

## Realizare etapa I - Proiectul *SMESEE PROD CHE system*

### I. Raportare livrabile

Etapa 1-01.08.2021- 30.11.2022					
Activity 1. Development of experimental model of <i>SMESEE PROD CHE system/ Part 1</i>					
(Elaboration, realization and experimentation of the <i>experimental model</i> of the system -- <i>SMESEE PROD CHE system</i> )					
Raport intermediar –RI 1					
Nr. crt	Conținut	Documente de finalizare /conținut	Realizare livrabile	Realizare activitati	
1	<b><i>A1.1. Elaboration, realization and experimentation of the experimental model of the subsystem for monitoring, analysis and diagnosis of the hydro aggregate for electricity production – SS1-hydro aggregate subsystem.</i></b>	<i>modelul experimental al sistemului pentru monitorizarea, analiza și diagnosticarea hidroagregatului pentru producerea energiei electrice-SS1 sistemul hidroagregat</i>			
	A1.1.1. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for on-line monitoring and diagnosis of hydrogenerator cooling and lubrication oil – <b><i>M1.1. hydrogenerator oil module</i></b>	1. Raport documentar privind definirea funcțiilor și structurii modulului <b><i>M1.1. hydrogenerator oil module</i></b> 2. Proiect model experimental modul <b><i>M1.1. hydrogenerator oil module</i></b> 3. Model experimental al modulului <b><i>M1.1. hydrogenerator oil module</i></b>	X  X  X (partial)		
	A1.1.2. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for on-line monitoring and diagnosis of hydrogenerator stators condition – <b><i>M1.2. generator stator module</i></b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M1.2 2. Proiect model experimental modul M1.2 3. Model experimental al modulului <b><i>M1.2. generator stator module</i></b>	X  X  ---		
	A1.1.3. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for on-line monitoring and diagnosis of hydrogenerator rotors –	1. Raport documentar privind definirea funcțiilor și structurii modulului M1.3 2. Proiect model experimental modul	X		

	<b>M1.3. generator rotor module</b>	M1.3 3.Model experimental al modulului <b>M1.3. generator rotor module</b>	X ---		
A1.1.4. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for the analysis of the partial discharges of hydrogenerator windings – <b>M1.4. generator partial discharges module</b>		1. Raport documentar privind definirea funcțiilor și structurii modulului M1.4 2.Proiect model experimental modul M1.4 3.Model experimental al modulului <b>M1.4. generator partial discharges module</b>	X  X ---		
A1.1.5. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for on-line monitoring and diagnosis of hydrogenerators sub-assemblies' vibrations – <b>M1.5. Generator vibration modul</b>		1. Raport documentar privind definirea funcțiilor și structurii modulului M1.5 2.Proiect model experimental modul M1.5 3.Model experimental al modulului <b>M1.5. Generator vibration modul</b>	X  X ---		
A1.1.6. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for the analysis of hydrogenerator bearings – <b>M1.6. Generator bearings analysis module</b>		1. Raport documentar privind definirea funcțiilor și structurii modulului M1.6 2.Proiect model experimental modul M1.6 3.Model experimental al modulului <b>M1.6. Generator bearings analysis module</b>	X  X ---		
A1.1.7. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for the analysis of the turbine drive of hydrogenerators – <b>M1.7. Turbine analysis module..</b>		1. Raport documentar privind definirea funcțiilor și structurii modulului M1.7 2.Proiect model experimental modul M1.7 3.Model experimental al modulului <b>M1.7. Turbine analysis module.</b>	X  X ---		
A1.1.8. Elaboration, realization and experimentation of the experimental model of the module for on-line monitoring and diagnosis of the directing device of hydrogenerators- <b>M1.8. wicket gates module</b>		1. Raport documentar privind definirea funcțiilor și structurii modulului M1.8 2.Proiect model experimental modul M1.8 3.Model experimental al modulului	X  X		

