BAB V

PENUTUP

5.1. Kesimpulan

Berdasarkan hasil estimasi regresi data panel, maka dapat disimpulkan bahwa terdapat hubungan positif antara konsumsi energi terhadap pertumbuhan ekonomi yang diwakilkan oleh PDB, PPP dengan harga konstan 2011 di enam negara ASEAN. Variabel konsumsi energi memiliki koefisien sebesar 0,03. Hal ini menunjukkan apabila konsumsi energi naik sebesar 1 persen, maka pertumbuhan ekonomi di enam negara ASEAN akan naik sebesar 0,03 persen. Begitu pula sebaliknya, apabila konsumsi energi turun sebesar 1 persen, maka pertumbuhan ekonomi di enam negara ASEAN akan turun sebesar 0,03 persen. Secara singkat, dapat disimpulkan bahwa hasil penelitian yang sudah dilakukan menunjukkan konsumsi energi memiliki pengaruh terhadap pertumbuhan ekonomi di enam negara ASEAN.

5.2. Saran

Berdasarkan kesimpulan di atas, konsumsi energi berpengaruh signifikan terhadap pertumbuhan ekonomi di negara ASEAN. Kawasan ASEAN merupakan salah satu kawasan yang memiliki konsumsi energi tinggi di dunia, oleh karena itu para pemangku kebijakan harus mampu menerapkan kebijakan mengenai penggunaan energi di negara ASEAN agar dapat digunakan sesuai dengan kebutuhan dan tidak melanggar peraturan dalam hal penggunaan energi, sehingga dapat memenuhi permintaan energi, dimana hal tersebut kemudian dapat

meningkatkan perekonomian negara ASEAN. Salah satu cara yang dapat dilakukan oleh para pemangku kebijakan adalah melaksanakan konservasi energi. Konservasi energi dapat dilakukan dengan mengembangkan penggunaan energi terbarukan dan energi alternatif sehingga mampu menghemat penggunaan energi tidak terbarukan. Hal tersebut merupakan salah satu cara untuk menghadapi tantangan dalam memenuhi permintaan energi yang terjangkau, aman, dan berkelanjutan.

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LAMPIRAN

LAMPIRAN 1
DATA PENELITIAN

NEGARA	TAHUN	GDP, PPP (US$)	CAPITAL (US$)	LF	ENERGY (Mtoe)
Filipina	2008	4.81842E+11	35015948094	36389533	25.8
	2009	4.87375E+11	34403733048	37635484	26.2
	2010	5.24573E+11	40961206463	38640921	27.5
	2011	5.43771E+11	40186855076	39965439	27.7
	2012	5.80115E+11	44529063032	40568557	28.6
	2013	6.21095E+11	49796135591	41292988	30.9
	2014	6.59263E+11	53367494935	42618680	32.7
	2015	6.99258E+11	62385137961	43256003	36.4
	2016	7.47395E+11	78671562151	43870384	40
	2017	7.97302E+11	86074393764	42902620	43.5
	2018	8.47084E+11	97181493041	43732068	45
Indonesia	2008	1.8403E+12	2.08895E+11	110750572	130.1
	2009	1.92549E+12	2.15774E+11	112474150	135
	2010	2.04533E+12	2.34075E+11	115065454	147.1
	2011	2.17152E+12	2.54813E+11	117338708	161.8
	2012	2.30246E+12	2.78065E+11	120232220	170.5
	2013	2.43042E+12	2.91997E+11	121058437	174.3
	2014	2.5521E+12	3.04988E+11	122686817	163.8
	2015	2.67655E+12	3.20266E+11	124197130	162.7
	2016	2.81126E+12	3.34592E+11	125529899	166
	2017	2.95372E+12	3.55183E+11	129125589	172.6
	2018	3.10646E+12	3.78873E+11	131135747	181.8
Malaysia	2008	5.6085E+11	52841448729	11628408	78.24
	2009	5.52362E+11	51527103039	11980291	76.1
	2010	5.93374E+11	57213995219	12262363	78.7
	2011	6.24786E+11	60847536556	12798234	81
	2012	6.58984E+11	72398559498	13304537	87
	2013	6.89915E+11	78284436994	13912379	90.5
	2014	7.31356E+11	82034708640	14267193	90.6
	2015	7.68593E+11	84998292509	14613843	91.7
	2016	8.01054E+11	87258700444	14882605	92
	2017	8.48292E+11	92661513148	15161922	91.5

