

Evaluating National Energy Efficiency Policies Adoption and Outcomes

ACEEE's 2018 International Energy Efficiency Scorecard

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The American Council for an Energy-Efficient Economy is a nonprofit 501(c)(3) founded in 1980. We act as a catalyst to advance energy efficiency policies, programs, technologies, investments, & behaviors.

Our research explores economic impacts, financing options, behavior changes, program design, and utility planning, as well as US national, state, & local policy.

Our work is made possible by foundation funding, contracts, government grants, and conference revenue.

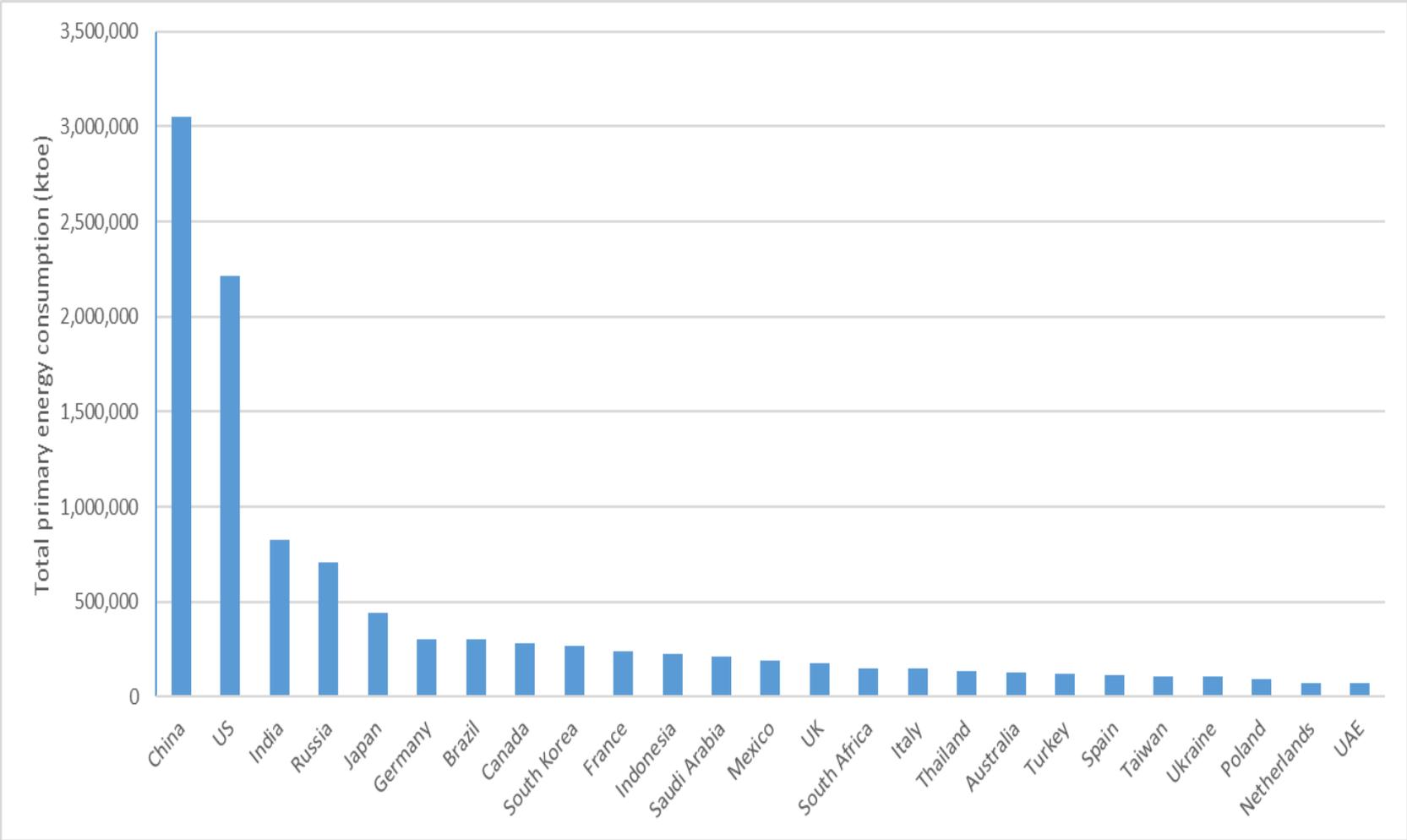
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American Council for an Energy-Efficient Economy

Goals of International Scorecard

- Present a **basic comparison** of energy use and efficiency policy efforts in the top energy-consuming countries
- Identify **best practices** and policies that countries can implement to take advantage of untapped efficiency potential.
- Encourage countries to collect **data** on energy efficiency

