

*Presented at the FIG Working Week 2017,
May 29 - June 2, 2017 in Helsinki, Finland*

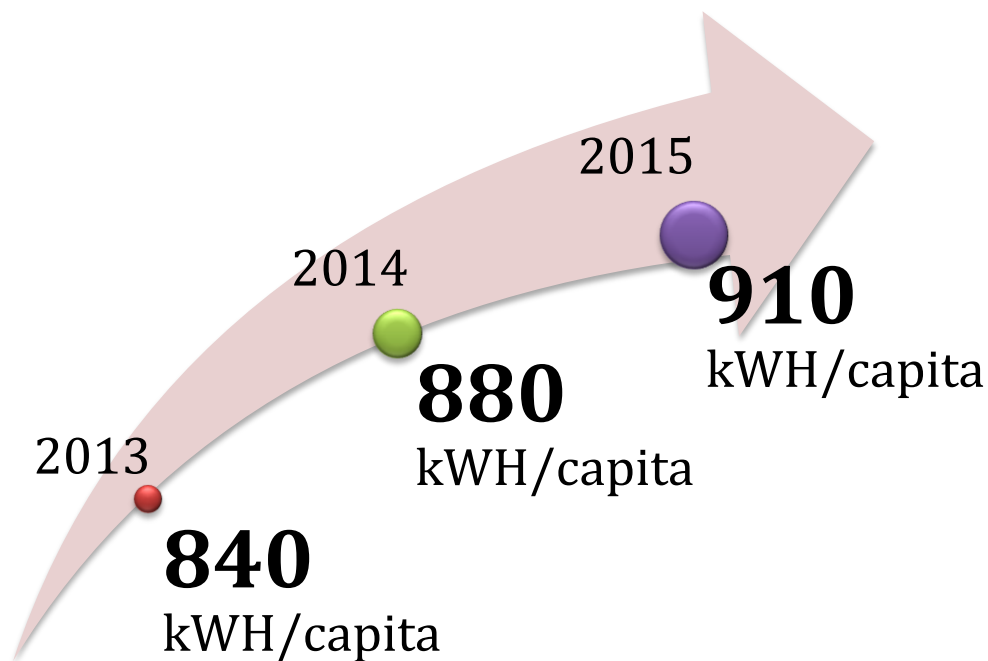
The Study on Potential of Electrical Power and Energy Resulted From Wave Generated by Wind

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FIG Working Week 2017
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What happened?

Percapita power consumption



Electrification Ratio

72.95%
(2011)

88.30%
(2015)

(Data source: DJLPE, 2015)

51.66 %

(Data source: Yuningsih and Masduki, 2011)



Image source: eksplorasi.id

28.57 %

(Data source: Yuningsih and Masduki, 2011)





