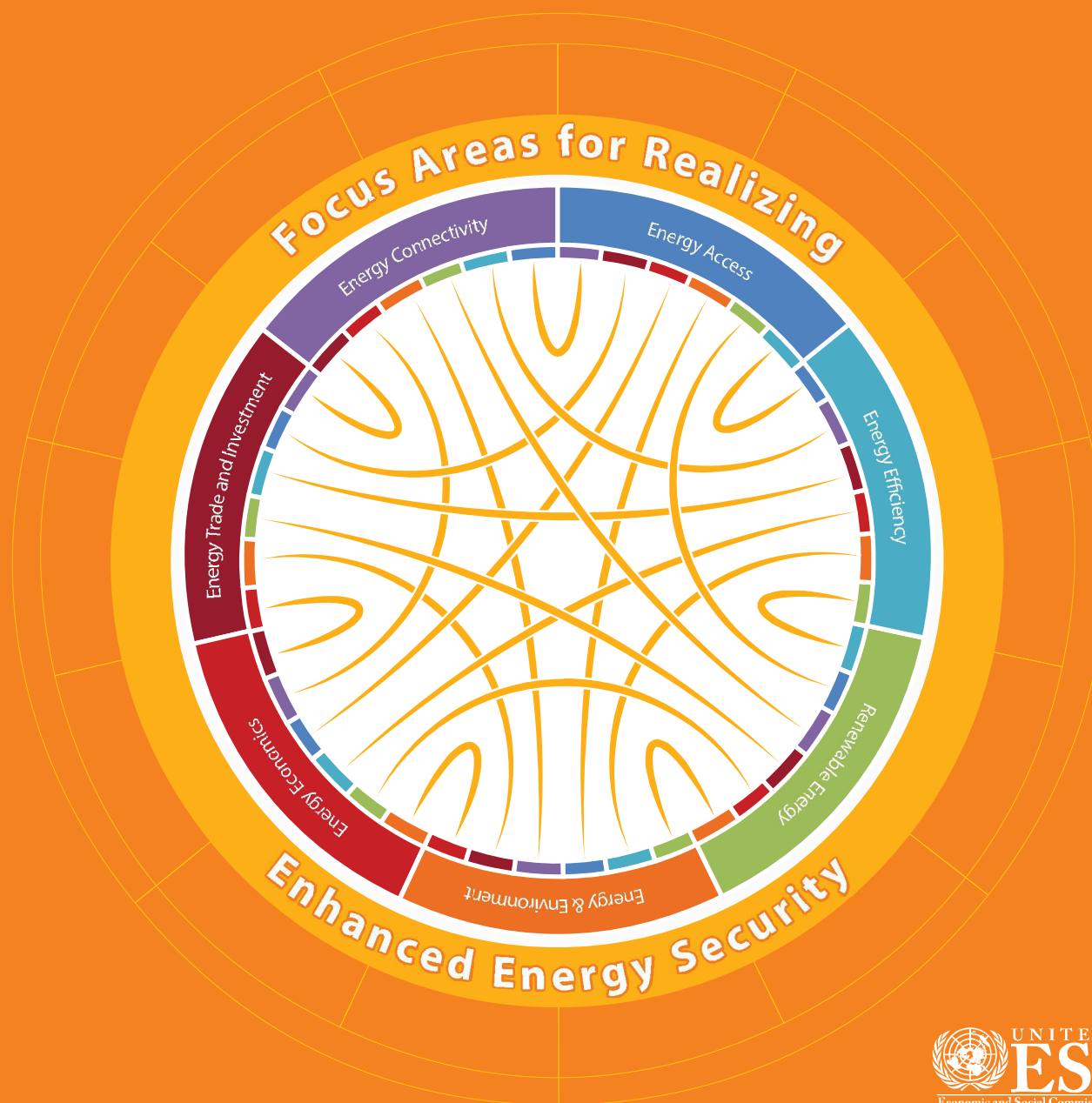




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Statistical Perspectives



Statistical Perspectives



MINISTRY OF ENERGY
OF THE RUSSIAN FEDERATION

Focus Areas for Enhanced Energy Security

ENERGY ACCESS

Working towards universal access to modern energy services can advance inclusive social and economic development.

ENERGY EFFICIENCY

Adopting efficiency measures can significantly enhance economic competitiveness and reduce greenhouse gas emissions.

RENEWABLE ENERGY

Developing new and renewable energy sources can diversify the energy mix and create new job opportunities.

ENERGY AND ENVIRONMENT

Shifting consumption towards sustainable energy can minimise environmental impacts and improve the future outlook for the well-being of our citizens and planet.

ENERGY ECONOMICS

Improving fiscal policy and financing mechanisms can incentivise and strengthen markets for sustainable energy.

ENERGY TRADE AND INVESTMENT

Promoting trade and investment can optimise the development and utilisation of current and emerging energy resources.

ENERGY CONNECTIVITY

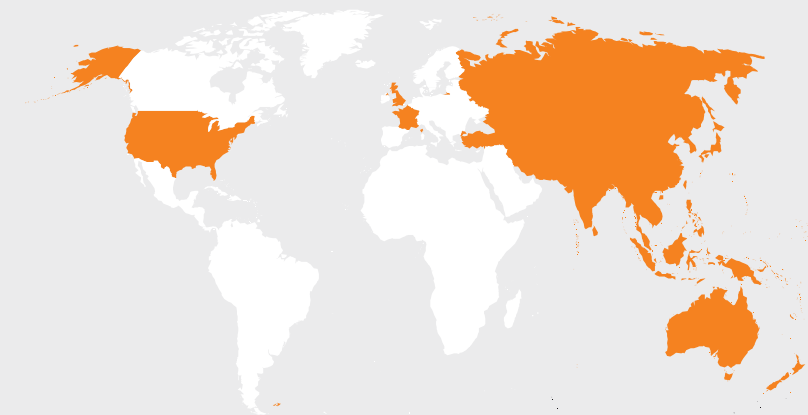
Developing infrastructure and harmonised energy policies can increase regional economic integration and resilience.

The statistics presented in this publication primarily cover member States located in the Asia-Pacific region. However, Associate and Non-regional members appear in select charts and tables. Due to data limitations, only selected countries are used in several of the statistical representations. Additionally, "Pacific (AUS, NZ)" indicates that data for the Pacific subregion represents only Australia and New Zealand.

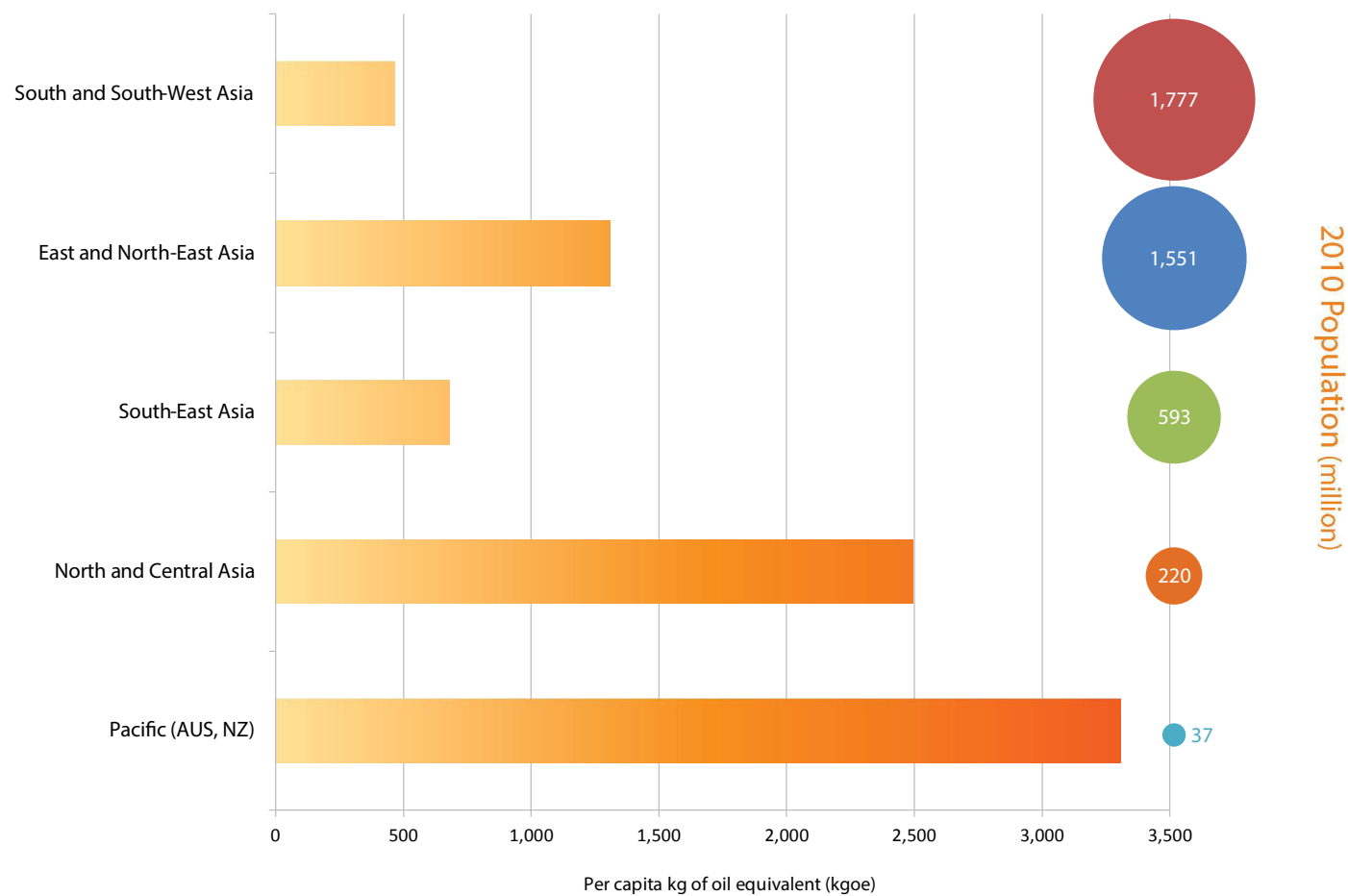
This publication is for reference only. Graphs and charts are based on data sources consulted for this publication. Additional data sources may exist that are not represented. In some cases, data sets may not be complete. ESCAP cannot confirm methodologies of data sources.

East and North-East Asia	North and Central Asia	South-East Asia	South and South-West Asia	Pacific	Associate Members	Non-regional Members
China Japan Korea, Democratic People's Republic of (Korea, DPR) Korea, Republic of (Korea, Rep. of) Mongolia	Armenia Azerbaijan Georgia Kazakhstan Kyrgyzstan Russian Federation Tajikistan Turkmenistan Uzbekistan	Brunei Darussalam Cambodia Indonesia Lao PDR Malaysia Myanmar Philippines Singapore Thailand Timor-Leste Viet Nam	Afghanistan Bangladesh Bhutan India Iran, Islamic Republic of (Iran, IR) Maldives Nepal Pakistan Sri Lanka Turkey	Australia Fiji Kiribati Marshall Islands Micronesia, Federated States of (Micronesia, FS) Nauru New Zealand Palau Papua New Guinea Samoa Solomon Island Tonga Tuvalu Vanuatu	American Samoa Cook Islands French Polynesia Guam Hong Kong, China Macao, China New Caledonia Niue Northern Mariana Islands	France United Kingdom (UK) Netherlands United States of America

Member states listed in blue are considered "Asia-Pacific Developed Countries". Other member States are considered "Asia-Pacific Developing Countries".



Per Capita Final Energy Consumption, 2010

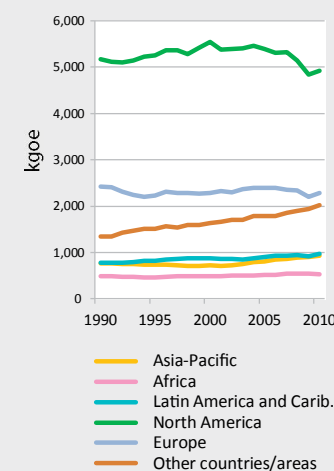


Data source: ESCAP Statistical Database based on data from IEA

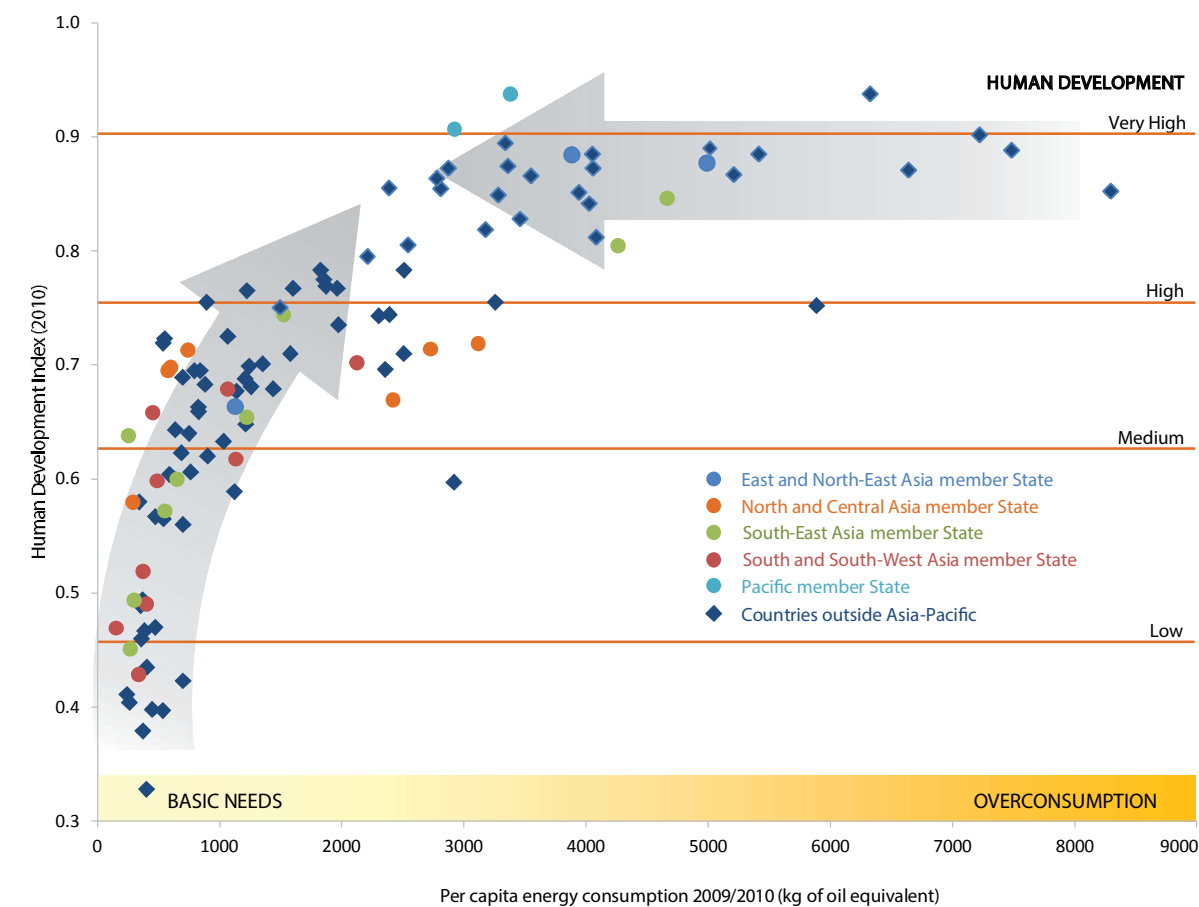
Data source: ESCAP Statistical Database based on data from WPP2010

The **HUMAN DEVELOPMENT INDEX (HDI)**, developed by UNDP, is a measure of human development and is a composite statistic of life expectancy, education, and income indices. The index is published annually. In this chart, the 2010 index was used to match against the most recent data for energy consumption.

Per Capita Energy Consumption by Global Region



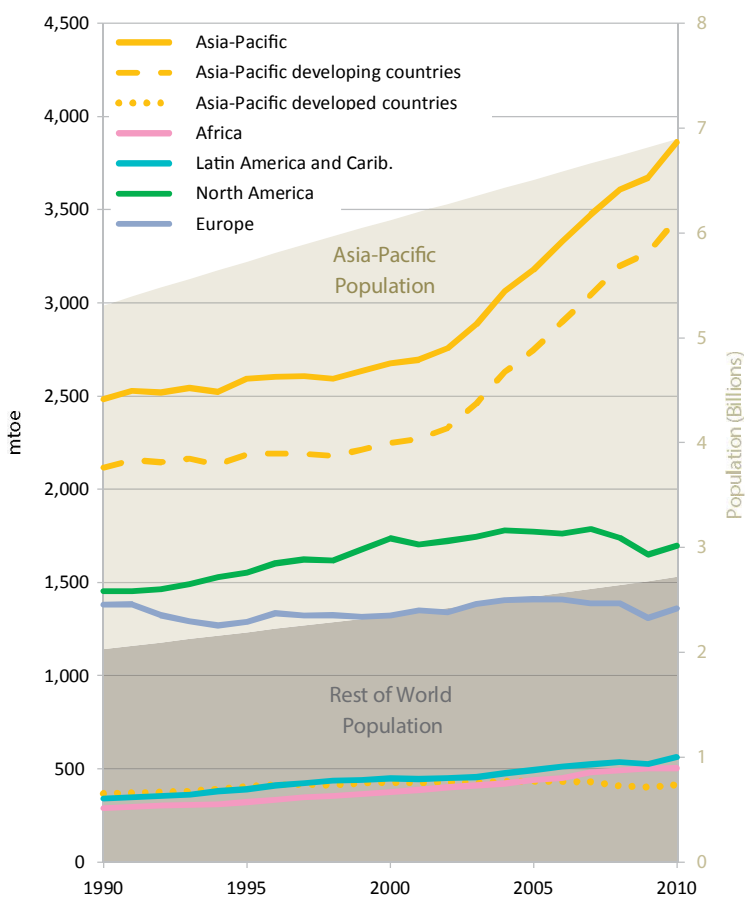
Energy Consumption and Human Development



Data source: ESCAP Statistical Database based on data from IEA

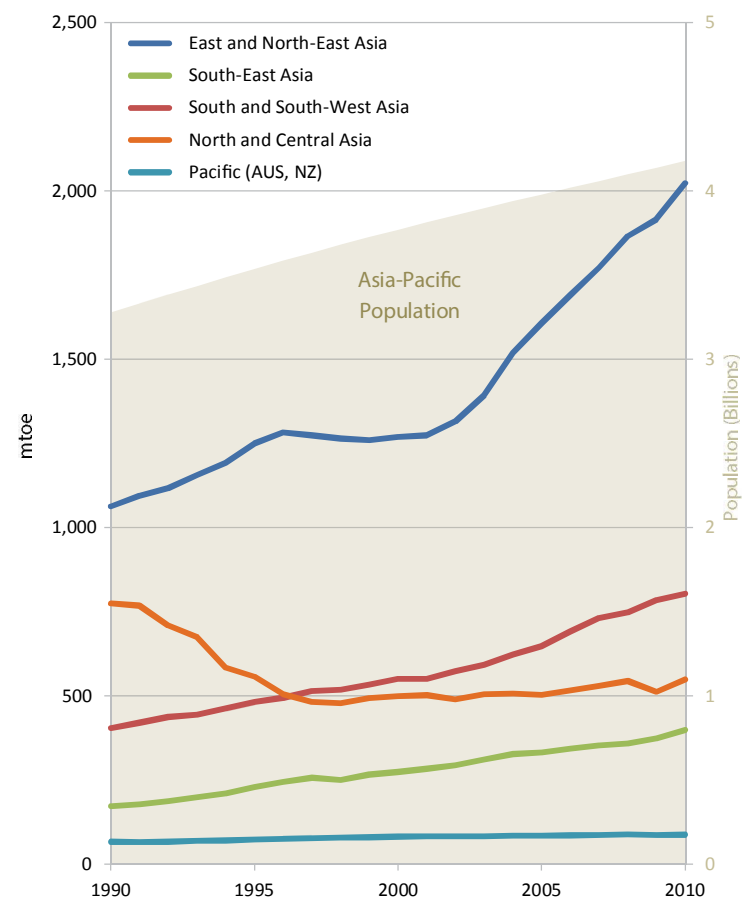
Data sources: World Bank, UNDP, and ESCAP Statistical Database based on data from IEA

Total Energy Consumption and Population by Global Region



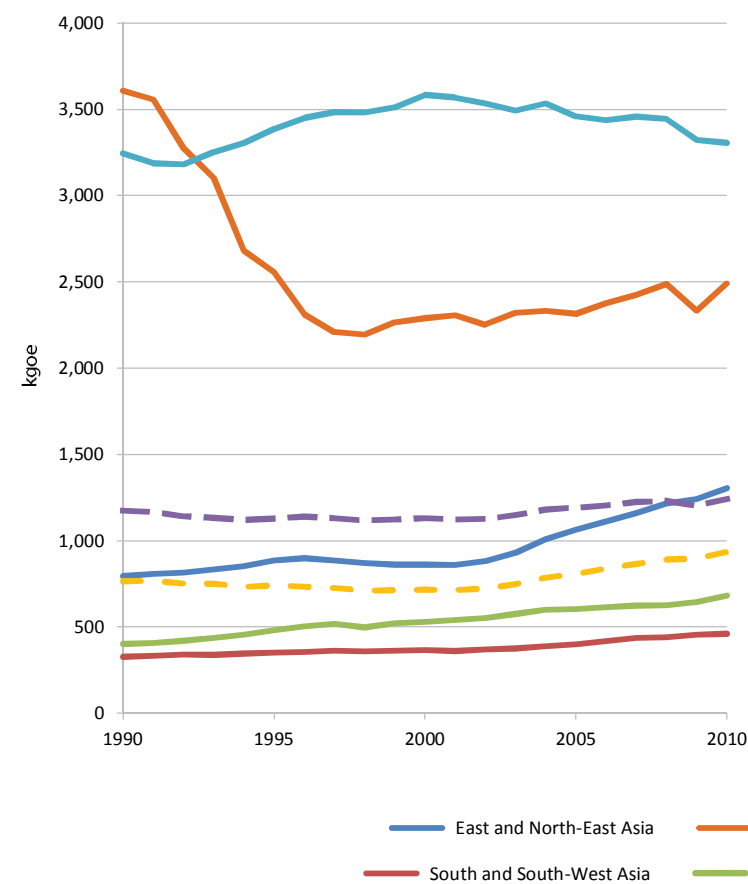
Data source: ESCAP Statistical Database based on data from IEA and WPP2010

Total Energy Consumption and Population by Asia-Pacific Subregion



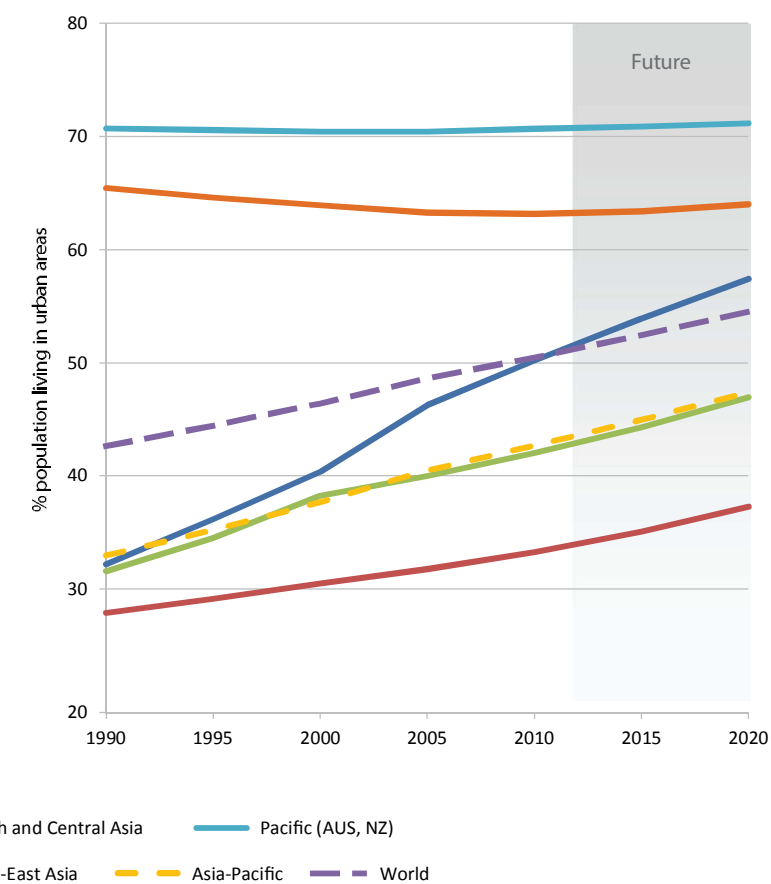
Data source: ESCAP Statistical Database based on data from IEA and WPP2010