Top Energy-Consuming Countries in the World



Source: IEA

Methodology

| Type of metric | Metric | 2018 points |
|-------------------------|--|-------------|
| National efforts | | |
| Performance | Change in energy intensity between 2010 and 2015 | 6 |
| Policy | Spending on energy efficiency | 5 |
| Policy | Energy savings goals | 3 |
| Performance | Efficiency of thermal power plants | 3 |
| Policy | Tax credits and loan programs | 2 |
| Policy | Spending on energy efficiency research and development | 2 |
| Performance | Size of the energy service companies (ESCOs) market | 2 |
| Policy | Water efficiency policy | 1 |
| Policy | Data availability | 1 |

| Type of metric | Metric | 2018 points |
|------------------|---|-------------|
| Buildings | | |
| Policy | Appliance and equipment standards | 5 |
| Policy | Residential building codes | 3 |
| Policy | Commercial building codes | 3 |
| Policy | Building retrofit policies | 4 |
| Policy | Building rating and disclosure | 2 |
| Policy | Appliance and equipment labeling | 2 |
| Performance | Energy intensity in residential buildings | 3 |
| Performance | Energy intensity in commercial buildings | 3 |

- Prioritize policy metrics that have significant efficiency potential and are achievable in our evaluated economies
- Individualized scoring system based on best practices, expert opinion, or natural cut points in the data

Methodology

| Type of metric | Metric | 2018 points |
|-----------------|--|-------------|
| Industry | | |
| Performance | Energy intensity of the industrial sector | 6 |
| Policy | Voluntary energy performance agreements with manufacturers | 3 |
| Policy | Policy to encourage energy management | 2 |
| Policy | Minimum efficiency standards for electric motors | 2 |
| Policy | Mandate for plant energy managers | 2 |
| Policy | Mandatory energy audits | 2 |
| Policy | Investment in manufacturing research and development (R&D) | 2 |
| Performance | Share of combined heat and power (CHP) in total installed capacity | 2 |
| Policy | Policy to encourage CHP | 2 |
| Performance | Agriculture energy intensity | 2 |

| Type of metric | Metric | 2018 points |
|-----------------------|--|-------------|
| Transportation | | |
| Policy | Fuel economy standards for light-duty vehicles | 4 |
| Performance | Fuel economy of light-duty vehicles | 3 |
| Policy | Fuel economy standards for heavy-duty tractor trucks | 3 |
| Performance | Vehicle miles traveled per capita | 3 |
| Performance | Freight transport per unit of economic activity | 2 |
| Performance | Energy intensity of freight transport | 3 |
| Performance | Use of public transit | 3 |
| Policy | Investment in rail transit versus roads | 3 |
| Policy | Smart freight initiatives* | 1 |

- At least one country earns the maximum number of available points in each metric
- 59/41 split between policy and performance metrics
- **Max. possible score = 100**

Limitations

- **Non-EE impacts on energy use**
 - Physical factors e.g. climate
 - Economic conditions
 - Demographics
 - We adjust for some of these
- **Accessible and available data**
 - Not all countries track EE data
 - Lack of consistency in approaches
- **Multiple approaches to evaluating EE progress**
- **Subnational policies and impact**

Other Scoring Efforts

- **Regulatory Indicators for Sustainable Energy (RISE)**

- Policy-only evaluation
- Energy efficiency is one of 3 energy pillars



- **Global Tracking Framework**

- Tracks performance with regards to broader Sustainable Development goals
- Complement to RISE
- EE is one component of broader effort

