

INSTITUTE FOR ECONOMIC ANALYSIS OF LAW AND POLICY

"WOMEN: AGENTS OF CHANGE"

FORUM GROUP DISCUSSION ON WOMEN IN ENERGY

PURNOMO YUSGIANTORO CENTER

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WOMEN

"WOMEN ARE JUST MEN WITH LESS MONEY"

Paul Samuelson, American economist, "father of modern economics", "foremost academic economist of the 20th century" (Randall E. Parker, Economic <u>Historian</u>)

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WOMEN IN ENERGY: AGENTS OF CHANGE









WOMEN AND THE WORLD

World Population	7.505.000.000
Indonesia	263.149.461
Women	Half of the world's population (3.752.500.000)
Human Development Index	Women 17.8% lower than men due to lower income and lower education
Global labor force participation rate	49.6% among women
World's agriculture labor force	43%





WOMEN AND WORLD ENERGY



WORLD ENERGY

 Global primary energy consumption 	+1.0% (below 10 year average of 1.9%
 Emerging economies 	58.1% of global energy consumption
 Emerging Economies accounted 	97% of the increase in global consumption. – China: world's largest increment in primary energy consumption 2000-2005
 Global CO₂ emissions from energy consumption 	0.1% (due to global fuel mix and global coal consumption & growth in natural gas & non-profit fuel) - India: +5.3% - US: -2.6% - Russia: -4.2%
Crude oil prices	Largest decline since 1986
 Natural gas prices 	Declined in all regions
• Oil	 world's leading fuel 32.9% of global energy consumption
 World's natural gas consumption 	+1.7%
 Global natural gas production 	+2.2%
 Global coal consumption 	+1.8%
 Global nuclear output 	+1.3%
 Renewable energy sources in power generation 	+2.8%
 Renewable energy used in power generation 	+15.2%

*Source: BP Statical Review of World Energy June 2016



PERCENTAGE OF WOMEN IN HIGH-LEVEL POSITIONS IN ENVIRONMENT, TRANSPORT, AND ENERGY MINISTRIES



Source: Data collected from Member States August-October 2011



WOMEN IN ENERGY – UNITED KINGDOM





WOMEN IN ENERGY – UK TARGET

Powerful Women (PfW)





POWERFUL ACTION PLANS - EXAMPLES

Cuadrilla	40% of middle management by 2025 → STEM subjects	Igas Energy PLC	40% senior management by 2025
Al storm	Develop women's network	British Gas	Increase female engineers
Center for leadership performance	Increase Girls Dream Placement Program by 50% in 2016	Department of Energy and Climate Change	44% Senior Civil Servants by 2017 and 50% by 2025
Dong Energy	30% of management by 2020	EDF Energy	30% of senior leadership
E. ON	Increasing senior levels	First Utility	40% Senior roles by 2020
Good Energy	50:50 Senior Executive team by 2020	Linklaters	30% female board members by 2018
Petroleum Geo Services	30% of board members	RES	Increase female leadership
Scottish Renewable	30% female speakers and panelists	Trillion Fund	50% female representation at all levels

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Domestic energy consumption doubled over past 15 years