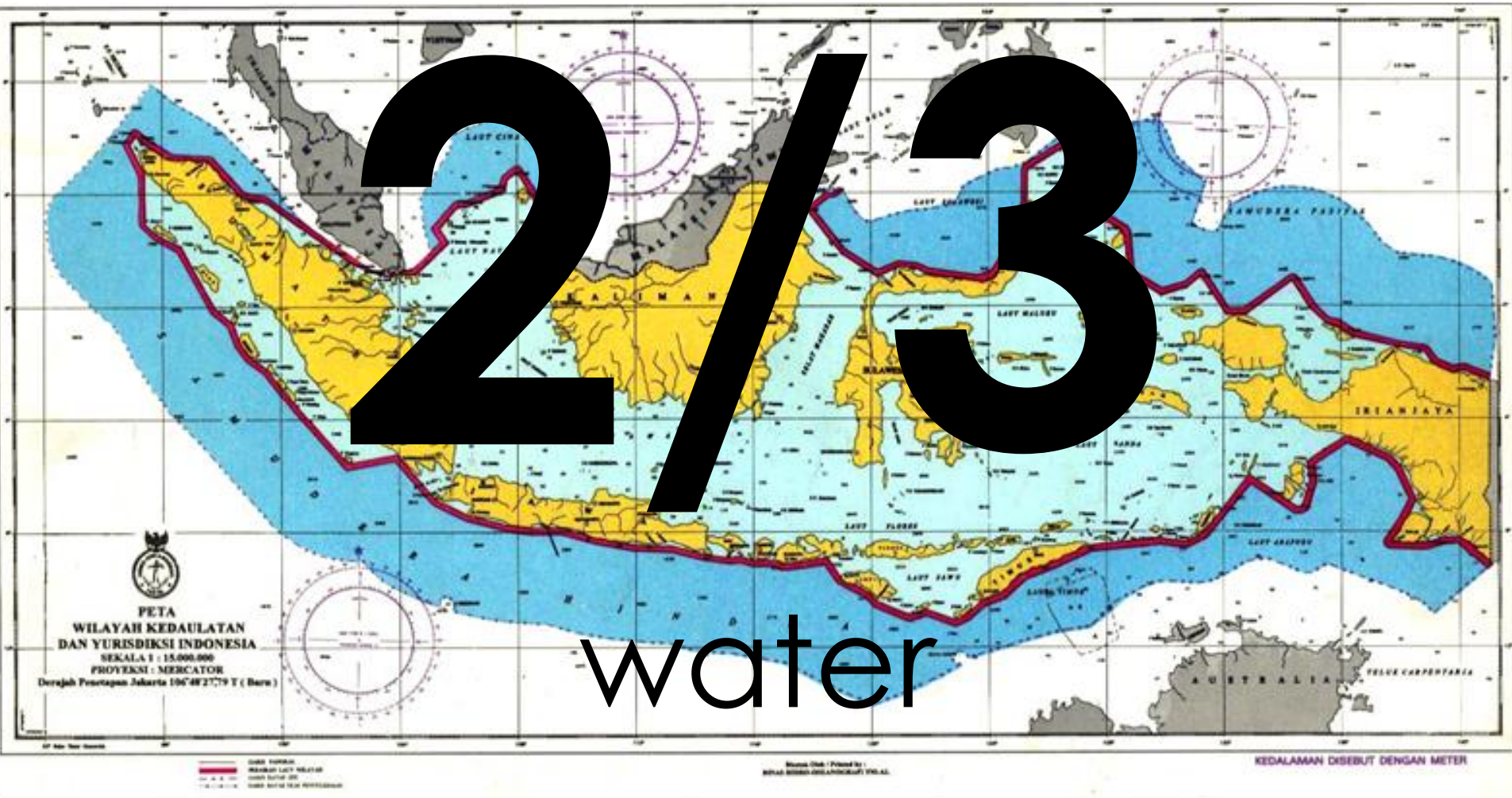
4.43%

(Data source: Yuningsih and Masduki, 2011)