Asia-Pacific Per Capita Energy Consumption



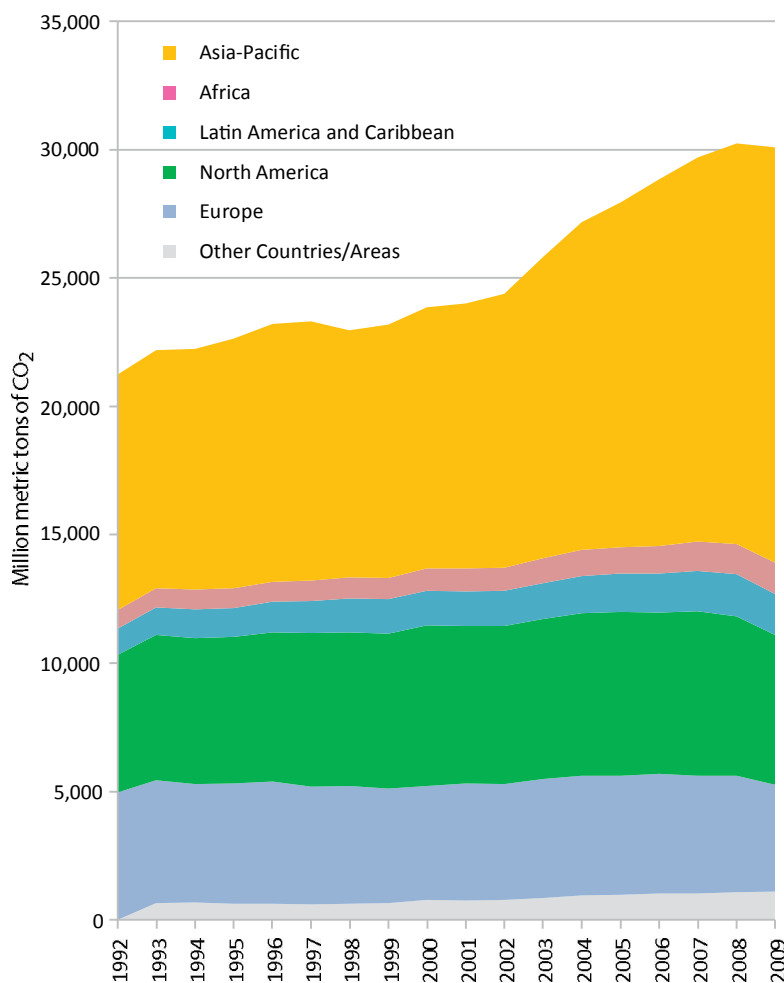
Data source: ESCAP Statistical Database based on data from IEA

Asia-Pacific Urbanisation Trends



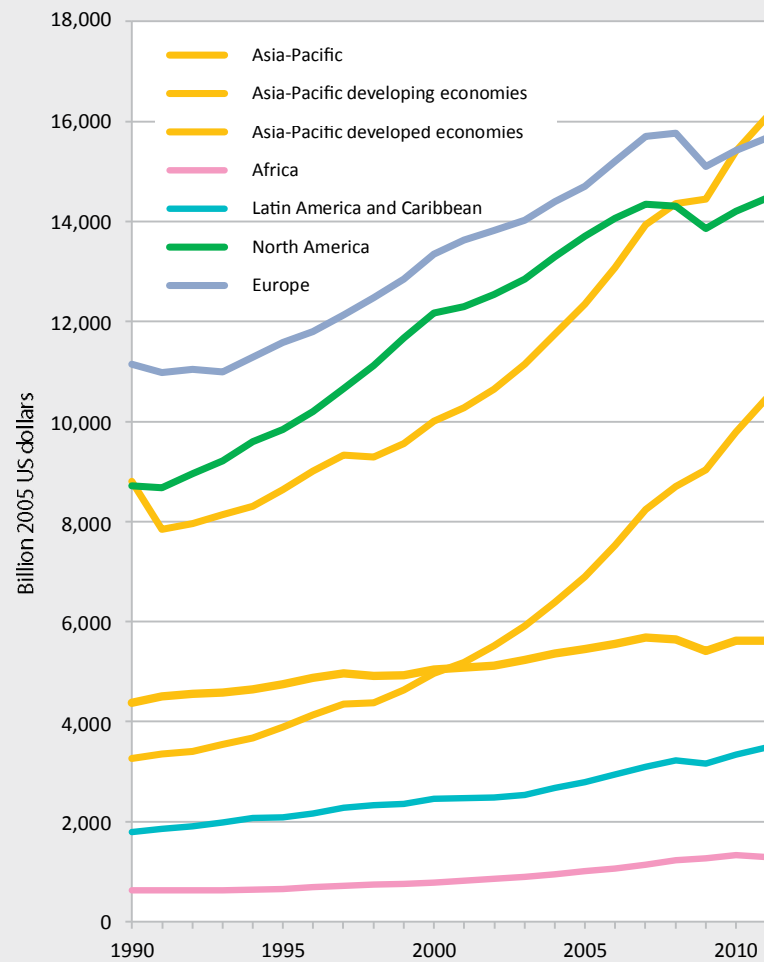
Data source: ESCAP Statistical Database based on data from WPP2010

Global Cumulative Carbon Dioxide (CO₂) Emissions



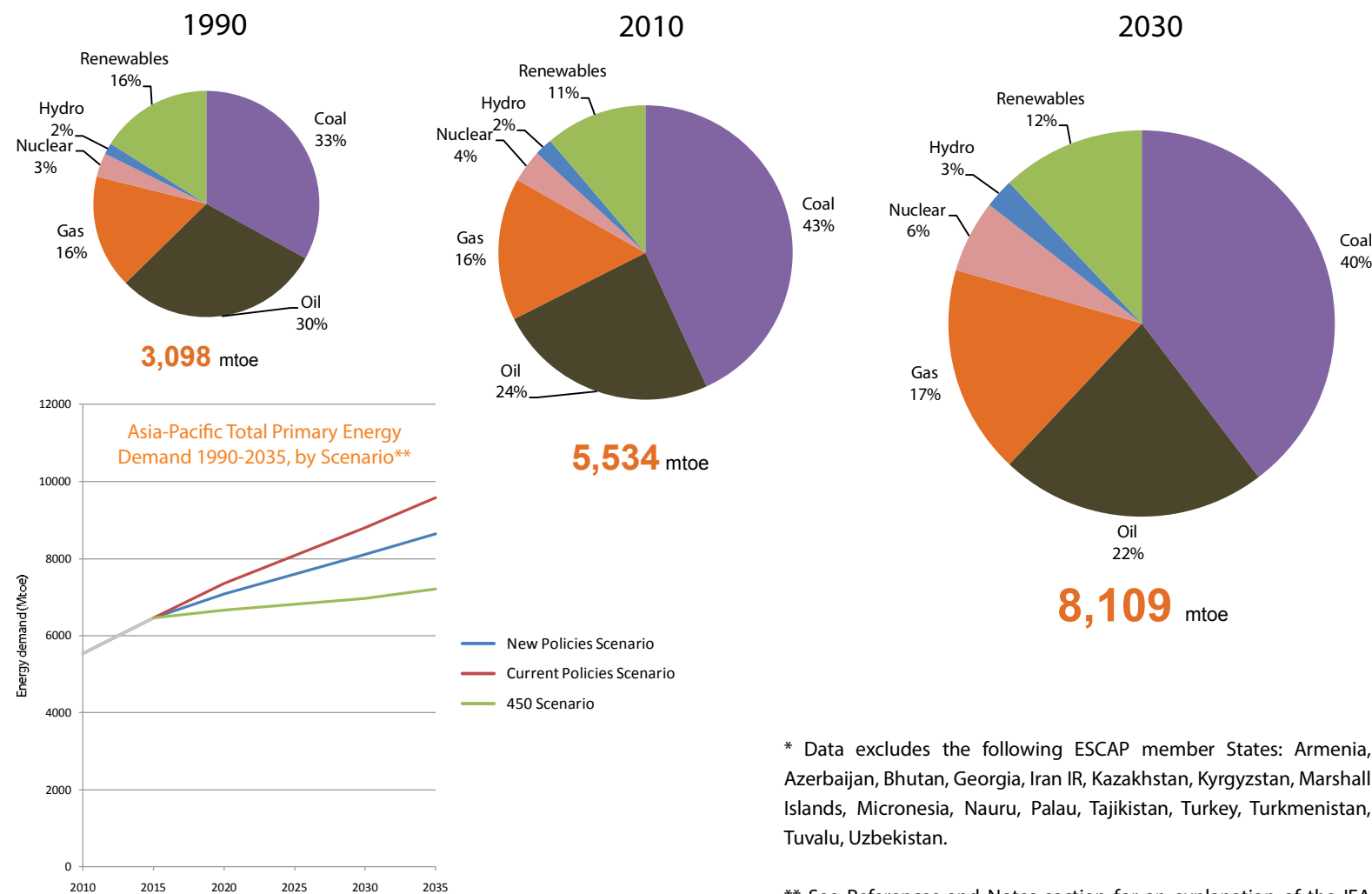
Data source: ESCAP Statistical Database based on data from MDG Indicators database

GDP in 2005 Constant Prices



Data source: ESCAP Statistical Database based on data from NAMAD

Asia-Pacific* Total Primary Energy Demand Outlook in the New Policies Scenario**

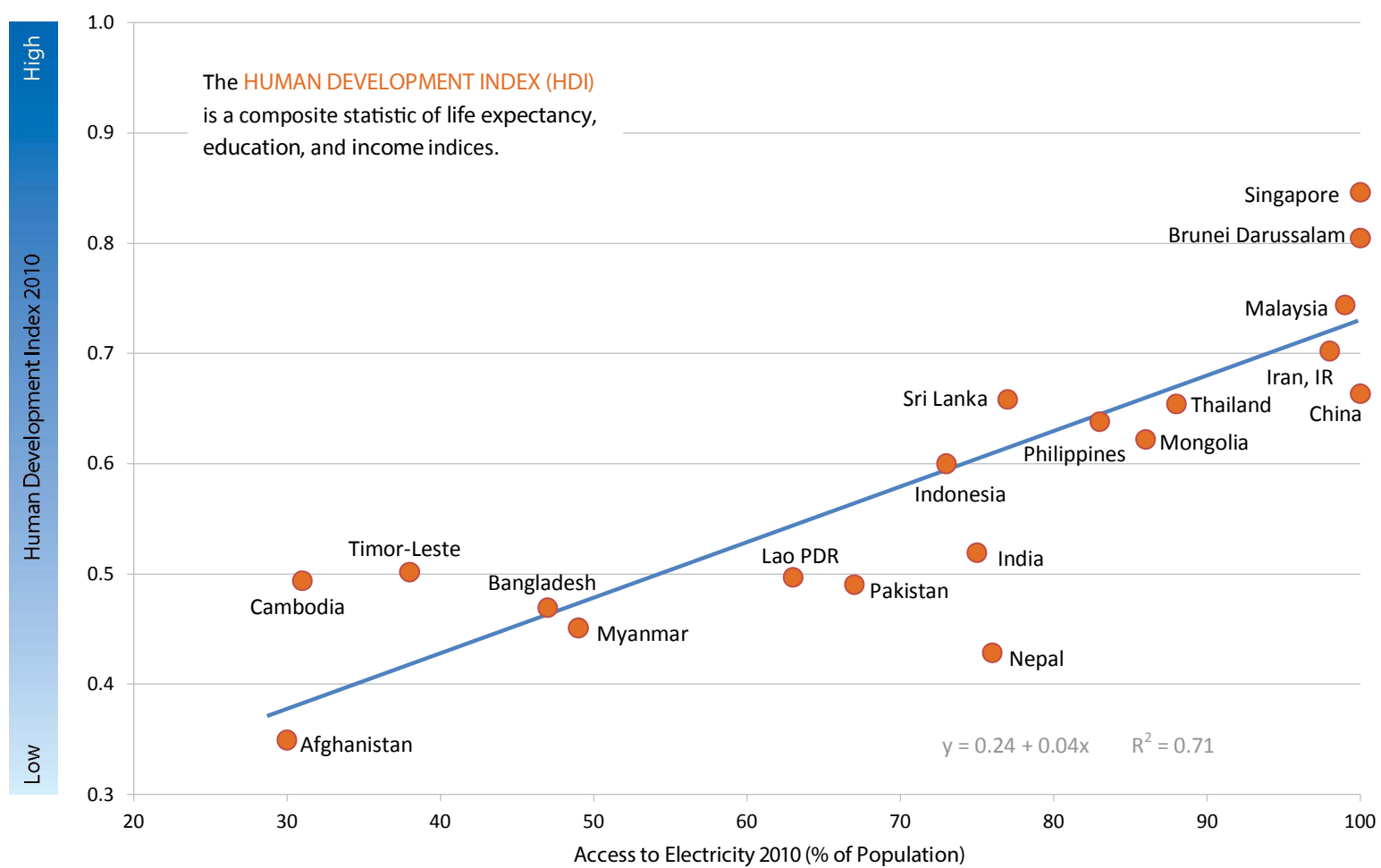


Source: Based on data from IEA World Energy Outlook (WEO) 2012

* Data excludes the following ESCAP member States: Armenia, Azerbaijan, Bhutan, Georgia, Iran IR, Kazakhstan, Kyrgyzstan, Marshall Islands, Micronesia, Nauru, Palau, Tajikistan, Turkey, Turkmenistan, Tuvalu, Uzbekistan.

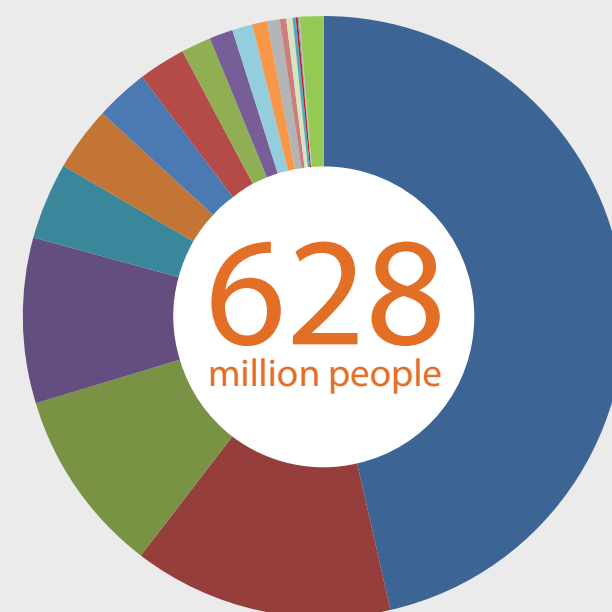
** See References and Notes section for an explanation of the IEA Current Policies Scenario, New Policies Scenario and 450 Scenario.

Access to Electricity and Human Development, Selected Countries, 2010



Data sources: IEA WEO 2011, UNDP

People without Access to Electricity, 2010



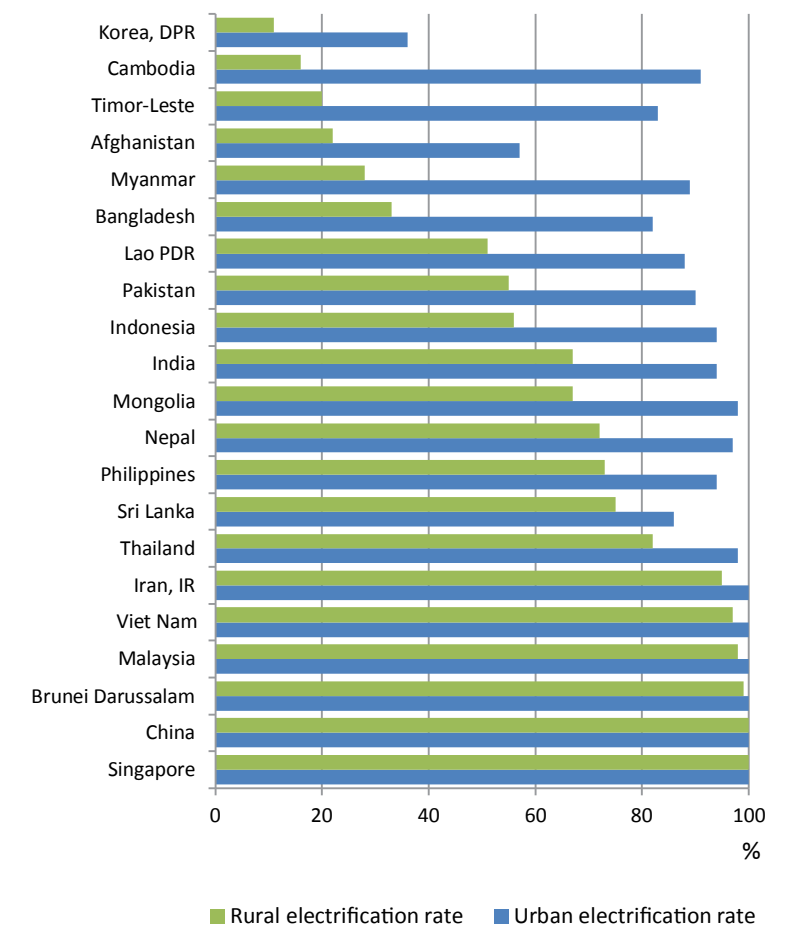
Number of people without electricity access (millions)

293	India	16	Philippines	2.1	Viet Nam
88	Bangladesh	10	Cambodia	1.2	Iran, IR
63	Indonesia	8	Thailand	0.7	Timor-Leste
56	Pakistan	7	Nepal	0.4	Mongolia
26	Myanmar	5	Sri Lanka	0.2	Malaysia
22	Afghanistan	4.2	China	8	Rest of Asia
18	Korea, DPR	2.2	Lao PDR		

Note: Due to rounding, total differs from the sum of all countries.

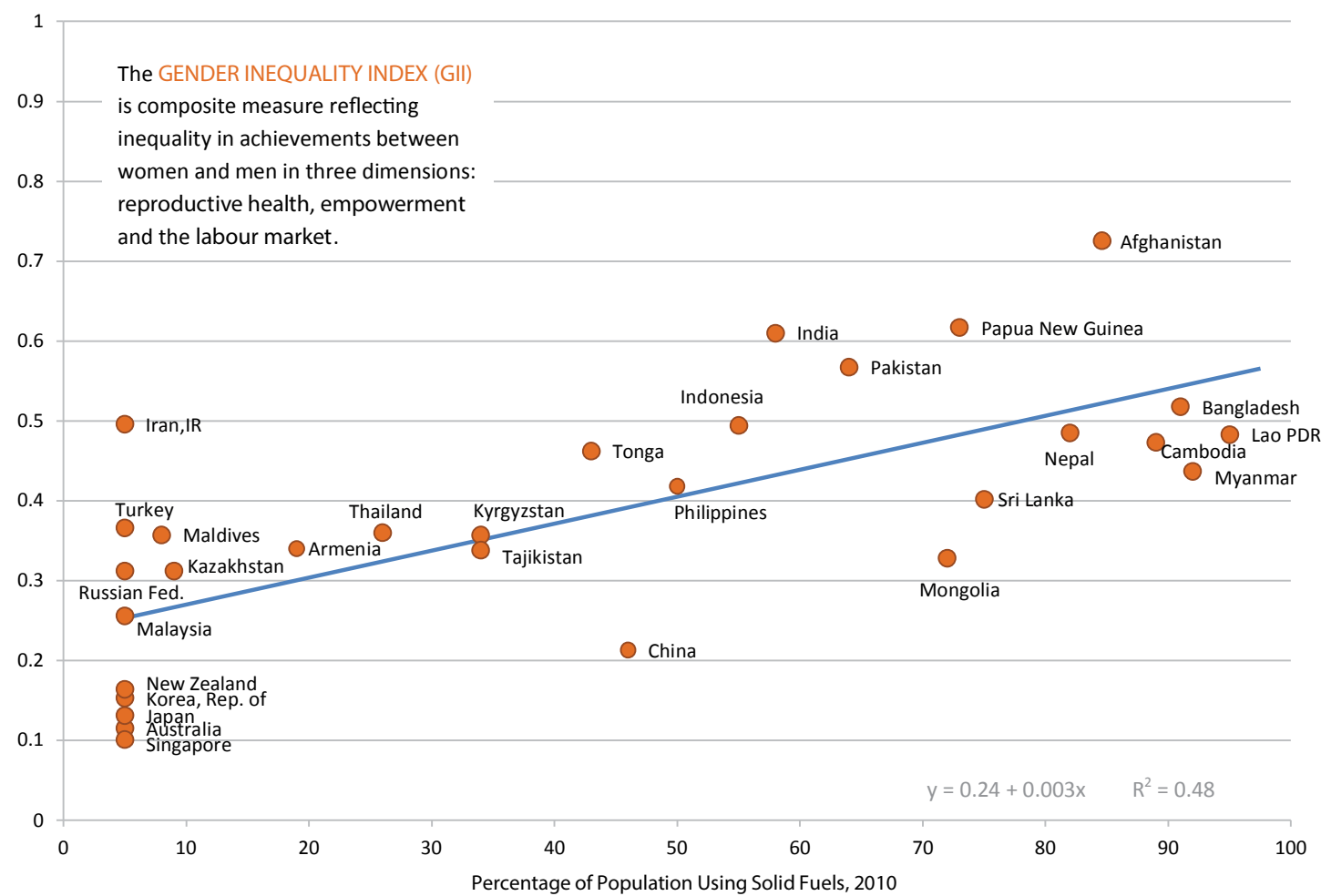
Data source: IEA WEO 2012

Rural and Urban Electrification Rates, Selected Countries, 2010



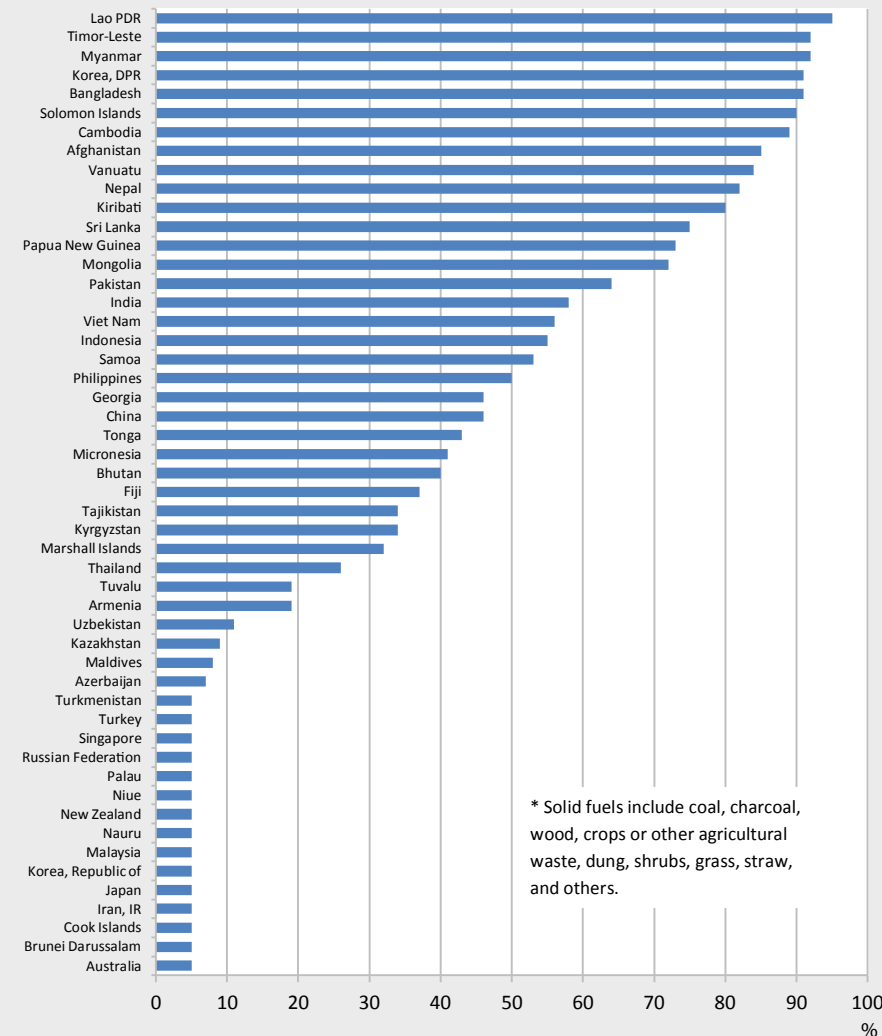
Data source: IEA WEO 2011

Solid Fuel* Use and Gender Inequality, Selected Countries



Data sources: UNDP, UN Data

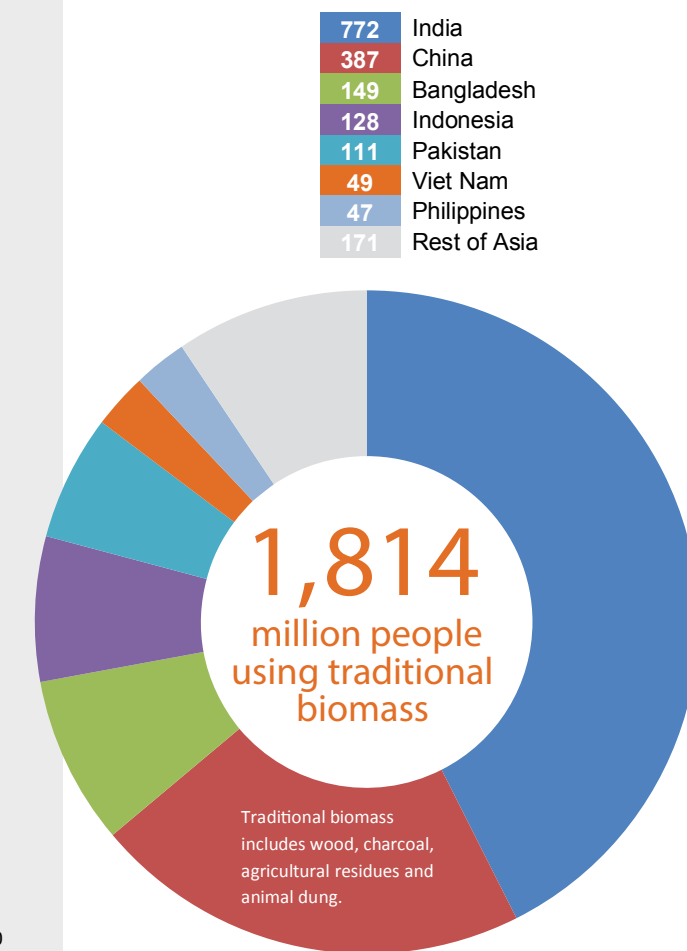
Percentage of Population Using Solid Fuels* 2010



* Solid fuels include coal, charcoal, wood, crops or other agricultural waste, dung, shrubs, grass, straw, and others.