+ 3.9% growth in energy consumption

6.3% share of global coal production

5th largest coal producing country in the world

ENERGY CONSUMPTION TO RISE 30% BY 2020



ECONOMY: PRIMARY SECTORS

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PENDUDUK USIA KERJA PEREMPUAN YANG BEKERJA MENURUT LAPANGAN USAHA

16.000.000						
14.000.000 –					-	
12.000.000 -				L		
10.000.000 -						
8.000.000 –						
6.000.000 –						
4.000.000 –						
2.000.000 -						
0 +	2000	2010	2011	2012	2012	-
	2009	2010	2011	2012	2013	
Pertanian kehutanan perburuan dan						
perikanan	15.416.870	15.321.803	14.455.498	14.392.924	13.731.432	
perikanan Pertambangan dan penggalian	15.416.870 137.624	15.321.803 149.552	14.455.498 133.763	14.392.924 141.501	13.731.432 105.180	
Pertambangan dan penggalian Industri pengolahan	15.416.870 137.624 5.620.186	15.321.803 149.552 5.998.020	14.455.498 133.763 6.090.124	14.392.924 141.501 6.377.994	13.731.432 105.180 6.003.772	
Pertambangan dan penggalian Industri pengolahan Listrik, gas dan air	15.416.870 137.624 5.620.186 20.925	15.321.803 149.552 5.998.020 22.192	14.455.498 133.763 6.090.124 34.477	14.392.924 141.501 6.377.994 21.322	13.731.432 105.180 6.003.772 34.502	
Pertambangan dan penggalian Industri pengolahan Listrik, gas dan air Bangunan	15.416.870 137.624 5.620.186 20.925 131.802	15.321.803 149.552 5.998.020 22.192 137.575	14.455.498 133.763 6.090.124 34.477 191.459	14.392.924 141.501 6.377.994 21.322 154.693	13.731.432 105.180 6.003.772 34.502 187.123	
Pertambangan dan penggalian Industri pengolahan Listrik, gas dan air Bangunan Perdagangan besar, eceran, rumah makan dan hotel	15.416.870 137.624 5.620.186 20.925 131.802 11.200.403	15.321.803 149.552 5.998.020 22.192 137.575 11.091.457	14.455.498 133.763 6.090.124 34.477 191.459 11.989.724	14.392.924 141.501 6.377.994 21.322 154.693 11.608.917	13.731.432 105.180 6.003.772 34.502 187.123 12.008.742	
Pertambangan dan penggalian Industri pengolahan Listrik, gas dan air Bangunan Perdagangan besar, eceran, rumah makan dan hotel Pertanian, kehutanan, perburuan dan perikanan	15.416.870 137.624 5.620.186 20.925 131.802 11.200.403 588.050	15.321.803 149.552 5.998.020 22.192 137.575 11.091.457 481.684	14.455.498 133.763 6.090.124 34.477 191.459 11.989.724 303.726	14.392.924 141.501 6.377.994 21.322 154.693 11.608.917 278.519	13.731.432 105.180 6.003.772 34.502 187.123 12.008.742 340.517	
Pertaman, kentatanan, pertaman dan penggalian Industri pengolahan Listrik, gas dan air Bangunan Perdagangan besar, eceran, rumah makan dan hotel Pertanian, kehutanan, perburuan dan perikanan Keuangan, asuransi, usaha persewaan bangunan, tanah dan jasa perusahaan	15.416.870 137.624 5.620.186 20.925 131.802 11.200.403 588.050 436.724	15.321.803 149.552 5.998.020 22.192 137.575 11.091.457 481.684 511.345	14.455.498 133.763 6.090.124 34.477 191.459 11.989.724 303.726 722.963	14.392.924 141.501 6.377.994 21.322 154.693 11.608.917 278.519 763.422	13.731.432 105.180 6.003.772 34.502 187.123 12.008.742 340.517 784.437	
Pertambangan dan penggalian Industri pengolahan Listrik, gas dan air Bangunan Perdagangan besar, eceran, rumah makan dan hotel Pertanian, kehutanan, perburuan dan perikanan Keuangan, asuransi, usaha persewaan bangunan, tanah dan jasa perusahaan Jasa Kemasyarakatan	15.416.870 137.624 5.620.186 20.925 131.802 11.200.403 588.050 436.724 6.195.553	15.321.803 149.552 5.998.020 22.192 137.575 11.091.457 481.684 511.345 511.345	14.455.498 133.763 6.090.124 34.477 191.459 11.989.724 303.726 722.963 7.758.722	14.392.924 141.501 6.377.994 21.322 154.693 11.608.917 278.519 763.422 7.999.897	13.731.432 105.180 6.003.772 34.502 187.123 12.008.742 340.517 784.437 8.391.849	
Pertambangan dan penggalian Industri pengolahan Listrik, gas dan air Bangunan Perdagangan besar, eceran, rumah makan dan hotel Pertanian, kehutanan, perburuan dan perikanan Keuangan, asuransi, usaha persewaan bangunan, tanah dan jasa perusahaan Jasa Kemasyarakatan Total	15.416.870 137.624 5.620.186 20.925 131.802 11.200.403 588.050 436.724 6.195.553 39.748.137	15.321.803 149.552 5.998.020 22.192 137.575 11.091.457 481.684 511.345 511.345 7.031.916 40.745.544	14.455.498 133.763 6.090.124 34.477 191.459 11.989.724 303.726 722.963 7.758.722 41.680.456	14.392.924 141.501 6.377.994 21.322 154.693 11.608.917 278.519 763.422 7.999.897 41.739.189	13.731.432 105.180 6.003.772 34.502 187.123 12.008.742 340.517 784.437 8.391.849 41.587.554	