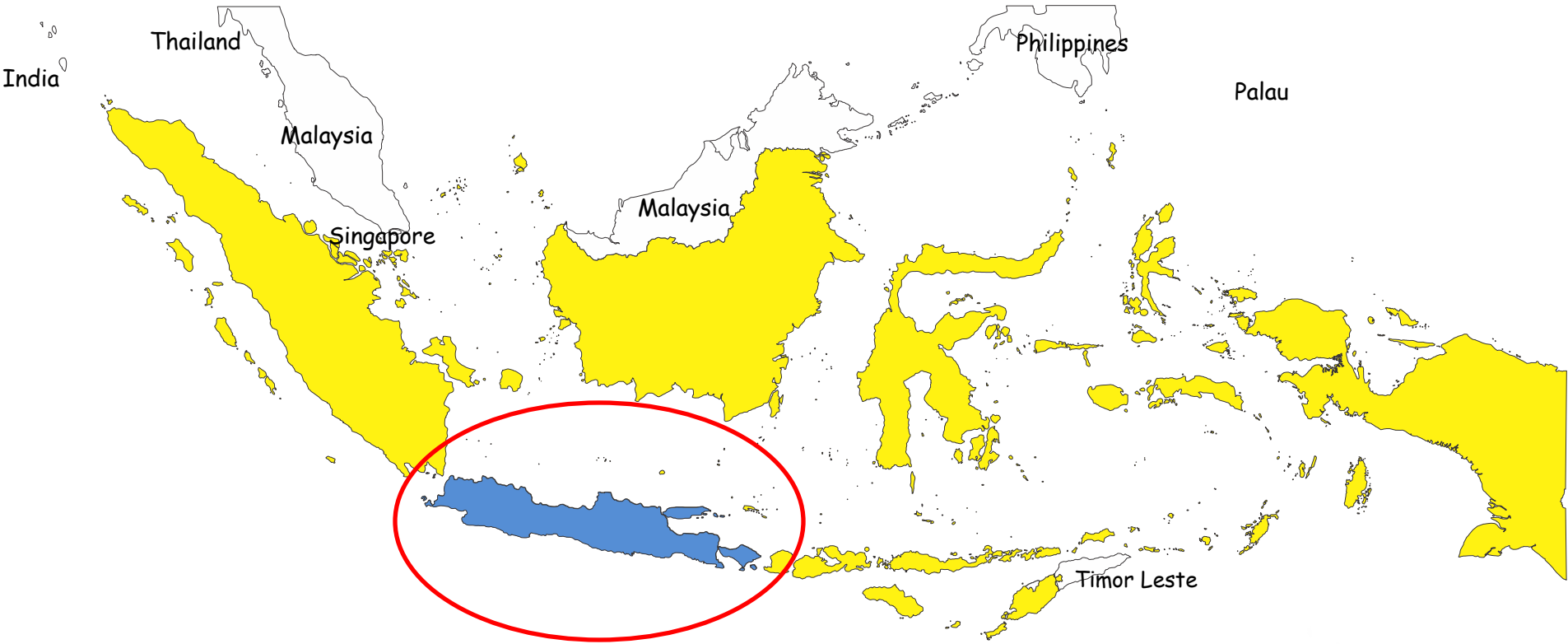
In fact ...