Data source: United Nations Statistics Division based on data from the MDG Indicator Database

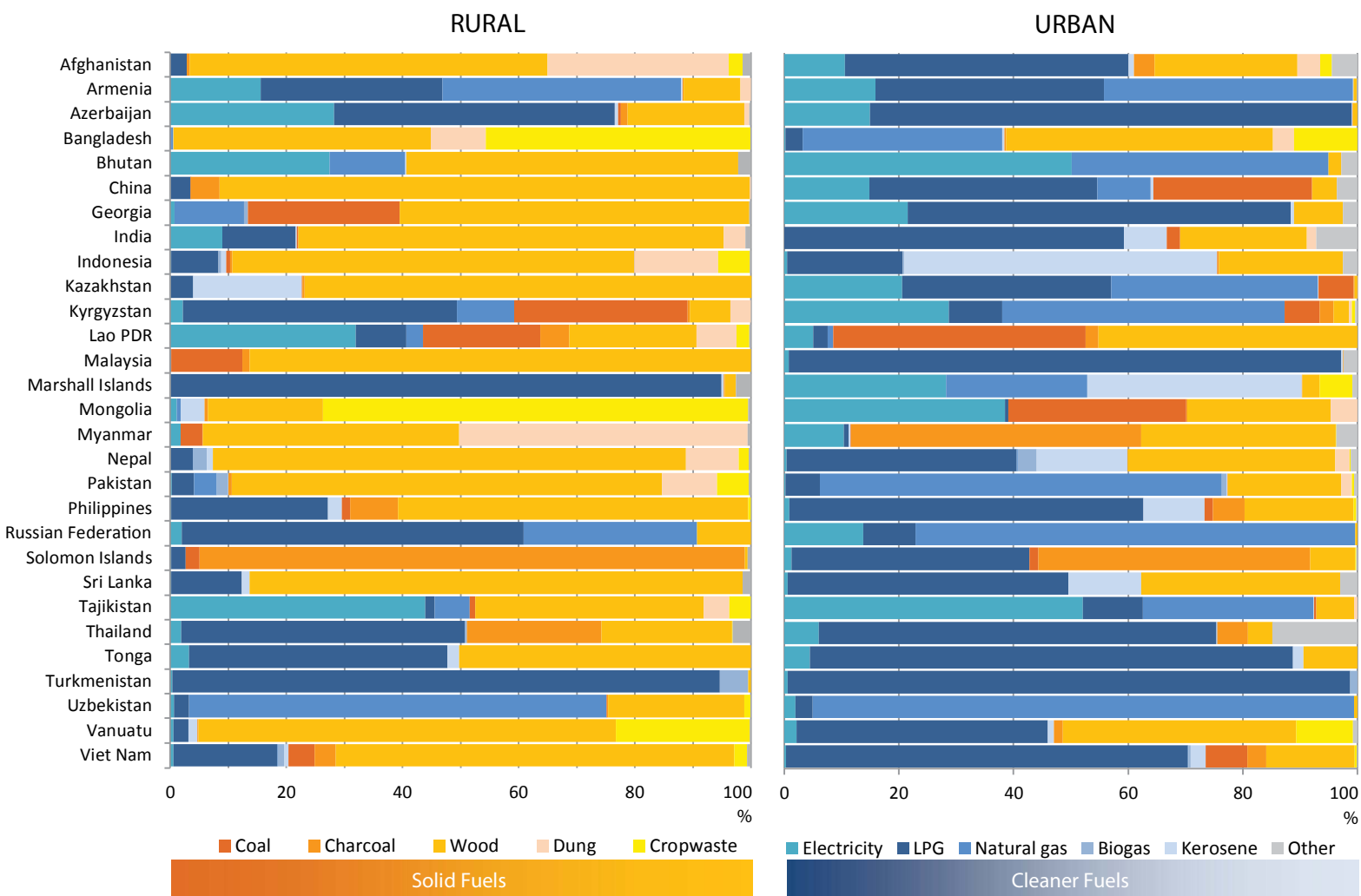
People Using Traditional Biomass 2010 (millions)



Data source: IEA WEO 2012

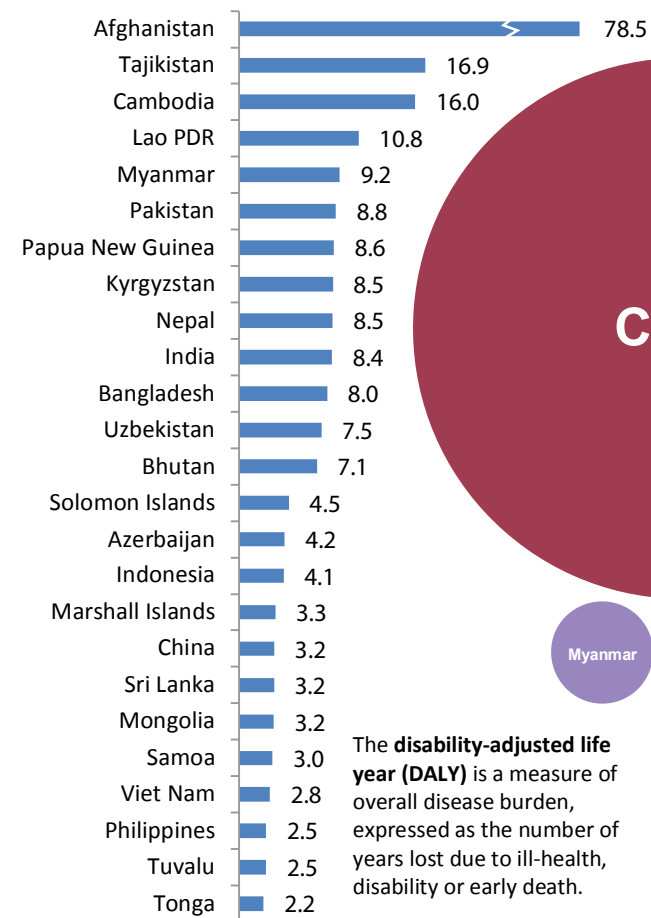
Inequality
Gender Inequality Index, 2012
Equality

Primary Cooking Fuel Mix for Selected Asia-Pacific Countries, 2010



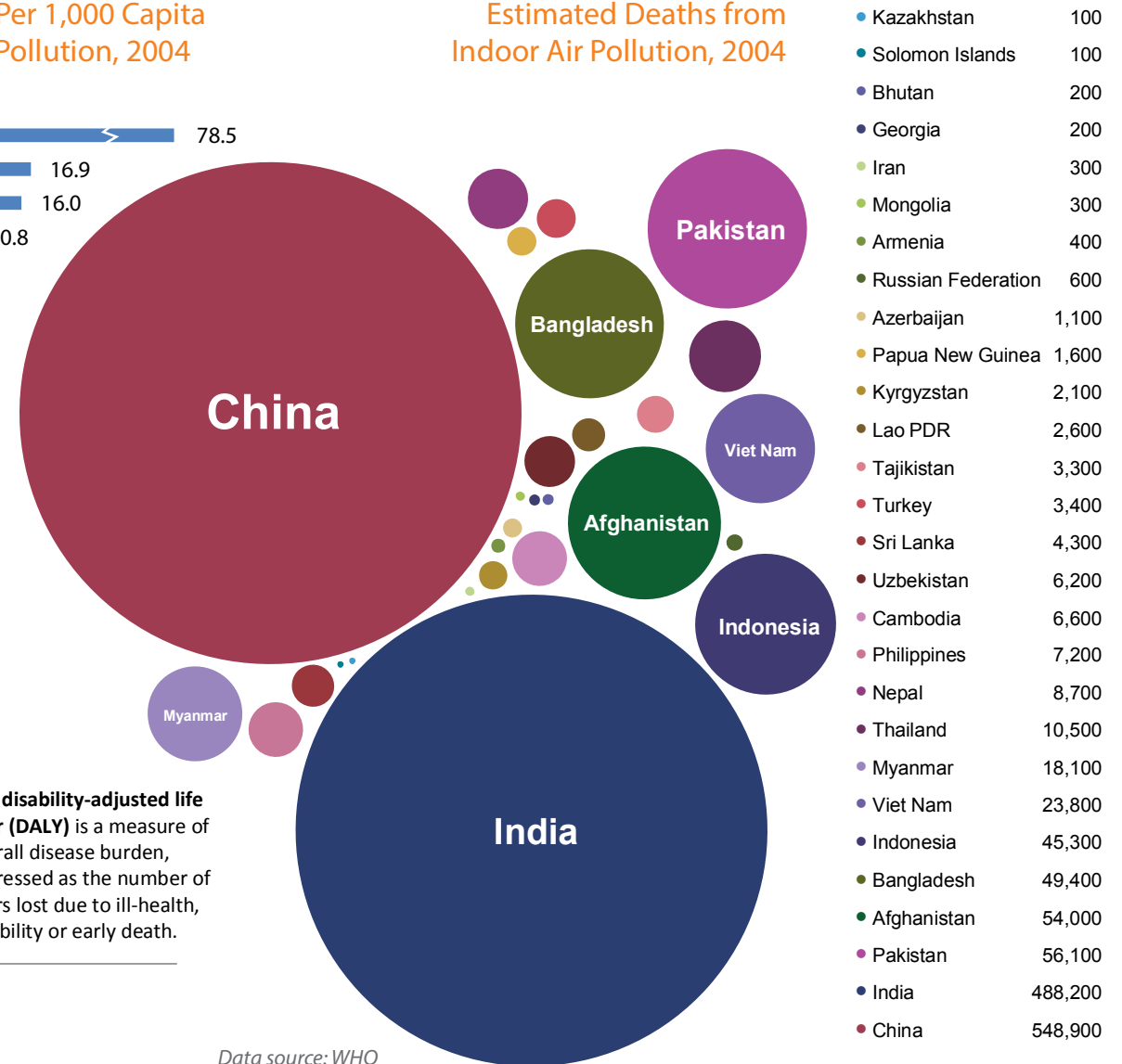
Data source: WHO Household Energy Database

Estimated DALYs Per 1,000 Capita from Indoor Air Pollution, 2004



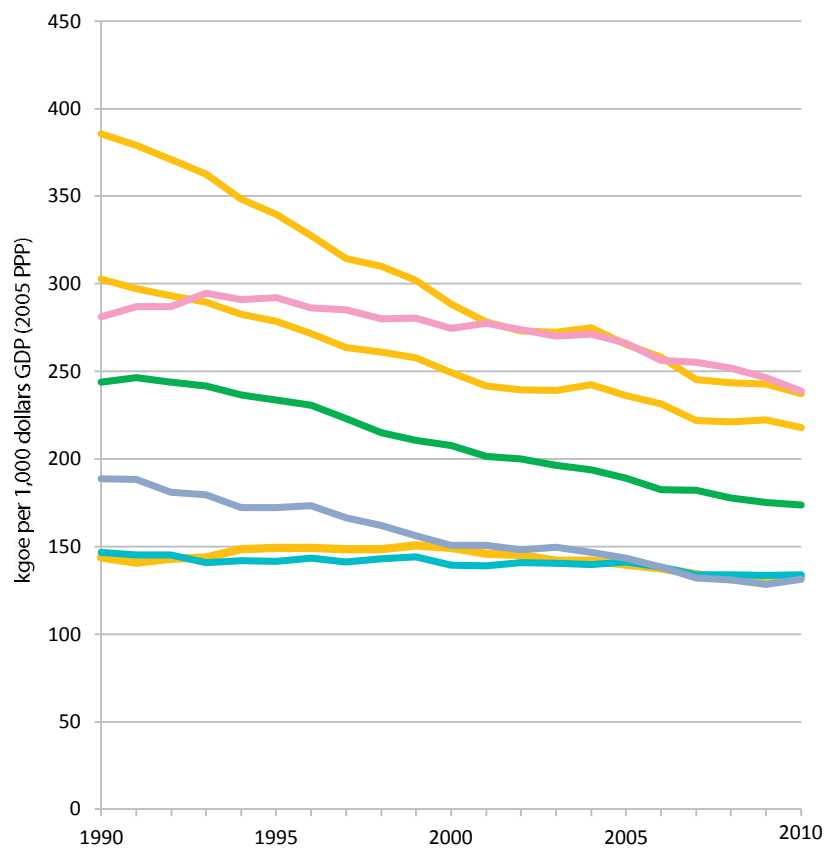
Data source: WHO

Estimated Deaths from Indoor Air Pollution, 2004



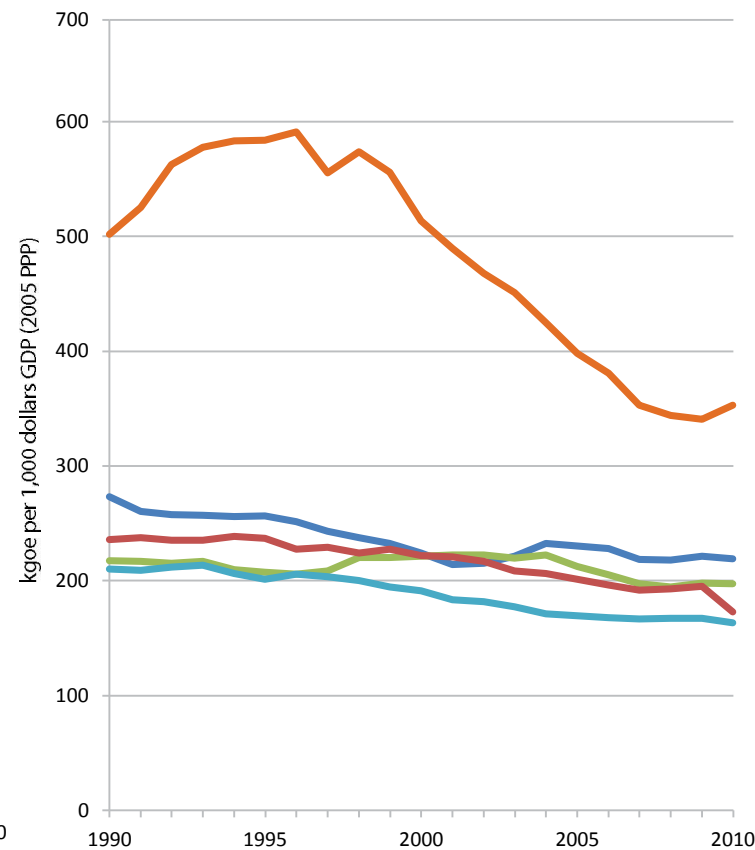
Data source: WHO

Global Regional Primary Energy Intensity



- Asia-Pacific
- Asia-Pacific developed economies
- Asia-Pacific developing economies
- Africa
- Latin America and Caribbean.
- North America
- Europe

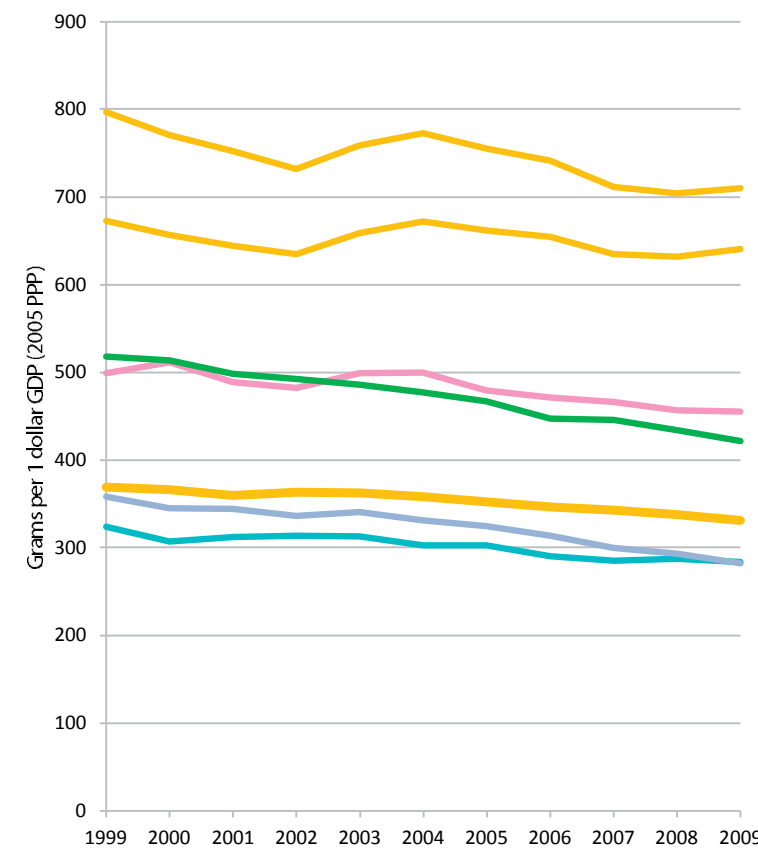
Asia-Pacific Subregional Primary Energy Intensity



- East and North-East Asia
- South and South-West Asia
- Pacific (AUS, NZ)
- South-East Asia
- North and Central Asia

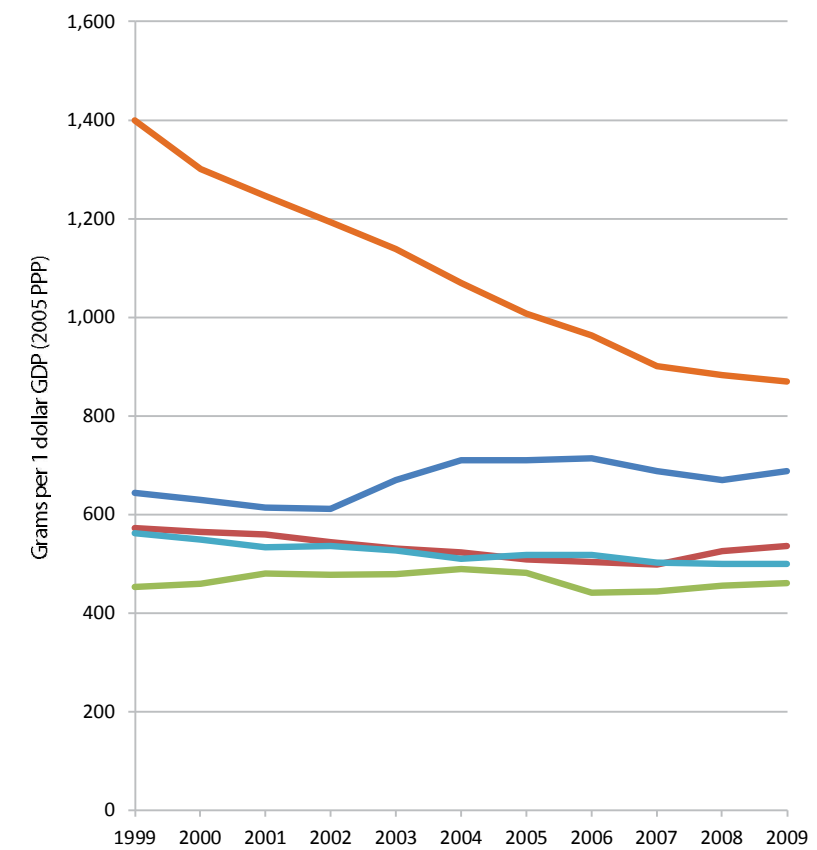
Data source: ESCAP Statistical Database based on data from IEA

Global Regional Carbon Intensity



- Asia-Pacific
- Latin America and Carib.
- Europe
- Asia-Pacific developed economies
- Africa
- North America
- Asia-Pacific developing economies

Asia-Pacific Subregional Carbon Intensity



- East and North-East Asia
- South and South - West Asia
- Pacific
- South-East Asia
- North and Central Asia

Data source: ESCAP Statistical Database based on data from MDG Indicators database

Selected Energy Use and Intensity Reduction Targets

	Energy Use		Energy Intensity	Reduction Target (%)	Baseline Year	Target Year
	(TPES)	(TFC)				
East and North-East Asia						
China			•	16	2010	2015
Hong Kong, China			•	45	2005	2030
Japan			•	30	2003	2030
Korea, Rep.			•	45	2006	2030
South-East Asia						
Brunei Darussalam			•	25	2005	2030
Cambodia		•		10	BAU	2030
Indonesia			•	1%/yr		2025
Lao PDR		•		10	BAU	2030
Malaysia		•		10	2011	2030
Myanmar	•			5	BAU	2020
	•			10	BAU	2030
Philippines		•		10	BAU	2030
Singapore			•	20	2005	2020
			•	35	2005	2030
Thailand			•	15	2005	2020
			•	25	2005	2030
Viet Nam		•		8	2006	2015
South and South-West Asia						
India		•		5	2010	2015
North and Central Asia						
Kazakhstan			•	10	2011	2010
			•	25	2011	2020
Russian Federation			•	40	2007	2020
Pacific						
New Zealand			•	1.3%/yr	2010	2021

Sources: China Twelfth Five-Year Plan (2011-2015), APEC Sydney Joint Declaration, Japan Energy Conservation Centre, Republic of Korea National Energy Basic Plan (2008 - 2030), ASEAN Centre for Energy, Indonesian National Energy Conservation Master Plan (2005), Sustainable Singapore Development Blueprint (2009), Thailand 20-Year Energy Efficiency Development Plan (EEDP) 2011-2030, Vietnam National Energy Efficiency Program (VNEEP, 2006 -2015), Comprehensive Plan for Energy Efficiency Improvement in the Republic of Kazakhstan (2012-2015), Energy Efficiency and Energy Sector Development National Program of the Russian Federation (2013-2020), New Zealand Energy Efficiency and Conservation Strategy (2011-2016)

Note:
 TPES = Total Primary Energy Supply
 TFC = Total Final Consumption
 BAU = Business as usual

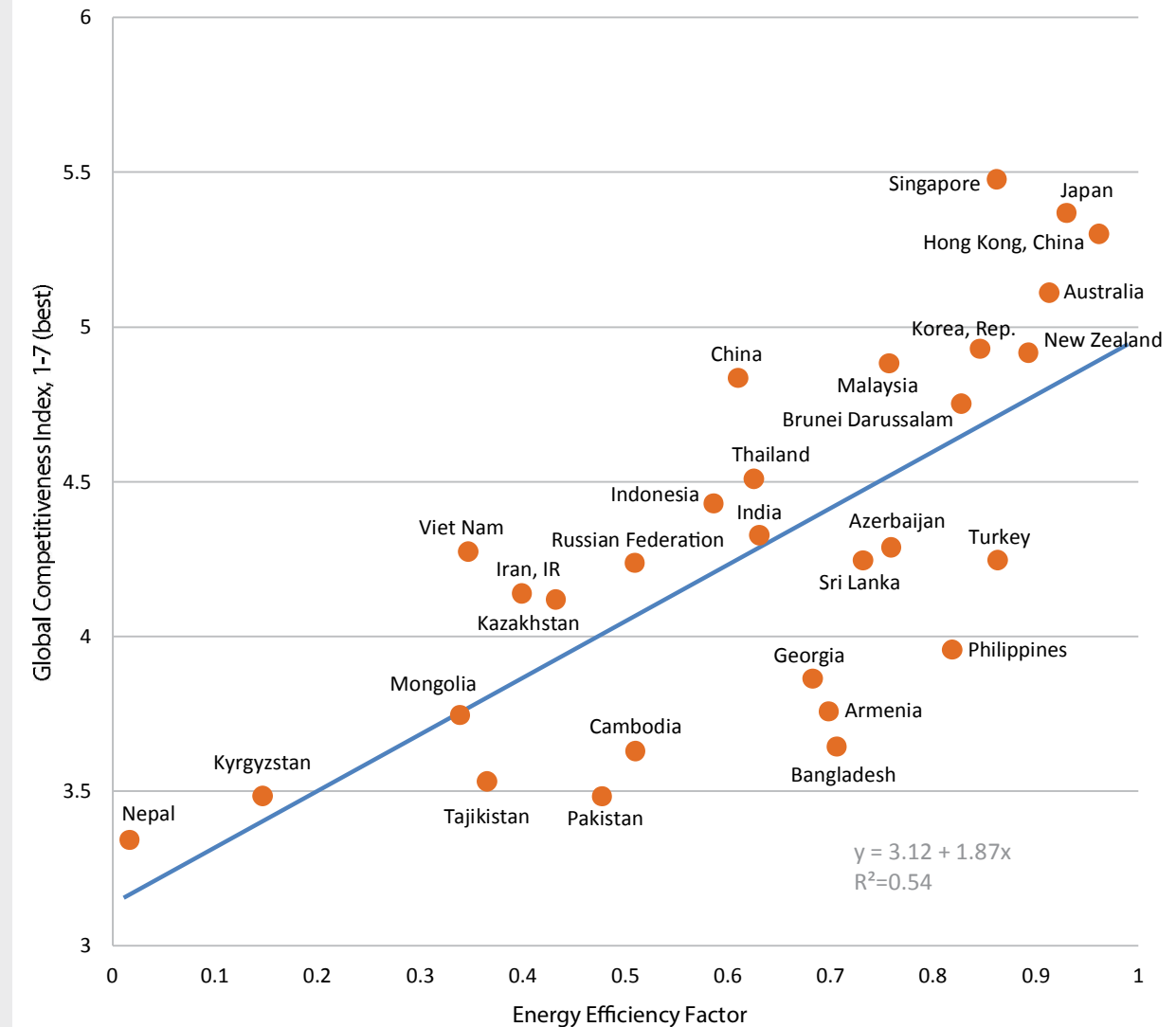
The **GLOBAL COMPETITIVENESS INDEX** is a composite statistic published annually by the World Economic Forum. The index is comprised of over 100 variables under 12 pillars including: institutions, infrastructure, macroeconomy, health and primary education, higher education, goods market efficiency, labour markets, financial markets, technological readiness, market size, business sophistication, and innovation.