Source: Statistics Central Bureau, National Labor Force Survey 2009-2013 by Pusdatinaker



HUMAN DEVELOPMENT INDEX/GENDER DEVELOPMENT INDEX/GENDER INEQUALITY INDEX

Human Development Index (HDI) Summary measure of 3 basic dimensions of human development:

- 1. Long healthy life
- 2. Knowledge level by years of education aged + 25 years old
- 3. Standard of living (measured by Gross National Income per capita, using Purchasing Power purity)

Gender Development Index (GDI)

Gender inequalities in achievement in the 3 dimensions of HDI

Gender Inequality Index (GII)

Gender-based inequalities in 3 dimensions:

- 1. Reproductive health
- 2. Empowerment
- 3. Economic activity (labor market participation rate for women & men)



GENDER DEVELOPMENT INDEX & GENDER INEQUALITY INDEX



Very High Hun	Very High Human Development																			
Norway	Australia	Switzerland	Germany	Denmark	Singapore	Nethrelands	Ireland	lceland	Canada	United States	Hong Kong, China (SAR)	New Zealand	Sweden	Liechtenstein	United Kingdom	Japan	Korea (Republic of)	Israel	Luxembourg	
France	Belgium	Finland	Austria	Slovenia	Italy	Spain	Czech Republic	Greece	Brunei Darussalam	Estonia	Andorra	Cyprus	Malta	Qatar	Poland	Lithuania	Chile	Saudi Arabia	Slovakia	
Portugal	United Arab Emirates		Hungary	Latvia	Argentina	Croatia	Bahrain	Montenegro	Russian Federation	Romania	Kuwait									
High Human D	evelopment																			
Belarus	Oman	Barbados	Uruguay	Kazakhstan	Bahamas	Malaysia	Palau	Panama	Antigua and Barbuda	Seychelles	Mauritius	Trinidad and Tobago	Costa Rica	Serbia	Cuba	Iran (Islamic Republic of)	Georgia	Turkey	Venezuela (Bolivarian Republic of)	
Sri Lanka	Saint Kitts and Nevis	Albania	Lebanon	Mexico	Azerbaijan	Brazil	Grenada	Bosnia and Herzegovina	The former Yugoslav Republic of Macedonia	Algeria	Armenia	Ukraine	Jordan	Peru	Thailand	Ecuador	China	Fiji	Mongolia	
Saint Lucia	Jamaica	Colombia	Dominica	Suriname	Tunisia	Dominican Republic	Saint Vincent and the Grenadines	Tonga	Libya	Belize	Samoa	Maldives	Uzbekistan							
Medium Huma	n Developmen	t																•		
Moldova (Republic of)	Botswana	Gabon	Paraguay	Egypt	Turkmenistan	Indones ia	Palestine, State of	Viet Nam	Philippines	El Salvador	Bolivia (Plurinational State of)	South Africa	Kyrgyzstan	Iraq	Cabo Verde	Morocco	Nicaragua	Guatemala	Namibia	
Guyana	Micronesia (Federated States of)	Tajikistan	Honduras	India	Bhutan	Timor-Leste	Vanuatu	Congo	Equatorial Guinea	Kiribati	Lao People's Democratic Republic	Bangladesh	Ghana	Zambia	Sao Tome and Principe	Cambodia	Nepal	Myanmar	Kenya	Pakistan
Low Human D	Low Human Development																			
Swaziland	Syrian Arab Republic	Angola	Tanzania (United Republic of)	Nigeria	Cameroon	Papua New Guinea	Zimbabwe	Solomon Islands	Mauritania	Madagascar	Rwanda	Comoros	Lesotho	Senegal	Haiti	Uganda	Sudan	Тодо	Benin	
Yemen	Afghanistan	Malawi	Côte d'Ivoire	Djibouti	Gambia	Ethiopia	Mali	Congo (Democratic Republic of the)	Liberia	Guinea-Bissau	Eritrea	Sierra Leone	Mozambique	South Sudan	Guinea	Burundi	Burkina Faso	Chad	Niger	Central African Republic