	2018	8.88362E+11	94002048989	15470124	93.8
Singapura	2008	3.23476E+11	54453212637	2629314	59.3
	2009	3.23867E+11	57441042094	2721747	63.8
	2010	3.70911E+11	61318591859	2806384	68.6
	2011	3.94138E+11	65221795967	2886652	71.2
	2012	4.11675E+11	70850219895	2995053	71.6
	2013	4.31497E+11	75213815435	3055059	73.7
	2014	4.48328E+11	78388020217	3139951	75.8
	2015	4.61296E+11	79924437950	3222396	71.6
	2016	4.74961E+11	80803064490	3260010	83.7
	2017	4.92533E+11	85945511980	3267007	86.5
	2018	5.07996E+11	82524124147	3283161	87.6
Thailand	2008	8.48935E+11	82278301926	38926746	93.8
	2009	8.43071E+11	73334060950	39179342	96.9
	2010	9.06416E+11	81840262327	38928992	103.6
	2011	9.14029E+11	85825377200	40050036	107.1
	2012	9.80231E+11	95031559812	40095155	114.6
	2013	1.00657E+12	94070331204	39221248	117
	2014	1.01648E+12	91990561986	38987294	120.4
	2015	1.04834E+12	96007082086	38920834	123.8
	2016	1.08352E+12	98750240754	38677972	126.5
	2017	1.12713E+12	1.00533E+11	38793465	129.2
	2018	1.17367E+12	1.04308E+11	38903300	131.2
Vietnam	2008	3.47695E+11	31528592679	49191977	32.52
	2009	3.66463E+11	35893525348	50116893	32.62
	2010	3.90002E+11	37844740368	51150708	38.42
	2011	4.14339E+11	36348273382	52033156	41.73
	2012	4.36081E+11	37705828692	52857803	41.53
	2013	4.59725E+11	40484313294	54112715	44.34
	2014	4.87233E+11	44375449215	54859279	48.74
	2015	5.19777E+11	47644972184	55483629	56.2
	2016	5.52059E+11	48605423347	55743171	59.5
	2017	5.89667E+11	53217227808	56403071	59.8
	2018	6.3139E+11	61297308073	56933418	67.6

LAMPIRAN 2

DATA PENELITIAN (SETELAH DITRANSFORMASI DALAM BENTUK LOGARITMA NATURAL)

NEGARA	TAHUN	lnGDP (US$)	lnCAPITAL (US$)	lnLF	lnENERGY (Mtoe)
Filipina	2008	26.90088	24.27906945	17.40979174	4.028205
	2009	26.9123	24.26143091	17.44345789	4.045154
	2010	26.98585	24.43589127	17.46982240	4.059753
	2011	27.02179	24.41680579	17.50352561	4.067658
	2012	27.08649	24.51940791	17.51850387	4.141228
	2013	27.15475	24.63120322	17.53620326	4.145354
	2014	27.21439	24.70046769	17.56780321	4.286616
	2015	27.27328	24.85659291	17.58264658	4.544145
	2016	27.33986	25.08854758	17.59675003	4.739614
	2017	27.4045	25.17847780	17.57444345	4.830232
	2018	27.46507	25.29984613	17.59359221	4.896047
Indonesia	2008	28.24095	26.06509548	18.52279113	5.495445
	2009	28.2862	26.09749889	18.53823398	5.631534
	2010	28.34658	26.17890624	18.56101169	5.718671
	2011	28.40645	26.26379514	18.58057525	5.861128
	2012	28.465	26.35111973	18.60493560	5.914205
	2013	28.51908	26.40000778	18.61178394	5.936533
	2014	28.56794	26.44353744	18.62514546	5.917414
	2015	28.61555	26.49241749	18.63738062	5.952516
	2016	28.66465	26.53617720	18.64805453	6.051713
	2017	28.71409	26.59589764	18.67629605	6.232055
	2018	28.76451	26.66046651	18.69174358	6.378511
Malaysia	2008	27.05272	24.69056173	16.26896163	1.140394
	2009	27.03747	24.66537378	16.29877344	3.124125
	2010	27.10909	24.77006438	16.32204521	3.157851
	2011	27.16068	24.83163717	16.36481775	3.186766
	2012	27.21396	25.00545224	16.40361566	3.545009
	2013	27.25983	25.08361466	16.44828958	3.298057
	2014	27.31817	25.13040827	16.47347326	3.299165
	2015	27.36783	25.16589701	16.49747979	3.311273
	2016	27.40919	25.19214311	16.51570364	3.314550
	2017	27.46649	25.25221905	16.53429771	3.309082
	2018	27.51265	25.26658242	16.55442124	3.333989