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water



Let's move to JAVA

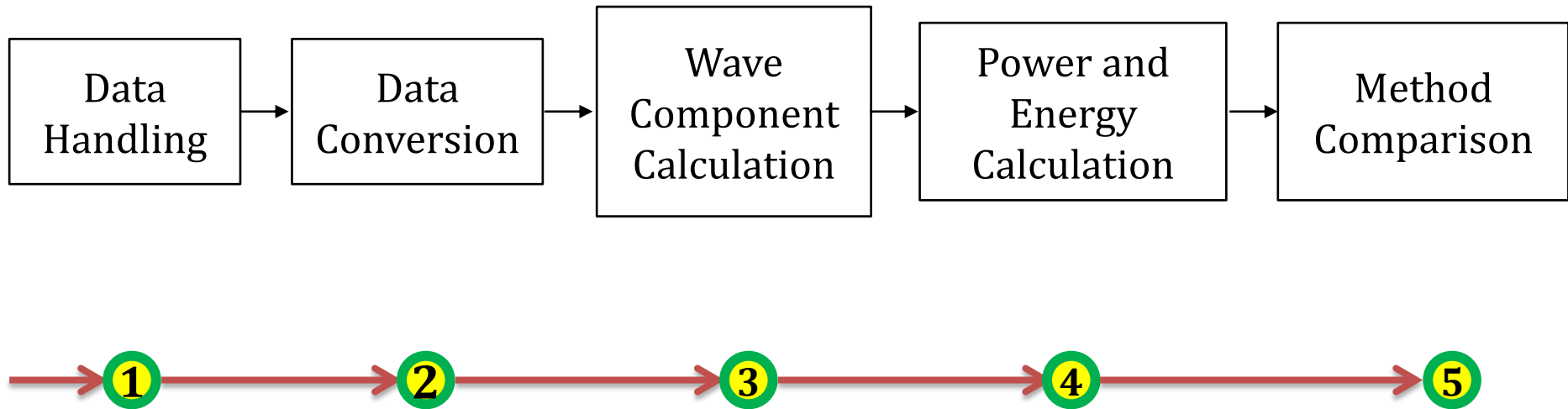


80%

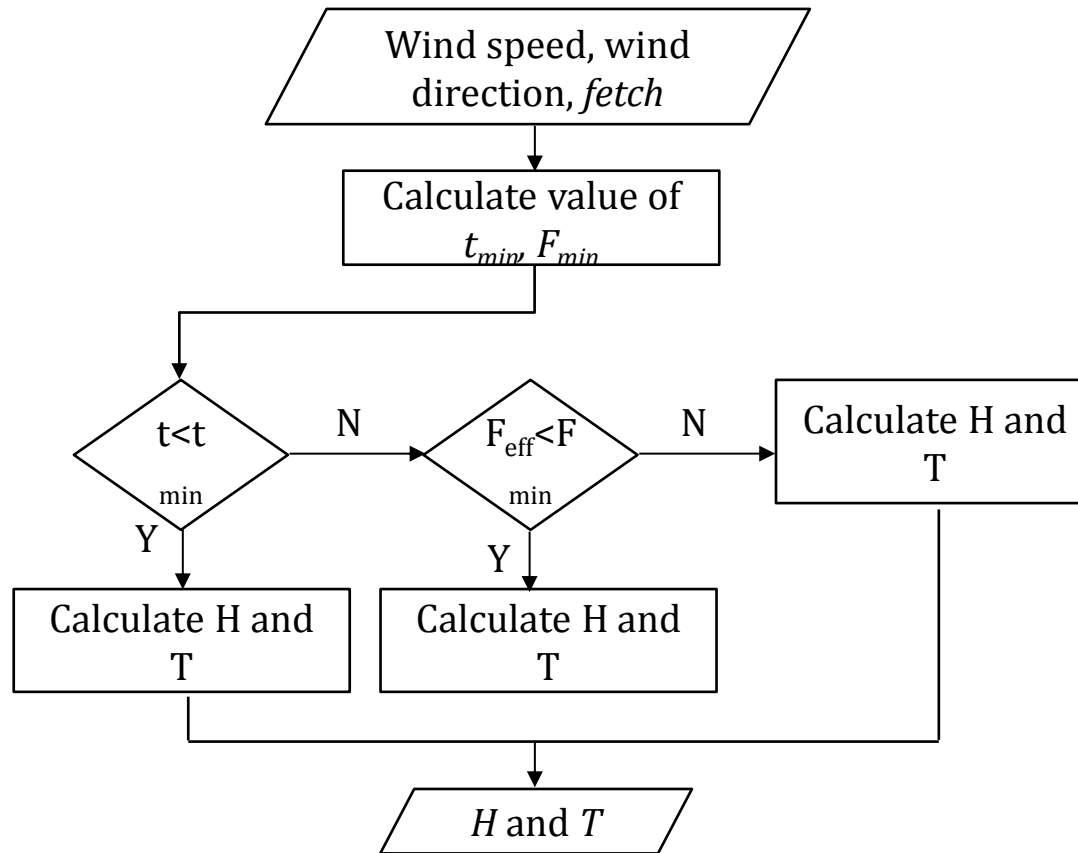
National electricity needs

(Muchlis and Permana, 2006)