- GOVERNMENT-

NATIONAL LONG-TERM DEVELOPMENT PLAN 2005-2025 (RENCANA PEMBANGUNAN JANGKA PANJANG NATIONAL/RPJPN)

5-year Phases Governed by National Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah Nasional/RPJMN) LONG TERM GOALS PRESIDENTIAL DECREE NO 5/2006 ON NATIONAL ENERGY POLICY (KEBIJAKAN ENERGI NASIONAL/KEN)

- Diversification, environment sustainability, use of domestic energy resources
- Energy mix (Oil 25%; Gas 22%; Coal 30%; NRE 23%) by 2025

RPJMN 2015-2019

- Reduce green house gas emissions
- Strengthen national energy security
 - Strengthen available primary energy through oil production (supported by gas/coal)
 - Increase domestic use primary energy resources
 - Achieve 96.6% electrification ratio

LONG TERM GOALS FOR ELECTRICITY NATIONAL ELECTRICITY DEVELOPMENT PLAN 2012-2031 (RENCANA UMUM KETENAGALISTRIKAN NATIONAL/RUKN)

 Include PLN electricity supply business plan



NATIONAL ENERGY TARGETS 2015-2019

	INDICATOR	2014	2019
1	Production		
	Oil (thousand BP per day)	818	700
	Gas (thousand SBM per day)	1,224	1,295
	Coal (million tons)	421	400
2	Domestic Use		
_	Gas (%)	53	64
	Coal (%)	24	60
3	Electricity		
_	Generation Capacity	50.7	86.6
	Electrification Ratio	81.5	96.6
4	Energy Infrastructure		
_	Oil Refineries (unit)	0	1*
	FSRU/Regasification Unit/LNG Terminal (unit)	2	7
	Gas Pipeline (km)	11,960	18,322
	SPBG (unit)	50	118
	City gas network (location/household connections)	188,000 households	1,100,000 households
5	Primary Energy Intensity (decrease 1% per year)	487.0	463.2
6	Energy Elasticity		1.3
Source	e: Government of Indonesia BPIMN 2015-1019		

*including infrastructural development by business enterprises



STRATEGIES -EDUCATION-

INDONESIA

has few world-class oil and gas research and development centers to develop high technologies

Few graduates in oil and gas industry professionals

Establish international quality institutions to develop local talent in universities with international faculty and industry cooperation

Training programs to develop 2000-3000 Phds in oil and gas in next 10 years



RESEARCH: GENDER PROPORTION





73

%

27

%

WOMEN'S POPULATION IN INDONESIA





Organization for Economic Cooperation and Development (OECD) 2015 Study on Program for International Students Assessment (PISA)



Science, Technology, Engineering, and Mathematics (STEM) dominates in Singapore, Japan, Estonia, Taipei, Finland, Macao, Canada, Vietnam, Hong Kong, Beijing – Shanghai – Jiangsu – Fuangdong



"A POWERFUL THOUGHT"

FRAMEWORK OF THOUGHT



AGENTS OF CHANGE ...

LET US MAKE HISTORY!!

