

Annex 1b. - Program 1: This is an indicative outline of how the courses will be structured and delivered. The consultant will be responsible for finalising and agreeing the details with PLN. The total number of teaching hours is fixed and will not vary.

Name of Thematic Group	General Topic of Group
Group 1 (Fundamental): Energy Transition and Environmental Concerns	The global context of the energy transition
	Environmental sustainability and climate change
	Coal-fired power plant operational options (retirement, repurposing, retrofitting)
Group 2: Renewable Energy Advancement	Renewable energy acceleration (solar, wind, hydro, geothermal)
	Emerging energy technologies (hydrogen, nuclear, carbon capture, etc.)
Group 3: Grid Infrastructures	Smart grid and control system
	Power system modeling
Group 4: Policy, Regulation, and Financing for Sustainable Energy	Enablers, including energy financing, regulations, procurement, and standard compliance
	Non-electricity business opportunities in the energy sector (RE certification, carbon credit, EV infrastructure, Internet of Things, energy efficiency measurement, etc)

General Term of Program 1	No.	Unit
Program duration	12	months
Total participant	120	people
Number of batches per year	2	batches
Batch duration	6	months
Number of classes per batch	5	classes
Number of participants per batch	60	people
Number of participants per class	12	people
Total Teaching hours per class	48	hours
48 hours/class x 5 simultaneous classes x 2 batches = 480 total teaching hours		

Batch-1 Months 4-9 Batch 2 Months 10-15	Month - 1	Month - 2	Month - 3	Month - 4	Month - 5	Month - 6
	Thematic group 1 (fundamental)	Thematic group 2	Thematic group 3	Thematic group 4	Group Work Project and Consultation	Consultation, Final Presentation and Evaluation
Week 1	The global context of the energy transition	Renewable energy acceleration I (solar, wind)	Smart grid and control system I	Energy procurement	Ideation (offline)	Pitching preparation I (consultation)
Week 2	Environmental sustainability and climate change	Renewable energy acceleration II (solar, wind, hydro, geothermal)	Smart grid and control system II	Enablers, including financing, regulations, and certifications	Mentor Consultation (offline)	Pitching preparation II (consultation)
Week 3	Coal-fired power plant operational options (retirement, repurposing, retrofitting) I	Emerging energy technologies I (hydrogen, nuclear, carbon capture, etc.)	Power system modelling I	Non-electricity business opportunities in energy sector I	Sharpened the business ideas	Final Presentation (offline)
Week 4	Coal-fired power plant operational options (retirement, repurposing, retrofitting) II	Emerging energy technologies II (hydrogen, nuclear, carbon capture, etc.)	Power system modelling I	Non-electricity business opportunities in energy sector II	Mentor Consultation	Evaluation & Batch Closing
Additional: 2 hours per month masterclass to PLN BOD (one teacher), totaling 24 hours over 12 months						
Note: 2 hours per session; 4 sessions per month (once a week) This whole program runs for 6 months, therefore, 8x6 is 48 hours.						

Teaching Schedule and Method				
Date and time (Jak)	MONTH-1	Class Name	Online / Offline	Note

Week-1				
Friday, 2.00 - 4.00 pm	The global context of the energy transition	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-2				
Friday, 2.00 - 4.00 pm	Environmental sustainability and climate change	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-3				
Friday, 2.00 - 4.00 pm	Coal-fired power plant operational options (retirement, repurposing, retrofiting) I	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-4				
Friday, 2.00 - 4.00 pm	Coal-fired power plant operational options (retirement, repurposing, retrofiting) II	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant

Date and tme (Jak)	MONTH-2	Class Name	Online / Offline	Note
Week-1				
Friday, 2.00 - 4.00 pm	Renewable energy acceleration I (solar, wind)	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-2				
Friday, 2.00 - 4.00 pm	Renewable energy acceleration II (solar, wind, hydro, geothermal)	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-3				
Friday, 2.00 - 4.00 pm	Emerging energy technologies I (hydrogen, nuclear, carbon capture, etc.)	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-4				
Friday, 2.00 - 4.00 pm	Emerging energy technologies II (hydrogen, nuclear, carbon capture, etc.)	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant

Date and tme (Jak)	MONTH-3	Class Name	Online / Offline	Note
Week-1				
Friday, 2.00 - 4.00 pm	Smart grid and control system I	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-2				
Friday, 2.00 - 4.00 pm	Smart grid and control system II	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-3				
Friday, 2.00 - 4.00 pm	Power system modelling I	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-4				
Friday, 2.00 - 4.00 pm	Power system modelling I	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant

Date and tme (Jak)	MONTH-4	Class Name	Online / Offline	Note
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Week-1				
Friday, 2.00 - 4.00 pm	Energy procurement	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-2				
Friday, 2.00 - 4.00 pm	Enablers, including financing, regulations, and certifications	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-3				
Friday, 2.00 - 4.00 pm	Non-electricity business opportunities in energy sector I	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant
Week-4				
Friday, 2.00 - 4.00 pm	Non-electricity business opportunities in energy sector II	A, B, C, D, E	Online	1. Paralel class 2. Topic per cluster is determined by the consultant

Date and tme (Jak)	MONTH-5	Class Name	Online / Offline
Week-1			
Friday, 2.00 - 4.00 pm	Ideation	A	Offline, in Jakarta, Hotel Meeting Room
Week-2			
Friday, 2.00 - 4.00 pm	Mentor Consultation I	A	Offline, in Jakarta, PLN office
Week-3			
Friday, 2.00 - 4.00 pm	Mentor Consultation II	A	Online
Week-4			
Friday, 2.00 - 4.00 pm	Mentor Consultation III	A	Online
MONTH-6			
Week-1			
Monday, 9.00 - 11.00 am	Pitching preparation I	A	Online
Week-2			
Monday, 9.00 - 11.00 am	Pitching preparation II	A	Offline, in Jakarta, PLN office
Week-3			
Monday, 9.00 - 11.00 am	Final Presentation	A	Offline, in Jakarta, Hotel Meeting Room
Week-4			
Monday, 9.00 - 11.00 am	Evaluation & Batch Closing	A	Online

Annex 1b - Program 2: This is an indicative outline of how the courses will be structured and delivered. The consultant will be responsible for finalising and agreeing the details with PLN. The total number of teaching hours is fixed and will not vary.

General term Program 2	No.	Unit	Name of Thematic Group	General Topic of Group
Program duration	9	months	Mandatory: Energy Transition and Environmental Concerns	The global context of the energy transition
Total participants	240	people		Environmental sustainability and climate change
Number of groups	6	groups	Group 1: Renewable Energy Advancement	Coal-fired power plant operational options (retirement, repurposing, retrofitting)
Number of participants per group	80	people		Renewable energy acceleration (solar, wind, hydro, geothermal) --> REA Class
Number of classes per group	2	class	Group 2: Grid Infrastructures	Emerging energy technologies (hydrogen, nuclear, carbon capture, etc.) --> EET Class
Total classes	6	class		Smart grid and control system --> SGCS Class
Number of participants per class	40	people	Group 3: Policy, Regulation, and Financing for Sustainable Energy	Power system modeling --> PSM Class
36 hours/group x 6 classes = 216 total teaching hours				Enablers, including energy financing, regulations, procurement, and standard compliance --> ENAB Class
				Non-electricity business opportunities in the energy sector (RE certification, carbon credit, EV infrastructure, Internet of Things, energy efficiency measurement, etc) --> NEB Class