		<b>M1.8. wicket gates module</b>	---		
	A1.1.9. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for on-line monitoring and diagnosis of the cooling system of hydrogenerators – <b>M1.9. generator cooling-ventilation system module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M1.9 2. Proiect model experimental modul M1.9 3. Model experimental al modulului <b>M1.9. generator cooling-ventilation system module</b>	X  X ---		
	A1.1.10. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for on-line monitoring and diagnosis of the fire extinguishing installation of hydrogenerators – <b>M1.10. generator fire extinguisher module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M1.10 2. Proiect model experimental modul M1.10 3. Model experimental al modulului M1.10 4. Raport de încercare al modelului experimental al modulului M1.10.	X  X ---		
	A1.1.11. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for the acquisition, storage and transmission of hydrogenerator monitoring data – <b>M1.11. generator data acquisition module</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M1.11 2. Proiect model experimental modul M1.11 3. Model experimental al modulului <b>M1.11. generator data acquisition module</b>	X  X ---		
	A1.1.12. Elaboration, realization and experimentation of the <i>model</i> of multicriteria analysis of the technical condition of the subassemblies of hydrogenerators – <b>M1.12. generator status analysis module</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M1.12 2. Proiect model experimental modul M1.12 3. Model experimental al modulului <b>M1.12. generator status analysis module</b>	X  X ---		
	A1.1.13. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for determining the consumed and remaining lifetimes of hydrogenerators – <b>M1.13. Generator lifetime module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M1.13 2. Proiect model experimental modul M1.13	X  X		

		3.Model experimental al modulului <b>M1.13. Generator lifetime module</b>	---		
2	<b>A1.2. Elaboration, realization and experimentation of the experimental model of the subsystem for monitoring, analysis and diagnosis of power transformers of the HPP – SS2. Power plant transformer subsystem.</b>	experimental model of the subsystem for monitoring, analysis and diagnosis of power transformers of the HPP – SS2. Power plant transformer subsystem			
	A1.2.1. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for on-line monitoring and diagnosis of power transformer terminals – <b>M2.1 transformer terminals module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M2.1 2.Proiect model experimental modul M2.1 3.Model experimental al modulului <b>M2.1 transformer terminals module</b>	X  X ---		
	A1.2.2. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for monitoring the noise and vibrations of power transformers – <b>M2.2. Transformer vibration module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M2.2 2.Proiect model experimental modul M2.2 3.Model experimental al modulului <b>M2.2. Transformer vibration module</b>	X  X ---		
	A1.2.3. Development, realization and experimentation of the <i>experimental model</i> of the module for the analysis of partial discharges of power transformers – <b>M2.3. Transformer the partial discharges module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M2.3 2.Proiect model experimental modul M2.3 3.Model experimental al modulului <b>M2.3. Transformer the partial discharges module</b>	X  X ---		
	A1.2.4. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for temperature analysis along the windings of power transformers – M2.4. <b>transformer windings heating module</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M2.4 2.Proiect model experimental modul M2.4 3.Model experimental al modulului M2.4. <b>transformer windings heating module</b>	X  X ---		
	A1.2.5. Elaboration, realization and experimentation	1. Raport documentar privind definirea	X		