Singapura	2008	26.50239	24.72060769	14.78223353	1.778336
	2009	26.5036	24.77402490	14.81678451	1.851599
	2010	26.63923	24.83934893	14.84740738	1.924249
	2011	26.69997	24.90105954	14.87560791	1.961502
	2012	26.74350	24.98383391	14.91247249	1.967112
	2013	26.79053	25.04360077	14.93230946	2.687847
	2014	26.82879	25.08493695	14.95971775	2.716018
	2015	26.85731	25.10434750	14.98563574	2.658860
	2016	26.88650	25.11528073	14.99724082	2.815409
	2017	26.92283	25.17697935	14.99938483	2.848392
	2018	26.95374	25.13635650	15.00431724	3.265378
Thailand	2008	27.46725	25.13337326	17.47719213	3.842673
	2009	27.46032	25.01829102	17.48366018	3.875359
	2010	27.53276	25.12803516	17.47724983	4.409642
	2011	27.54113	25.17558057	17.50564013	4.559964
	2012	27.61105	25.27747488	17.50676606	4.913243
	2013	27.63757	25.26730854	17.48472920	5.218408
	2014	27.64737	25.24495182	17.47874636	5.467216
	2015	27.67823	25.28768780	17.47704024	5.632823
	2016	27.71124	25.31585968	17.47078080	5.847479
	2017	27.75069	25.33375296	17.47376236	6.058469
	2018	27.79116	25.37061807	17.47658964	6.232055
Vietnam	2008	26.57459	24.17416068	17.71124110	-0.43078
	2009	26.62716	24.30382276	17.72986869	-0.42771
	2010	26.68942	24.35675785	17.75028689	-0.26397
	2011	26.74995	24.31641254	17.76739169	0.223943
	2012	26.80109	24.35308053	17.78311590	0.219136
	2013	26.85389	24.42418041	17.80657974	0.572109
	2014	26.91201	24.51595221	17.82028190	0.666803
	2015	26.97667	24.58704295	17.83159856	1.724551
	2016	27.03692	24.60700095	17.83626547	1.781709
	2017	27.10282	24.69764801	17.84803417	1.786747
	2018	27.17119	24.83900176	17.85739304	1.909543

LAMPIRAN 3

HASIL REGRESI *POOLING DATA*

Dependent Variable: GDP
Method: Panel Least Squares
Date: 11/14/19 Time: 05:11
Sample: 2008 2018
Periods included: 11
Cross-sections included: 6
Total panel (balanced) observations: 66

Variable	Coefficient	Std. Error	t-Statistic	Prob.
lnCAPITAL	0.604499	0.023609	25.60427	0.0000
lnLF	0.170648	0.009315	18.31987	0.0000
lnENERGY	0.067697	0.008367	8.090771	0.0000
C	9.006854	0.574735	15.67131	0.0000

R-squared	0.983431	Mean dependent var	27.36229
Adjusted R-squared	0.982630	S.D. dependent var	0.610399
S.E. of regression	0.080449	Akaike info criterion	-2.143700
Sum squared resid	0.401265	Schwarz criterion	-2.010994
Log likelihood	74.74210	Hannan-Quinn criter.	-2.091261
F-statistic	1226.662	Durbin-Watson stat	0.201361
Prob(F-statistic)	0.000000		

