

RENEWABLE ENERGY COUNTRY PROFILES

ASIA



January 2013 edition

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IRENA [Renewable Energy Country Profiles](#) take stock of the latest developments in the field of renewables at country level around the world. Each profile combines analysis by IRENA's specialists with the latest available country data and additional information from a wide array of sources. The resulting reports provide a brief yet comprehensive picture of the situation with regard to renewable energy, including energy supply, electrical generation and grid capacity, and access. Energy policies, targets and projects are also considered, along with each country's investment climate and endowment with renewable energy resources.

The energy statistics presented here span the period from 2009 until 2012, reflecting varying timelines in the source material. Since data availability differs from country to country, wider regional comparisons are possible only for the latest year with figures available for every country included. Despite the time lag in some cases, the evident differences and disparities between countries and regions around the world remain striking.

The current package of country profiles is just a starting point. The geographic scope will continue to expand, and existing profiles will be enhanced with new indicators, with the whole series maintained as a live product on the IRENA website (www.irena.org). Your feedback on both the format and the content of these country profiles would be greatly appreciated. Please address any comments to statistics@irena.org.

AFGHANISTAN

34.4 million Population (2010)

17.2 billion USD GDP (2010)

501 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

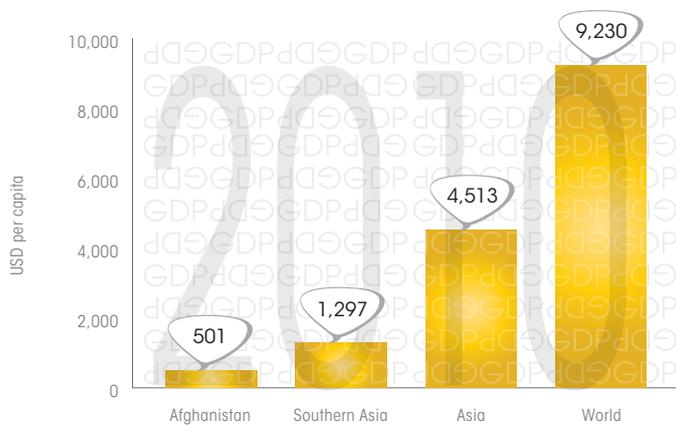
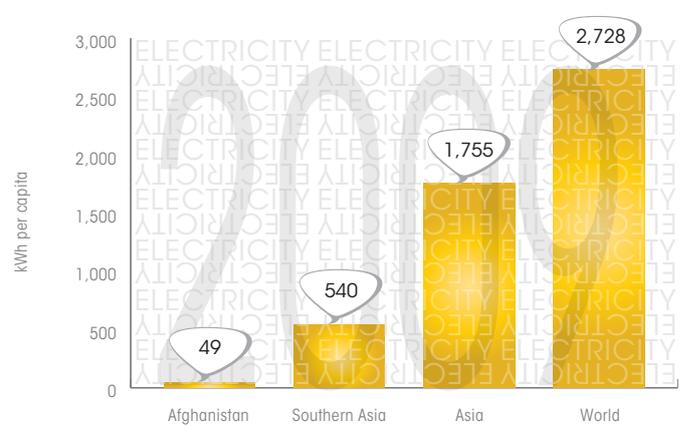


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Southern Asia includes Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

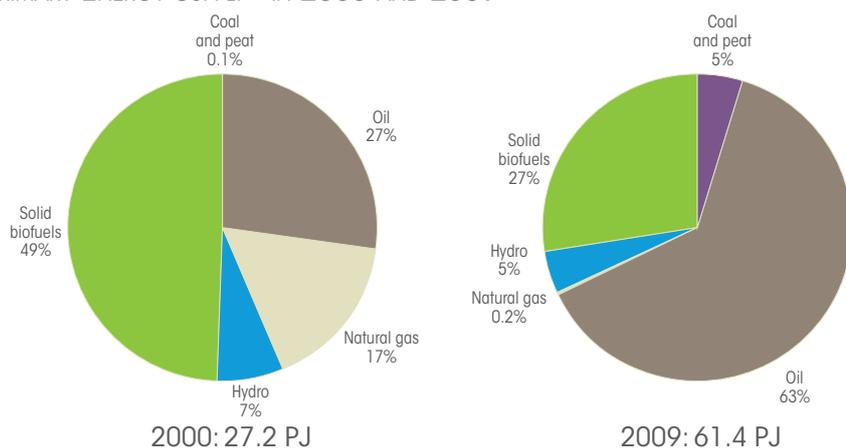
- Total Primary Energy Supply: 64.8 PJ - Of which renewables: 19.6 PJ (30.2%)
- Energy self-sufficiency: 34.9%
- Fuel imports*: 37 million USD (0.8% of total imports)
- Electricity generation: 938.0 GWh - Of which renewables: 775.0 GWh (82.6%)
- Electricity use per capita: 49 kWh
- Electrical capacity: 489 MW - Of which renewables: 374 MW (76.5%)
- Electricity access rate: 15.6%
- Share of population using solid fuels*: 85%

* 2010

TARGETS:

- No information available

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 160 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 42 MW of small hydro capacity addition announced (1 project)
- 1 MW of solar photovoltaic capacity addition announced (1 project)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ✕

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

BANGLADESH

148.7 million Population (2010)

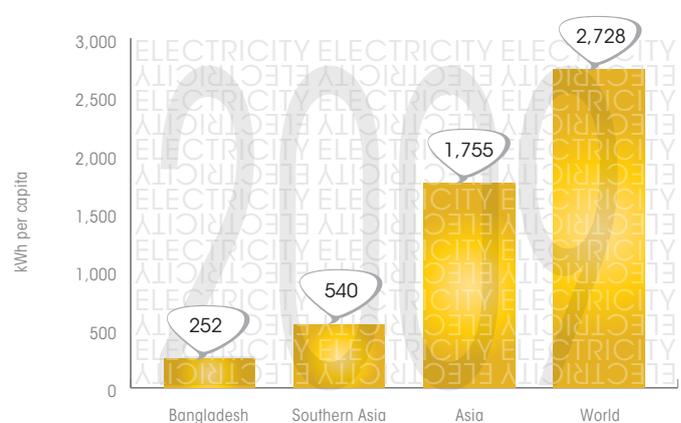
100.4 billion USD GDP (2010)

675 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010



FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Southern Asia includes Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

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ENERGY NATIONAL PROFILE 2009

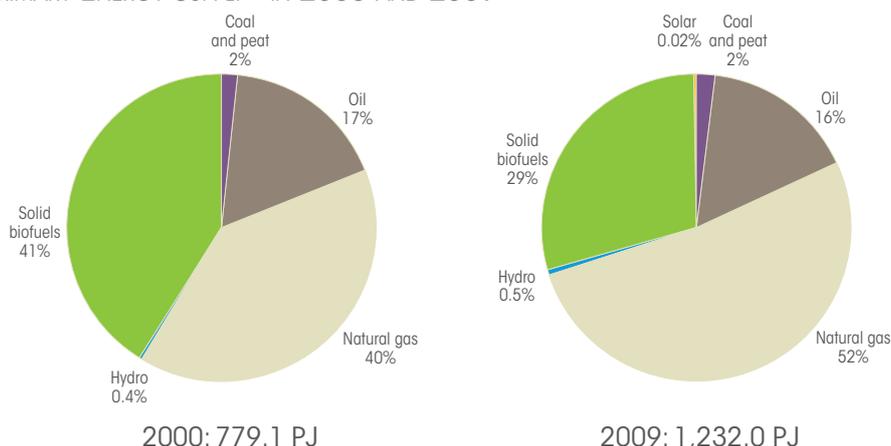
- Total Primary Energy Supply: 1,231.8 PJ - Of which renewables: 367.0 PJ (29.8%)
- Energy self-sufficiency: 83.6%
- Fuel imports*: 2.1 billion USD (7.5% of total imports)
- Electricity generation: 37.9 TWh - Of which renewables: 1,552 GWh (4.1%)
- Electricity use per capita: 252 kWh
- Electrical capacity: 5.8 GW - Of which renewables: 246 MW (4.2%)
- Electricity access rate: 41.0%
- Share of population using solid fuels*: 91%

* 2010

TARGETS:

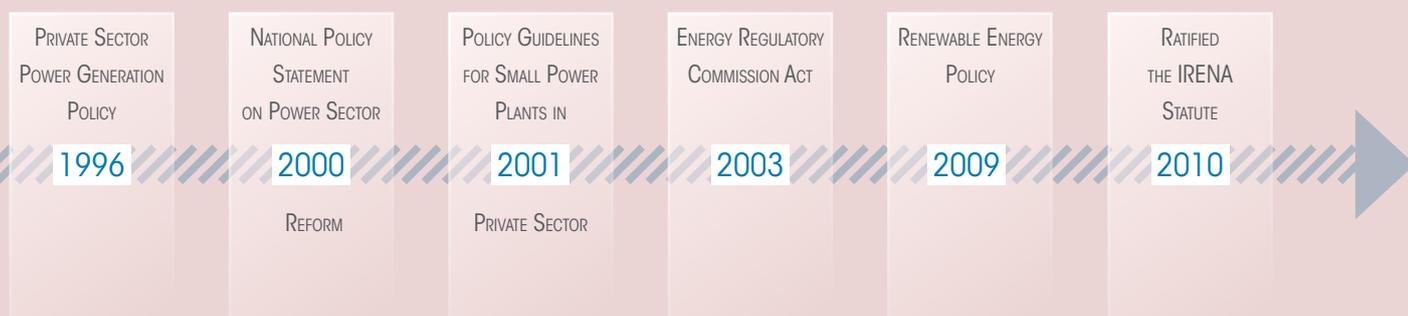
- 5% of electricity generation from renewables by 2015
- 10% of electricity generation from renewables by 2020
- 500 MW of solar capacity by 2015
- 6 MW of biomass-fired capacity by 2014 (2 MW solid, 4 MW biogas)

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 122 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 3 MW of biomass-fired capacity addition announced (1 project)
- 2.5 MW of solar photovoltaic capacity addition announced (2 projects)
- 210 MW of wind capacity addition announced (2 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 1

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ✕ Not applicable



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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

BHUTAN

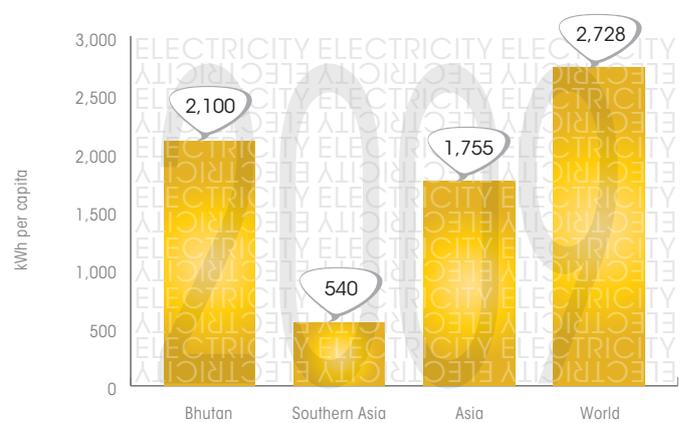


726,000 Population (2010)
1.5 billion USD GDP (2010)
2,088 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010



FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Southern Asia includes Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.
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ENERGY NATIONAL PROFILE 2009

- Total Primary Energy Supply: 60.8 PJ - Of which renewables: 75.4 PJ (124.1%)*
- Energy self-sufficiency: 126.1%
- Fuel imports** : 100 million USD (13.1% of total imports)
- Electricity generation: 7.0 TWh - Of which renewables: 7.0 TWh (100.0%)
- Electricity use per capita: 2,100 kWh
- Electrical capacity: 1,505.3 MW - Of which renewables: 1,488.34 MW (98.9%)
- Electricity access rate: 60.0%
- Share of population using solid fuels** : 40%

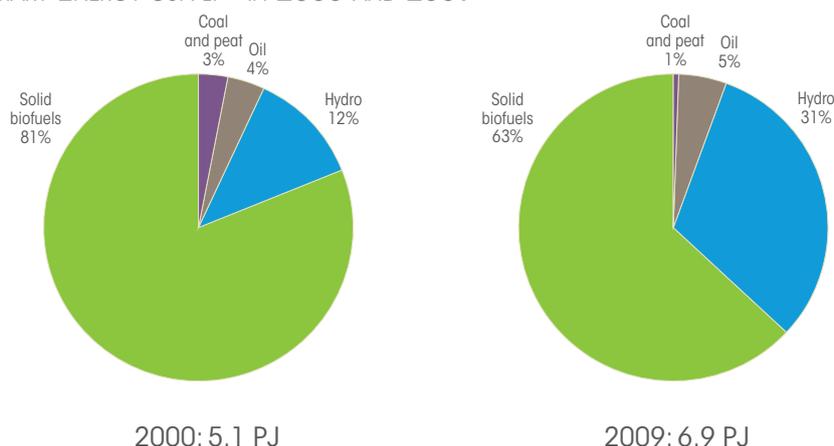
* This share includes the electricity produced from hydro that is exported.

** 2010

TARGETS:

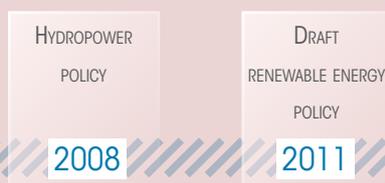
- No information available

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 142 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- No information available

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 2

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ✕

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

BRUNEI DARUSSALAM

399,000 Population (2010)

12.4 billion USD GDP (2010)

31,008 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

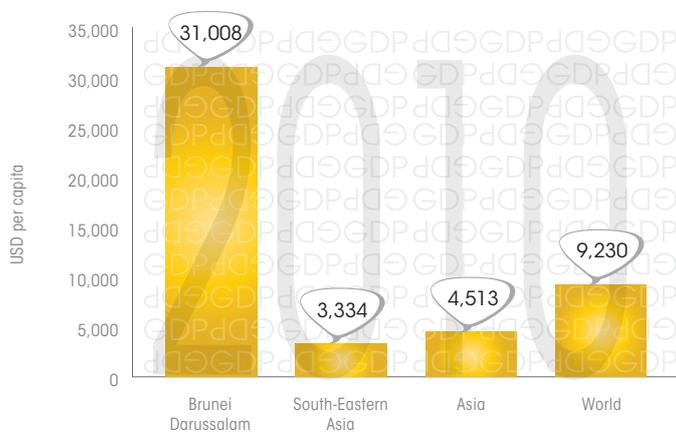
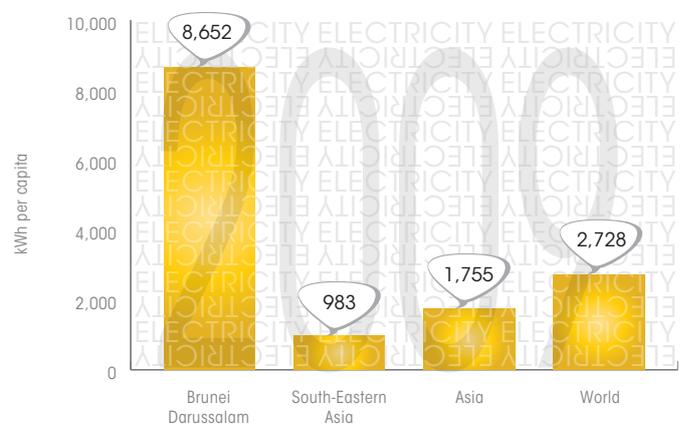