Data source:
 World Economic Forum

The **ENERGY EFFICIENCY FACTOR** value is derived from subtracting final energy intensity (total final consumption per unit GDP [kgoe/2005 Contant USD]) from 1. A higher value represents greater efficiency.

Data source: ESCAP Statistical Database based on data from IEA and NAMAD

Energy Efficiency and Economic Competitiveness, 2010



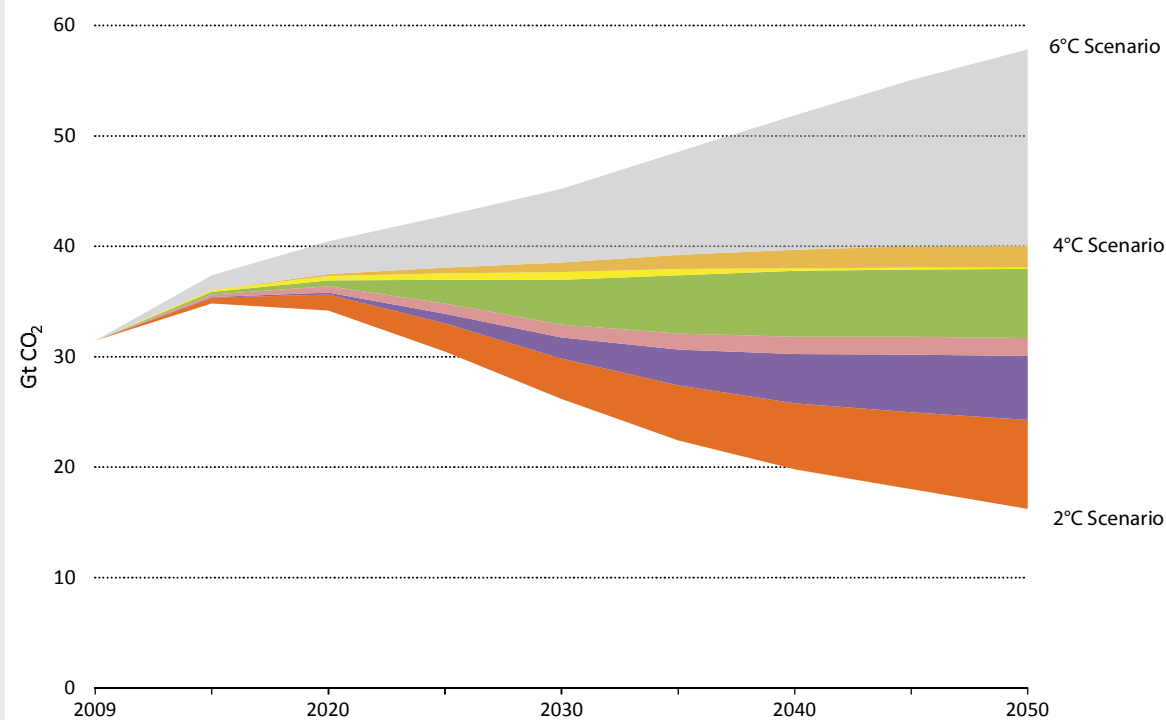
LIMITING GLOBAL WARMING

The **6°C Scenario (6DS)** is largely an extension of current trends and is broadly consistent with the Current Policies Scenario*. By 2050, energy use almost doubles (compared with 2009) and total Green House Gas (GHG) emissions rise even more. In the absence of efforts to stabilise atmospheric concentrations of GHGs, average global temperature rise is projected to be at least 6°C in the long term.

The **4°C Scenario (4DS)** takes into account recent pledges made by countries to limit emissions and step up efforts to improve energy efficiency. It is broadly consistent with the New Policies Scenario.

The **2°C Scenario (2DS)** describes an energy system consistent with an emissions trajectory that recent climate science research indicates would give an 80% chance of limiting average global temperature increase to 2°C. It is broadly consistent with the 450 Scenario. It sets the target of cutting energy-related CO₂ emissions by more than half in 2050 (compared with 2009) and ensuring that they

Technological Contributions to Global Emissions Reductions to Achieve the 2°C Scenario

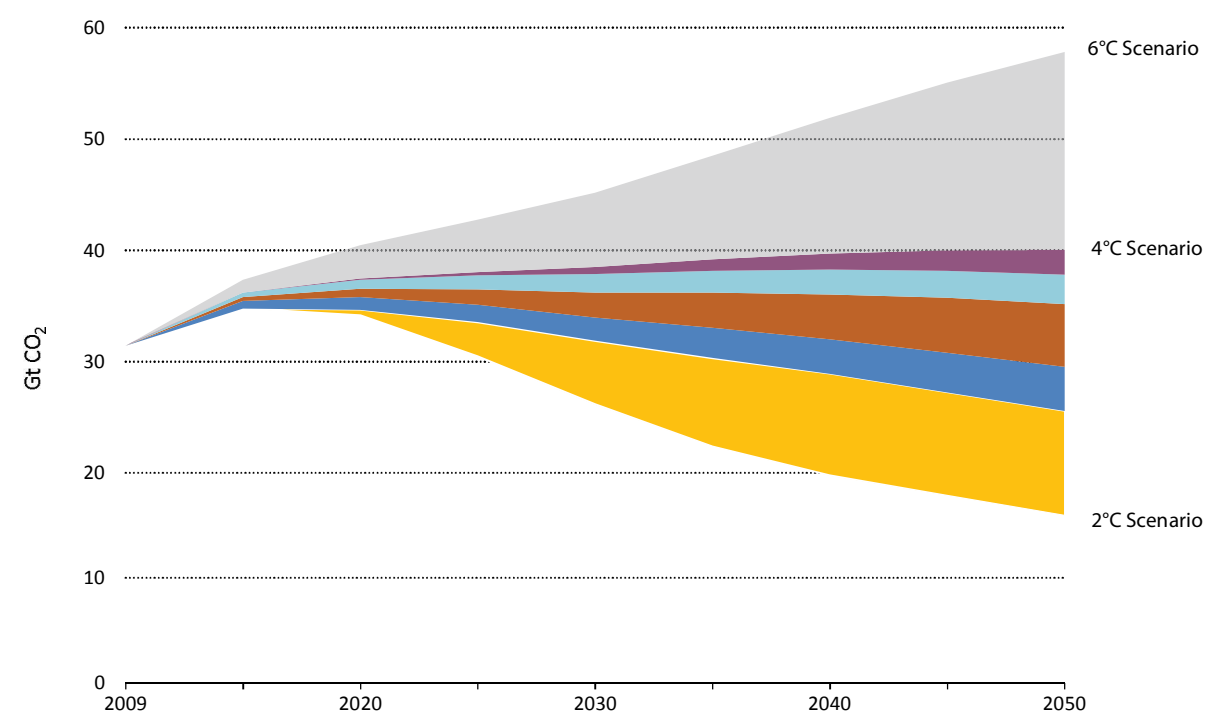


- End-use fuel and electricity efficiency 31%
- CCS 22%
- End-use fuel switching 9%
- Renewables 28%
- Power generation efficiency and fuel switching 3%
- Nuclear 9%

Note: CCS = Carbon Capture and Storage
Source: IEA, Energy Technology Perspectives 2012

*See the References and Notes section for a further explanation of the various scenarios.

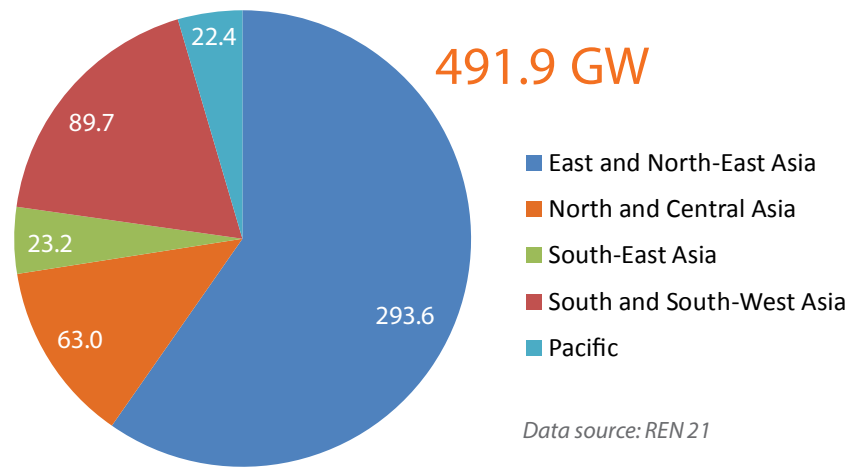
Sectoral Contributions to Global Emissions Reductions to Achieve the 2°C Scenario



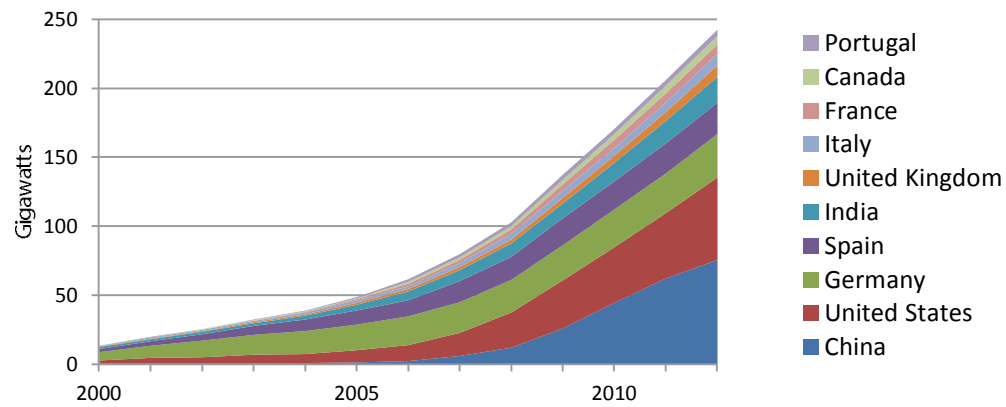
- Power generation 42%
- Industry 18%
- Transport 21%
- Buildings 13%
- Other transformation 7%

Source: IEA, Energy Technology Perspectives 2012

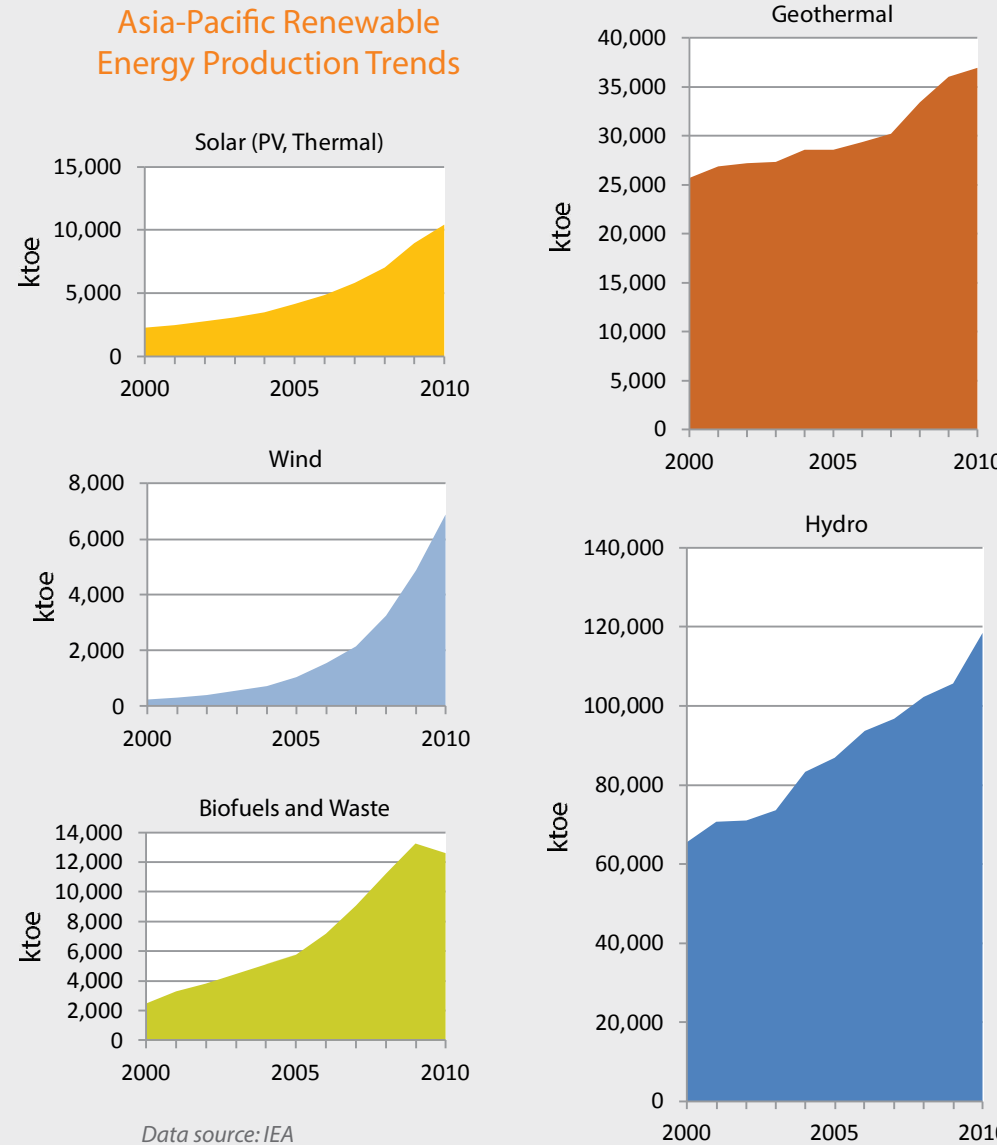
Asia-Pacific Installed Renewable Energy Capacity Including Hydro (GW), 2009/2010



Cumulative Installed Wind Power Capacity in Top Ten Countries, 1990-2012



Asia-Pacific Renewable Energy Production Trends



Renewable Energy Policies, Selected Countries

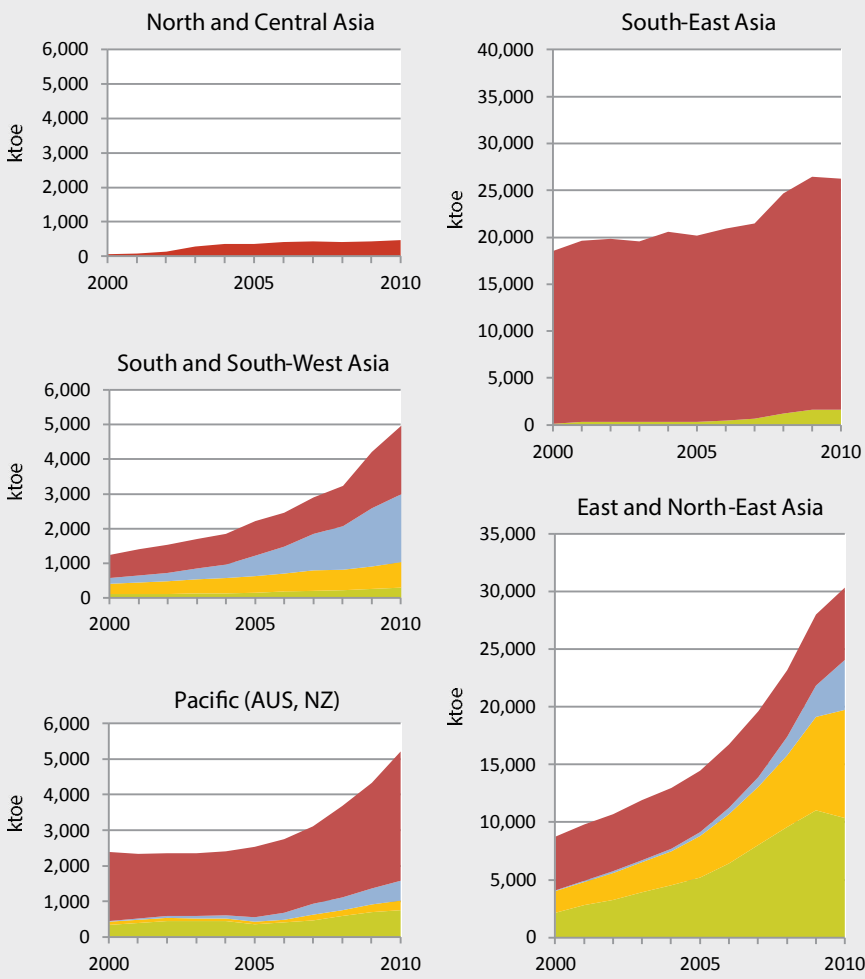
Country	Fiscal Incentives			Public Financing		Regulatory Policies					Tradable REC	
	Capital subsidy, grant, or rebate	Investment or production tax credits	Tax reductions	Energy Production payment	Public investment, loans or grants	Public competitive bidding	Feed-in tariff (incl. premium payment)	Electric utility quota obligator/RPS	Net metering	Biofuels obligator/mandate		Heat obligator/mandate
Armenia							•					
Australia	•				•		•			•		•
Bangladesh	•				•							
China	•			•	•	•	•	•		•	•	
India	•	•			•	•	•	•		•	•	•
Indonesia	•	•	•		•	•	•	•		•		
Iran, IR		•		•			•					
Japan	•				•			•	•			•
Kazakhstan							•					•
Korea, Rep.	•	•	•		•			•	•	•		•
Kyrgyzstan	•						•	•				
Malaysia					•	•	•	•		•		
Marshall Isl.				•								
Mongolia						•	•					
Nepal	•	•	•		•	•						
New Zealand	•						•		•			
Pakistan	•				•		•					
Palau								•				
Philippines	•	•	•	•	•	•	•	•	•	•		
Russian Fed.	•											
Singapore					•				•			
Sri Lanka	•		•	•	•		•	•		•		
Thailand			•	•	•		•			•		
Turkey	•				•		•					
Viet Nam	•	•	•				•					

RPS = Renewable Portfolio Standard

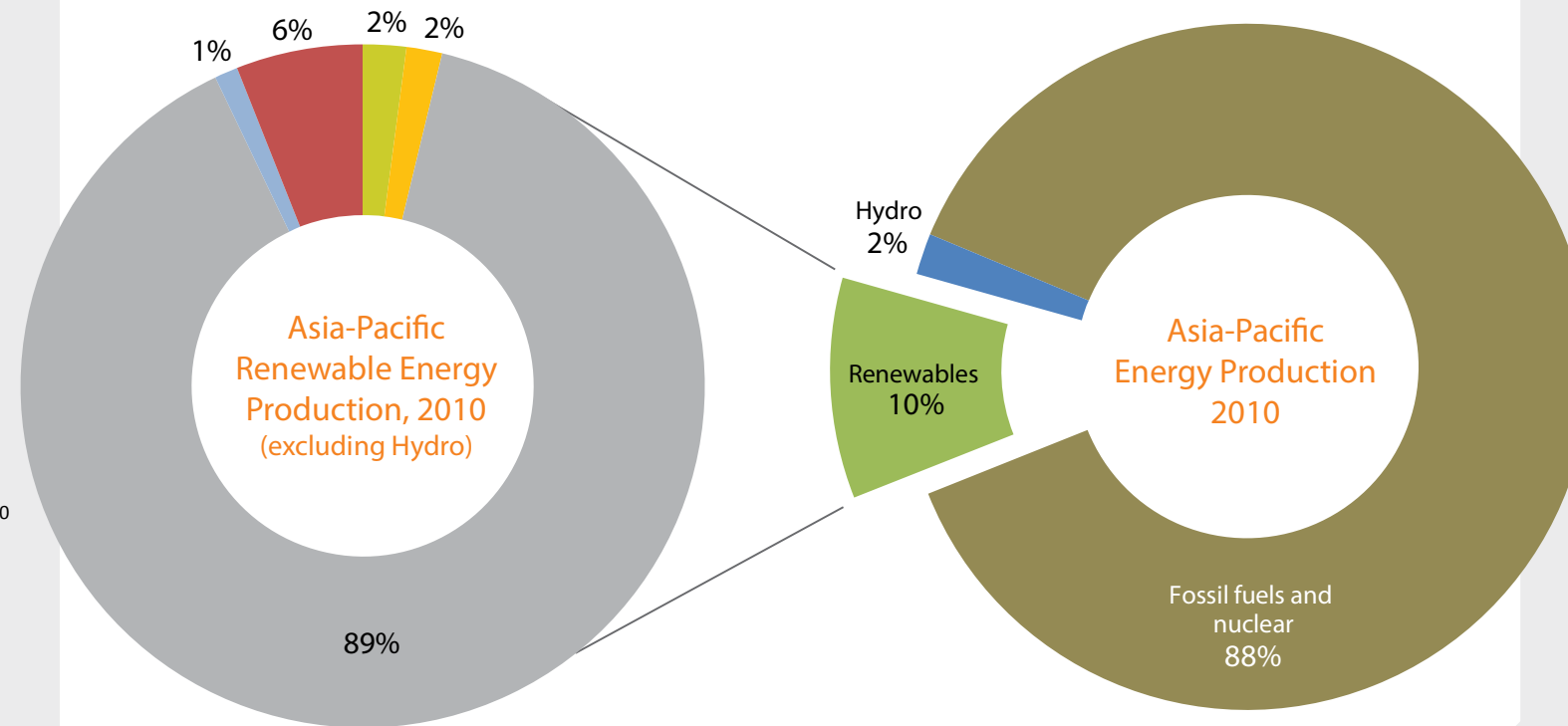
• national-level policy • state/provincial policy

Source: REN21 Renewables 2012 Global Status Report

Asia-Pacific Renewable Energy Production, by Subregion (excluding Hydro and Solid Biomass)



Source: IEA



- Biofuels and Waste*
- Solar
- Solid Biomass
- Wind
- Geothermal

* Includes: biogas, sludge gas, landfill gas, renewable municipal waste, biodiesel, and biogasoline.