LAMPIRAN 4

HASIL REGRESI SETELAH TERBEBAS DARI AUTOKORELASI

Dependent Variable: OGDP
Method: Panel Least Squares
Date: 11/14/19 Time: 07:53
Sample (adjusted): 2009 2018
Periods included: 10
Cross-sections included: 6
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OCAPITAL	0.565365	0.045864	12.32689	0.0000
OLF	0.201462	0.027759	7.257473	0.0000
OENERGY	0.031022	0.012382	2.505378	0.0152
C	1.358099	0.152255	8.919900	0.0000

R-squared	0.874993	Mean dependent var	3.900164
Adjusted R-squared	0.868296	S.D. dependent var	0.087322
S.E. of regression	0.031690	Akaike info criterion	-4.001290
Sum squared resid	0.056238	Schwarz criterion	-3.861667
Log likelihood	124.0387	Hannan-Quinn criter.	-3.946676
F-statistic	130.6584	Durbin-Watson stat	1.342508
Prob(F-statistic)	0.000000		

LAMPIRAN 5

HASIL UJI MULTIKOLINEARITAS

	lnCAPITAL	lnLF	lnENERGY
lnCAPITAL	1	0.3807624765671332	0.7545024422570429
lnLF	0.3807624765671332	1	0.4181823784109126
lnENERGY	0.7545024422570429	0.4181823784109126	1

LAMPIRAN 6

HASIL UJI HETEROSKEDASTISITAS

Dependent Variable: RESABS
Method: Panel Least Squares
Date: 11/14/19 Time: 05:55
Sample: 2008 2018
Periods included: 11
Cross-sections included: 6
Total panel (balanced) observations: 66

Variable	Coefficient	Std. Error	t-Statistic	Prob.
lnCAPITAL	0.006700	0.011127	0.602163	0.5493
lnLF	-0.006990	0.004390	-1.592221	0.1164
lnENERGY	-0.000948	0.003943	-0.240410	0.8108
C	0.005380	0.270871	0.019860	0.9842

R-squared	0.044591	Mean dependent var	0.050620
Adjusted R-squared	-0.001639	S.D. dependent var	0.037884
S.E. of regression	0.037915	Akaike info criterion	-3.648234
Sum squared resid	0.089129	Schwarz criterion	-3.515528
Log likelihood	124.3917	Hannan-Quinn criter.	-3.595795
F-statistic	0.964553	Durbin-Watson stat	0.792798
Prob(F-statistic)	0.415216		

LAMPIRAN 7

HASIL UJI MULTIKOLINEARITAS SETELAH PENYEMBUHAN AUTOKORELASI

	OCAPITAL	OLF	OENERGY
OCAPITAL	1	0.402302260927244	0.335691270250327
OLF	0.40230226092724	1	0.250432370651153
OENERGY	0.33569127025032	0.2504323706511533	1

LAMPIRAN 8

HASIL UJI HETEROSKEDASTISITAS SETELAH PENYEMBUHAN AUTOKORELASI

Dependent Variable: RESABS
Method: Panel Least Squares
Date: 11/21/19 Time: 07:56
Sample (adjusted): 2009 2018
Periods included: 10
Cross-sections included: 6
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OMODAL	0.017778	0.046909	0.378994	0.7061
OANGKATAN	-0.037658	0.028391	-1.326400	0.1901
OENERGI	0.007879	0.012664	0.622129	0.5364
C	0.071168	0.155722	0.457021	0.6494

R-squared	0.033898	Mean dependent var	0.048851
Adjusted R-squared	-0.017858	S.D. dependent var	0.032126
S.E. of regression	0.032412	Akaike info criterion	-3.956261
Sum squared resid	0.058829	Schwarz criterion	-3.816638
Log likelihood	122.6878	Hannan-Quinn criter.	-3.901647
F-statistic	0.654959	Durbin-Watson stat	0.751376
Prob(F-statistic)	0.583215		