- **ODYSSEY-MURE Energy Efficiency Scoreboard**

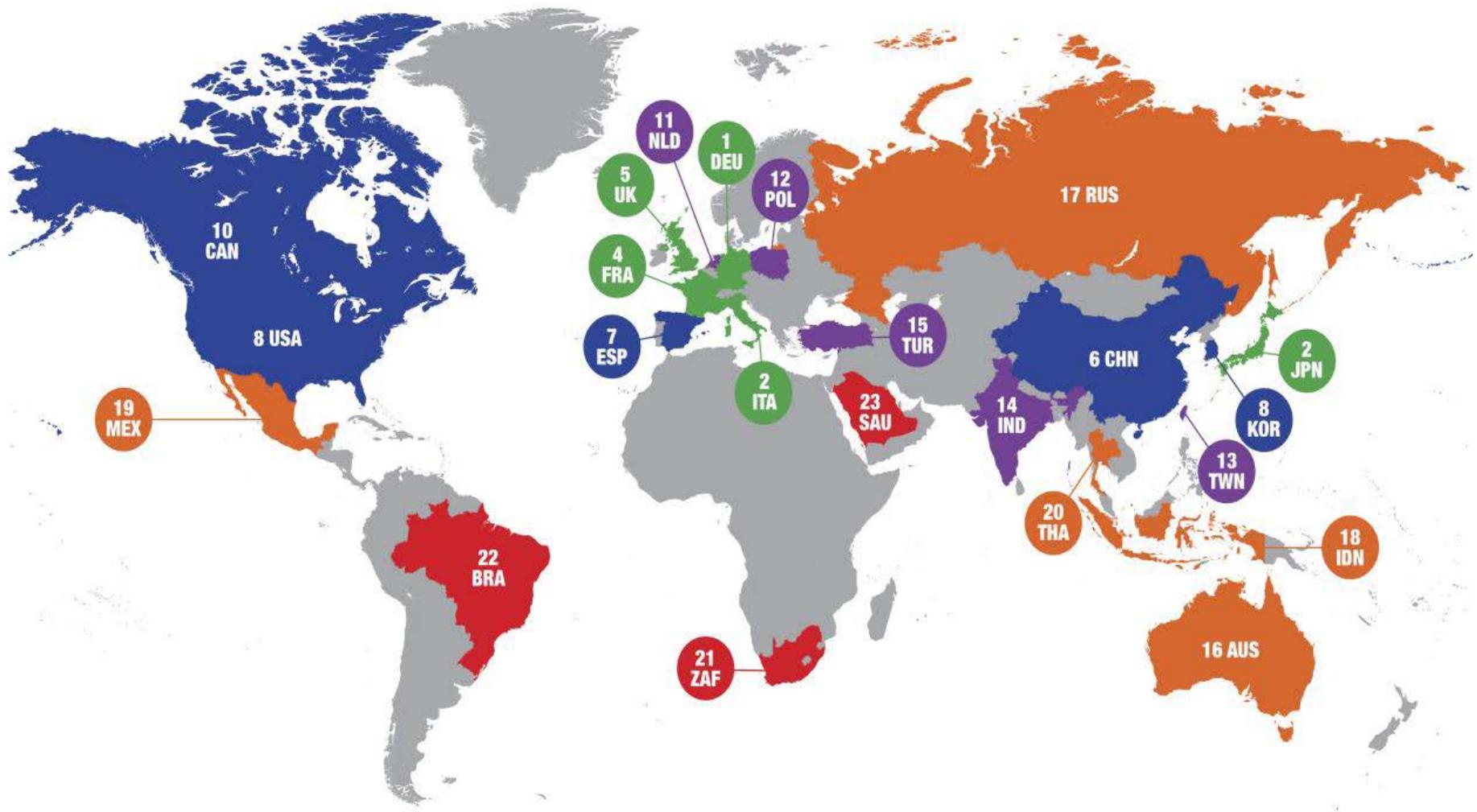
- EU-focused
- Covers similar sectors as ACEEE International Energy Efficiency Scorecard
- Relies on detailed annual energy efficiency reports each country submits to the European Union

ODYSSEE-MURE

2018 Results



2016 Results



<http://aceee.org/portal/national-policy/international-scorecard>

General Trends

- Germany is still among the top 5 countries
- Competition from EU counterparts – Top 5 scores are very close
- Most improved countries: Mexico and Taiwan
- US already seeing some impact from pulling out of Paris Agreement and other policy changes
- Scores:
 - **Score range: 16.5 points to 75.5 points**
 - **Marginal improvement in average score overall**
 - **EU nations performed well on POLICY metrics**
 - **Results for PERFORMANCE metrics were more varied (more likely to be impacted by economic, geographic conditions)**

Areas of Success

- **National Efforts**

- **Germany as a best practice for national goal setting and strategy implementation – Energiewende**
- **NAPE outlines ambitious energy reduction targets**
 - 20% reduction target in primary energy consumption by 2020 and 50% by 2050, relative to 2008

- **Industry**

- **Leader in industrial EE**
- **Voluntary agreement between German industry and the federal government to reduce CO₂ emissions since 1995**
- **Largest number of facilities certified to ISO 50001**
- **Wide reaching financial incentives**

Opportunities for Improvement

- **Transportation**

- Lowest scores for Germany in this section
- Opportunities particularly in the passenger and freight system efficiency areas
- Most performance metric-heavy section of the scorecard
- Many transportation policies are city/regional jurisdiction

- **Buildings**

- Opportunity to strengthen an already strong program
- Possible addition of compliance deadlines for building retrofits

Conclusion

- Still plenty of room for improvements in EE for all the countries in the 2018 rankings
- EE will be needed to meet ambitious climate goals
- Will be interesting to see how things will change as Paris Agreement changes come into play
- More-developed countries – Lead by example
- Developing countries – build EE into continued economic growth

Questions?

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Slides at [slideshare.net/firstlastnames/cool-presentation-i-did](https://www.slideshare.net/firstlastnames/cool-presentation-i-did)

Upcoming ACEEE Conferences

| | | |
|---|-------------|---------------|
| Hot Water Forum | February 26 | Portland, OR |
| National Symposium on Market Transformation | April 2 | Arlington, VA |
| Energy Efficiency Finance Forum | May 21 | Chicago |

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