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

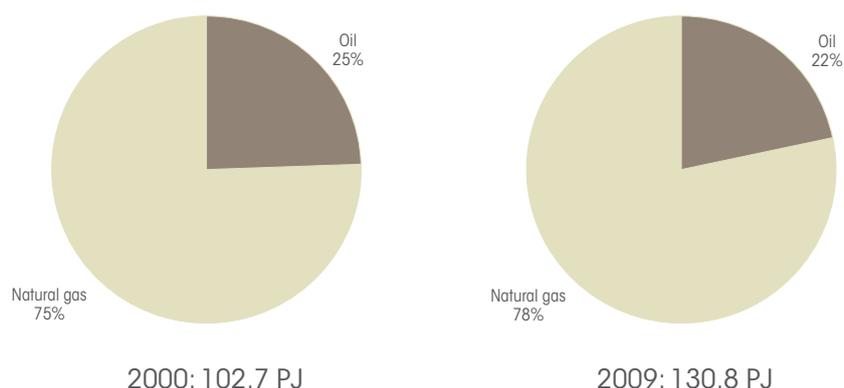
- Total Primary Energy Supply: 130.8 PJ - Of which renewables: 0.0 PJ (0.0%)
- Energy self-sufficiency: 606.4%
- Fuel imports*: Not available
- Electricity generation: 3,612 GWh - Of which renewables: 0.0 GWh (0.0%)
- Electricity use per capita: 8,652 kWh
- Electrical capacity: 759 MW - Of which renewables: 0 MW (0.0%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 10% of electricity generation from renewables by 2035

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 83 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 1.2 MW Tenaga Suria Brunei photovoltaic demonstration project (1 project)
- 5 kW solar photovoltaic roof off-grid system (1 project)
- 29.9 kW solar photovoltaic roof grid-connected pilot projects (7 projects)
- 3.23 kW solar photovoltaic systems at off-shore oil/gas platforms (20 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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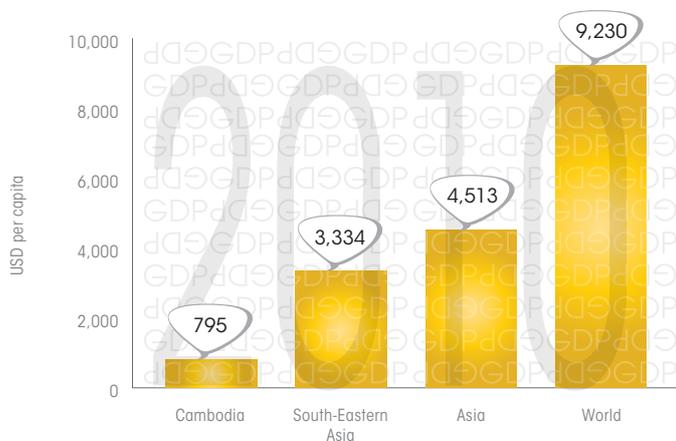
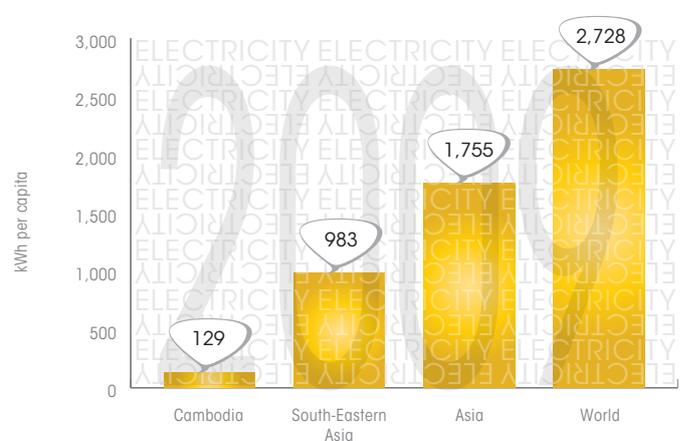
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

CAMBODIA

14.1 million Population (2010)

11.2 billion USD GDP (2010)

795 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009


South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

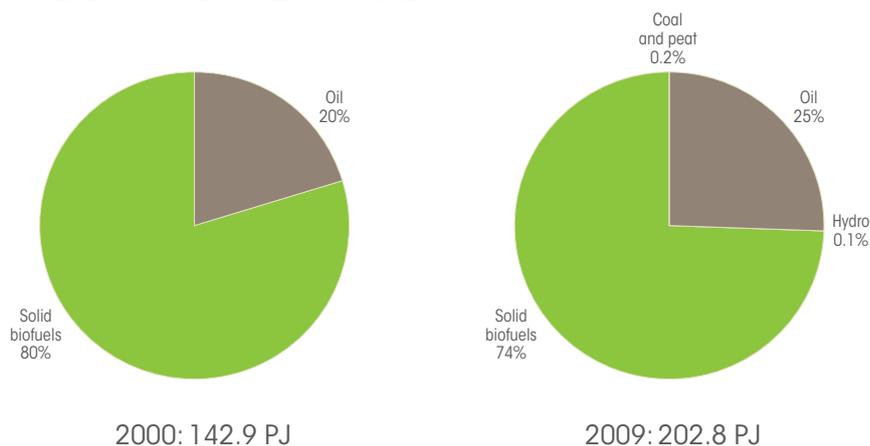
- Total Primary Energy Supply: 205.5 PJ - Of which renewables: 150.8 PJ (73.4%)
- Energy self-sufficiency: 73.4%
- Fuel imports*: 346 million USD (4.6% of total imports)
- Electricity generation: 1,256 GWh - Of which renewables: 58.0 GWh (4.6%)
- Electricity use per capita: 129 kWh
- Electrical capacity: 391 MW - Of which renewables: 19 MW (4.9%)
- Electricity access rate: 24.0%
- Share of population using solid fuels*: 89%

* 2010

TARGETS:

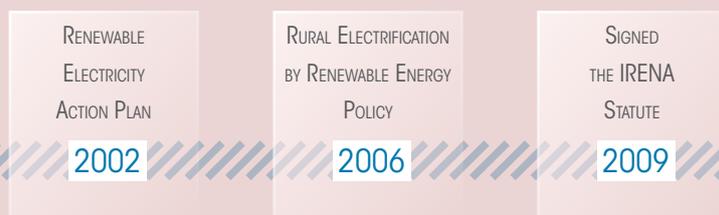
- 15% of rural electricity supply from renewables by 2015

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 138 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 1.7 MW of biomass-fired capacity addition announced (2 projects)
- 10 MW of small hydro capacity addition announced (1 project)
- 500 MW of solar photovoltaic capacity addition announced (feasibility study)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 1

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

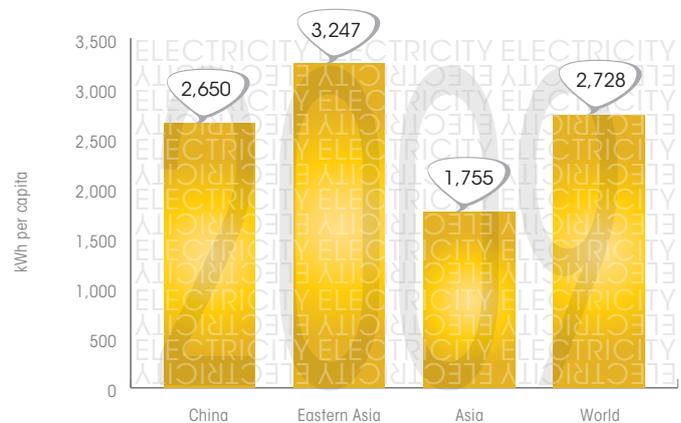
CHINA

1,345.4 million Population (2010)
6,155.0 billion USD GDP (2010)
4,575 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010



FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Eastern Asia includes China, Japan, the Democratic People's Republic of Korea, the Republic of Korea and Mongolia.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

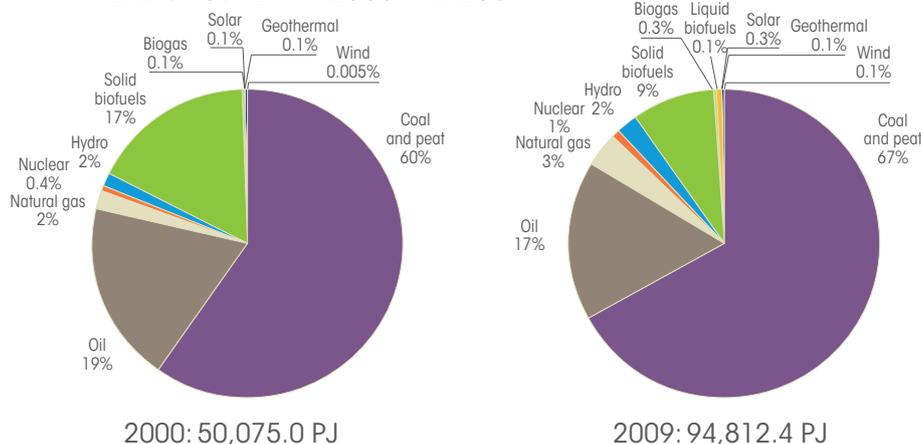
- Total Primary Energy Supply: 94,799.8 PJ - Of which renewables: 11,282.7 PJ (11.9%)
- Energy self-sufficiency: 90.9%
- Fuel imports*: 203.8 billion USD (11.1% of total imports)
- Electricity generation: 3,780.8 TWh - Of which renewables: 645.4 TWh (17.1%)
- Electricity use per capita: 2,650 kWh
- Electrical capacity: 890.3 GW - Of which renewables: 216.6 GW (24.3%)
- Electricity access rate: 99.4%
- Share of population using solid fuels*: 46%

* 2010

TARGETS:

- 15% of primary energy from renewables by 2020
- Start construction of additional 120 GW of hydro by 2015
- 100 GW of wind capacity by 2015
- 15 GW of solar capacity by 2015

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 91 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS (CAPACITY ADDITIONS):

- Biodiesel: 119 million litres per year by mid 2013 (1 project); 1,500 million litres announced (11 projects)
- Bioethanol: More than 2,500 million litres per year announced (13 projects)
- Biomass: 176 MW by end 2015 (6 projects); more than 6,500 MW announced
- Solar photovoltaic: 440 MW by end 2015 (8 projects); more than 24,000 MW announced
- Solar thermal: 50 MW announced by end 2015 (1 project); around 4,200 MW announced
- Wind: Around 8,300 MW by mid 2015; 21,000 MW announced
- Marine: More than 350 MW announced (6 projects)
- Small hydro: More than 12,000 MW announced

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 1,522

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

INDIA

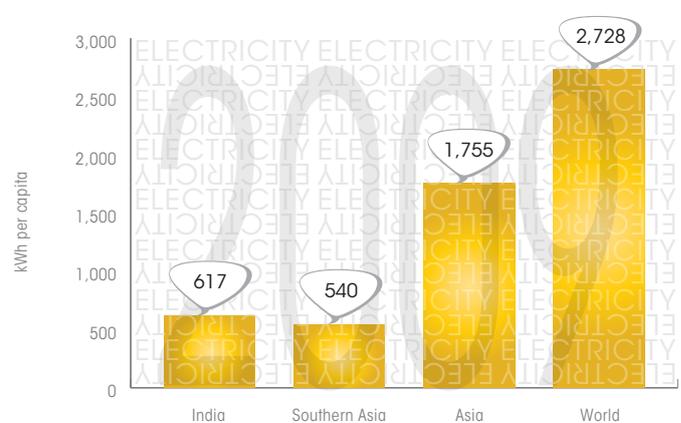


1,170.9 million Population (2010)
1,684.3 billion USD GDP (2010)
1,438 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010



FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



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Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

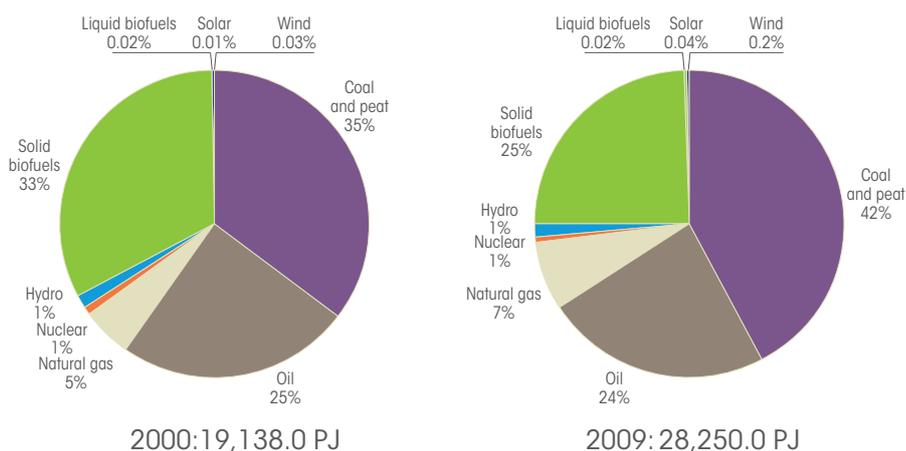
- Total Primary Energy Supply: 28,269.1 PJ - Of which renewables: 7,478.2 PJ (26.5%)
- Energy self-sufficiency: 74.9%
- Fuel imports*: 109.0 billion USD (33.3% of total imports)
- Electricity generation: 906.8 TWh - Of which renewables: 124.1 TWh (13.7%)
- Electricity use per capita: 617 kWh
- Electrical capacity: 189.3 GW - Of which renewables: 52.8 GW (27.9%)
- Electricity access rate: 66.3%
- Share of population using solid fuels*: 58%

* 2010

TARGETS:

- 56 GW renewable energy capacity by 2017
- 33 GW wind energy capacity by 2017
- 20 GW of grid-connected solar photovoltaic capacity by 2022
- 2 GW of off-grid solar photovoltaic capacity by 2022

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 132 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS (CAPACITY ADDITIONS):

- More than 2,900 MW of wind capacity addition by end 2013
- 1,000 MW of solar photovoltaic capacity addition by end 2013
- 300 MW of biomass-fired capacity addition by end 2013
- 300 MW of small hydro capacity addition by end 2013
- 200 MW of solar thermal capacity addition by 2013

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 657

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

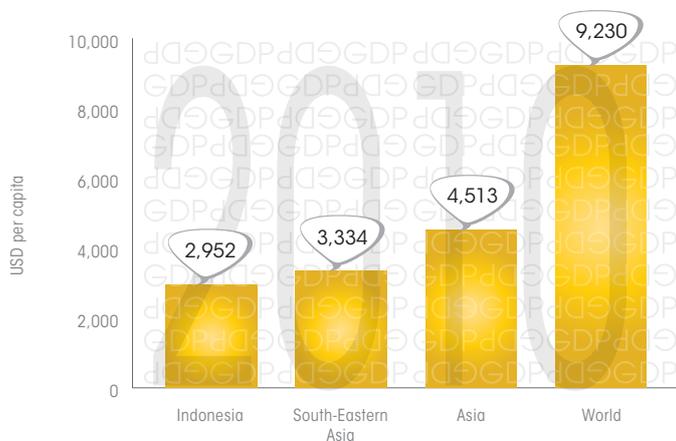
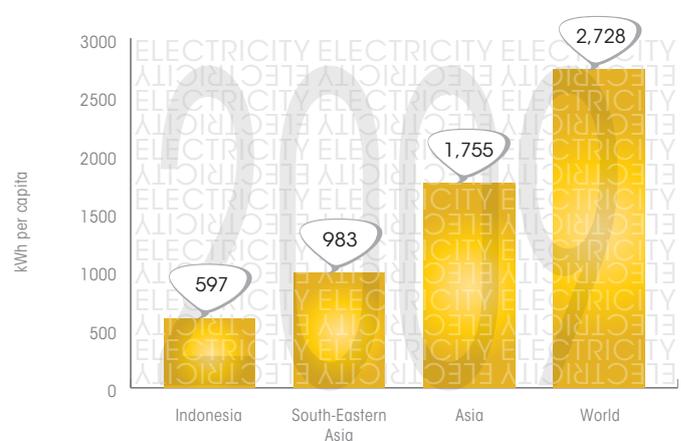
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

