Italy	-1
32	Spain	New Zealand	New in 2016
33	Israel (unranked)	Brazil	-17
34	New Zealand (unranked)	Russia	-3

Smart Grid Top 2016 Market Report

Smart Grid ICT Sub- Sector Rankings year-on-year comparison

Ranking	2015	2016	Change
1	Canada	Canada	---
2	U.K.	Japan	+1
3	Japan	U.K.	-1
4	France	Australia	+1
5	Australia	France	-1
6	Saudi Arabia	China	+11
7	Philippines	Mexico	+4
8	Netherlands	New Zealand	New in 2016
9	Denmark	Spain	+17
10	Turkey	Saudi Arabia	-4
11	Mexico	Netherlands	-3
12	Germany	Germany	---
13	Austria	Turkey	-3
14	Singapore	Korea	+5
15	Chile	India	+6
16	Sweden	Sweden	---
17	China	Denmark	-8
18	Vietnam	Chile	-3
19	Korea	Austria	-6
20	Malaysia	Italy	+8
21	India	Malaysia	-1
22	Brazil	Vietnam	-4
23	Portugal	Singapore	-9
24	South Africa	Philippines	-17
25	Nigeria	Israel	New in 2016
26	Spain	Brazil	-4
27	Poland	South Africa	-3
28	Italy	Thailand	+2
29	Colombia	Poland	-2
30	Thailand	Nigeria	-5
31	Russia	Colombia	-2
32	Indonesia	Indonesia	---
33	Israel (unranked)	Portugal	-10
34	New Zealand (unranked)	Russia	-3