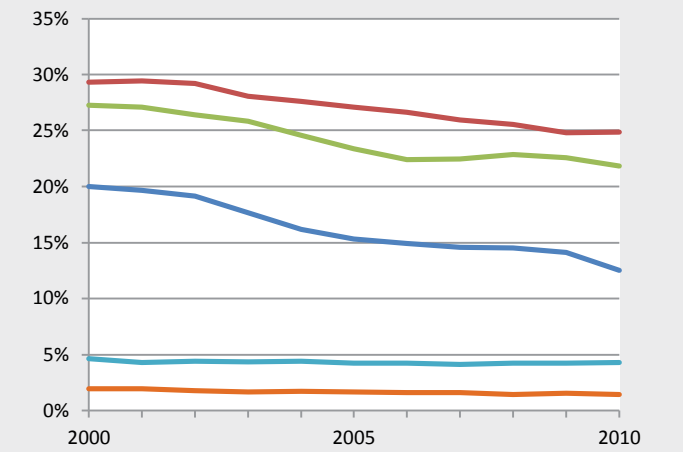
Data source: IEA

- East and North-East Asia
- North and Central Asia
- South-East Asia
- South and South-West Asia
- Pacific (AUS, NZ)

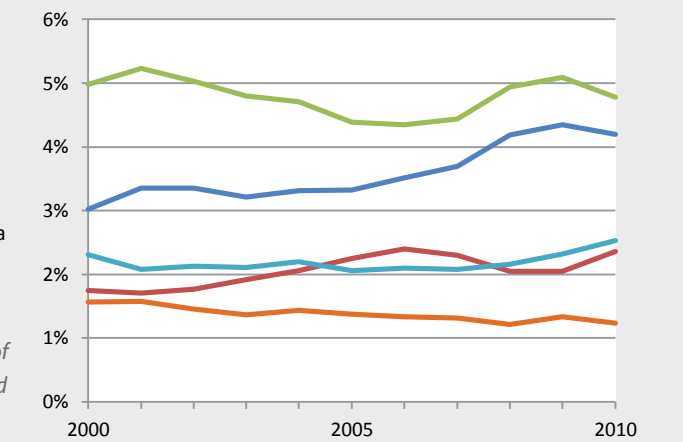
** Includes: hydro, geothermal, solar PV, solar thermal, tidal, wind, municipal waste (renewable), solid biomass, charcoal, landfill gas, sludge gas, other biogases, biogasoline, biodiesel, and other liquid biofuels.

*** Solid biomass includes a multitude of woody materials such as firewood, wood chips, bark, sawdust, shavings, chips, sulphite lyes, and animal waste.

Renewables** as % of Total Energy Production

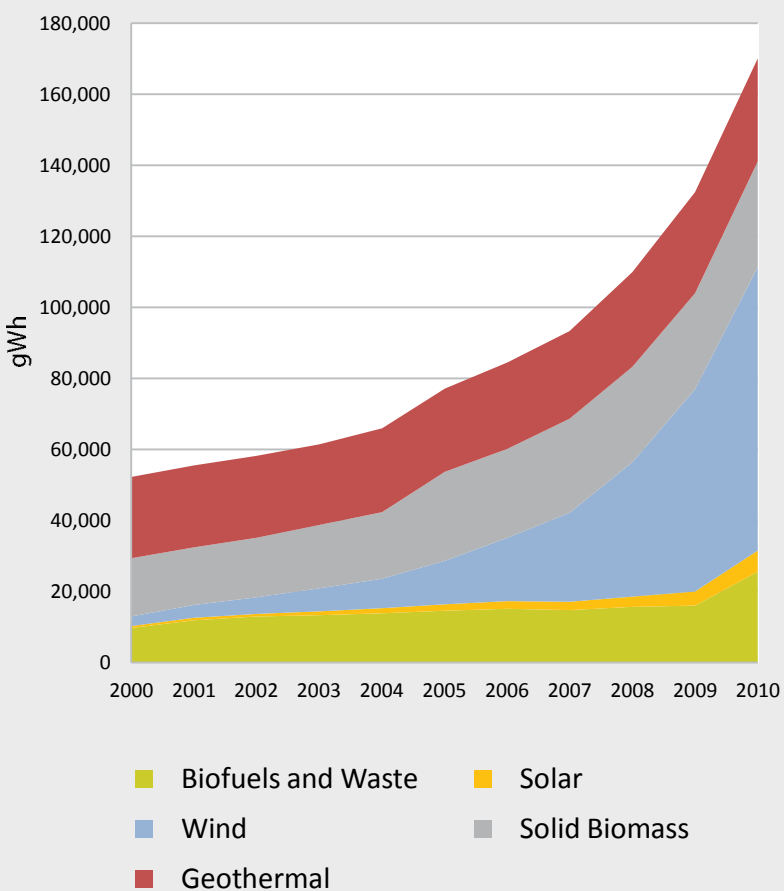


Renewables (excluding Solid Biomass***) as % of Total Energy Production

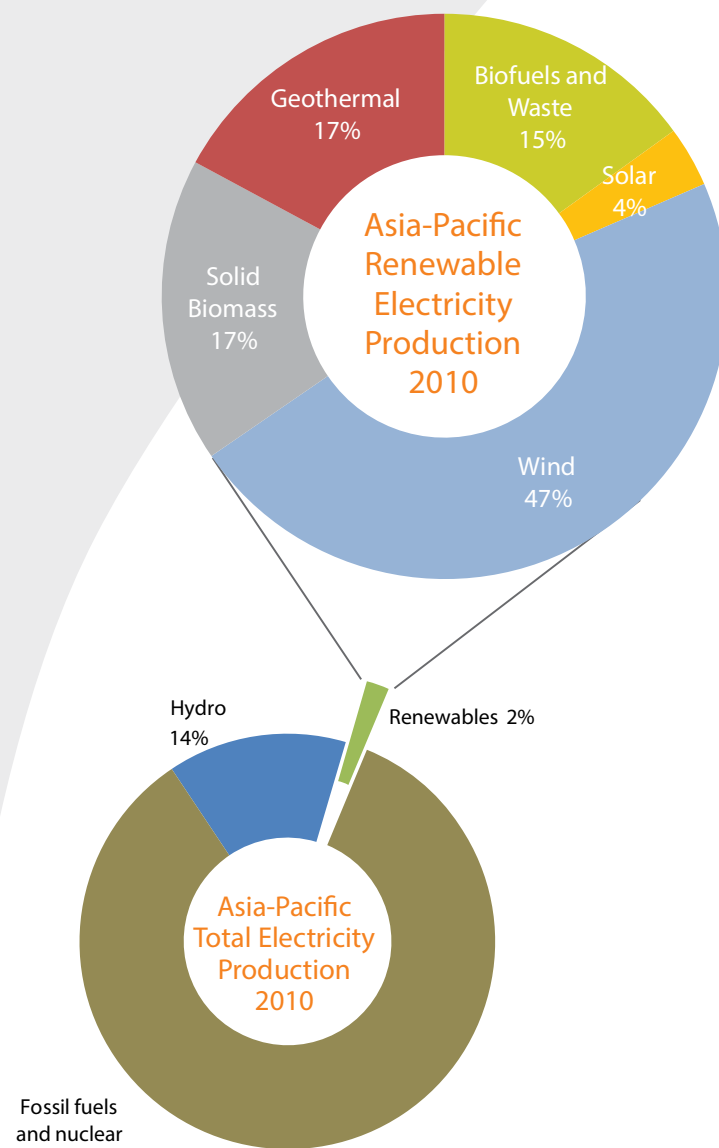


Data source: IEA

Asia-Pacific Electricity Production from Renewables (excluding Hydro)



Data source: IEA



Data source: IEA

Potential Employment Creation through Off-Grid Renewable Electricity

	Jobs per megawatt
Solar	30
Small Hydro	4
Biomass	15
Wind	22

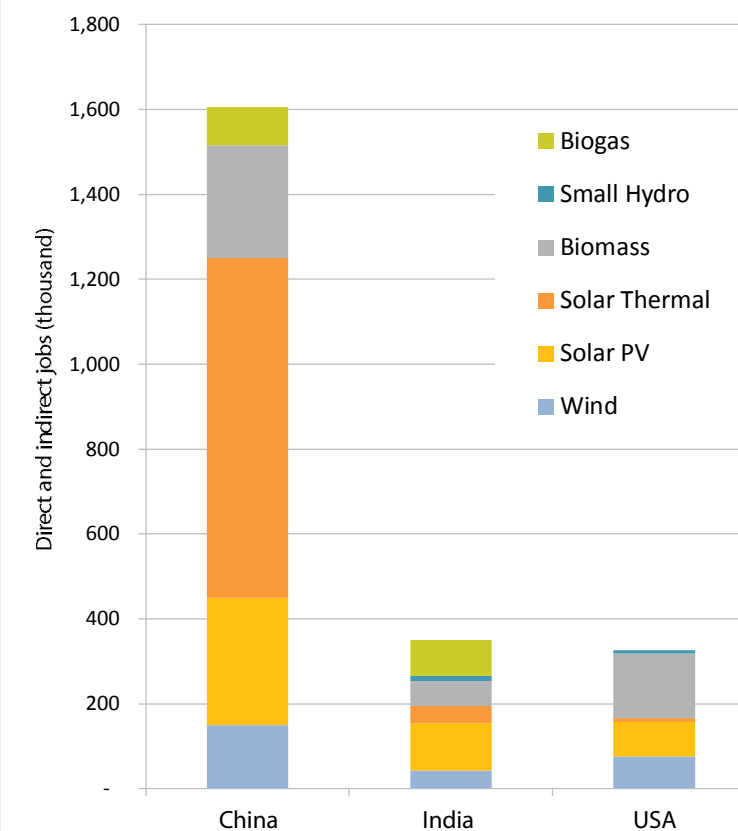
Source: IRENA, 2012

Average Employment over Life of Power Plants (Estimated jobs per megawatt of average capacity)

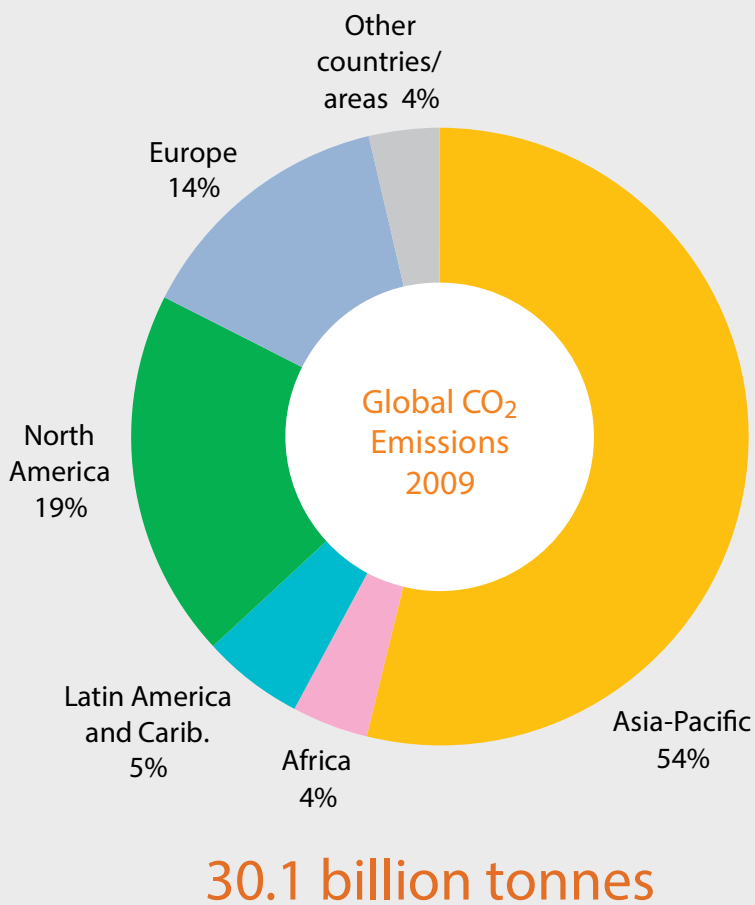
	Manufacturing, Construction, Installation	Operations & Maintenance/Fuel Processing	Total
Solar PV	5.76–6.21	1.20–4.80	6.96–11.01
Wind Power	0.43–2.51	0.27	0.70–2.78
Biomass	0.4	0.38–2.44	0.78–2.84
Coal-Fired	0.27	0.74	1.01
Natural Gas-Fired	0.25	0.7	0.95

Source: UNEP, 2008

Renewable Energy Employment 2009/10

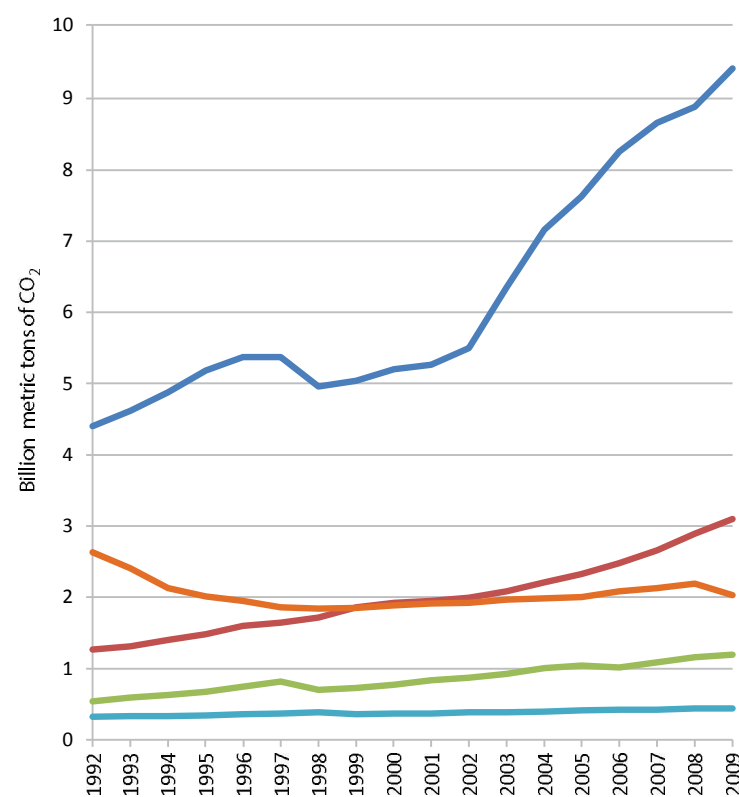


Source: ILO, 2012



Data source: ESCAP Statistical Database based on data from MDG Indicators database

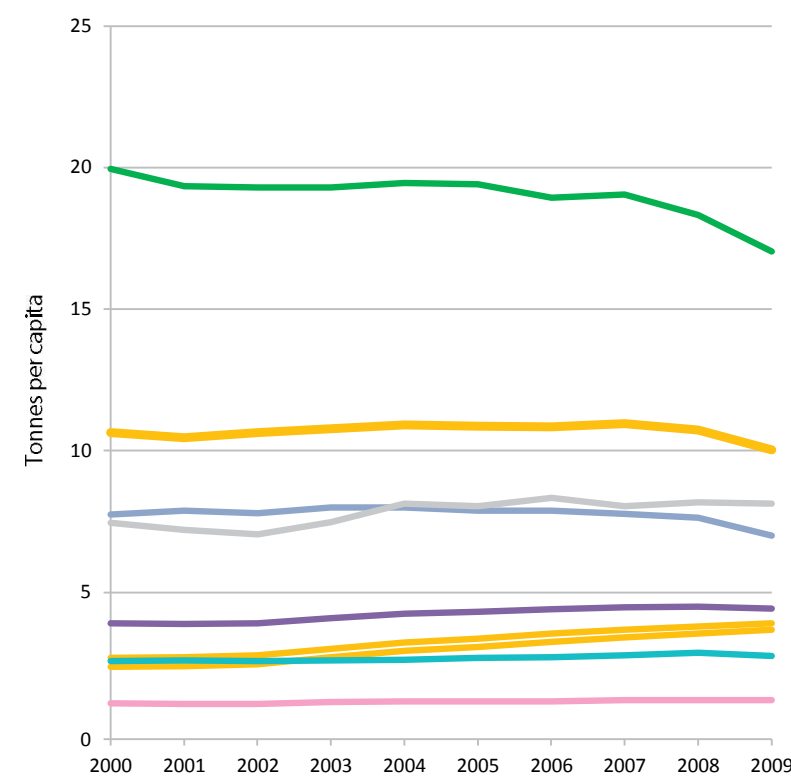
Total CO₂ Emissions by Asia-Pacific Subregion



- East and North-East Asia
- South and South-West Asia
- Pacific
- South-East Asia
- North and Central Asia

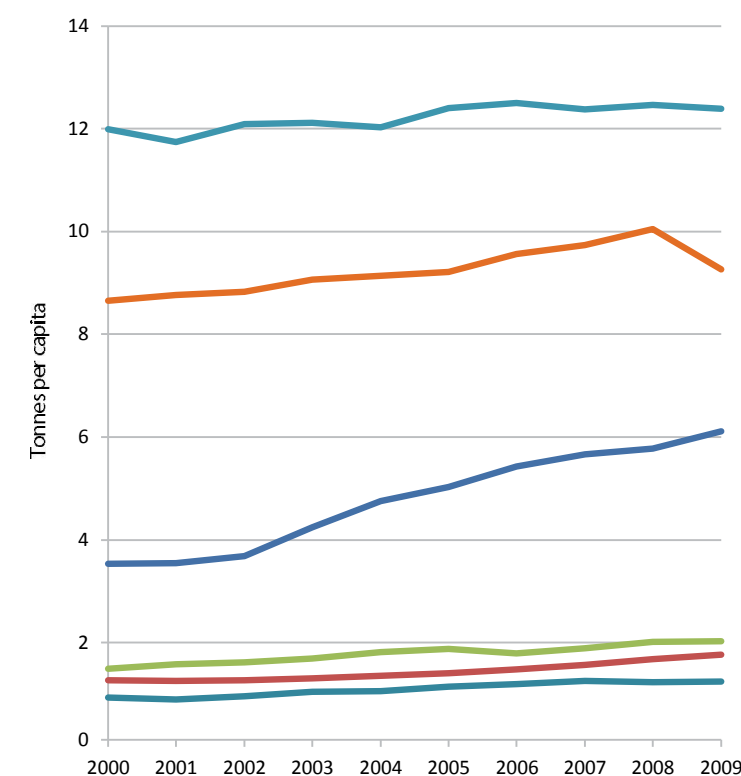
Data source: ESCAP Statistical Database based on data from MDG Indicators database

Global Per Capita CO₂ Emissions



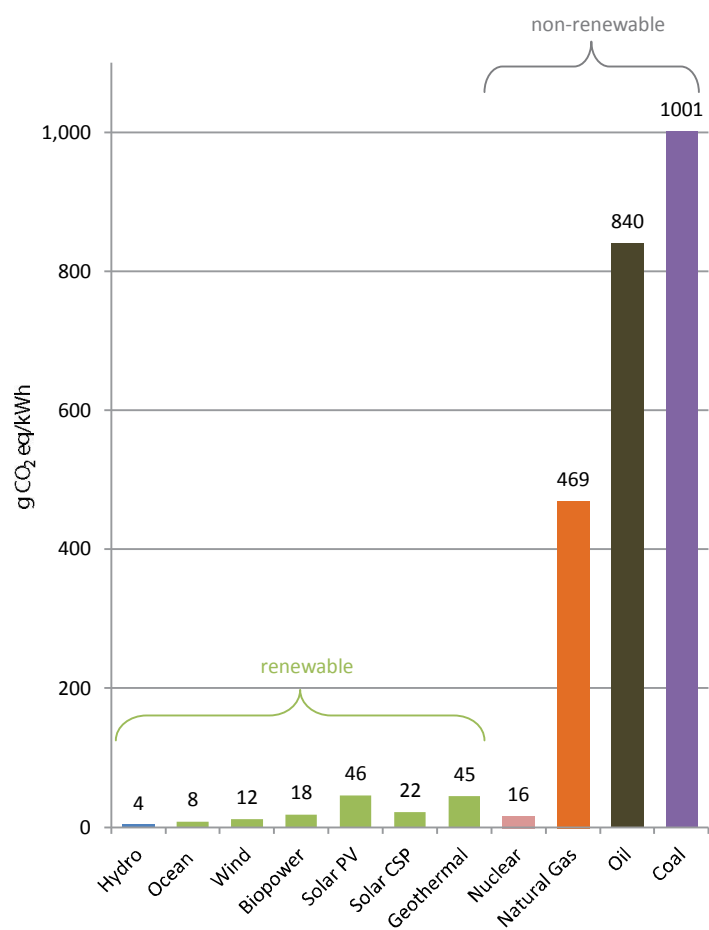
- Asia-Pacific
- Asia-Pacific developed economies
- Latin America and Carib.
- Europe
- World
- Asia-Pacific developing economies
- Africa
- North America
- Other countries/areas

Per Capita CO₂ Emissions by Asia-Pacific Subregion



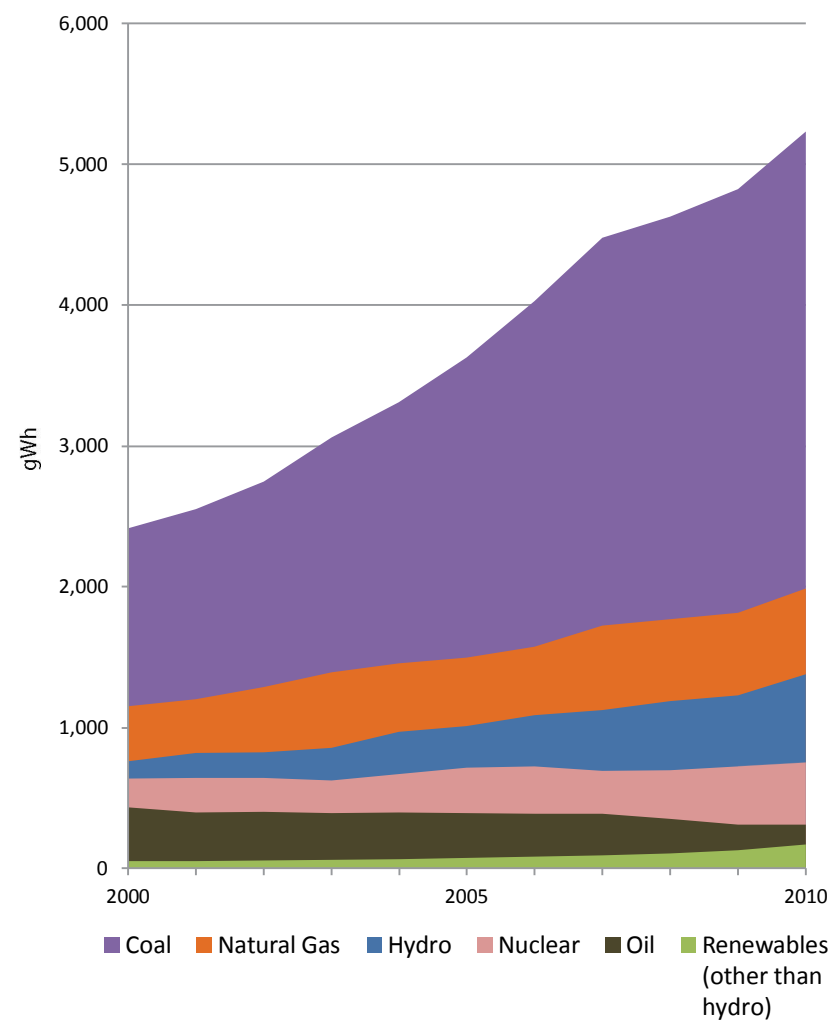
- East and North-East Asia
- South and South-West Asia
- Pacific
- South-East Asia
- North and Central Asia
- Pacific (excl AUS, NZ)