INDONESIA

239.9 million Population (2010)

708 billion USD GDP (2010)

2,952 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009


South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.
 Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

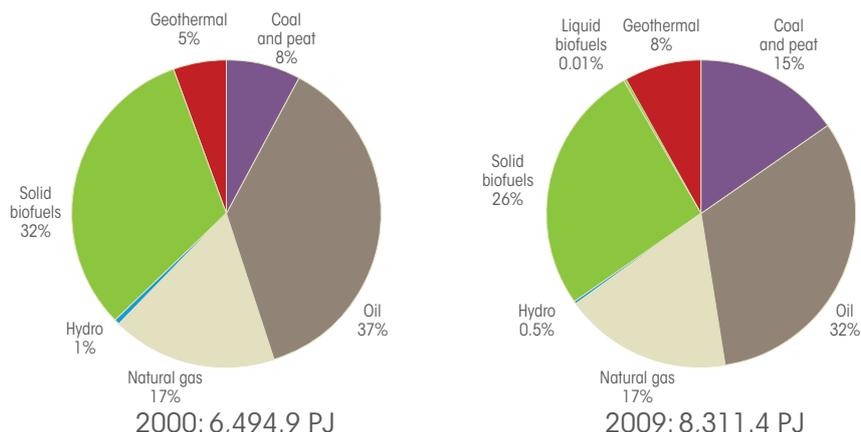
- Total Primary Energy Supply: 8,311.4 PJ - Of which renewables: 2,908.9 PJ (35.0%)
- Energy self-sufficiency: 177.2%
- Fuel imports*: 27.5 billion USD (20.9% of total imports)
- Electricity generation: 156.8 TWh - Of which renewables: 20.7 TWh (13.2%)
- Electricity use per capita: 597 kWh
- Electrical capacity: 32.8 GW - Of which renewables: 6.1 GW (18.5%)
- Electricity access rate: 64.5%
- Share of population using solid fuels*: 55%

* 2010

TARGETS:

- 17% of primary energy from renewables by 2025
- 2,000 MW of solar photovoltaic capacity and 300 MW of wind capacity by 2014
- 400 MW of biomass-fired capacity and 1,300 MW of hydro capacity by 2015
- 9.5 GW of renewable capacity by 2025
- 5% blend of biodiesel and bioethanol by 2015

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 129 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS (CAPACITY ADDITIONS):

- Geothermal: 750 MW by end 2016 (6 projects); more than 2,100 MW announced
- Small hydro: Around 50 MW by end 2014 (2 projects); 85 MW announced
- Biomass: More than 200 MW announced (19 projects)
- Biodiesel: 560 million litres per year announced (4 projects)
- Bioethanol: 130 million litres per year capacity addition announced (1 project)
- Solar photovoltaic: 150 MW announced (2 projects)
- Wind: 80 MW announced (2 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 23

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

JAPAN

127.5 million Population (2010)
5,488.4 billion USD GDP (2010)
43,063 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

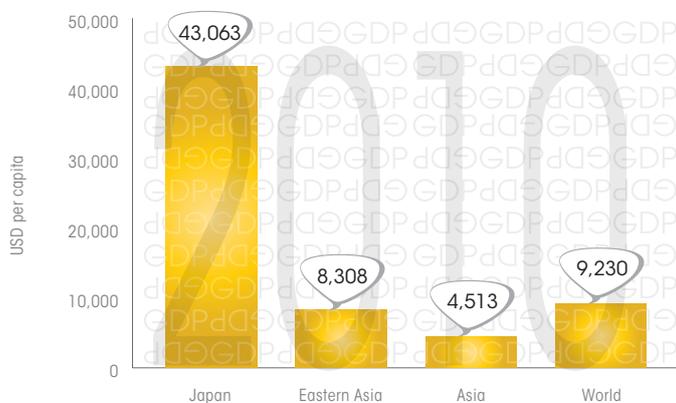
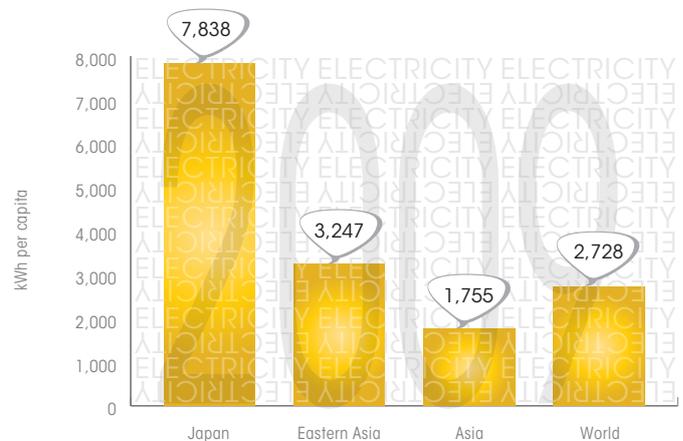


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Eastern Asia includes China, Japan, the Democratic People's Republic of Korea, the Republic of Korea and Mongolia.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

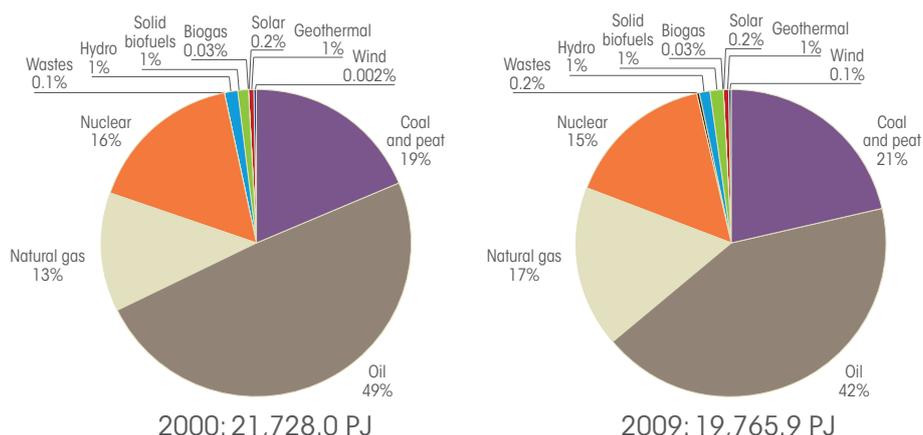
- Total Primary Energy Supply: 19,765.9 PJ - Of which renewables: 665.6 PJ (3.4%)
- Energy self-sufficiency: 19.9%
- Fuel imports*: 198.6 billion USD (28.6% of total imports)
- Electricity generation: 1,050.3 TWh - Of which renewables: 103.6 TWh (9.9%)
- Electricity use per capita: 7,838 kWh
- Electrical capacity: 284.5 GW - Of which renewables: 28.4 GW (10.0%)
- Electricity access rate: 100.0%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 16 TWh of electricity generation from renewables excluding large hydro by 2014
- 10% of primary energy supply from renewables by 2020 (target under review)

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2008



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 20 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 115 MW of biomass-fired capacity addition by 2015 (4 projects); 22 MW announced
- 750 MW of solar photovoltaic capacity addition by 2016 (83 projects); 1,100 MW announced
- 700 MW of wind capacity addition by end 2017 (26 projects); 1,200 MW announced

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

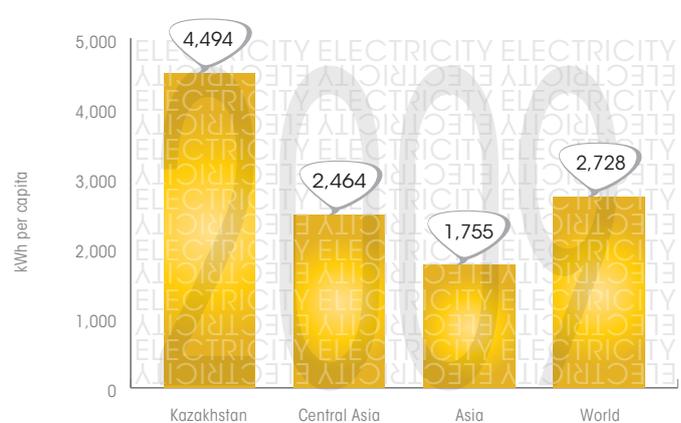
KAZAKHSTAN

16.3 million Population (2010)
148.0 billion USD GDP (2010)
9,074 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010



FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Central Asia includes Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

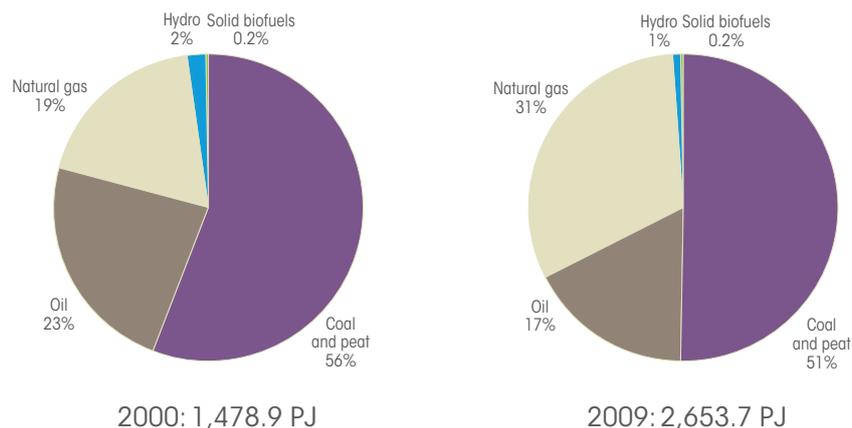
- Total Primary Energy Supply: 2,651.3 PJ – Of which renewables: 27.6 PJ (1.0%)
- Energy self-sufficiency: 233.6%
- Fuel imports*: 4.4 billion USD (14.8% of total imports)
- Electricity generation: 78.7 TWh – Of which renewables: 6.9 TWh (8.7%)
- Electricity use per capita: 4,494 kWh
- Electrical capacity: 18.7 GW – Of which renewables: 2,218 MW (11.8%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: 9%

* 2010

TARGETS:

- 1% of electricity generation from renewables by 2015
- 5% of total energy balance from renewables by 2024

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 47 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 600 MW of wind capacity addition announced (2 projects); 5 MW permitted
- 2 MW of solar photovoltaic capacity addition announced (1 project)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

24.3 million Population (2010)
Not available GDP (2010)
Not available GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

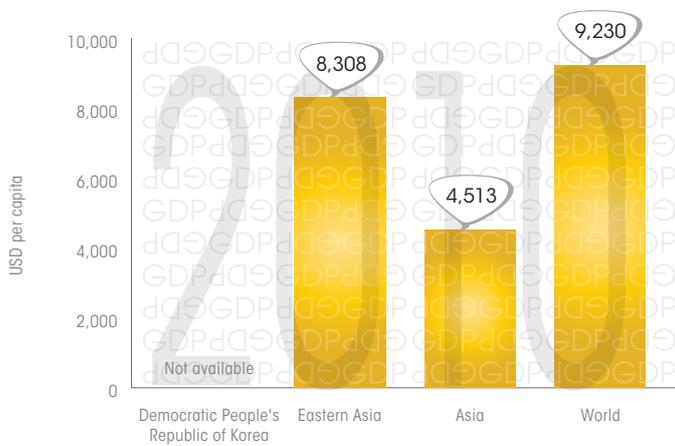
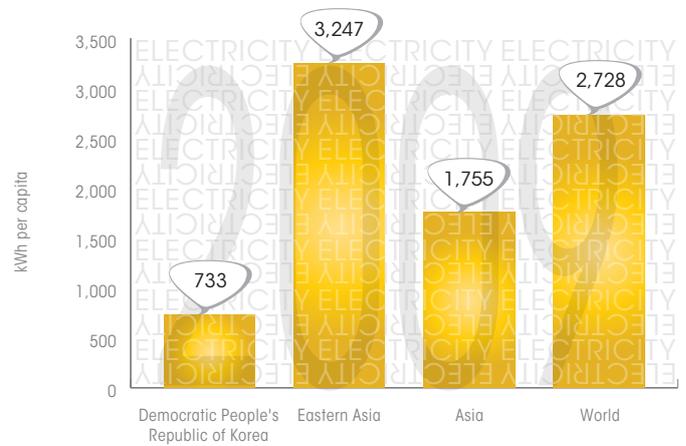


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Eastern Asia includes China, Japan, the Democratic People's Republic of Korea, the Republic of Korea and Mongolia. Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

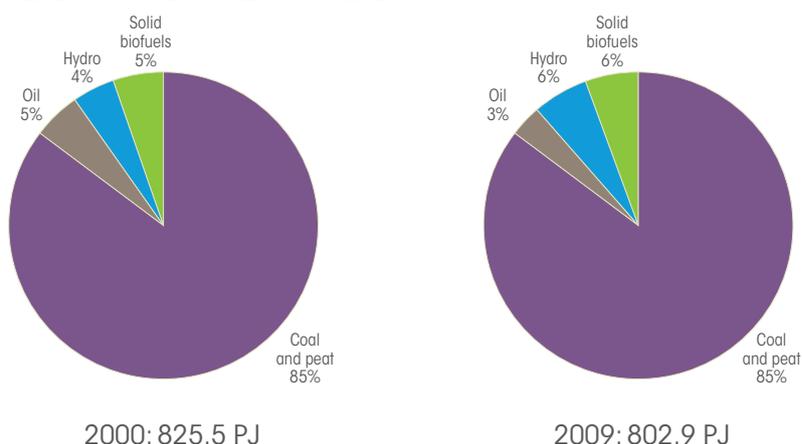
- Total Primary Energy Supply: 802.9 PJ - Of which renewables: 89.3 PJ (11.1%)
- Energy self-sufficiency: 105.8%
- Fuel imports*: Not available
- Electricity generation: 21.1 TWh - Of which renewables: 12.5 TWh (59.1%)
- Electricity use per capita: 733 kWh
- Electrical capacity: 9.5 GW - Of which renewables: 5.0 GW (52.6%)
- Electricity access rate: 26.0%
- Share of population using solid fuels*: 91%

* 2010

TARGETS:

- No information available

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Not ranked

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- No information available

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

REPUBLIC OF KOREA

48.9 million Population (2010)
1,014.9 billion USD GDP (2010)
20,765 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

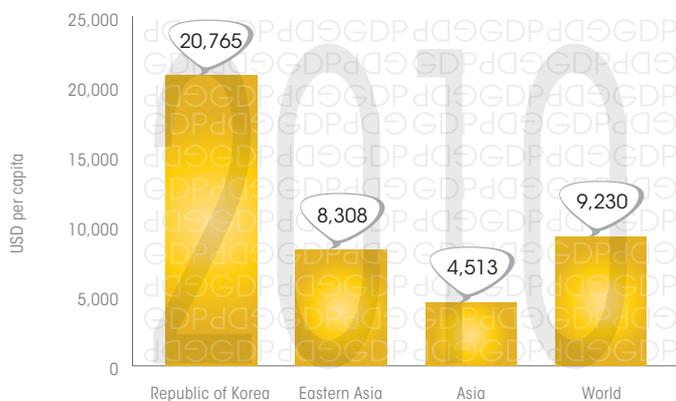
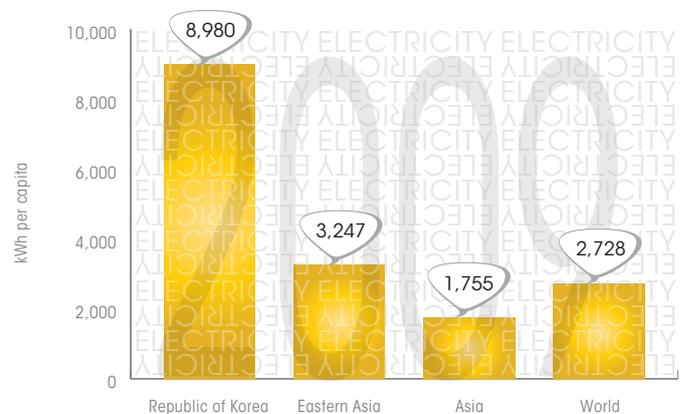