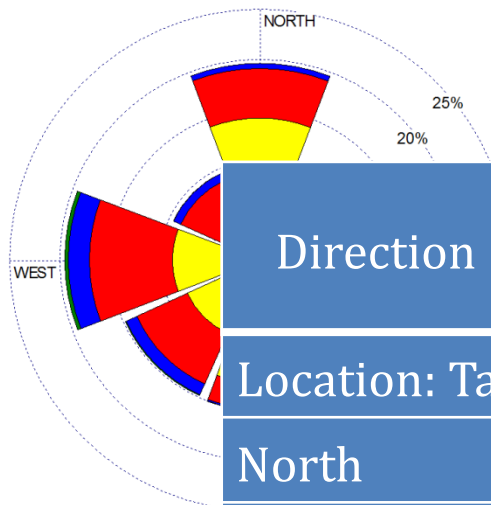
What I Did



More Specifically on Wave Component Calculation



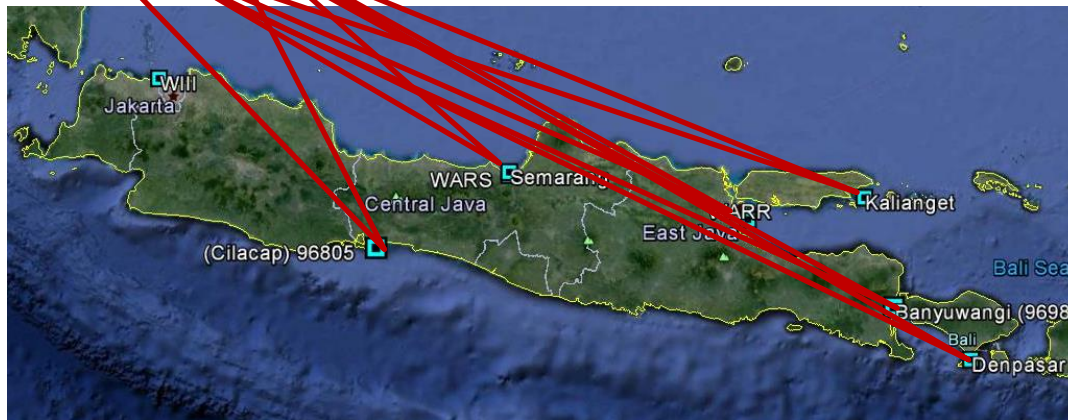
Take a look in one of location



Direction	Wave Generation Method				Wave T (s)
	SMB	Wilson	JONSWAP	CEM	
Location: Tangerang					
North					
P_D (W/m ₂)	38.952,31	54.665,04	43.224,49	138.141,6	
E_D (J/m ₂)	32.070,51	60.723,66	42.812,9	246.841,6	0,58
West					
P_D (W/m ₂)	124.299,2	95.001,85	74.849,38	228.840	0,99
E_D (J/m ₂)	154.828,7	116.665,4	81.815,49	443.165,3	0,88
	CEM	West	1,40	1,94	
		North	1,05	1,79	0,73
					1,57