Median Lifecycle GHG Emissions from Electricity Generation Technologies



CSP = Concentrating solar power
Source: Adapted from IPCC SRRES, 2011

Asia-Pacific Electricity Production by Resource

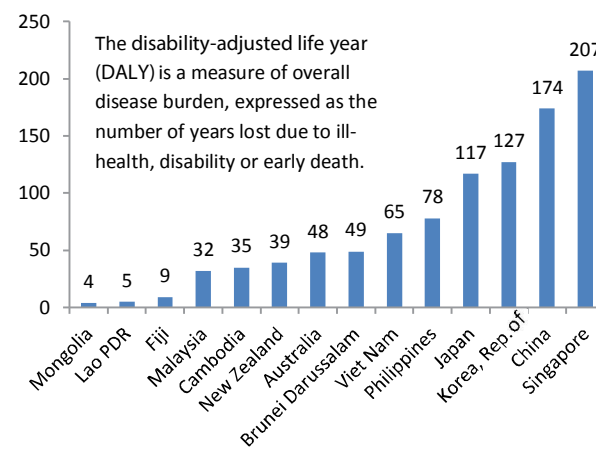


Data source: IEA

WHO Air Quality Particulate Matter (PM10) Level Targets

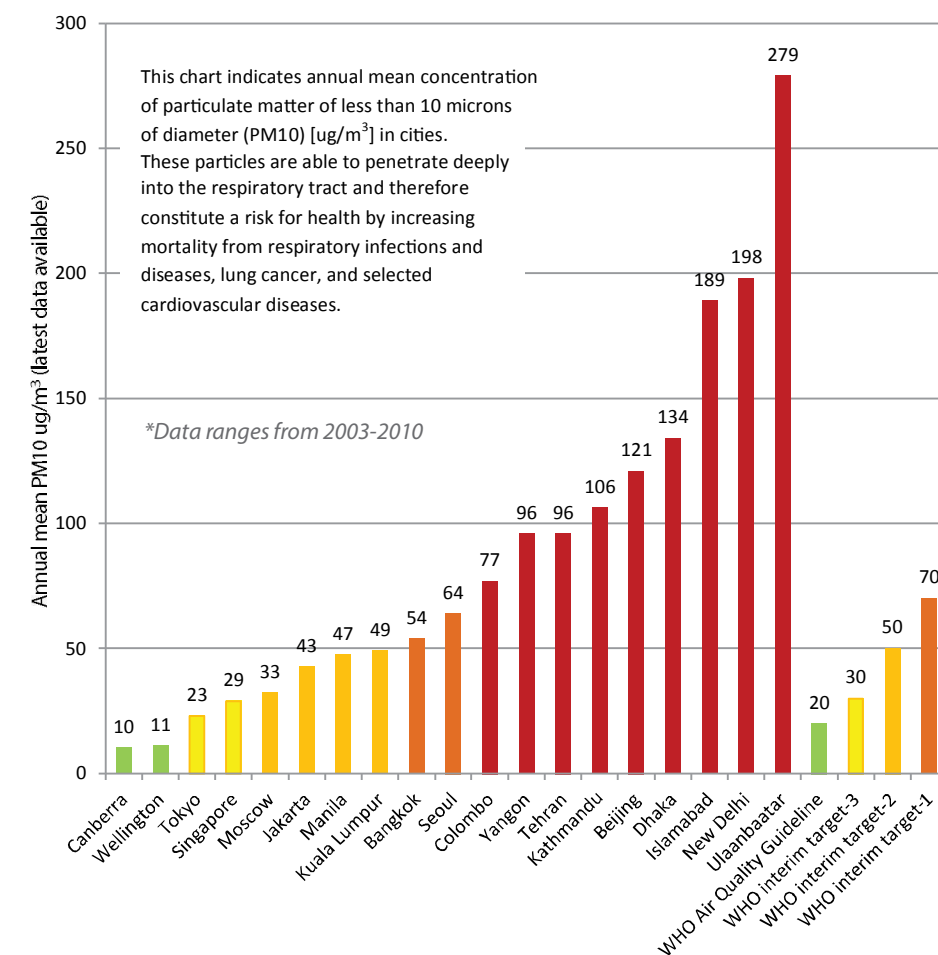
WHO Air Quality Guideline	20	Recommended value representing an acceptable and achievable objective to minimize health effects
WHO interim target-3	30	In addition to other health benefits, these levels reduce mortality risk by another approximately 6% compared to WHO-IT2 levels
WHO interim target-2	50	In addition to other health benefits, these levels lower risk of premature mortality by approximately 6% compared to WHO-IT1
WHO interim target-1	70	These levels are estimated to be associated with about 15% higher long-term mortality than at AQG
Outside of WHO target range		

Outdoor Air Pollution Attributable DALYs per 100,000 Capita, 2004



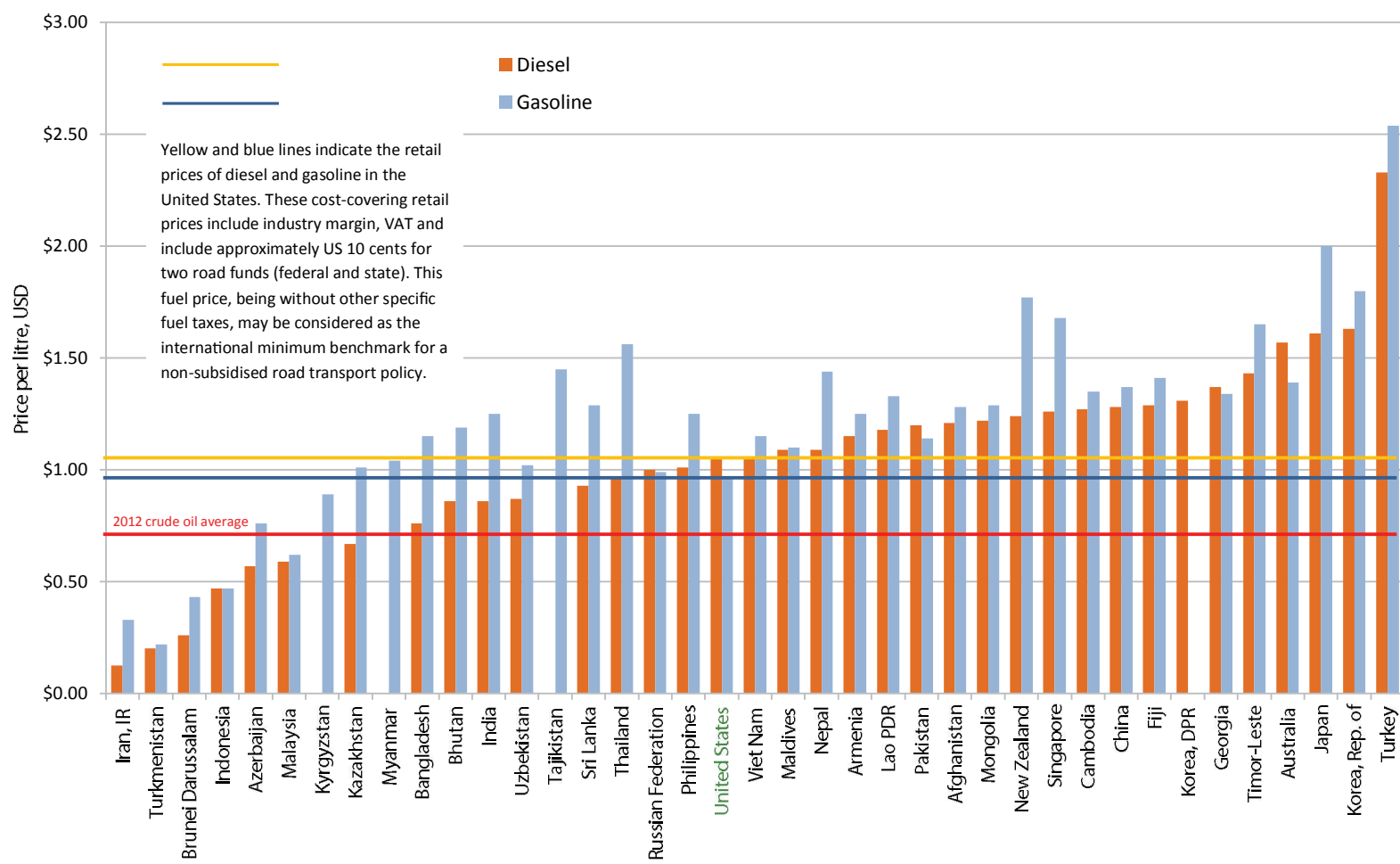
Data source: WHO Global Health Observatory

PM10 levels in Selected Asia-Pacific Cities*



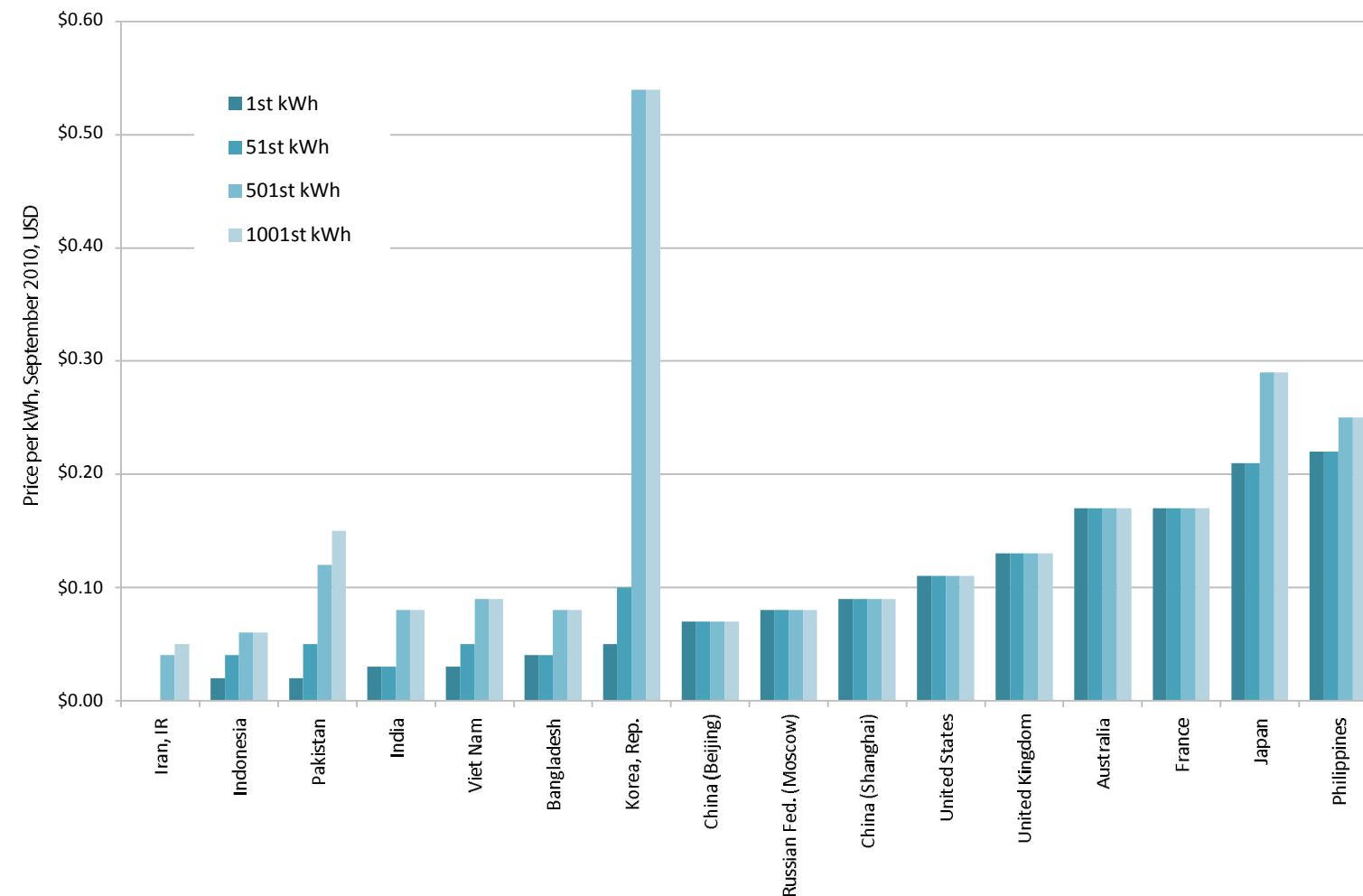
Data source: WHO Urban Outdoor Air Pollution Database

Asia-Pacific Diesel and Gasoline Pump Prices, 2012



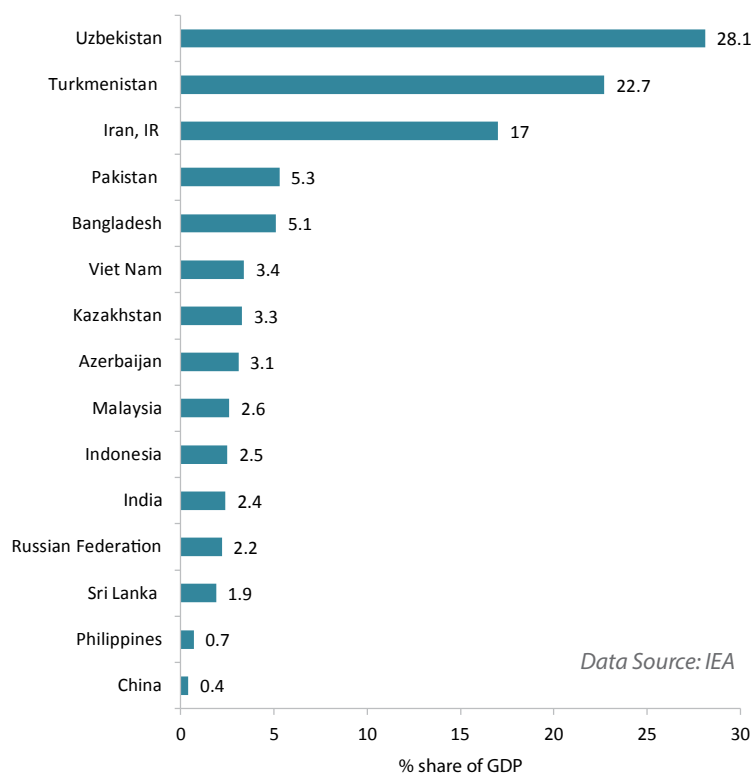
Data source: World Bank statistical database based on data from GIZ

Household Electricity Tariffs for Selected ESCAP Member States, September 2010

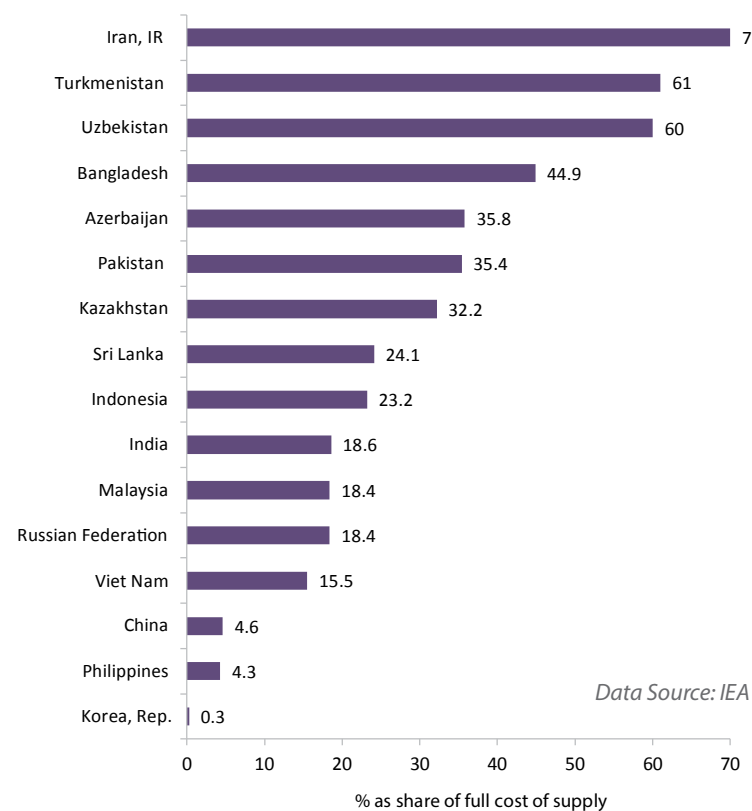


Data source: GTZ "Power in G-20 and N-11 Countries – At What Cost?" 2010

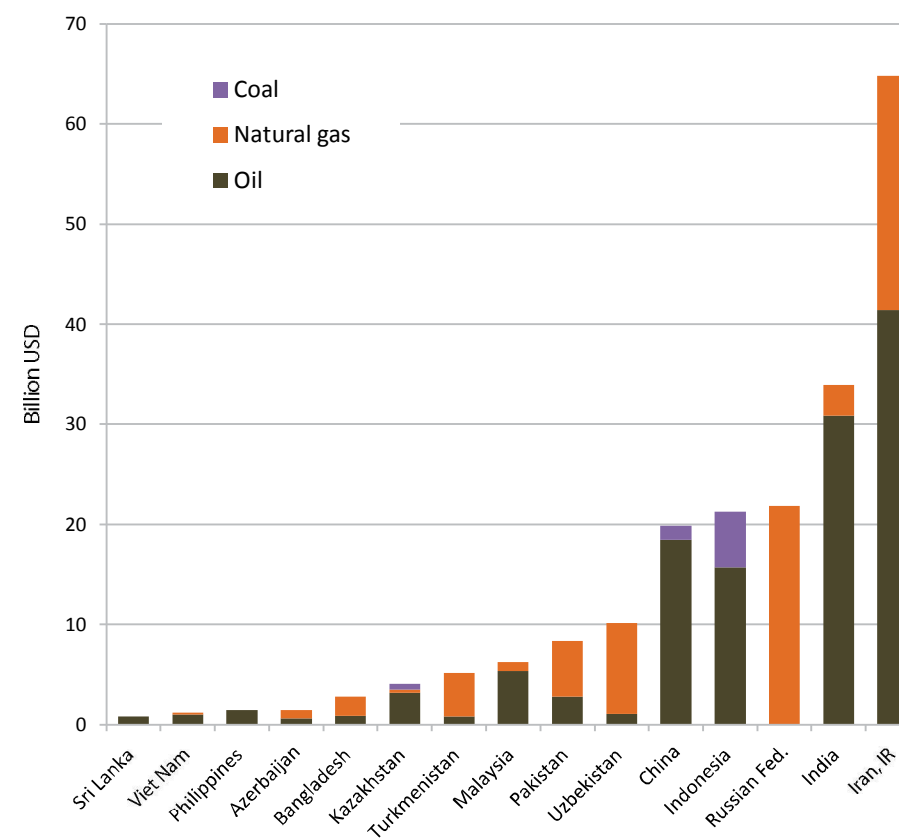
Total Oil, Natural Gas, Coal and Electricity Subsidies as Share of GDP for Selected Asia-Pacific Countries, 2011



Average Fossil Fuel Consumption Subsidisation Rate of Selected Asia-Pacific Countries, 2011



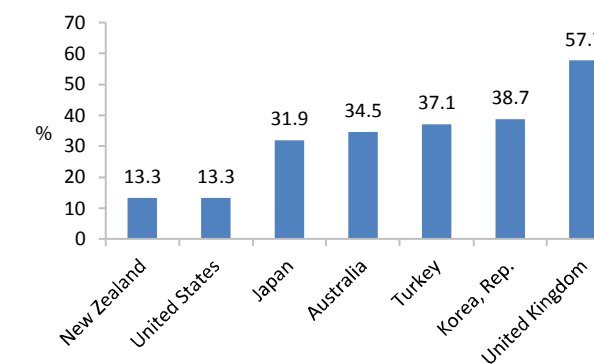
Fossil Fuel Subsidies for Selected Asia-Pacific Countries, 2011



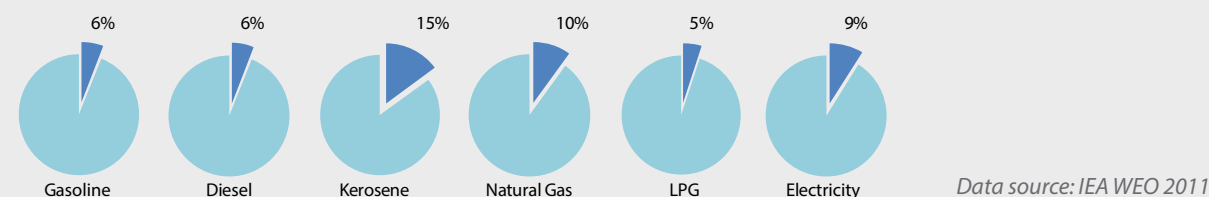
Subsidies by Fuel (\$billion), 2011

	Oil	NG	Coal	Total
Iran, IR	41.39	23.4	0	64.79
India	30.86	3.03	0	33.89
Russian Fed.	0	21.87	0	21.87
Indonesia	15.72	0	5.56	21.28
China	18.45	0	1.39	19.84
Uzbekistan	1.06	9.09	0	10.15
Pakistan	2.79	5.54	0	8.33
Malaysia	5.35	0.89	0	6.24
Turkmenistan	0.83	4.36	0	5.19
Kazakhstan	3.19	0.33	0.58	4.10
Bangladesh	0.87	1.89	0	2.76
Azerbaijan	0.65	0.83	0	1.48
Philippines	1.46	0	0	1.46
Viet Nam	1.02	0.16	0.02	1.20
Sri Lanka	0.82	0	0	0.82

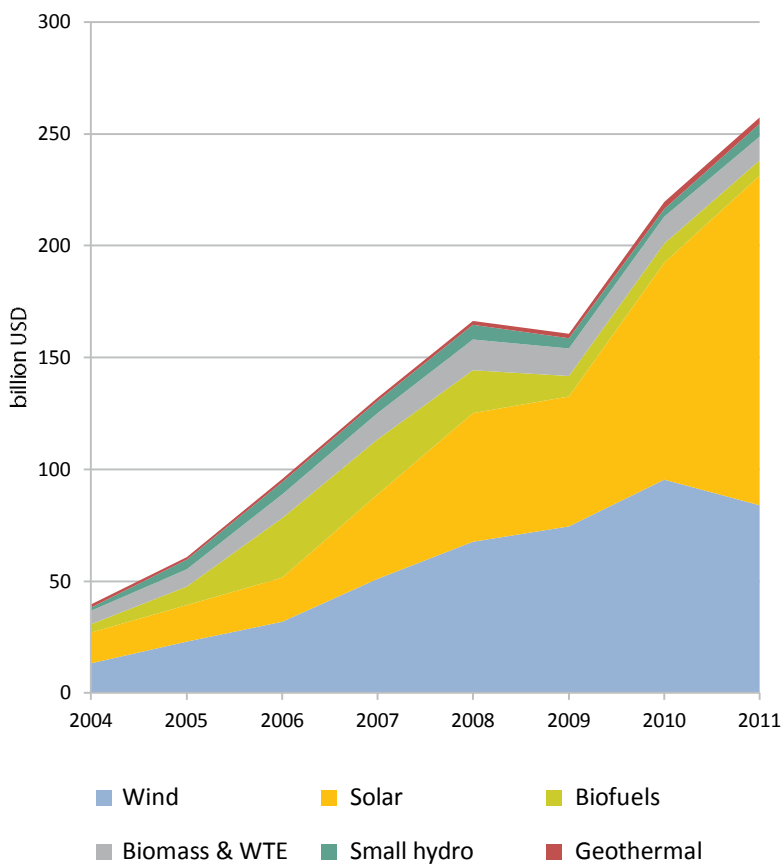
2012 4th Quarter Percentage of Taxes in Automotive Diesel Prices for Non-Commercial Use



Global Share of Fossil Fuel Subsidies Received by the Lowest 20% Income Group 2010

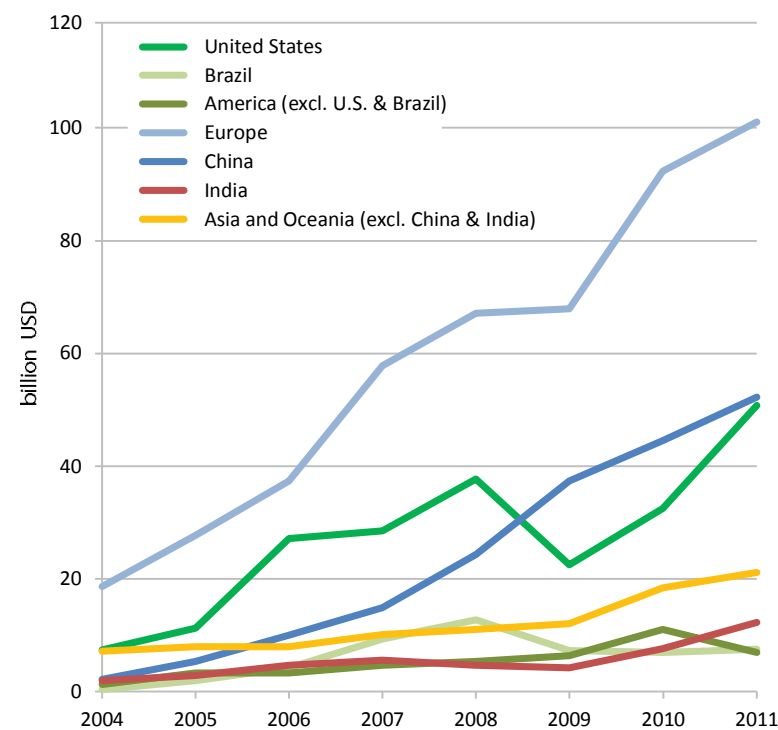


Global New Investment* in Renewable Energy by Sector, 2004-2011



Note: WTE = waste to energy
Data source: Bloomberg New Energy Finance, UNEP

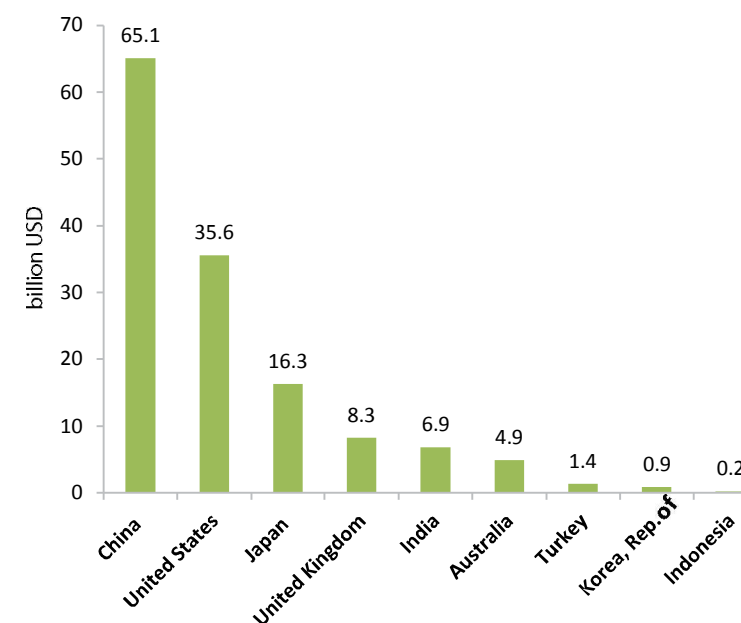
Global New Investment* in Renewable Energy by Region, 2004-2011



* New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals.