	of the experimental model of the module for on-line monitoring and diagnosis of the cooling system of power transformers – <b>M2.5. Transformer cooling module.</b>	funcțiunilor și structurii modulului M2.5 2.Proiect model experimental modul M2.5 3.Model experimental al modulului <b>M2.5. Transformer cooling module.</b>	X ---		
	A1.2.6. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for on-line monitoring and diagnosis of the fire extinguishing installation of power transformers – <b>M2.6. Transformer fire extinguishing module</b>	1. Raport documentar privind definirea funcțiunilor și structurii modulului M2.6 2.Proiect model experimental modul M2.6 3.Model experimental al modulului <b>M2.6. Transformer fire extinguishing module</b>	X X ---		
	A1.2.7. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for the acquisition, storage and transmission of monitoring data of power transformers – <b>M2.7. Transformer data acquisition module</b>	1. Raport documentar privind definirea funcțiunilor și structurii modulului M2.7 2.Proiect model experimental modul M2.7 3.Model experimental al modulului <b>M2.7. Transformer data acquisition module</b>	X X ---		
	A1.2.8. Elaboration, realization and experimentation of the <i>model</i> for the multicriteria analysis of the technical condition of transformer subassemblies – <b>M2.8.transformer status analysis module.</b>	1. Raport documentar privind definirea funcțiunilor și structurii modulului M2.8 2.Proiect model experimental modul M2.8 3.Model experimental al modulului <b>M2.8.transformer status analysis module</b>	X X ---		
	A1.2.9. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for estimating the consumed and remaining lifetimes of power transformers – <b>M2.9.transformer lifetime module</b>	1. Raport documentar privind definirea funcțiunilor și structurii modulului M2.9 2.Proiect model experimental modul M2.9 3.Model experimental al modulului <b>M2.9.transformer lifetime module</b>	X X X		
3	<b>A1.3. Elaboration, realization and experimentation of</b>	<b>experimental model of the subsystem</b>			

	<i>the experimental model of the subsystem for monitoring, analysis and diagnosis of underground power lines (cable lines) – SS3 underground line subsystem</i>	<i>for monitoring, analysis and diagnosis of underground power lines (cable lines) – SS3 underground line subsystem</i>			
	A1.3.1. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for the analysis of the partial discharges of the power lines in cable – <b>M3.1. line partial discharges module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M3.1 2. Proiect model experimental modul M3.1 3. Model experimental al modulului <b>M3.1. line partial discharges module</b>	X  X ---		
	A1.3.2. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for the analysis of the absorption-resorption currents of the power lines in cable – <b>M3.2. CABS line module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M3.2 2. Proiect model experimental modul M3.2 3. Model experimental al modulului <b>M3.2. CABS line module</b>	X  X ---		
	A1.3.3. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for temperature analysis on the length of the cables of the power lines in cable – <b>M3.3. line heating module</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M3.3 2. Proiect model experimental modul M3.3 3. Model experimental al modulului <b>M3.3. line heating module</b>	X  X ---		
	A1.3.4. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for the acquisition, storage and transmission of monitoring data of power lines in cable – <b>M3.4. line data acquisition module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M3.4 2. Proiect model experimental modul M3.4 3. Model experimental al modulului <b>M3.4. line data acquisition module.</b>	X  X ---		
	A1.3.5. Elaboration, realization and experimentation of the <i>model</i> for the multicriteria analysis of the technical condition of electric cables – <b>M3.5. Line condition analysis module</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M3.5 2. Proiect model experimental modul M3.5 3. Model experimental al modulului <b>M3.5. Line condition analysis module</b>	X  X ---		

	A1.3.6. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for estimating the consumed and remaining lifetimes of the power lines in cable – <b>M3.6.line lifetime module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M3.6 2.Proiect model experimental modul M3.6 3.Model experimental al modulului <b>M3.6.line lifetime module</b>	X  X ---		
4	<b>A1.4. Elaboration, realization and experimentation of the experimental model of the subsystem for monitoring, analysis and diagnosis of medium voltage power circuit breakers – SS4 circuit breaker subsystem.</b>	<i>modelul experimental al sistemului pentru monitorizarea, analiza și diagnosticarea intreruptoarelor de putere medie și înalta tensiune-SS4 sistemul intreruptor</i>			
	A1.4.1. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for the analysis of the actuation times of medium voltage power circuit breakers – <b>M4.1 circuit breaker actuation time module.</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M4.1 2.Proiect model experimental modul M4.1 3.Model experimental al modulului <b>M4.1 circuit breaker actuation time module.</b>	X  X ---		
	A1.4.2. Elaboration, realization and experimentation of the experimental model of the module for the analysis of the short circuit currents of medium voltage power circuit breakers – <b>M4.2. Circuit breaker current module</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M4.2 2.Proiect model experimental modul M4.2 3.Model experimental al modulului <b>M4.2. Circuit breaker current module</b>	X  X ---		
	A1.4.3. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for the acquisition, storage and data transmission of medium voltage power circuit breakers – <b>M4.3. circuit breaker data acquisition module</b>	1. Raport documentar privind definirea funcțiilor și structurii modulului M4.3 2.Proiect model experimental modul M4.3 3.Model experimental al modulului <b>M4.3. circuit breaker data acquisition module</b>	X  X ---		
	A1.4.4. Elaboration, realization and experimentation of the <i>model</i> for the multicriteria analysis of the technical condition of medium voltage power circuit	1. Raport documentar privind definirea funcțiilor și structurii modulului M4.4 2.Proiect model experimental modul	X		