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Eastern Asia includes China, Japan, the Democratic People's Republic of Korea, the Republic of Korea and Mongolia.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

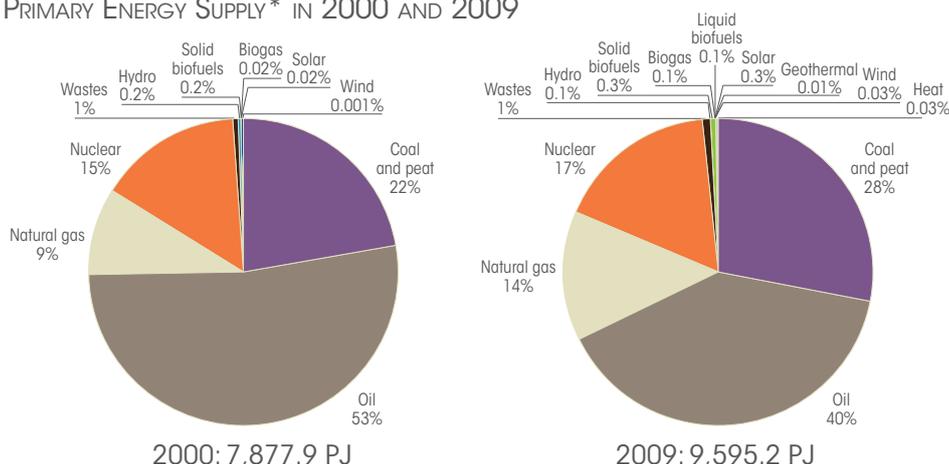
- Total Primary Energy Supply: 9,595.2 PJ - Of which renewables: 62.7 PJ (0.7%)
- Energy self-sufficiency: 19.3%
- Fuel imports*: 122.6 billion USD (28.8% of total imports)
- Electricity generation: 454.5 TWh - Of which renewables: 4,687 GWh (1.0%)
- Electricity use per capita: 8,980 kWh
- Electrical capacity: 80.6 GW - Of which renewables: 2,631 MW (3.3%)
- Electricity access rate: 100.0%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 6.1% of primary energy from renewables by 2020

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



2000: 7,877.9 PJ

2009: 9,595.2 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 8 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS (CAPACITY ADDITIONS):

- Biomass: 35 MW by mid 2013 (2 projects); 18 MW announced
- Tide: 820 MW by end 2015 (1 project); 2,730 MW announced
- Solar photovoltaic: 120 MW by early 2016 (2 projects); 171 MW announced
- Wind: 3,500 MW by end 2019 (12 projects); 970 MW announced
- Biodiesel: 129 million litres per year announced (1 project)
- Bioethanol: 125 million litres per year announced (1 project)
- Small hydro: 12 MW announced (6 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 69

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

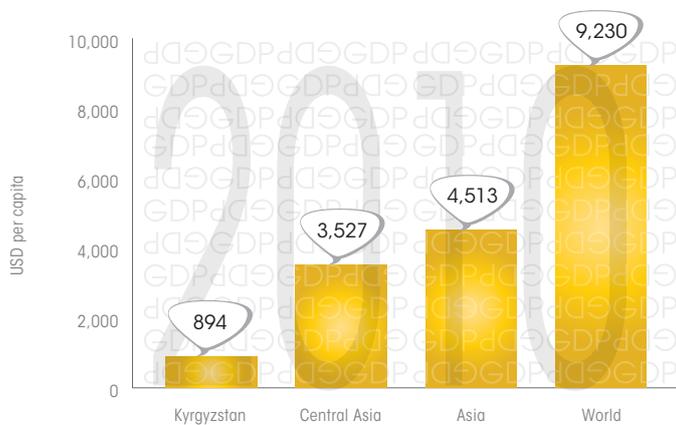
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

KYRGYZSTAN

5.4 million Population (2010)

4.8 billion USD GDP (2010)

894 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009


Central Asia includes Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

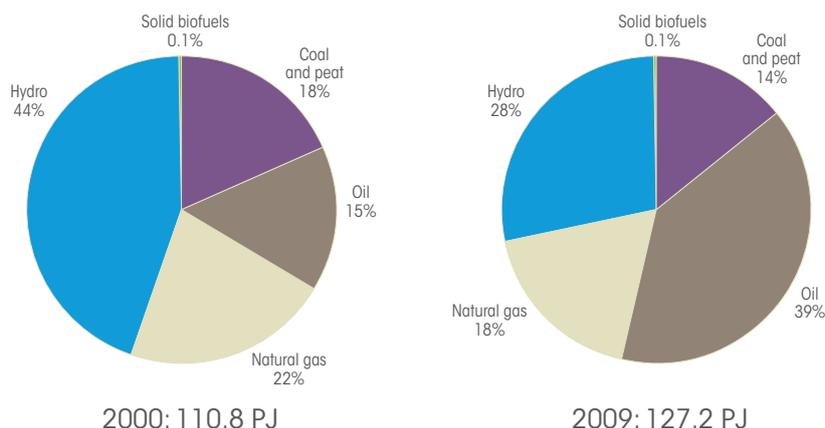
- Total Primary Energy Supply: 126.0 PJ - Of which renewables: 35.8 PJ (28.4%)
- Energy self-sufficiency: 38.6%
- Fuel imports*: 854 million USD (26.5% of total imports)
- Electricity generation: 11.1 TWh - Of which renewables: 9.9 TWh (89.3%)
- Electricity use per capita: 1,402 kWh
- Electrical capacity: 3,640 MW - Of which renewables: 2,910 MW (79.9%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: 34%

* 2010

TARGETS:

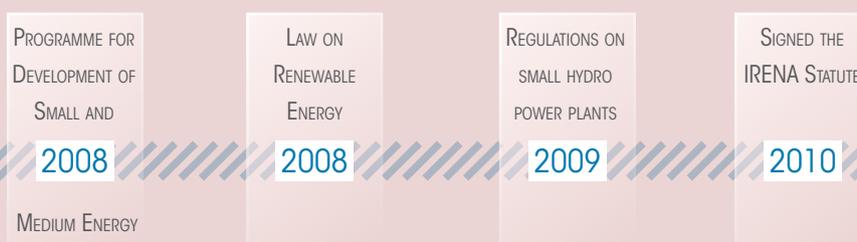
- No information available

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 70 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 80 MW of small hydro capacity addition announced (4 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ✕

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

LAO PEOPLE'S DEMOCRATIC REPUBLIC

6.2 million Population (2010)
7.2 billion USD GDP (2010)
1,158 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

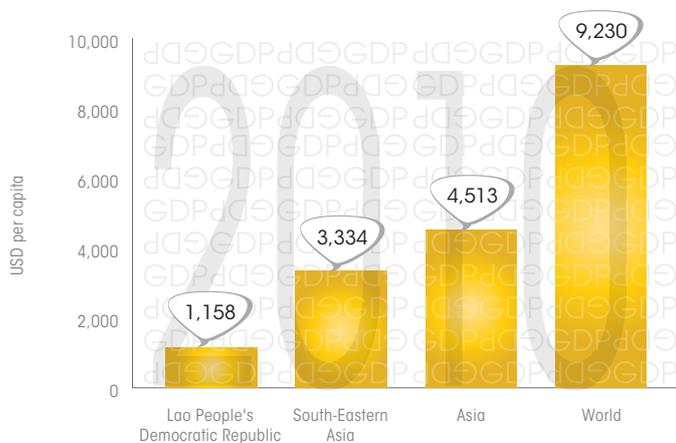
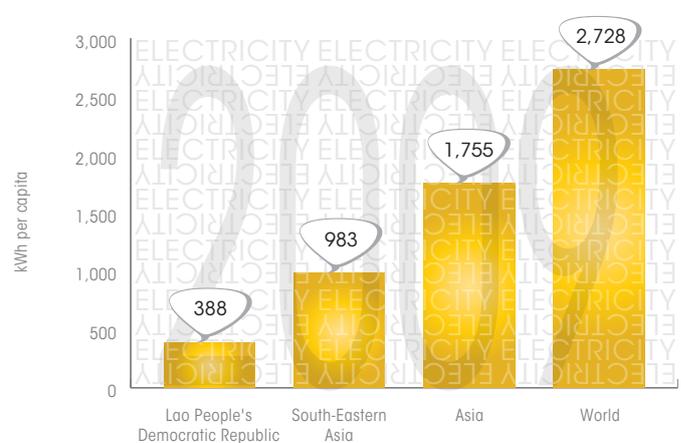


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.
 Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

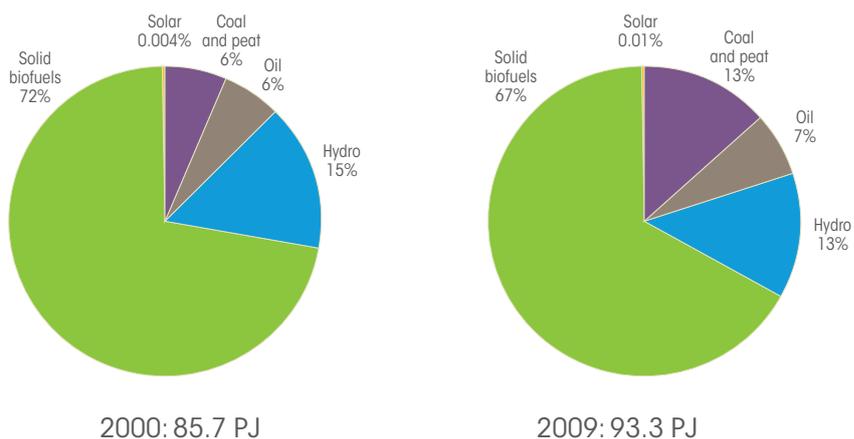
- Total Primary Energy Supply: 88.3 PJ – Of which renewables: 74.6 PJ (84.4%)
- Energy self-sufficiency: 102.8%
- Fuel imports*: Not available
- Electricity generation: 3,683 GWh – Of which renewables: 3,383 GWh (91.9%)
- Electricity use per capita: 388 kWh
- Electrical capacity: 1,855 MW – Of which renewables: 1,805 MW (97.3%)
- Electricity access rate: 55.0%
- Share of population using solid fuels*: > 95%

* 2010

TARGETS:

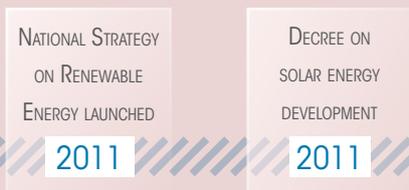
- 30% of final energy from renewables by 2020
- 10% of transport energy from renewables

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 165 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 50 MW of small hydro capacity addition by 2014 (1 project); 5 MW announced (1 project)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ●
Solar ●
Hydro ●
Biomass ●
Geothermal ●
Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

MALAYSIA

28.4 million Population (2010)
237.8 billion USD GDP (2010)
8,373 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

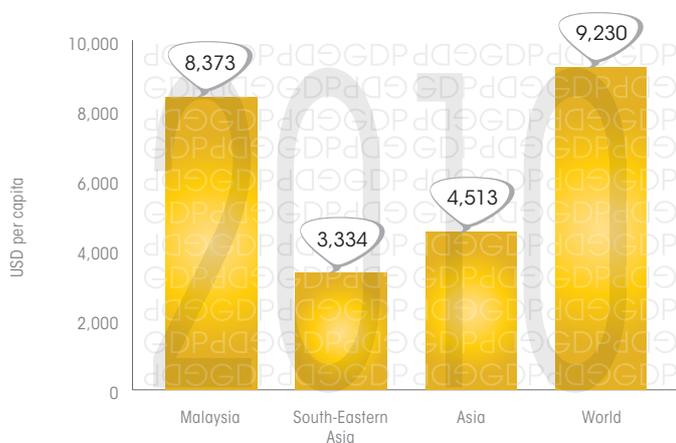
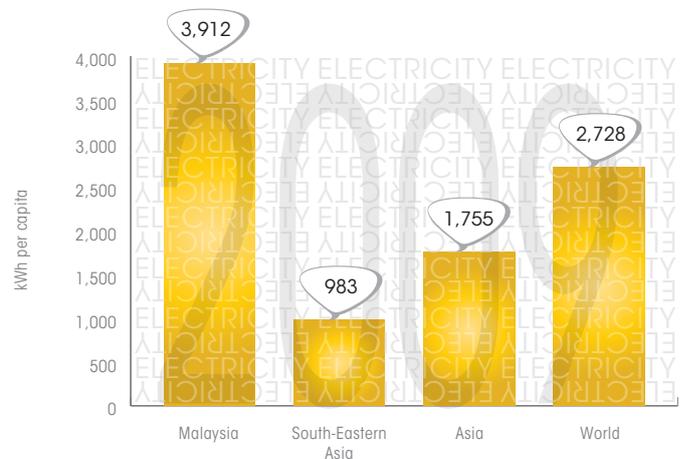


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.
 Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

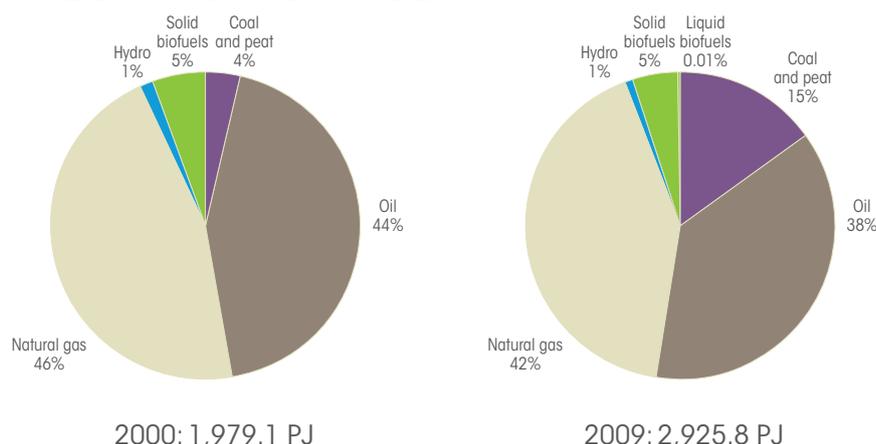
- Total Primary Energy Supply: 2,924.8 PJ - Of which renewables: 168.6 PJ (5.8%)
- Energy self-sufficiency: 123.2%
- Fuel imports*: 16.4 billion USD (10.0% of total imports)
- Electricity generation: 116.4 TWh - Of which renewables: 8.4 TWh (7.2%)
- Electricity use per capita: 3,912 kWh
- Electrical capacity: 25.2 GW - Of which renewables: 2,107 MW (8.3%)
- Electricity access rate: 99.4% (peninsular Malaysia)
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 6% of renewable capacity and 5% of electricity generation from renewables by 2015
- 11% of renewable capacity and 9% of electricity generation from renewables by 2020
- 14% of renewable capacity and 11% of electricity generation from renewables by 2030
- 36% of renewable capacity and 15% of electricity generation from renewables by 2050

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 18 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 36 MW of geothermal capacity addition by end 2015 (1 project)
- 10 MW of solar photovoltaic capacity addition by mid 2013 (1 project); more than 20 MW announced (6 projects)
- Around 1,100 million litres of biodiesel per year capacity addition announced (8 projects)
- More than 220 MW of biomass-fired capacity addition announced
- 45 MW of small hydro capacity addition announced (9 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 36