Data source: Bloomberg New Energy Finance, UNEP

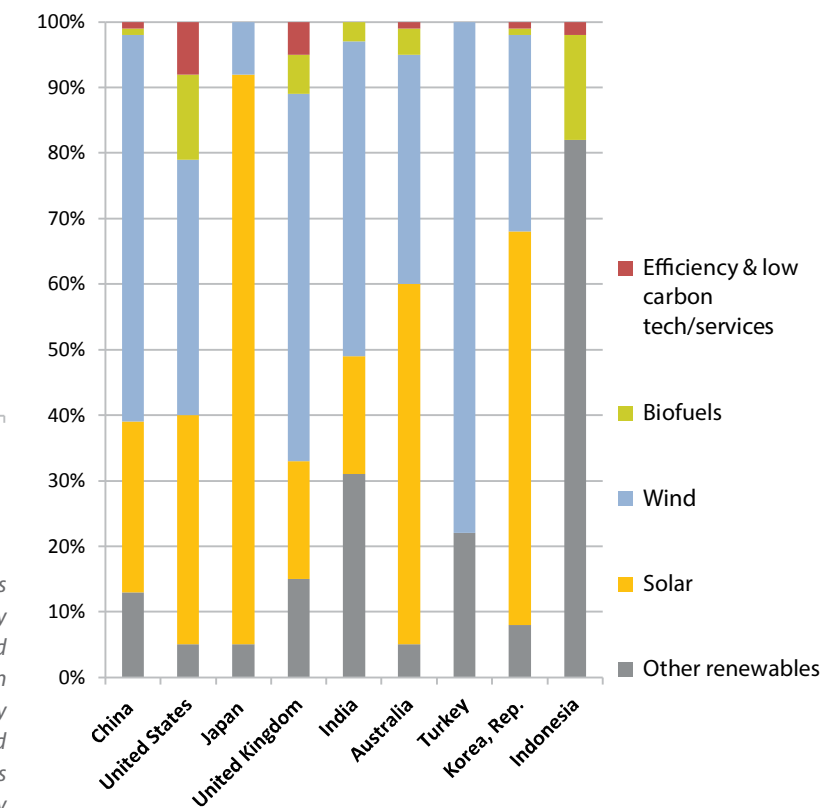
Total Clean Energy** Investment for Selected ESCAP Member States, 2012



** Clean energy includes: all biomass, geothermal, and wind generation projects of more than 1 MW; all hydro projects between 1 and 50 MW; all marine energy projects; all biofuels projects with a capacity of 1 million litres or more a year; and all solar projects, excluding those less than 1 MW in size. Efficiency & low carbon technology investment is comprised of financial investment in technology companies covering energy efficiency, smart grid, energy storage, advanced transportation, carbon capture and storage, and general clean energy services companies. Investment in efficiency and low-carbon technology projects by governments and public financing institutions was excluded.

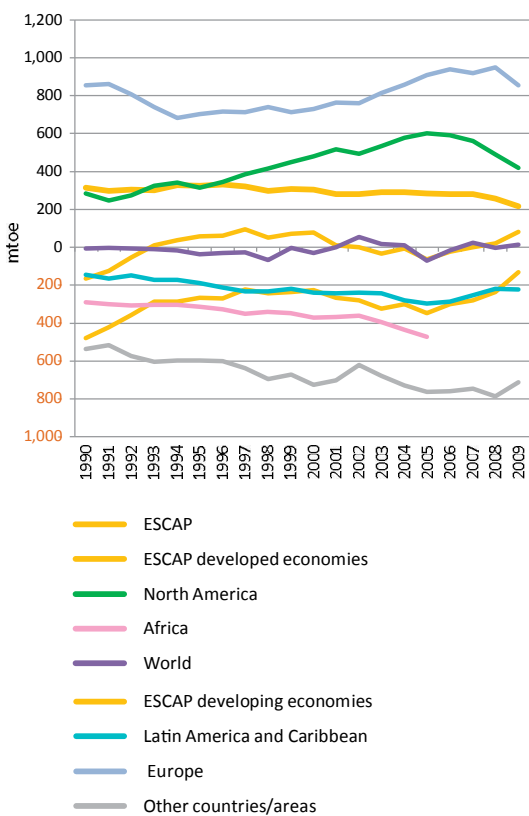
Data source: Bloomberg New Energy Finance as published in The Pew Charitable Trusts report Who's Winning the Clean Energy Race? 2012 edition

Distribution of Clean Energy** Investment for Selected ESCAP Member States, 2006-2012



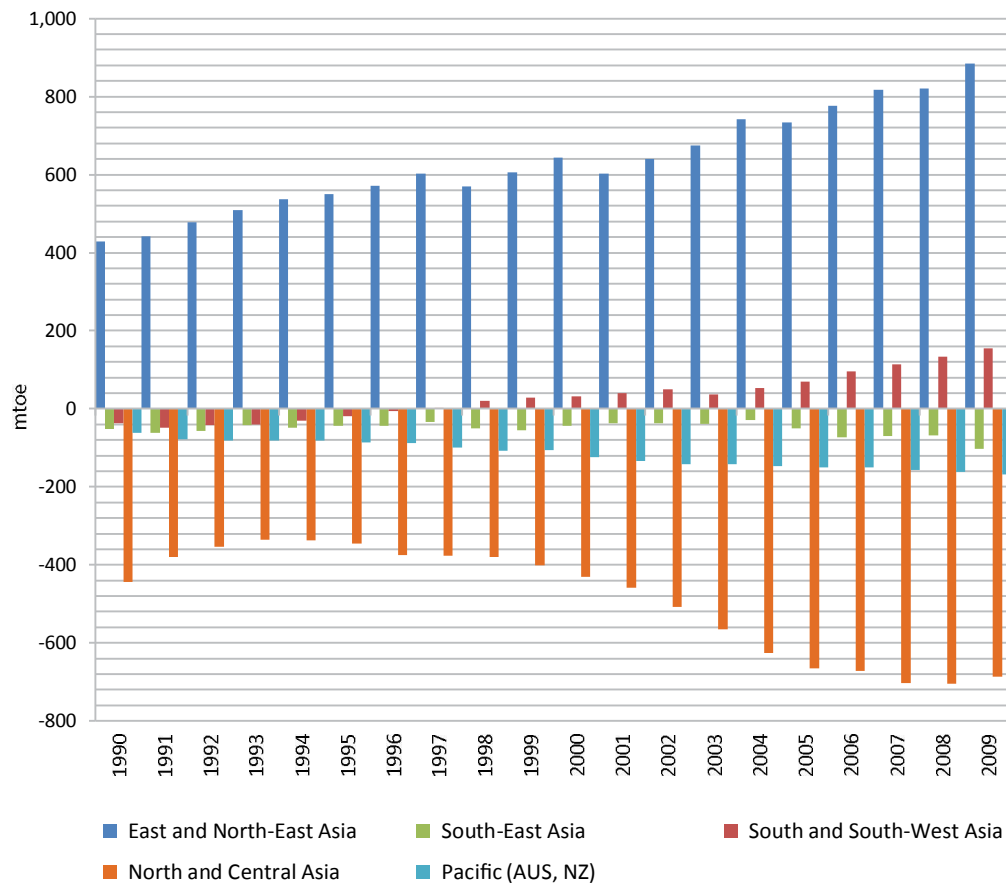
Data source: Bloomberg New Energy Finance as published in The Pew Charitable Trusts report Who's Winning the Clean Energy Race? 2012 edition

Global Net Energy Imports



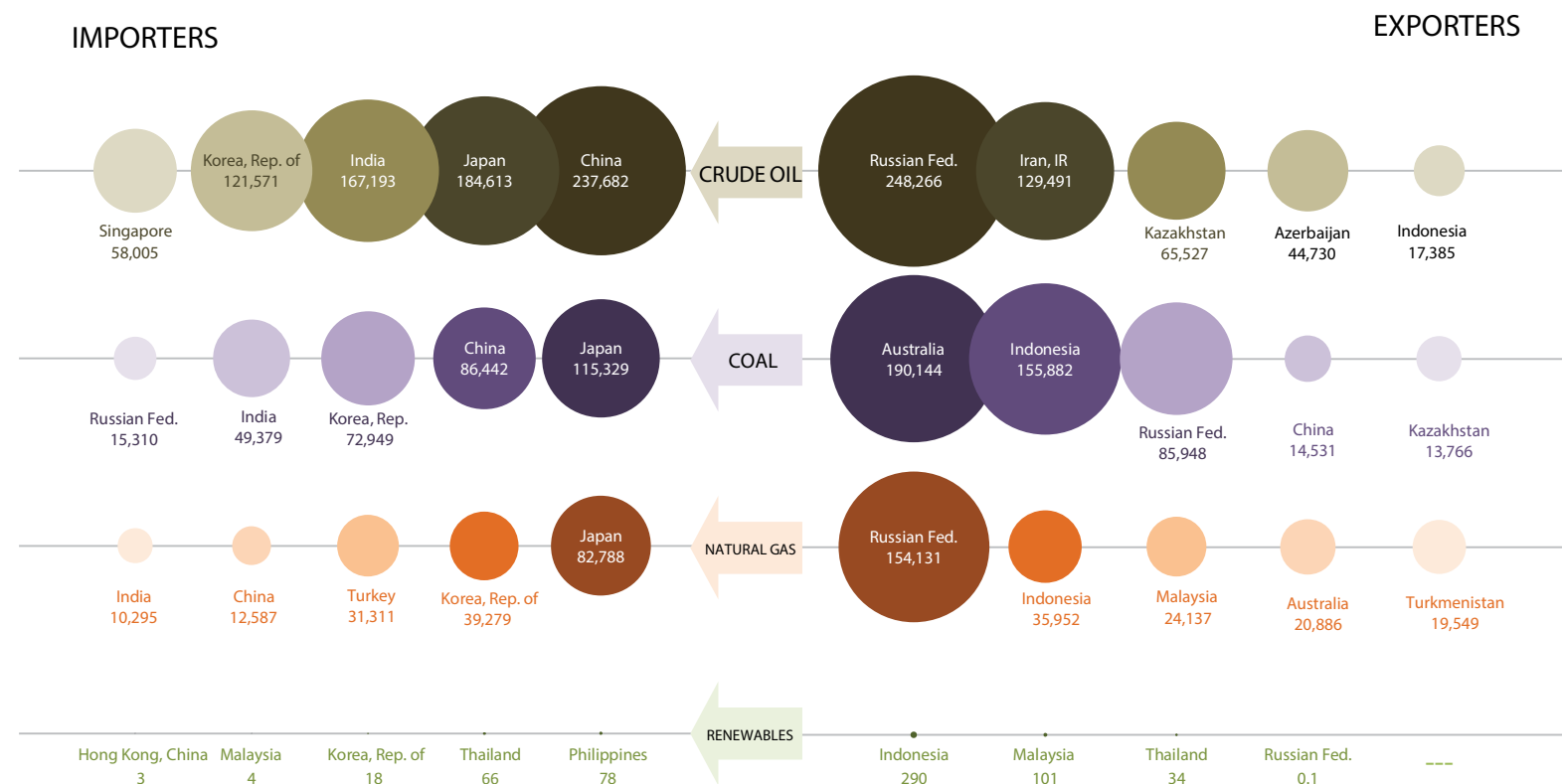
Data source: ESCAP Statistical Database based on data from IEA

Asia-Pacific Subregional Net Energy Imports



Data source: ESCAP Statistical Database based on data from IEA

Asia-Pacific Top 5 Importers and Exporters by Energy Resource, 2010 (ktoe)

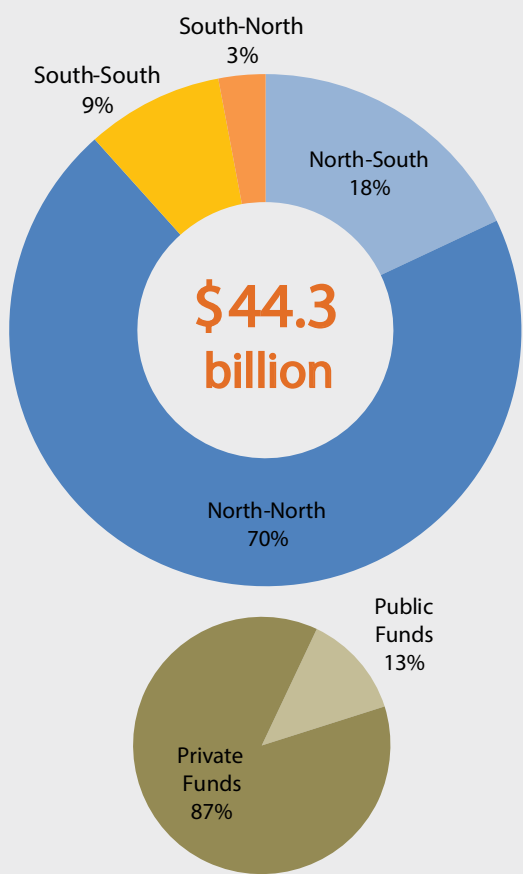


Note: "Coal" is comprised of coal and peat. "Renewables" includes hydro.

Data source: IEA

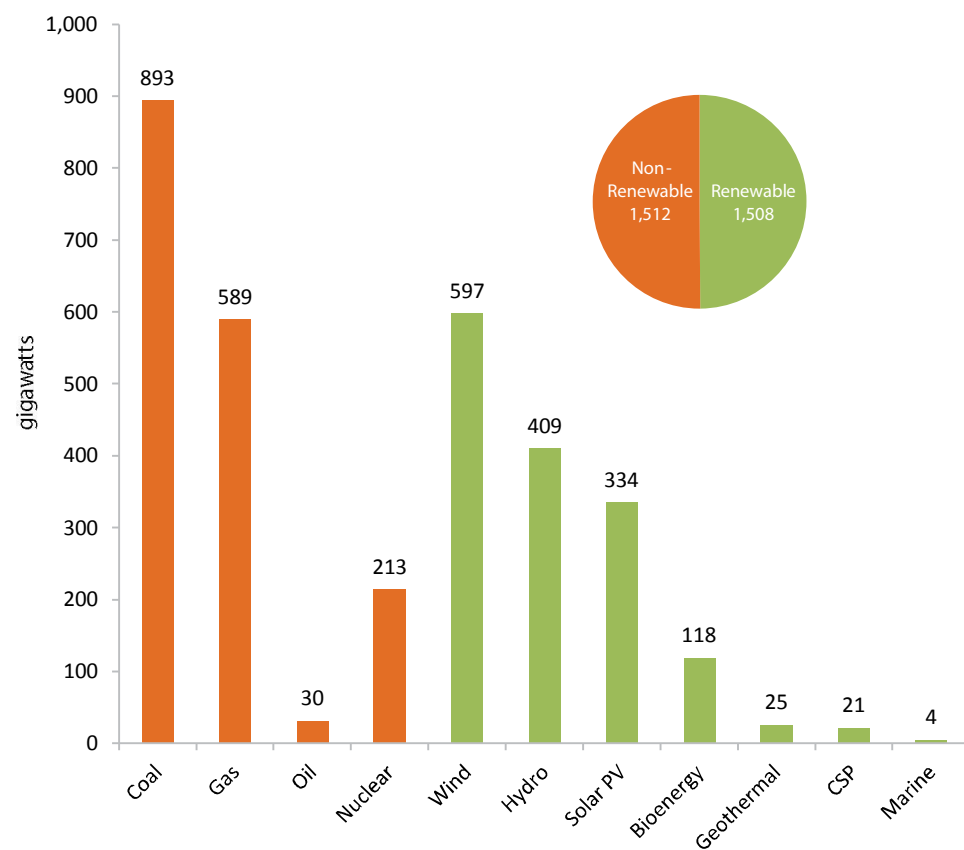
Global Cross Border New Investment in Clean Energy, 2011*

*New build asset finance for renewable energy projects only. Investment volumes show cross-border investments only. Domestic investments are excluded.



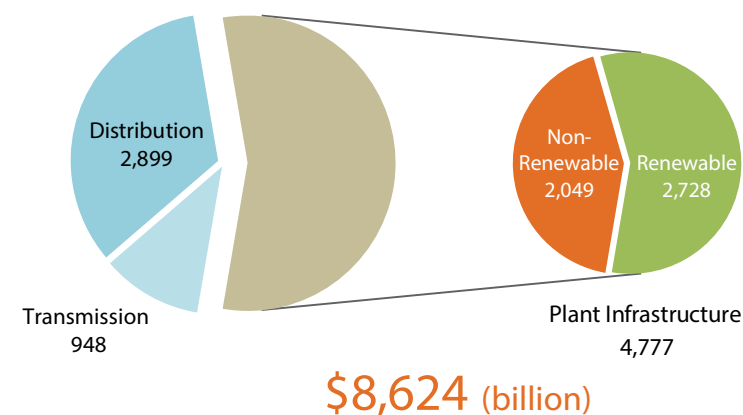
Source: Bloomberg New Energy Finance White Paper "North-South Clean Energy Investment Flows: An \$8bn Step to a \$100bn Goal".

Asia-Pacific** Cumulative Gross Capacity Additions by Source under the New Policies Scenario*** 2012-2035



Data source: IEA WEO 2012

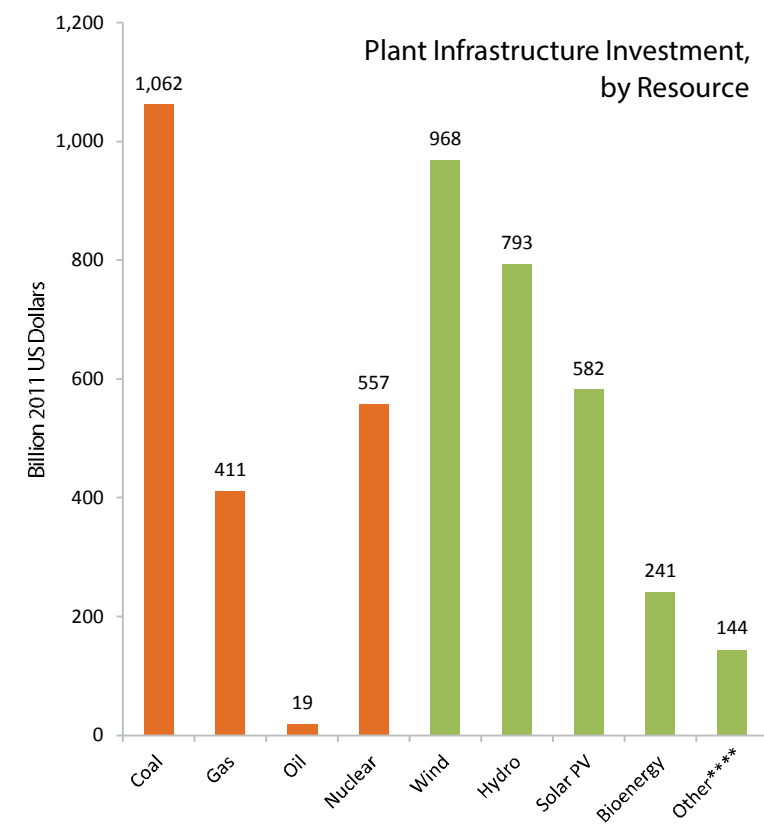
Asia-Pacific** Needed Investment in Electricity-Supply Infrastructure under the New Policies Scenario*** 2012-2035 (\$2011 billion)



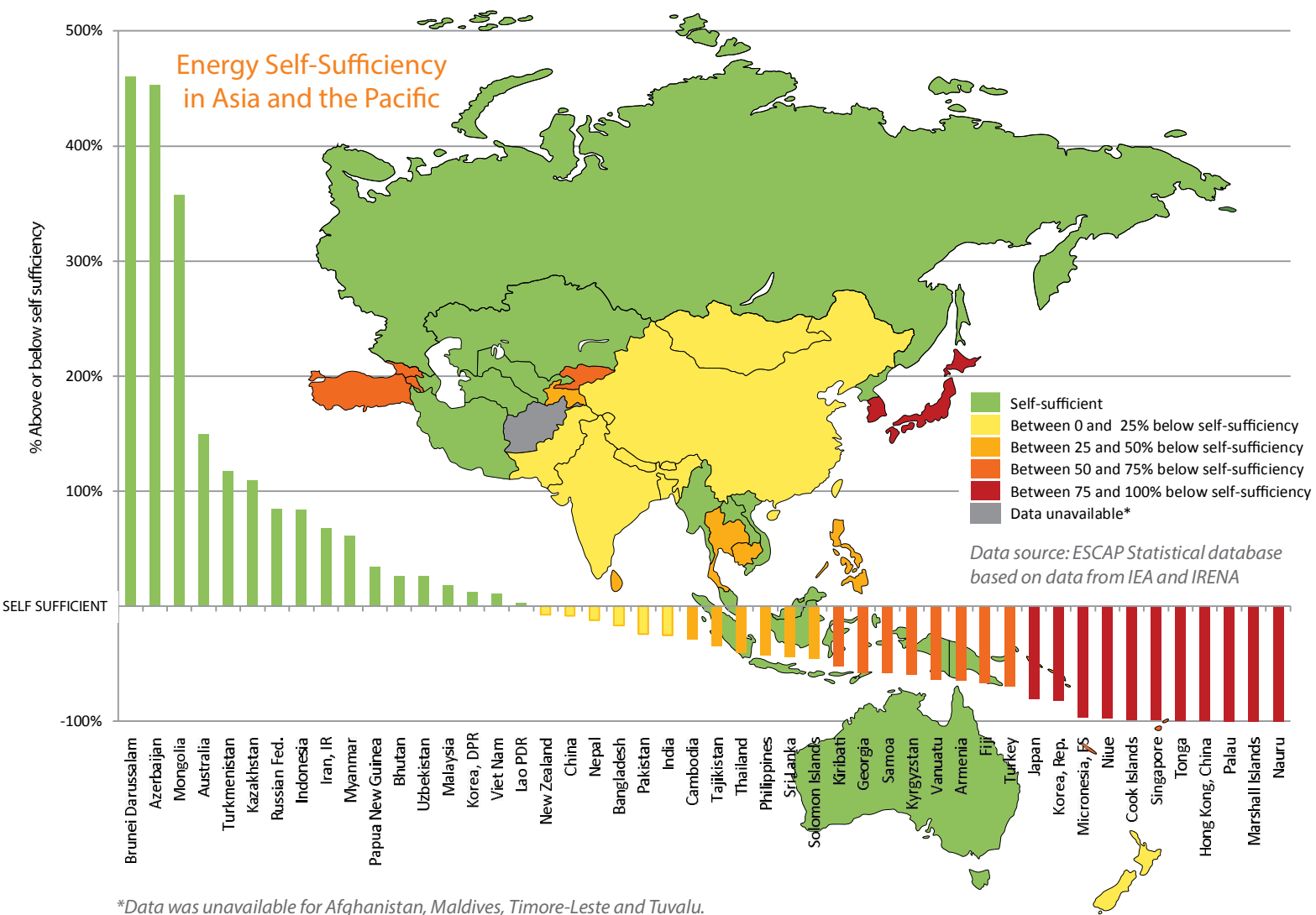
** Excludes the following ESCAP member States: Armenia, Azerbaijan, Bhutan, Georgia, Iran IR, Kazakhstan, Kyrgyzstan, Marshall Islands, Micronesia, Nauru, Palau, Tajikistan, Turkey, Turkmenistan, Tuvalu, Uzbekistan.