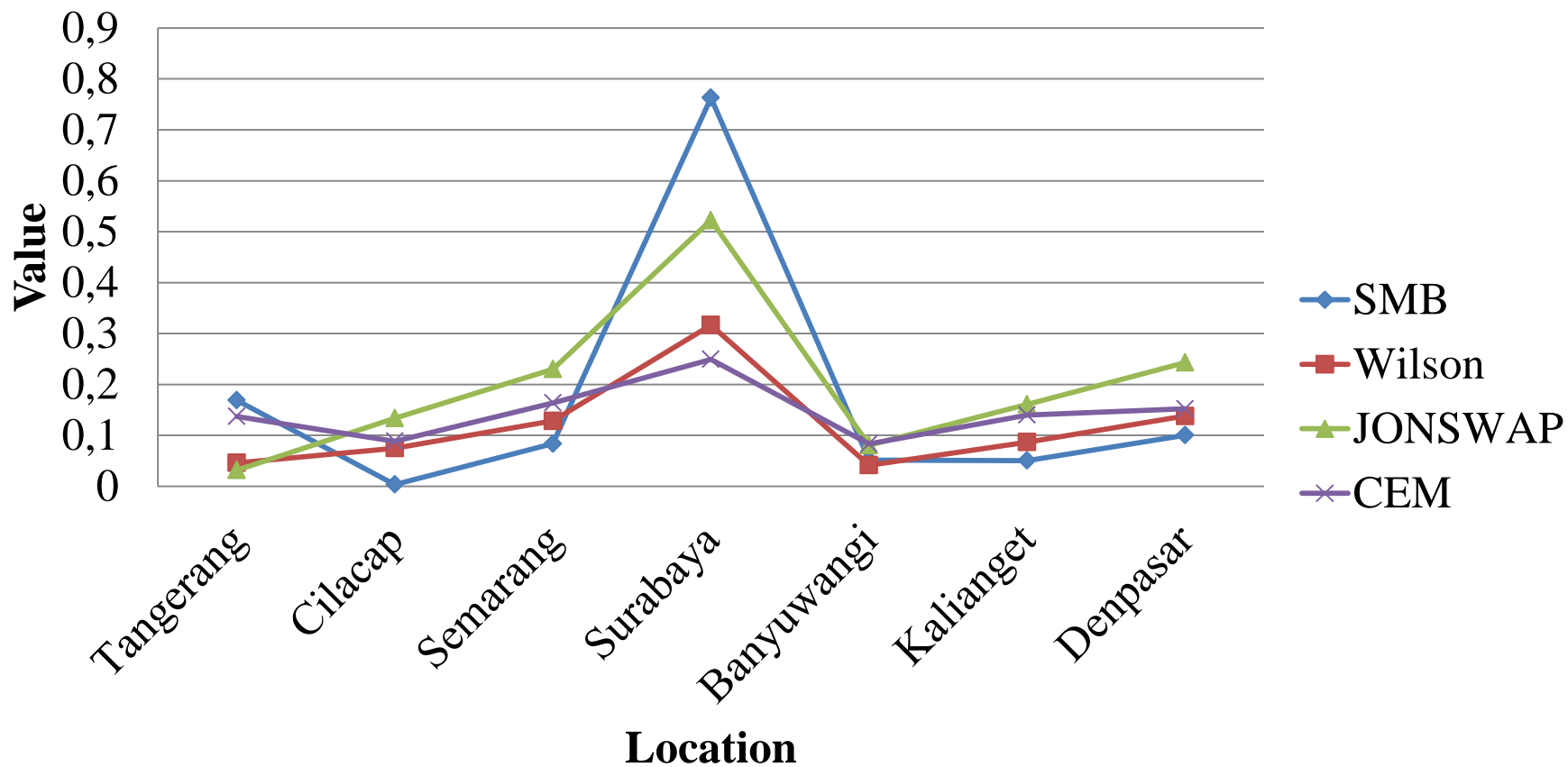
Energy Calculated

Direction	Wave Generation Method							
	SMB		Wilson		JONSWAP		CEM	
	Hs (m)	Ts (s)	Hs (m)	Ts (s)	Hs (m)	Ts (s)	Hs (m)	Ts (s)
	0,39	0,64	0,31	3,18	1,10	4,91	2,17	1,64
Southeast								
P_D (W/m ₂)	53.035,47		5.461,281		31.208,79		273.625,6	
E_D (J/m ₂)	33.972,39		13.229,49		87.761,41		536.267,8	