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

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MALDIVES

316,000 Population (2010)

2.1 billion USD GDP (2010)

6,570 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010



FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Southern Asia includes Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

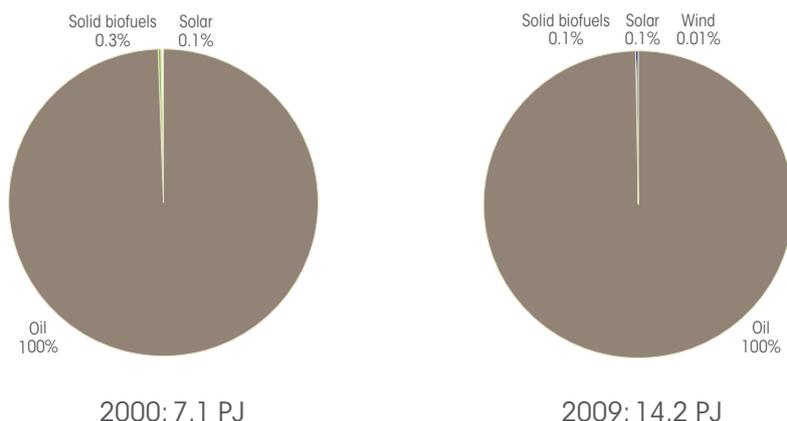
- Total Primary Energy Supply: 14.2 PJ – Of which renewables: 0.0 PJ (0.2%)
- Energy self-sufficiency: 0.2%
- Fuel imports*: 156 million USD (14.2% of total imports)
- Electricity generation: 796.1 GWh – Of which renewables: 0.3 GWh (0.0%)
- Electricity use per capita: 2,283 kWh
- Electrical capacity: 62.12 MW – Of which renewables: 0.12 MW (0.2%)
- Electricity access rate: 100.0%
- Share of population using solid fuels*: 8%

* 2010

TARGETS:

- Carbon neutrality in the energy sector by 2020
- 50% of electricity generation from renewables by 2015
- 60% of electricity generation from solar by 2020

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



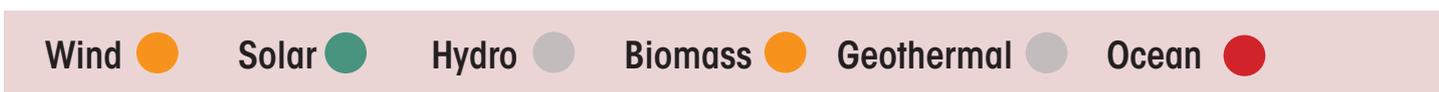
WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 79 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- No information available

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

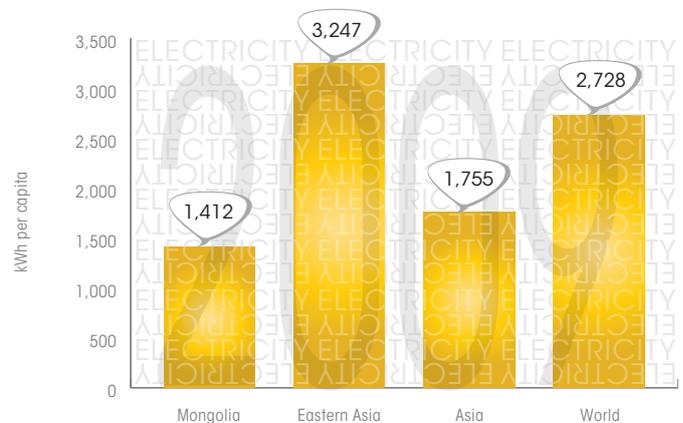
MONGOLIA

2.8 million Population (2010)
6.2 billion USD GDP (2010)
2,250 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010



FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Eastern Asia includes China, Japan, the Democratic People's Republic of Korea, the Republic of Korea and Mongolia.
 Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

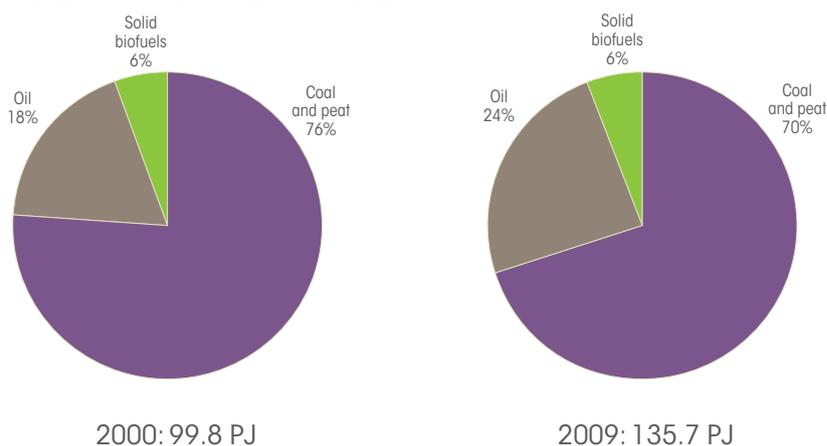
- Total Primary Energy Supply: 136.2 PJ – Of which renewables: 7.6 PJ (5.6%)
- Energy self-sufficiency: 238.9%
- Fuel imports*: 636 million USD (19.4% of total imports)
- Electricity generation: 4,180 GWh – Of which renewables: 0.0 GWh (0.0%)
- Electricity use per capita: 1,412 kWh
- Electrical capacity: 833 MW – Of which renewables: 1 MW (0.1%)
- Electricity access rate: 67.0%
- Share of population using solid fuels*: 72%

* 2010

TARGETS:

- 20 to 25% of electricity generation from renewables by 2020

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 86 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 23 MW of small hydro capacity addition announced (2 projects)
- 100 MW of wind capacity addition announced (2 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 2

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

MYANMAR



48.0 million Population (2010)
Not available GDP (2010)
Not available GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

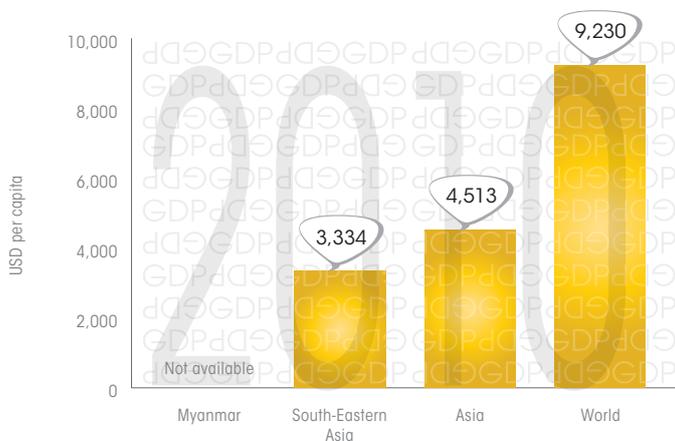
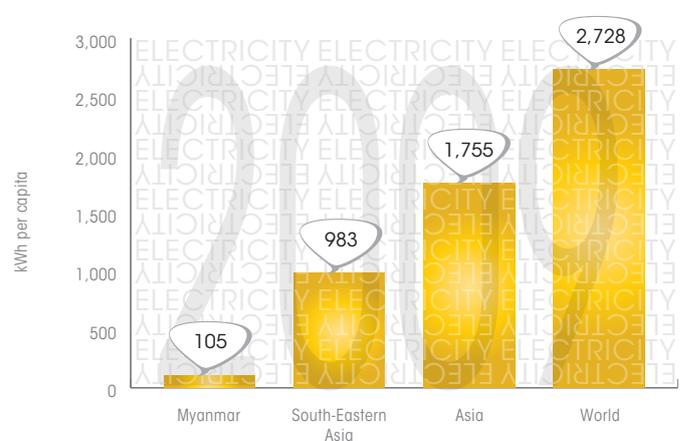


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.
 Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

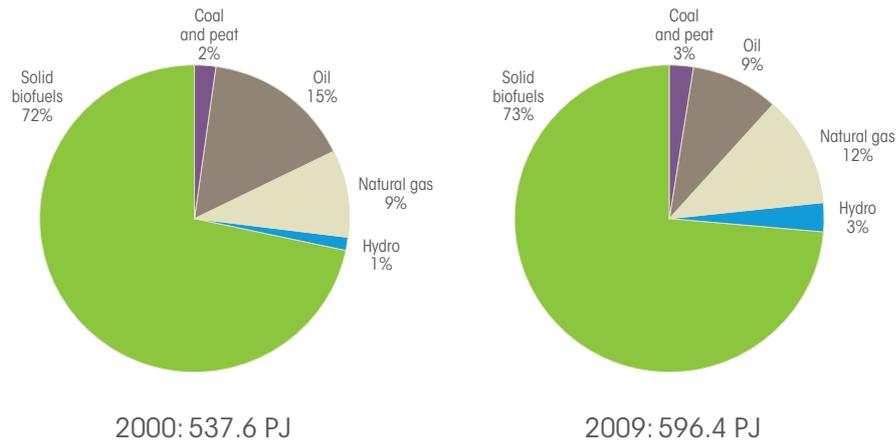
- Total Primary Energy Supply: 596.4 PJ - Of which renewables: 456.7 PJ (76.6%)
- Energy self-sufficiency: 154.2%
- Fuel imports*: Not available
- Electricity generation: 7.0 TWh - Of which renewables: 5.3 TWh (75.5%)
- Electricity use per capita: 105 kWh
- Electrical capacity: 1,860 MW - Of which renewables: 600 MW (32.3%)
- Electricity access rate: 13.0%
- Share of population using solid fuels*: 92%

* 2010

TARGETS:

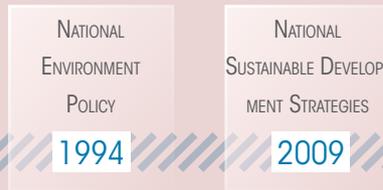
- No information available

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2019



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Not ranked

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- No information available

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✗ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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NEPAL



30.0 million Population (2010)
16.0 billion USD GDP (2010)
535 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

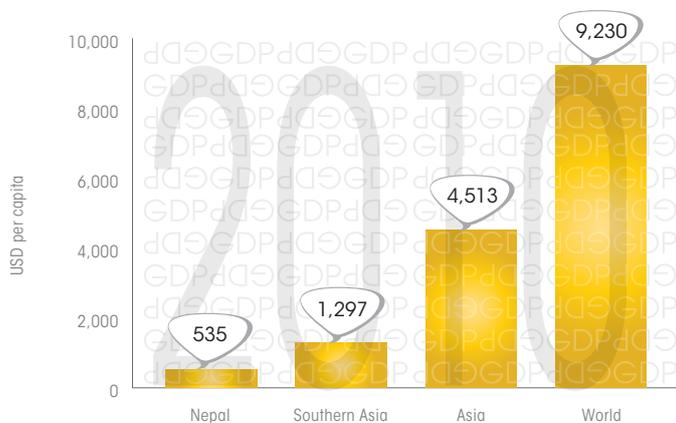
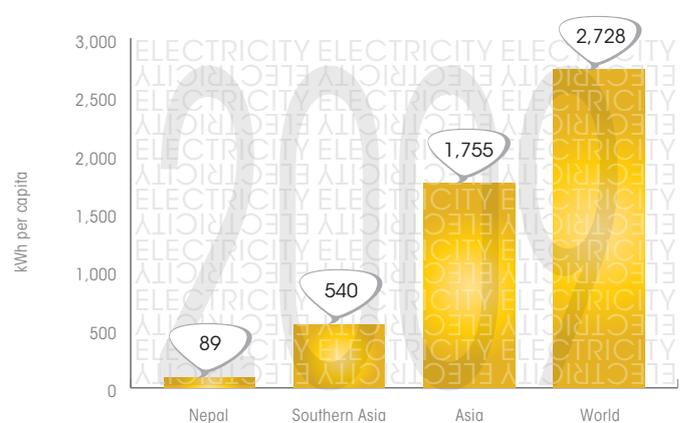


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Southern Asia includes Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

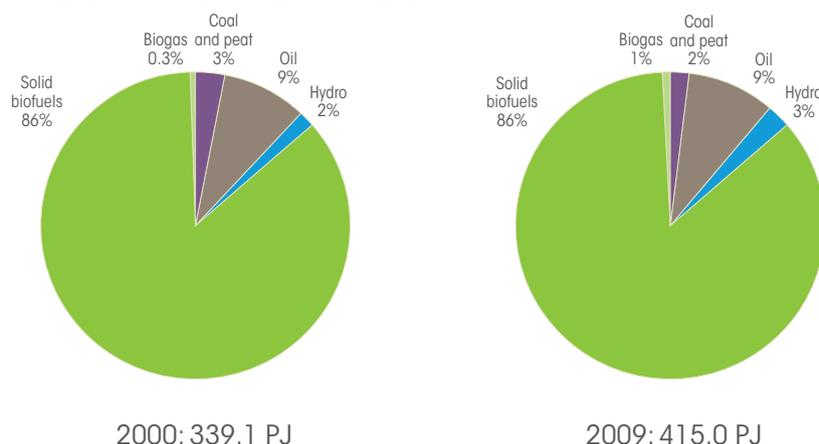
- Total Primary Energy Supply: 417.1 PJ – Of which renewables: 369.0 PJ (88.5%)
- Energy self-sufficiency: 88.6%
- Fuel imports*: 805 million USD (15.2% of total imports)
- Electricity generation: 3,115 GWh – Of which renewables: 3,102 GWh (99.6%)
- Electricity use per capita: 89 kWh
- Electrical capacity: 717 MW – Of which renewables: 660 MW (92.1%)
- Electricity access rate: 43.6%
- Share of population using solid fuels*: 82%

* 2010

TARGETS:

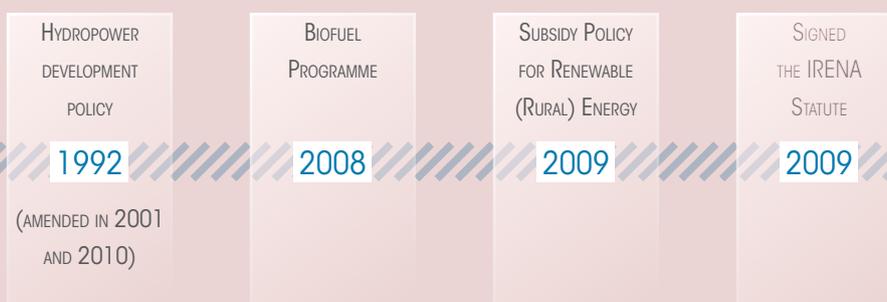
- 1 MW of wind capacity by 2013
- 3 MW of solar capacity by 2013
- 15 MW of micro-hydro capacity by 2013

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992:



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 107 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 30 MW of biomass-fired capacity addition announced (2 projects)
- Around 530 MW of small hydro capacity addition announced (26 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 1

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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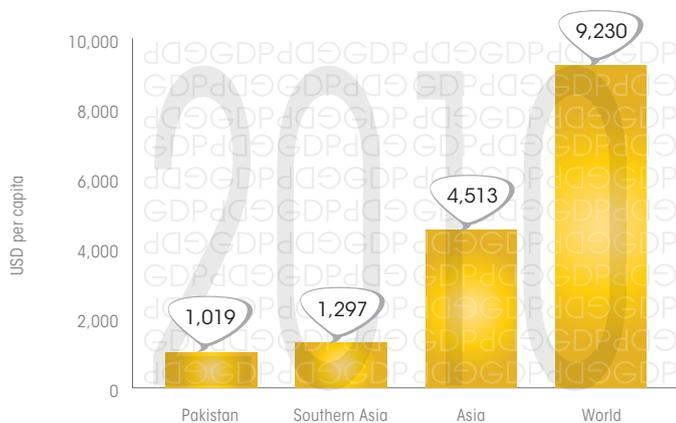
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