*** New Policies Scenario: A scenario in the IEA World Energy Outlook which takes account of broad policy commitments and plans that have been announced by countries, including national pledges to reduce greenhouse gas emissions and plans to phase out fossil energy subsidies, even if the measures to implement these commitments have yet to be identified or announced.

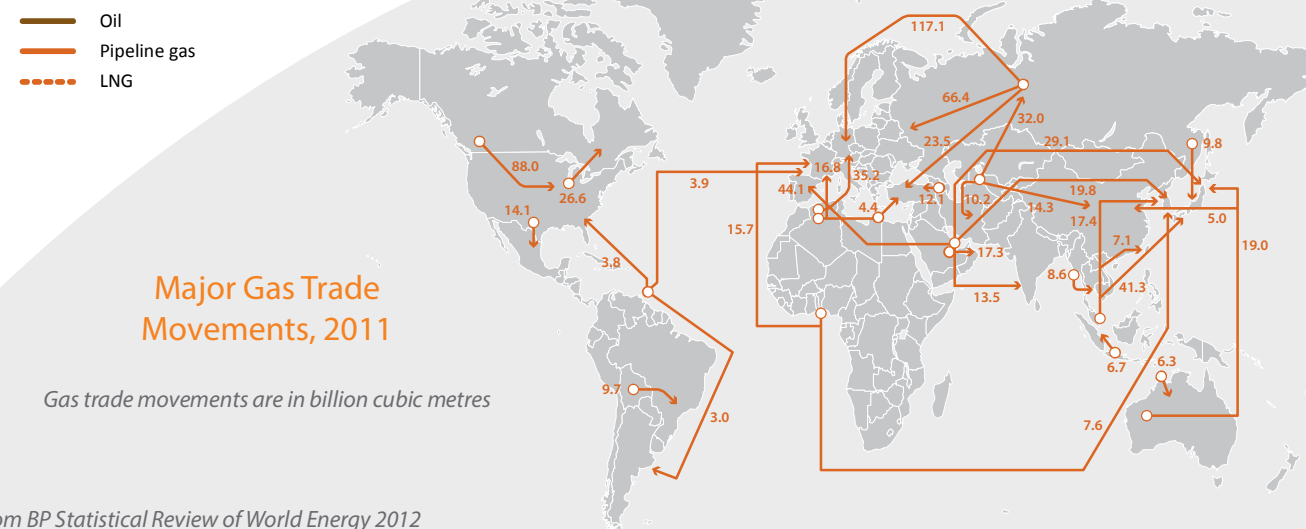
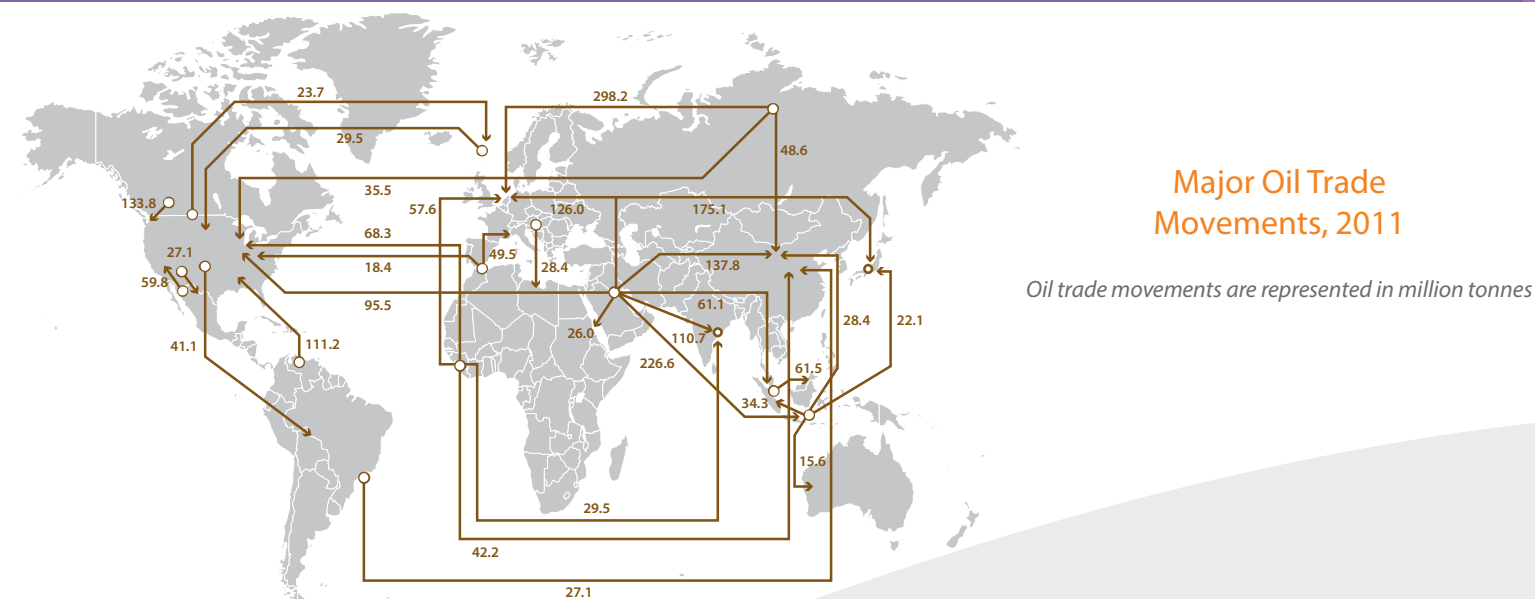
**** Includes geothermal, concentrating solar power and marine.



Data source: IEA WEO 2012



*Data was unavailable for Afghanistan, Maldives, Timore-Leste and Tuvalu.
 Note: Energy self-sufficiency values for this chart were derived by subtracting the ratio of production over TPES from one.



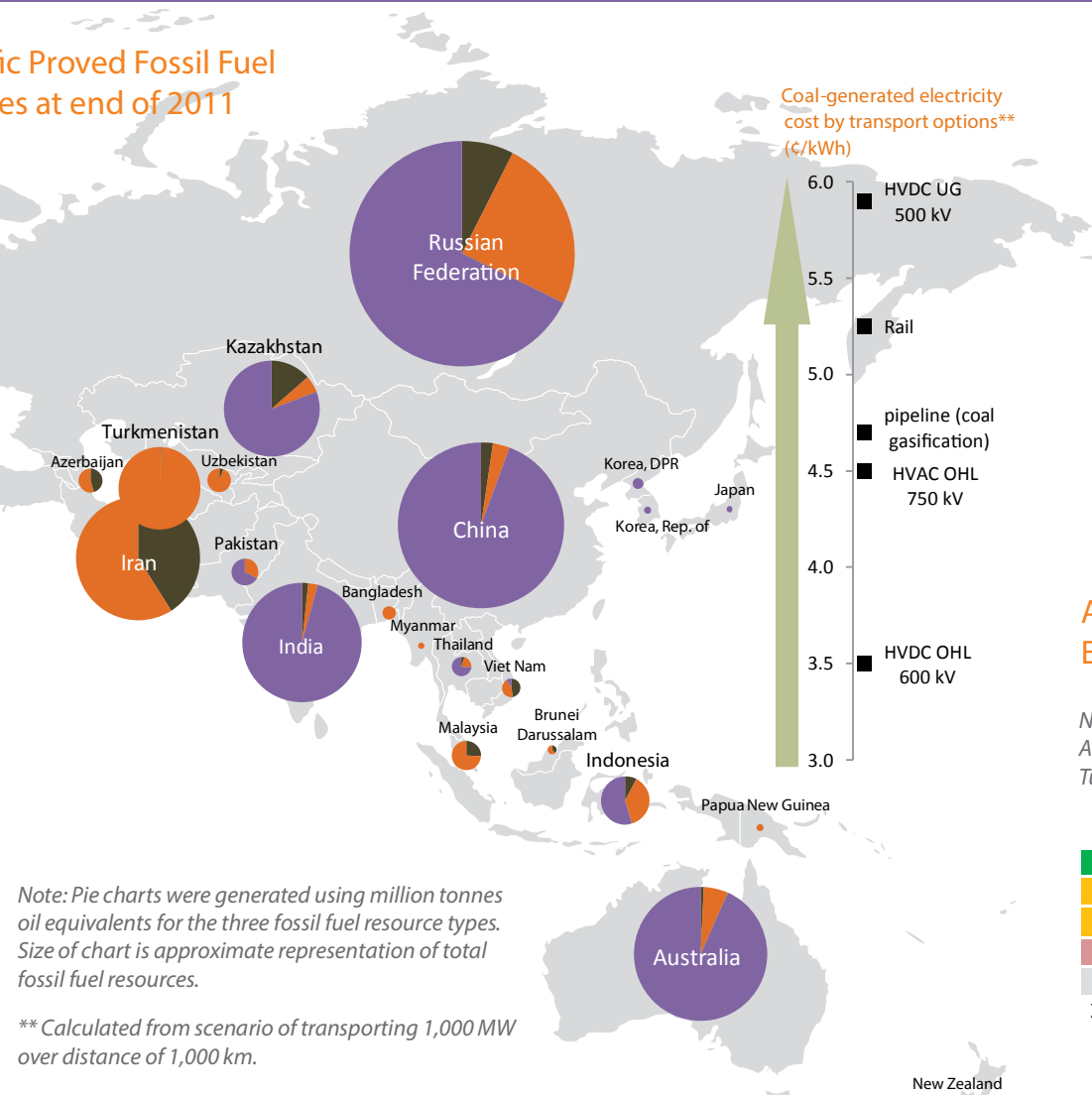
Source: Adapted from BP Statistical Review of World Energy 2012

Asia-Pacific Proved Fossil Fuel Reserves at end of 2011

	Oil	Natural Gas	Coal*
	Thousand million tonnes	Trillion cubic metres	Million tonnes
Australia	0.4	3.8	76,400
Azerbaijan	1.0	1.3	-
Bangladesh	-	0.4	-
Brunei Darussalam	0.1	0.3	-
China	2.0	3.1	114,500
India	0.8	1.2	60,600
Indonesia	0.6	3.0	5,529
Iran	20.8	33.1	-
Japan	-	-	350
Kazakhstan	3.9	1.9	33,600
Korea, DPR	-	-	600
Korea, Rep. of	-	-	126
Malaysia	0.8	2.4	-
Myanmar	-	0.2	-
New Zealand	-	-	571
Pakistan	-	0.8	2,070
Papua New Guinea	-	0.4	-
Russian Federation	12.1	44.6	157,010
Thailand	0.1	0.3	1,239
Turkmenistan	0.1	24.3	-
Uzbekistan	0.1	1.6	-
Viet Nam	0.6	0.6	150
Other Asia Pacific	0.1	0.3	3,708
Total	43.4	123.5	456,453

* Includes anthracite, bituminous, sub-bituminous and lignite

Fossil fuels data source: BP
Coal-generated electricity cost source: ABB Review 1/2008



Note: Pie charts were generated using million tonnes oil equivalents for the three fossil fuel resource types. Size of chart is approximate representation of total fossil fuel resources.

** Calculated from scenario of transporting 1,000 MW over distance of 1,000 km.

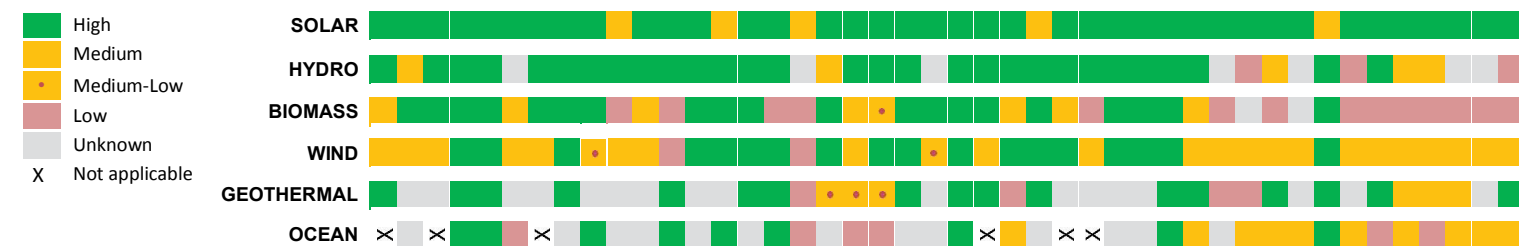
HVDC UG = High Voltage Direct Current Underground
HVAC OHL = High Voltage Alternating Current Overhead Lines
HVDC OHL = High Voltage Direct Current Overhead Lines

Note: Proportions represented are independent of each other and therefore are not directly comparable.

Resource	Measurement	Data Source
Oil	Proved reserves	BP 2012
Gas	Proved reserves	BP 2012
Coal	Proved reserves	BP 2012
Hydro	Technical potential (kWh)	ESCAP 2008
Solar	Total potential (KWh/m ² /day)	NREL 2008
Wind	Area (km ²) Class 3-7 Wind at 50m	NREL 1990
Geothermal	kWh	GEA 1999
Uranium	Proved reserves	EEP 2008

Asia-Pacific Renewable Energy Resources

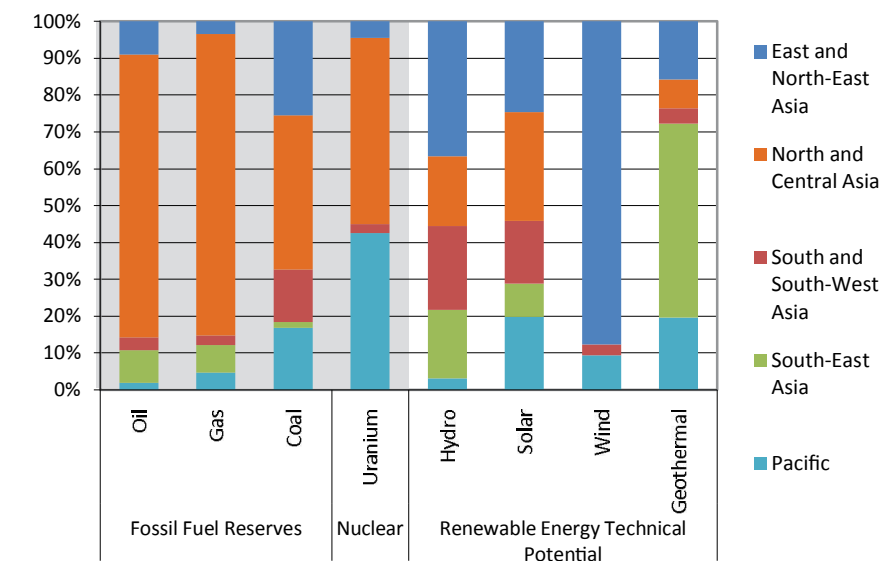
Note: Information unavailable for Armenia, Azerbaijan, Georgia, Turkey and the Russian Federation



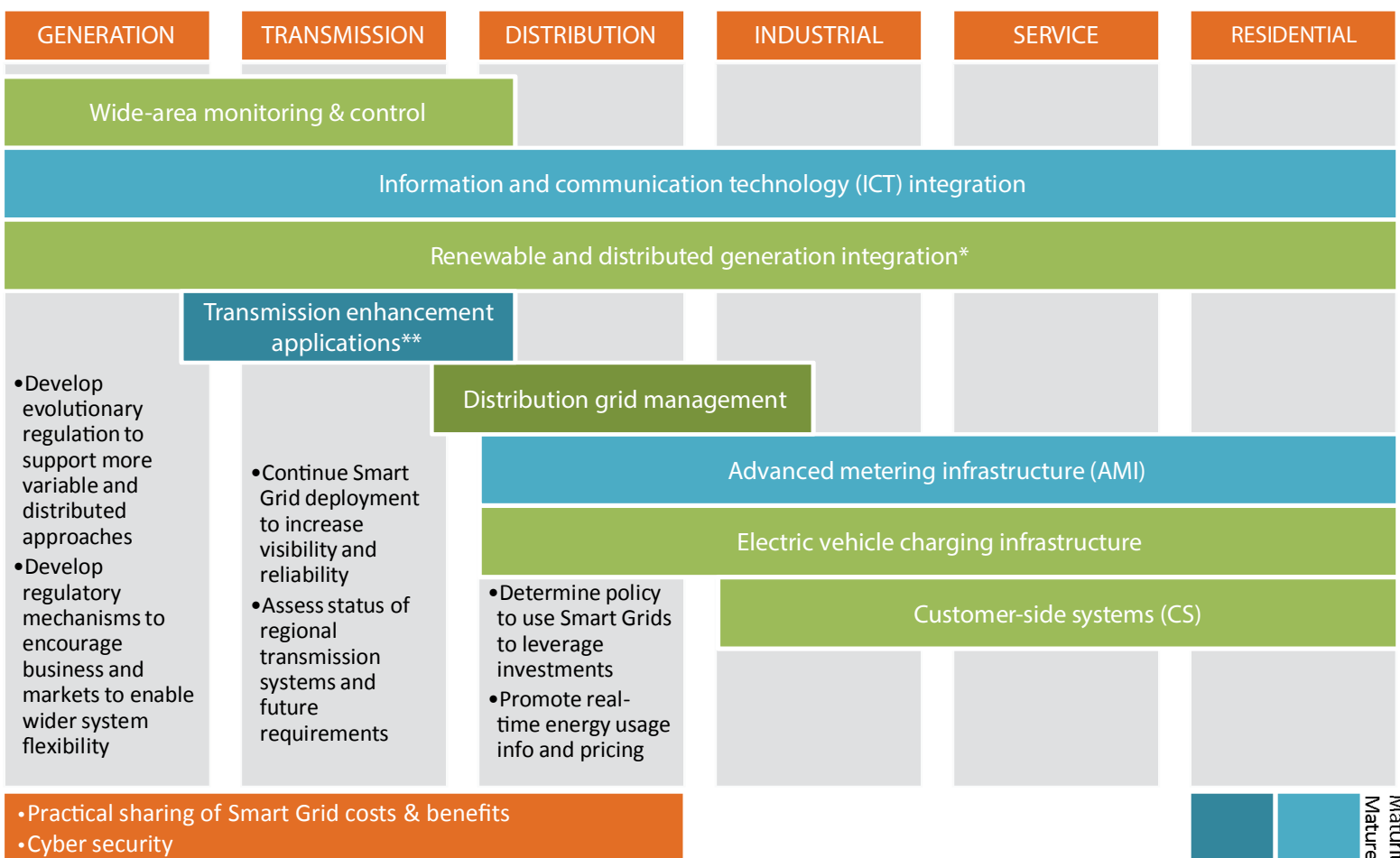
Data Source: IRENA

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 IRENA analysis is based on literature.

Asia-Pacific Renewable Energy Resource Distribution



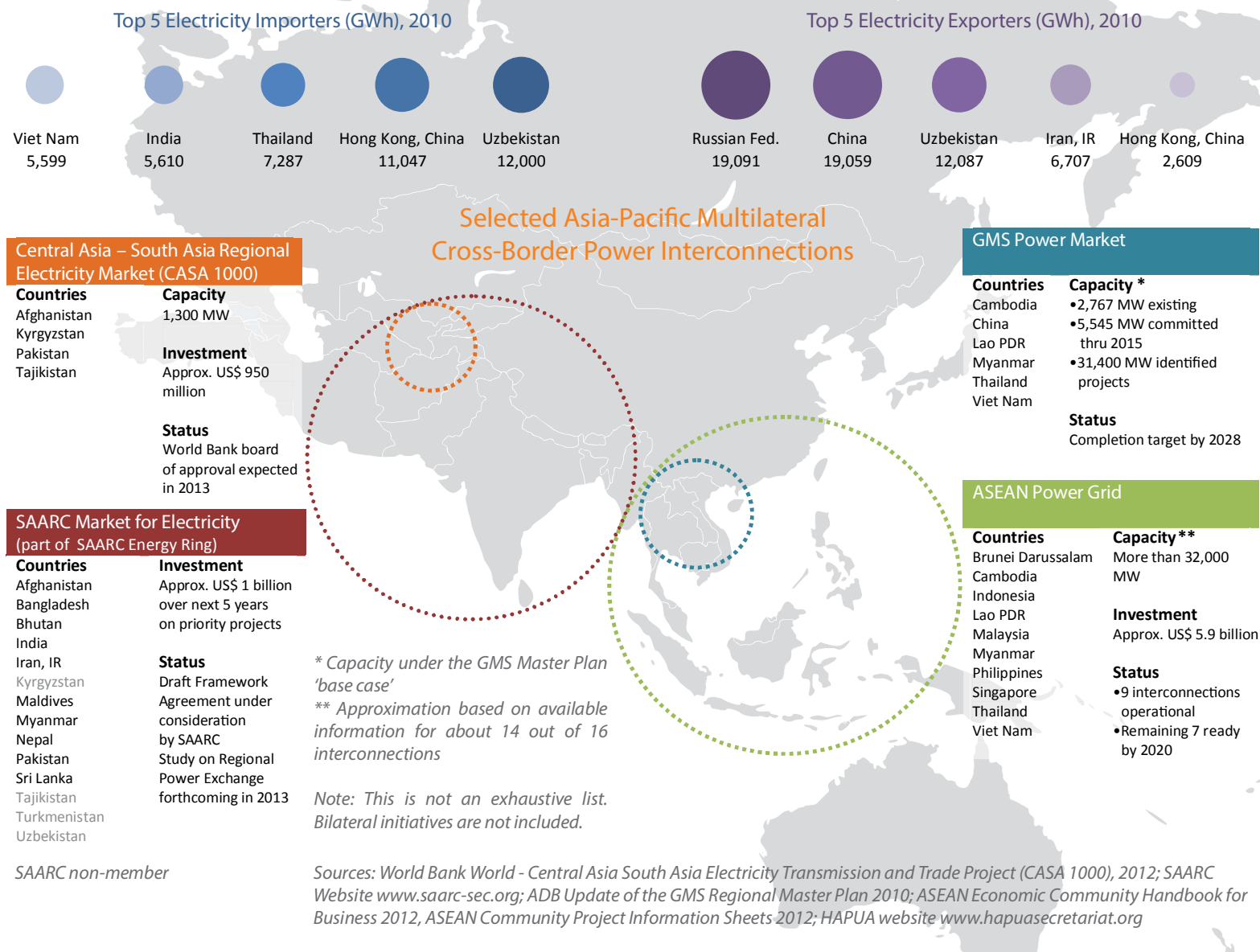
Smart Grid Technology, Maturity Levels, Development Trends and Action Areas



* Battery storage technologies are less mature than other distributed energy technologies
 ** High Temperature Superconducting technology is still in the developing stage of maturity

Maturity Level
 Mature Developing
 Moderate Fast
 Development Trend

Source: adapted from OECD/IEA 2011 Technology Roadmap: Smart Grids



- Bloomberg New Energy Finance, *Global Trends in Renewable Energy Investment (2012)*, Frankfurt, Bloomberg New Energy Finance and UNEP, 2012.
- Bloomberg New Energy Finance, North-South Clean Energy Investment Flows: An \$8bn Step to a \$100bn Goal" white paper (2012).
- BP, *Statistical Review of World Energy* (2012). Available from www.bp.com/statisticalreview.
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- WHO, Solid fuel use for cooking estimates by country 2007" database (2013). Geneva. Available from www.who.int/indoorair/health_impacts/he_database/en/.
- World Bank, Development Indicators database. Available from <http://data.worldbank.org/>.
- World Economic Forum, *The Global Competitiveness Report 2010-2011* (2011). Geneva.
- UNDP, Gender Inequality Index database. Available from <http://hdr.undp.org/en/statistics/gii/>.
- UNDP, Human Development Index database. Available from <http://hdr.undp.org/en/statistics/hdi/>.
- United Nations Statistics Division, UNdata database. Available from <http://data.un.org/>.

All web-based sources were accessed between April and May 2013.

Overview of Scenarios Presented in IEA's World Energy Outlook

Current Policies Scenario: A scenario that assumes no changes in policies from the mid-point of the year of publication.

New Policies Scenario: A scenario which takes account of broad policy commitments and plans that have been announced by countries, including national pledges to reduce greenhouse-gas emissions and plans to phase out fossil-energy subsidies, even if the measures to implement these commitments have yet to be identified or announced.

450 Scenario: A scenario which sets out an energy pathway consistent with the goal of limiting the global increase in temperature to 2°C by limiting concentration of greenhouse gases in the atmosphere to around 450 parts per million of CO₂.