Group	Class	Month - 1	Month - 2	Month - 3	Month - 4	Month - 5	Month - 6	Month - 7	Month - 8	Month - 9	Month - 10	Month - 11	Month - 12
Group 1	Class 1A	Mandatory	Level 1 - Knowledgeable				EVALUATION	Level 2 - Practitioner				EVALUATION	DESIGNING Level 3 - Advanced and Level 4 - Mastery
1-2 teaching staff per group	Week 1	The global context of the energy transition	REA 1: Solar (Resource Assessment, System Capacity, and Generation)	REA 1: Solar (impacts on Distribution Grid)	REA 1: Wind	REA 1: Wind	Month 6 is for:	REA 2: Solar	REA 2: Solar	REA 2: Wind	REA 2: Wind	Month 11 is for:	Month 12 is for:
40 participants per group	Week 2	Environmental sustainability and climate change	REA 1: Solar (Overview of System Planning, Permitting, and Grid Access)	REA 1: Solar (System Components, Mounting, Cabling)	REA 1: Wind	REA 1: Wind	1. Redevelopment of recorded online course materials of Level 1	REA 2: Solar	REA 2: Solar	REA 2: Wind	REA 2: Wind	1. Redevelopment of recorded online course materials of Level 2	1. Design and proposing course material for Level 3 - Advanced
	Week 3	Coal-fired power plant operational options (retirement, repurposing, retrofitting) I	REA 1: Solar (Overview of Environmental and Social Impacts)	REA 1: Solar (Construction of Floating Solar PV Systems)	REA 1: Wind	Exam	2. Evaluation of Level 1	REA 2: Solar	REA 2: Solar	REA 2: Wind	Exam	2. Evaluation of Level 2	2. Design and proposing course material for Level 4 - Mastery
	Week 4	Coal-fired power plant operational options (retirement, repurposing, retrofitting) II	REA 1: Solar (Metering Options and Consumer Economics)	REA 1: Wind (Resource Assessment, Power Density, Shear and Speed Extrapolation)	REA 1: Wind	Remedial	3. Certification of participant Level 1	REA 2: Solar	REA 2: Wind	REA 2: Wind	Remedial	3. Certification of participant Level 2	3. Final evaluation of the program
Group 1	Class 1B	Mandatory	Level 1 - Knowledgeable					Level 2 - Practitioner					
	Week 1	The global context of the energy transition	EET 1: Hydrogen	EET 1: Hydrogen		EET 1: BESS		EET 2: Hydrogen		EET 2: Hydrogen	EET 2: BESS		
40 participants per group	Week 2	Environmental sustainability and climate change	EET 1: Hydrogen	EET 1: BESS		EET 1: BESS		EET 2: Hydrogen		EET 2: BESS	EET 2: BESS		
	Week 3	Coal-fired power plant operational options (retirement, repurposing, retrofitting) I	EET 1: Hydrogen	EET 1: BESS		Exam		EET 2: Hydrogen		EET 2: BESS	Exam		
	Week 4	Coal-fired power plant operational options (retirement, repurposing, retrofitting) II	EET 1: Hydrogen	EET 1: BESS		Remedial		EET 2: Hydrogen		EET 2: BESS	Remedial		
Group 2	Class 2A	Mandatory	Level 1 - Knowledgeable					Level 2 - Practitioner					
1-2 teaching staff per group	Week 1	The global context of the energy transition	SGCS 1	SGCS 1		SGCS 1		SGCS 2		SGCS 2	SGCS 2		
40 participants per group	Week 2	Environmental sustainability and climate change	SGCS 1	SGCS 1		SGCS 1		SGCS 2		SGCS 2	SGCS 2		
	Week 3	Coal-fired power plant operational options (retirement, repurposing, retrofitting) I	SGCS 1	SGCS 1		Exam		SGCS 2		SGCS 2	Exam		
	Week 4	Coal-fired power plant operational options (retirement, repurposing, retrofitting) II	SGCS 1	SGCS 1		Remedial		SGCS 2		SGCS 2	Remedial		
Group 2	Class 2B	Mandatory	Level 1 - Knowledgeable					Level 2 - Practitioner					
	Week 1	The global context of the energy transition	PSM 1: Introduction to different power generation technologies.	PSM 1		PSM 1		PSM 2		PSM 2	PSM 2		
40 participants per group	Week 2	Environmental sustainability and climate change	PSM 1	PSM 1		PSM 1		PSM 2		PSM 2	PSM 2		

	Week 3	Coal-fired power plant operational options (retirement, repurposing, retrofitting) I	PSM 1	PSM 1		Exam		PSM 2		PSM 2	Exam		
	Week 4	Coal-fired power plant operational options (retirement, repurposing, retrofitting) II	PSM 1	PSM 1		Remedial		PSM 2		PSM 2	Remedial		
Group 3	Group 3A	Mandatory	Level 1 - Knowledgeable					Level 2 - Practitioner					
1-2 teaching staff per group	Week 1	The global context of the energy transition	ENAB 1	ENAB 1	ENAB 1			ENAB 2		ENAB 2	ENAB 2		
40 participants per group	Week 2	Environmental sustainability and climate change	ENAB 1	ENAB 1	ENAB 1			ENAB 2		ENAB 2	ENAB 2		
	Week 3	Coal-fired power plant operational options (retirement, repurposing, retrofitting) I	ENAB 1	ENAB 1	ENAB 1			ENAB 2		ENAB 2	Exam		
	Week 4	Coal-fired power plant operational options (retirement, repurposing, retrofitting) II	ENAB 1	ENAB 1		Remedial		ENAB 2		ENAB 2	Remedial		
Group 3	Group 3B	Mandatory	Level 1 - Knowledgeable					Level 2 - Practitioner					
	Week 1	The global context of the energy transition	NEB 1	NEB 1	NEB 1			NEB 2		NEB 2	NEB 2		
40 participants per group	Week 2	Environmental sustainability and climate change	NEB 1	NEB 1	NEB 1			NEB 2		NEB 2	NEB 2		
	Week 3	Coal-fired power plant operational options (retirement, repurposing, retrofitting) I	NEB 1	NEB 1		Exam		NEB 2		NEB 2	Exam		
	Week 4	Coal-fired power plant operational options (retirement, repurposing, retrofitting) II	NEB 1	NEB 1		Remedial		NEB 2		NEB 2	Remedial		