PAKISTAN

173.6 million Population (2010)

176.9 billion USD GDP (2010)

1,019 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009


Southern Asia includes Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

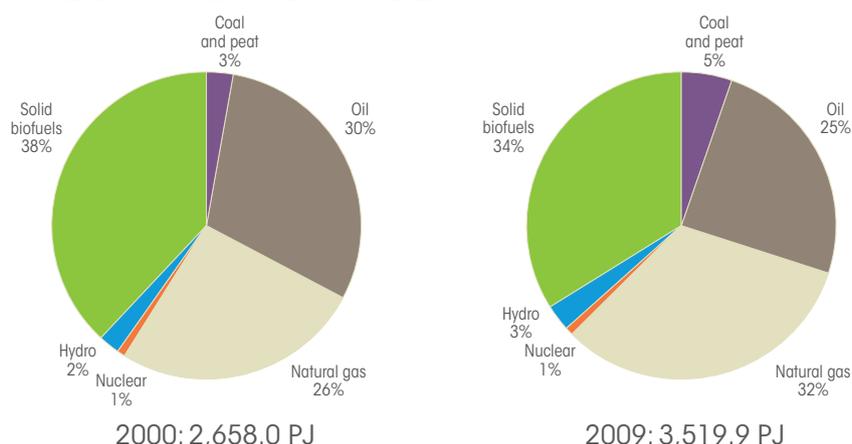
- Total Primary Energy Supply: 3,519.9 PJ – Of which renewables: 1,286.7 PJ (36.6%)
- Energy self-sufficiency: 75.7%
- Fuel imports*: 11.4 billion USD (29.2% of total imports)
- Electricity generation: 95.4 TWh – Of which renewables: 28.1 TWh (29.4%)
- Electricity use per capita: 449 kWh
- Electrical capacity: 20.2 GW – Of which renewables: 6.6 GW (32.5%)
- Electricity access rate: 62.4%
- Share of population using solid fuels*: 64%

* 2010

TARGETS:

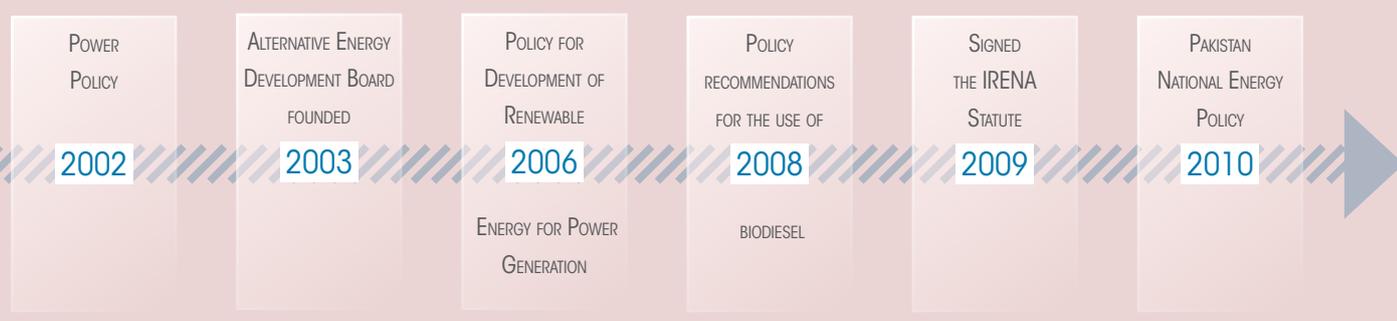
- 500 MW of renewable (excluding hydro) capacity by 2015 and about 1,000 MW by 2020
- 10% of primary energy supply from renewables by 2015

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 105 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 50 MW of wind capacity addition by mid 2013 (1 project); around 2,700 MW announced
- 206 MW of biomass-fired capacity addition announced (10 projects)
- 125 MW of small hydro capacity addition announced (7 projects)
- 528 MW of solar photovoltaic capacity addition announced (10 projects)
- 50 MW of solar thermal capacity addition announced (1 project)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 4

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

PHILIPPINES

93.3 million Population (2010)
199.6 billion USD GDP (2010)
2,140 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

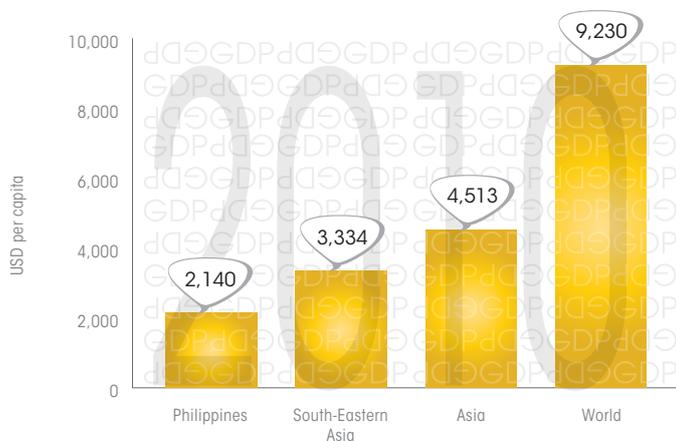
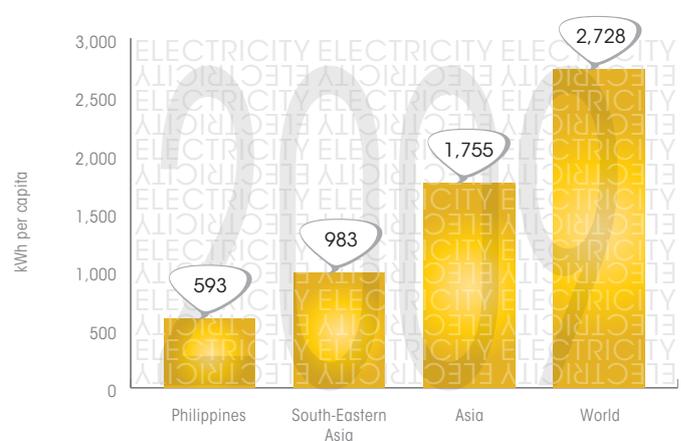


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.
 Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

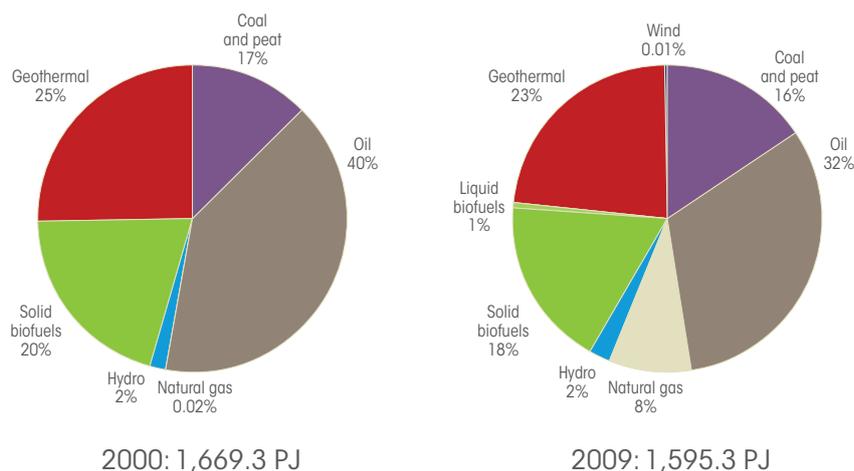
- Total Primary Energy Supply: 1,595.3 PJ – Of which renewables: 699.3 PJ (43.8%)
- Energy self-sufficiency: 61.6%
- Fuel imports*: 9.9 billion USD (17.0% of total imports)
- Electricity generation: 61.9 TWh – Of which renewables: 20.2 TWh (32.6%)
- Electricity use per capita: 593 kWh
- Electrical capacity: 15.6 GW – Of which renewables: 5.3 GW (33.9%)
- Electricity access rate: 89.7%
- Share of population using solid fuels*: 50%

* 2010

TARGETS:

- Triple 2010 renewable capacity by 2030: wind (2,378 MW); solar (285 MW); hydro (8,724 MW); geothermal (3,461 MW); biomass (316 MW); ocean (71 MW)
- 40% of electricity generation from renewables by 2020
- 4.7% of primary energy from renewables excluding large hydro by 2013

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 136 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS (CAPACITY ADDITIONS):

- Geothermal: 90 MW installation target by end of 2016 (3 projects)
- Biodiesel: 393 million litres per year plant capacity
- Bioethanol: 133 million litres per year plant capacity (4 projects)
- Hydropower: 19.8 MW installation target by end of 2014 (3 projects)
- Solar photovoltaic: 50 MW installation target by end of 2015
- Wind: 200 MW installation target by end of 2015

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 16

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✗ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

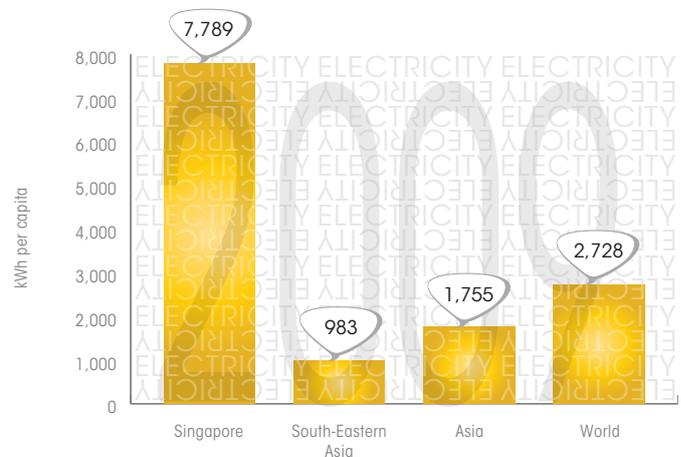
SINGAPORE

5.1 million Population (2010)
213.2 billion USD GDP (2010)
41,987 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010



FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.
 Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

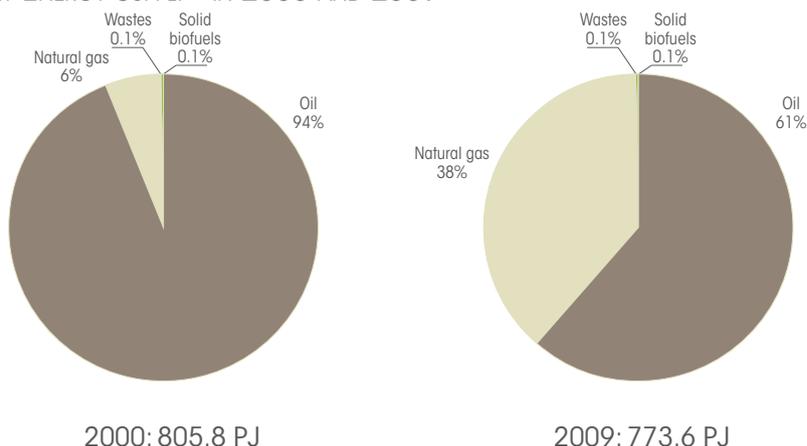
- Total Primary Energy Supply: 773.6 PJ - Of which renewables: 0.6 PJ (0.1%)
- Energy self-sufficiency: 0.2%
- Fuel imports*: 81.2 billion USD (26.1% of total imports)
- Electricity generation: 41.8 TWh - Of which renewables: 42.0 GWh (0.1%)
- Electricity use per capita: 7,789 kWh
- Electrical capacity: 10.7 GW - Of which renewables: 302 MW (2.8%)
- Electricity access rate: 100.0%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- No information available

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 1 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- More than 30 MW of biomass-fired capacity addition committed
- More than 10 MWp of solar photovoltaic capacity addition committed

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 1

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

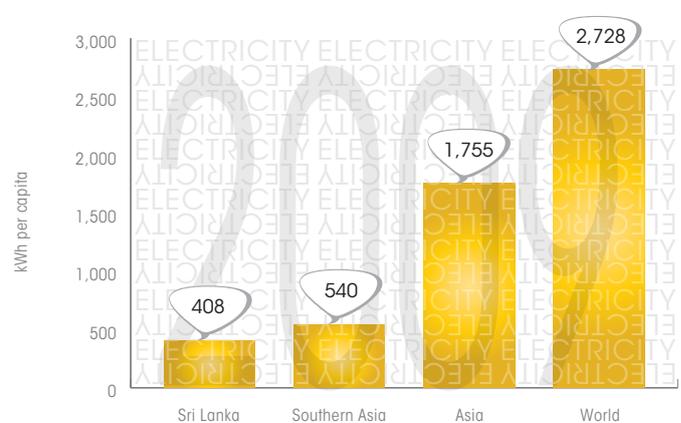
SRI LANKA

20.9 million Population (2010)
49.6 billion USD GDP (2010)
2,376 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010



FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Southern Asia includes Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

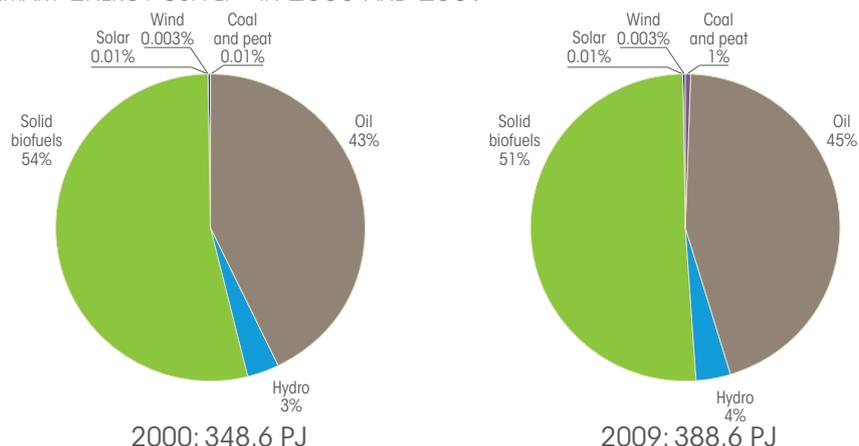
- Total Primary Energy Supply: 380.5 PJ – Of which renewables: 213.8 PJ (56.2%)
- Energy self-sufficiency: 56.2%
- Fuel imports*: 3.0 billion USD (22.3% of total imports)
- Electricity generation: 9.9 TWh – Of which renewables: 3,924 GWh (39.7%)
- Electricity use per capita: 408 kWh
- Electrical capacity: 2,646 MW – Of which renewables: 1,361 MW (51.4%)
- Electricity access rate: 88.0%
- Share of population using solid fuels*: 75%

* 2010

TARGETS:

- 10% of electricity generation from renewables by 2015
- 20% of transport energy from renewables by 2020

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 89 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- More than 182 MW of biomass-fired capacity addition announced (12 projects)
- 31 million litres of biodiesel per year capacity addition announced (1 project)
- 10 MW of marine capacity addition announced (1 project)
- 183 MW of small hydro capacity addition announced (19 projects)
- 1 MW of solar photovoltaic capacity addition announced (1 project)
- 1 MW of wind capacity addition announced (1 project)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 6

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

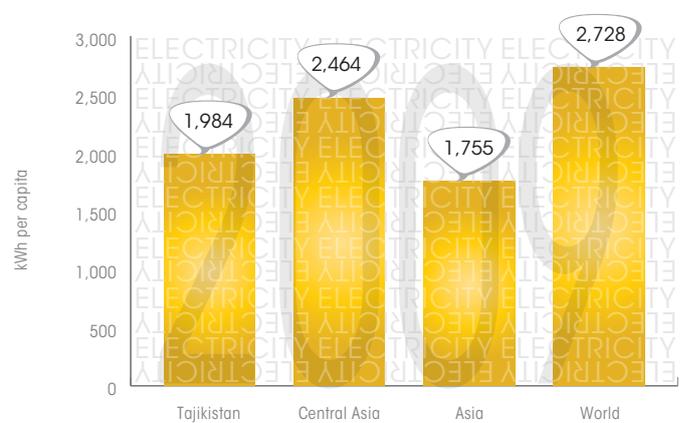
TAJIKISTAN

6.9 million Population (2010)
5.6 billion USD GDP (2010)
820 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010



FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Central Asia includes Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.
 Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

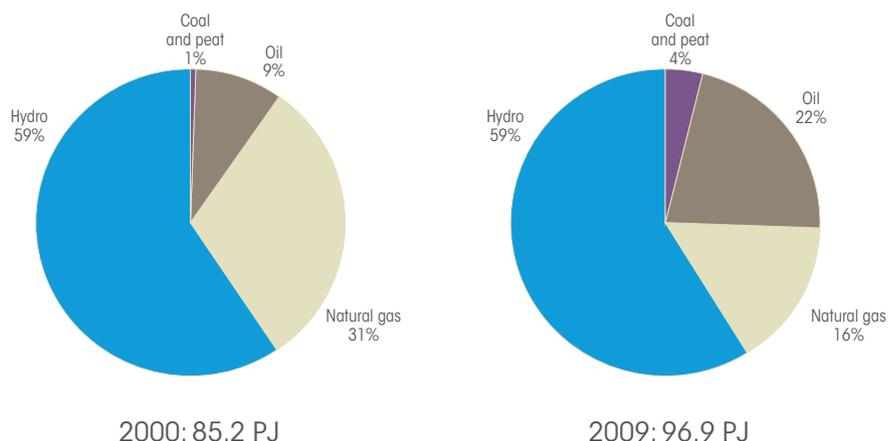
- Total Primary Energy Supply: 97.7 PJ - Of which renewables: 56.9 PJ (58.2%)
- Energy self-sufficiency: 64.4%
- Fuel imports*: Not available
- Electricity generation: 16.1 TWh - Of which renewables: 15.8 TWh (98.0%)
- Electricity use per capita: 1,984 kWh
- Electrical capacity: 4,426 MW - Of which renewables: 4,037 MW (91.2%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: 34%

* 2010

TARGETS:

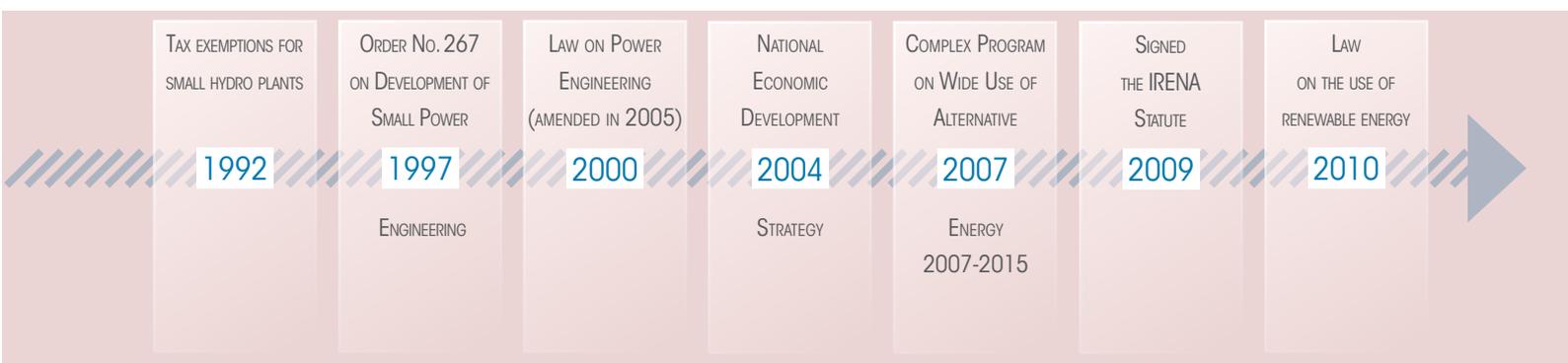
- No information available

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 147 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 62 MW of small hydro capacity addition announced (3 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

THAILAND

69.1 million Population (2010)
318.9 billion USD GDP (2010)
4,614 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

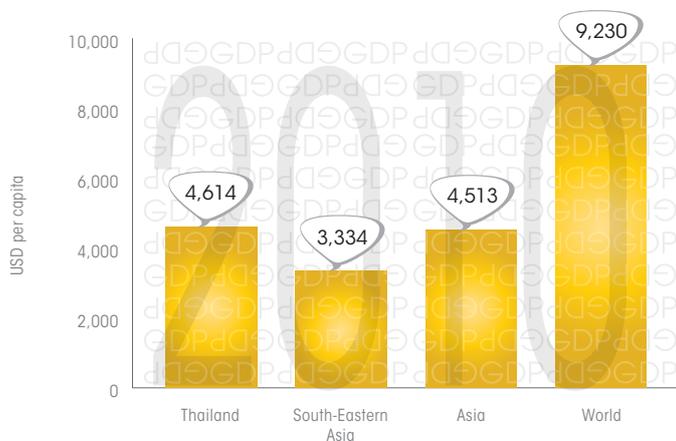
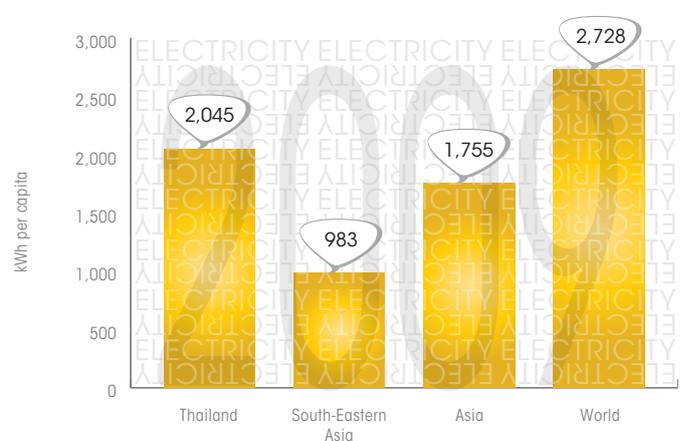


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

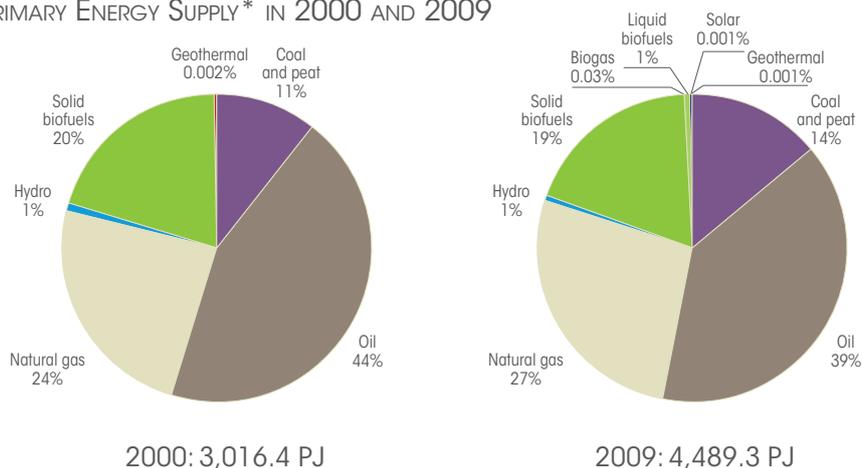
- Total Primary Energy Supply: 4,492.4 PJ - Of which renewables: 892.5 PJ (19.9%)
- Energy self-sufficiency: 60.2%
- Fuel imports*: 31.7 billion USD (17.4% of total imports)
- Electricity generation: 148.4 TWh - Of which renewables: 10.2 TWh (6.9%)
- Electricity use per capita: 2,045 kWh
- Electrical capacity: 47.4 GW - Of which renewables: 4,299 MW (9.1%)
- Electricity access rate: 99.3%
- Share of population using solid fuels*: 26%

* 2010

TARGETS:

- 1,200 MW of wind capacity by 2022
- 2,000 MW of solar capacity by 2022
- 1,608 MW of small hydro capacity by 2022
- 3,630 MW of biomass-fired capacity by 2022
- 600 MW of biogas-fired capacity by 2022

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 17 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 60 MW of solar photovoltaic capacity addition by end 2013 (8 projects); 230 MW announced (15 projects)
- Around 100 MW of wind capacity addition by end 2013 (3 projects); 640 MW announced (10 projects)
- 6 MW of solar thermal capacity addition announced (1 project)
- Around 1,100 million litres of bioethanol per year capacity addition announced (9 projects)
- More than 830 MW of biomass-fired capacity addition announced
- 71 MW of small hydro capacity addition announced (5 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 16

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

TIMOR-LESTE

1.1 million Population (2010)
875 million USD GDP (2010)
778 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

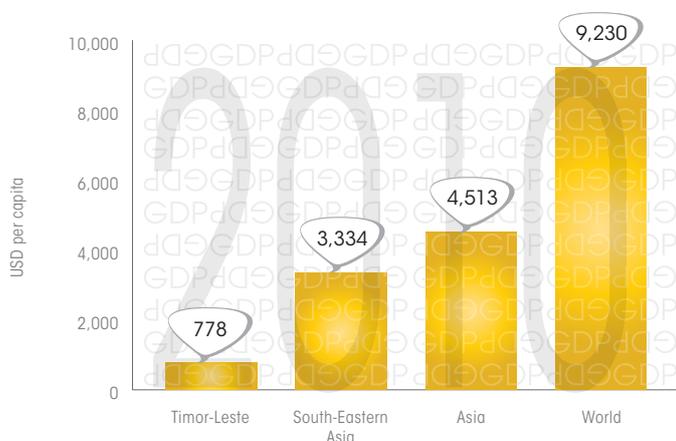
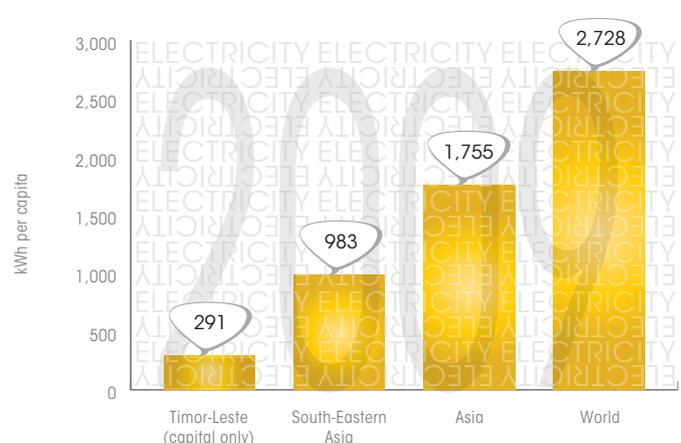


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.
 Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

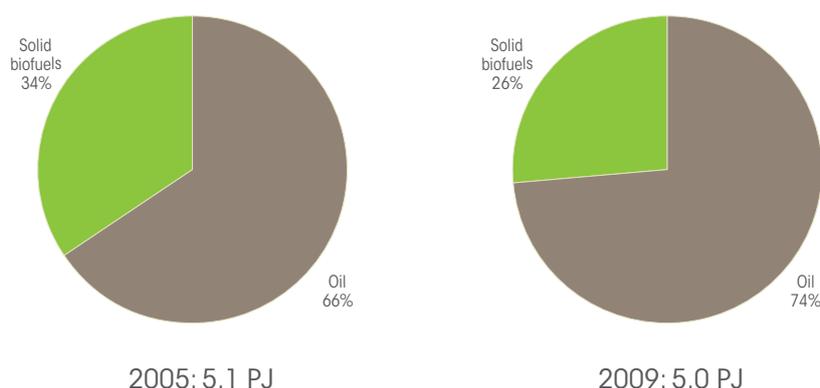
- Total Primary Energy Supply: 5.0 PJ - Of which renewables: 1.3 PJ (26.4%)
- Energy self-sufficiency: 2,261.4%
- Fuel imports*: Not available
- Electricity generation: 131.7 GWh - Of which renewables: 0.0 GWh (0.0%)
- Electricity use per capita: 291 kWh (capital only)
- Electrical capacity: 44 MW - Of which renewables: 0.0 MW (0.0%)
- Electricity access rate: 22.0%
- Share of population using solid fuels*: Not available

* 2010

TARGETS:

- 50% of electricity generation from renewables by 2020

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2005 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 168 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- No information available

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

TURKMENISTAN



5.0 million Population (2010)
20.0 billion USD GDP (2010)
3,967 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

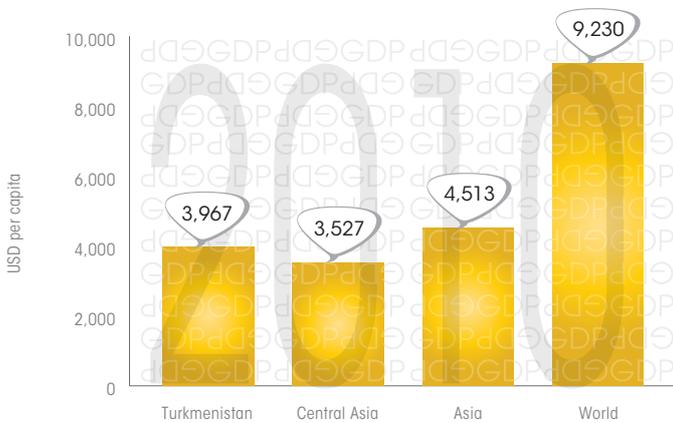
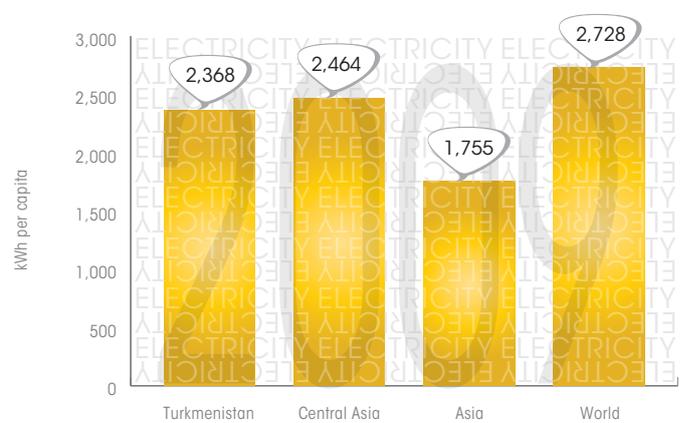


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Central Asia includes Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

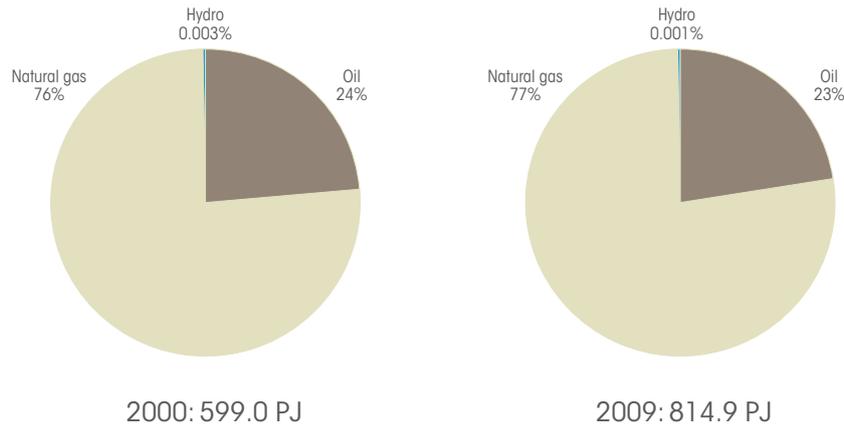
- Total Primary Energy Supply: 807.4 PJ - Of which renewables: 0.0 PJ (0.0%)
- Energy self-sufficiency: 213.0%
- Fuel imports*: Not available
- Electricity generation: 16.0 TWh - Of which renewables: 3.0 GWh (0.0%)
- Electricity use per capita: 2,368 kWh
- Electrical capacity: 2,852 MW - Of which renewables: 1 MW (0.0%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- No information available