	breakers – <b>M4.4. circuit breaker condition analysis module.</b>	M4.4 3.Model experimental al modului <b>M4.4. circuit breaker condition analysis module.</b>	X ---		
	A1.4.5. Elaboration, realization and experimentation of the <i>experimental model</i> of the module for estimating the consumed and remaining lifetimes of medium voltage power circuit breakers – <b>M4.5. circuit breaker lifetime module</b>	1. Raport documentar privind definirea funcțiilor și structurii modului M4.5 2.Proiect model experimental modul M2.5 3.Model experimental al modului <b>M4.5. circuit breaker lifetime module</b>	X X ---		
5	<b>A1.6. Acquisition for the experimental models</b>	1. Elaborarea specificațiilor tehnice și documentelor necesare pentru lansarea achizițiilor 2. Desfășurarea licitațiilor 3. Recepția materialelor achiziționate și lansarea în circuitul economic al firmei	partial		
	A1.6.1 Partial discharge sensor assembly to electrical power transformers	Echipamentul	-----		
	A1.6.3 Component test stand for each SMEESE PROD CHE	Echipamentul	-----		
	A1.6.7 Cooling oil detection and lubrication oil sensor set for hydrogenerator	Echipamentul	x		
	Generator stator module	Echipamentul	-----		
	A1.6.8 Hydrogenerator data acquisition device	Echipamentul	-----		
	A1.6.9 Aquisition of Kit for : sensors for online monitoring of the turbine drive oh hydrogenerators; sensors for online monitoring of the directing device of hydrogenerators; sensors for online monitoring of the cooling system of hydrogenerators; sensors for online monitoring of the fire extinguishing installation of hydrogenerators.	sensors for online monitoring of the turbine drive oh hydrogenerators; sensors for online monitoring of the directing device of hydrogenerators; sensors for online monitoring of the cooling system	-----		
		sensors for online monitoring of the fire extinguishing installation of hydrogenerators.	-----		
	A1.6.10 Continuous acquisition device vibration				

	endwinding				
	A1.6.12 On-line monitoring sensors at transformer terminals and oil analysis from condens pots of terminals	On-line monitoring sensors at transformer terminals	-----		
		oil analysis from condens pots of terminals	x		
	1.6.13 Continuous acquisition device from circuit breaker	Echipamentul	-----		
	A1.6.15 Acquisition of Notebook	Echipamentele	1(partial)		
6	<b>A2.2. Acquisition of components and spare parts for prototype development</b>	1. Elaborarea specificațiilor tehnice și documentelor necesare pentru lansarea achizițiilor 2. Desfășurarea licitațiilor 3. Recepția materialelor achiziționate și lansarea în circuitul economic al firmei	X  partial  -----		
7	Management	Prima etapa	x		
8	Communication and Publicity	1 Website realizat. 2. Anuntare incepere proiect in revista Electricianul 3. Announcement on company's website about the project start 4. Redactarea unei lucrari pentru SME 2021	x		
9	Audit	Etapa I	x		