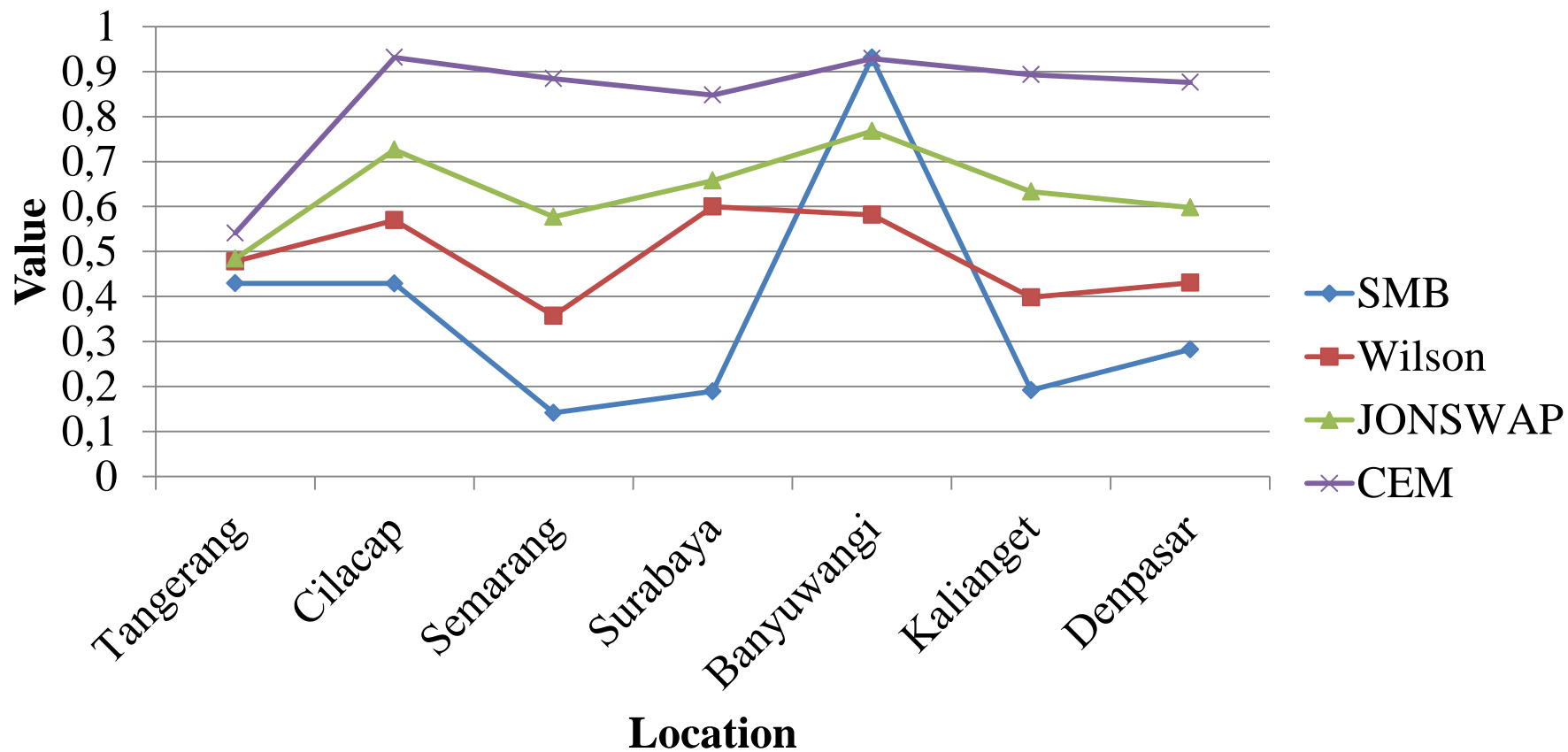
Wave Generation

Mean Absolute Error



Wave Generation

Scatter Index



Slope

Location	Direction	Slope (°)
Tangerang	North	0.06
	West	0.04
Cilacap	Southeast	0.17
	East	0.06
Semarang	North	0.03
	Northwest	0.01
Surabaya	East	0.06
	Southeast	0.07
Banyuwangi	South	0.05
	Southeast	0.1
Kalianget	East	0.12
	Southeast	0.17
Denpasar	East	0.6
	Southeast	0.65

Thank You



lpdp

lembaga pengelola dana pendidikan