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

NO INFORMATION
AVAILABLE

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Not ranked

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:
 • No information available

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on UN data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, EIA; Electricity access rate: World Energy Outlook 2011 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, Reegle, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

UZBEKISTAN

28.2 million Population (2010)
39.3 billion USD GDP (2010)
1,397 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

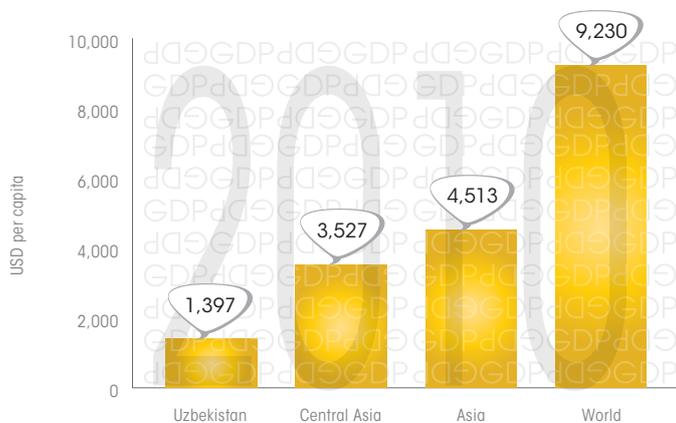


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



Central Asia includes Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

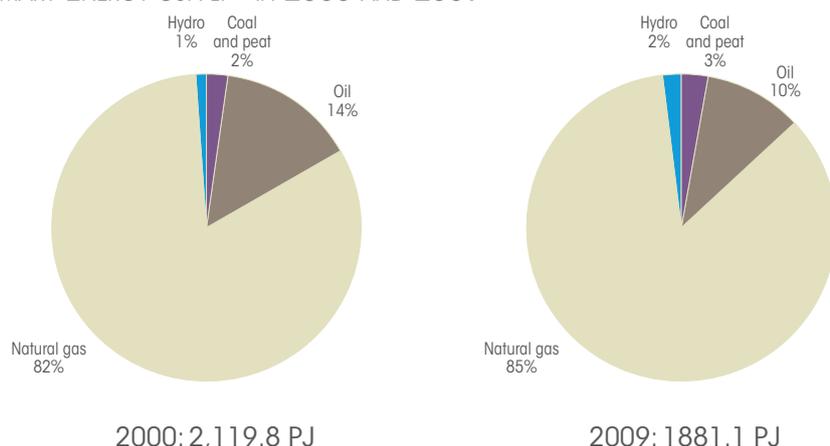
- Total Primary Energy Supply: 1,880.8 PJ – Of which renewables: 33.6 PJ (1.8%)
- Energy self-sufficiency: 126.5%
- Fuel imports*: Not available
- Electricity generation: 50.0 TWh – Of which renewables: 9.3 TWh (18.7%)
- Electricity use per capita: 1,638 kWh
- Electrical capacity: 11.6 GW – Of which renewables: 1,710 MW (14.8%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: 11%

* 2010

TARGETS:

- No information available

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



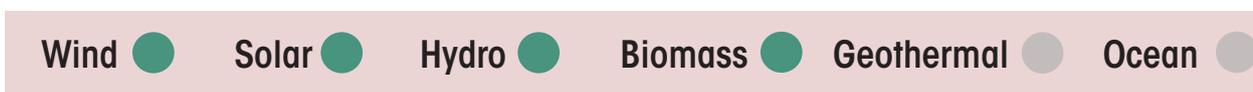
WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 166 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 71 MW of small hydro capacity addition announced (2 projects)
- 100 MW of solar photovoltaic capacity addition announced (1 project)
- 1 MW of wind capacity addition announced (1 project)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 0

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable



Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

VIETNAM

86.9 Population (2010)
106.4 billion USD GDP (2010)
1,224 USD GDP per capita (2010)

FIGURE 1: GDP PER CAPITA FOR 2010

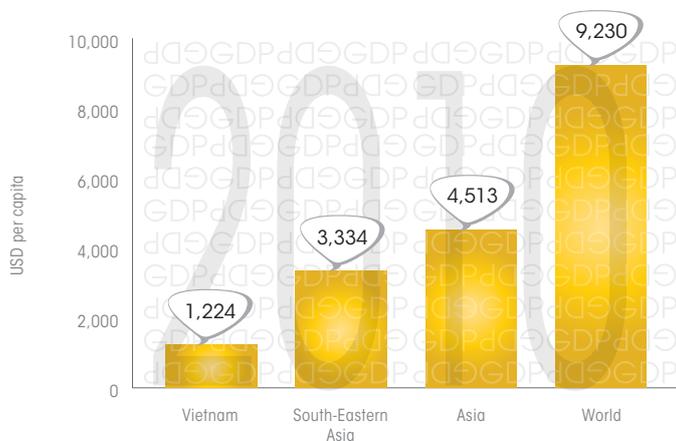
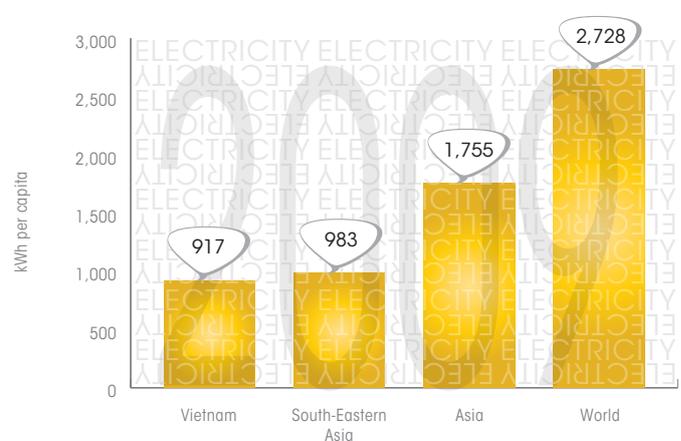


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2009



South-Eastern Asia includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam.
 Asia includes Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Kazakhstan, the Democratic People's Republic of Korea, the Republic of Korea, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Uzbekistan and Vietnam.

ENERGY NATIONAL PROFILE 2009

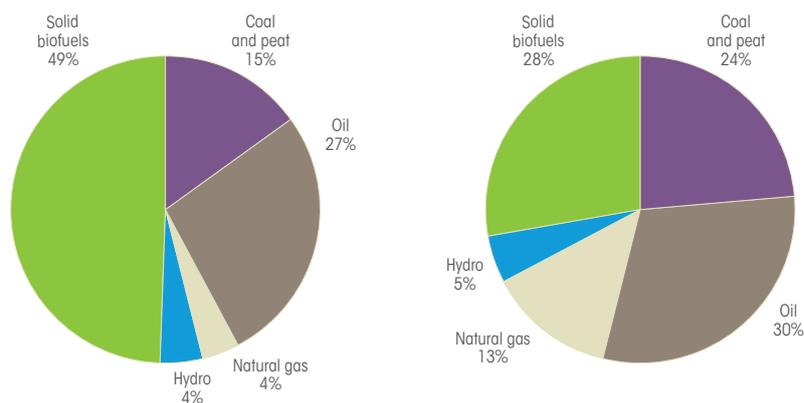
- Total Primary Energy Supply: 2,237.8 PJ - Of which renewables: 724.2 PJ (32.4%)
- Energy self-sufficiency: 124.3%
- Fuel imports*: 7.6 billion USD (8.9% of total imports)
- Electricity generation: 83.2 TWh - Of which renewables: 30.0 TWh (36.1%)
- Electricity use per capita: 917 kWh
- Electrical capacity: 15.2 GW - Of which renewables: 5.5 GW (36.3%)
- Electricity access rate: 97.6%
- Share of population using solid fuels*: 56%

* 2010

TARGETS:

- 4.5% of electricity generation from renewables by 2020
- 6% of electricity generation from renewables by 2030

FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2009

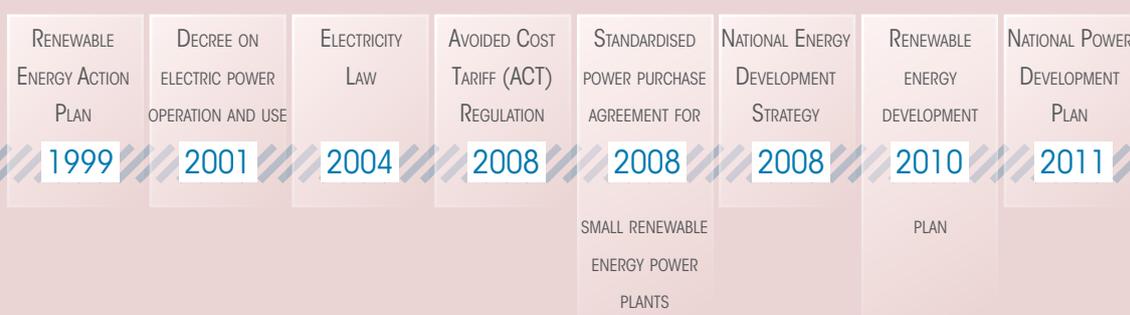


2000: 1,203.1 PJ

2009: 2,224.4 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2012: Ranked 98 out of 183

RENEWABLE ENERGY PROJECTS FROM THE GOVERNMENT AND PRIVATE SECTORS:

- 217 MW of small hydro capacity addition by early 2014 (8 projects); 530 MW announced
- 325 MW of wind capacity addition by end 2014 (3 projects); more than 500 MW announced (11 projects)
- More than 460 MW of biomass-fired capacity addition announced (21 projects)
- 19 MW of geothermal capacity addition announced (1 project)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 85

RENEWABLE ENERGY RESOURCES: ● High ● Medium ● Low ● Unknown ✕ Not applicable

Wind ● Solar ● Hydro ● Biomass ● Geothermal ● Ocean ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10⁶ kWh); TWh: terawatt-hour (1 TWh=10³ GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10³ MW). Please also refer to the glossary for explanations on the terms used in the country profile.

GLOSSARY

1 – PRODUCTS

Coal comprises the solid fossil fuels consisting of carbonised vegetal matter (hard coal and brown coal) and the products derived from them (e.g. patent fuel, coke, blast furnace gas, coke oven gas).

Peat is a solid formed from the partial decomposition of dead vegetation under conditions of high humidity and limited air access. Peat is not considered a renewable resource as its regeneration period is long.

Oil covers the liquid fossil hydrocarbons comprising crude oil, liquids extracted from natural gas (NGL), fully or partly processed products from the refining of crude oil (e.g. gasoline, diesel) and functionally similar liquid hydrocarbons and organic chemicals from vegetal or animal origins.

Natural gas includes natural gas but excludes natural gas liquids, which are included in oil and oil products.

Nuclear shows the primary energy equivalent of the electricity produced by a nuclear power plant assuming an average thermal efficiency of 33%.

Wastes are materials no longer required by their holders and which are used as fuels. They comprise municipal waste and industrial waste.

Hydro shows the energy content of the electricity produced from devices driven by fresh, flowing or falling water. Hydro output excludes output from pumped storage plants.

Biofuels are the solid, liquid or gaseous material obtained from living or recently living organisms (e.g. wood, charcoal, biogasoline, biodiesels, vegetal or animal waste).

Solar is the energy that is captured from solar radiation to produce a useful energy output (electricity from solar photovoltaic, heat or electricity from solar thermal).

Geothermal is the energy of the heat that is extracted from the earth, usually in the form of heated water or steam.

Ocean shows the energy content of the electricity produced by tidal movement, wave motion, ocean current and other sources of marine energy.

Wind shows the energy content of the electricity produced by wind turbines.

Renewables are sources of energy which are naturally replenished as they are used. They include hydro, biofuels, solar, geothermal, ocean and wind. For the purposes of energy statistics, the renewable portion of municipal waste is also included.

2 – ENERGY NATIONAL PROFILE BOX

Total Primary Energy Supply is the net flow of fuel or energy into the national territory from production, external trade, international bunkers and changes in stocks. Note that this value includes electricity trade unlike the pie charts presented later, which can result in small differences in values and the share of renewables.

Self-sufficiency is the ratio of domestic production divided by Total Primary Energy Supply. A value below 100% means that the country is a net energy importer, i.e. that it has to import or draw from its stocks the energy needed to meet the part of demand that is not met by domestic production. Conversely, a value above 100% indicates that the country is a net energy exporter.

Fuel imports show the amount spent on importing coal and peat, oil, natural gas and electricity in the country. For most countries, this amount includes cost, insurance and freight (CIF) (source <http://www.wto.org>).

Electricity generation is the total amount of electricity produced in power plants (i.e. the gross electricity production).

Electricity use is the electricity available for consumption, defined as the sum of domestic production and external trade minus the transmission losses.

Electrical capacity is the net maximum installed capacity of all power plants at the end of the year concerned, i.e. the maximum power that can be supplied, continuously, with all of the plant running, at the point of outlet to the network.

Electricity access rate is the share of the population with access to electricity

Share of population using solid fuels is the percentage of the population that relies on solid biofuels, coal

and peat as the primary source of domestic energy for cooking and heating (source <http://www.who.int>).

3 – OTHER INDICATORS

World Bank ease of doing business index ranks economies from 1 to 183 in 10 areas of business regulation: starting a business, dealing with construction permits, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, resolving insolvency and getting electricity (source: <http://www.doingbusiness.org>).

Registered Clean Development Mechanism (CDM) project: the CDM allows emission-reduction projects in developing countries to earn certified emission reduc-

tion credits which can be traded and sold, and used by industrialised countries to meet a part of their emission reduction targets under the Kyoto Protocol. A project is registered when the Executive Board of the CDM gives its final approval (source: <http://cdm.unfccc.int>).

4 – RESOURCES

Note: Data on the assessment of the resources of tidal power and ocean current is not available. Therefore, and for the purposes of the resource assessment only, ocean energy is limited to wave energy.

For each renewable energy source, the rating is explained in the table below.

	Wind	Solar	Hydro	Biomass	Geothermal	Ocean
High 	Several areas with average wind speed above 7 m/s at 50 m high	Several areas with global horizontal irradiation above 1800 kWh/m ² per year	One or more sites can be equipped with a large hydro-power facility (>10 MW)	Maximum identified theoretical potential above 100 PJ incl. agriculture, wood and residues	One or more sites can be equipped with a large scale facility (>10 MW)	Wave power above 30 kW/m
Medium 	Several areas with average wind speed between 5 and 7 m/s at 50 m high	Several areas with global horizontal irradiation between 1200 and 1800 kWh/m ² per year	One or more sites can be equipped with a medium scale hydro-power facility (1-10 MW)	Maximum identified theoretical potential between 10 and 100 PJ incl. agriculture, wood and residues	One or more sites can be equipped with a medium scale facility (1-10 MW)	Wave power between 10 and 30 kW/m
Low 	No area identified with average wind speed above 5 m/s	No identified area with global horizontal irradiation above 1200 kWh/m ² per year	One or more sites can be equipped with a small scale hydro-power facility (<1 MW)	Maximum identified theoretical potential below 10 PJ incl. agriculture, wood and residues	One or more sites can be equipped with a small scale facility (<1 MW)	Wave power below 10 kW/m
Unknown 	No data identified by IRENA as yet					



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