

Appendix 5.2

**[Smart Energy-Sharing and Management Devices for a Low Carbon Society]
[Traveling to Field Test Sites]
Report Form**

I. Proposer:

Name:	Dr. Surasak Nuilers
Position:	Researcher
Institution:	National Electronics and Computer Technology Center (NECTEC)

II. Objective:

1. To inspect and validate the performance and installation quality of the existing solar power system — comprising the inverter, battery modules, and associated equipment supplied under the previous procurement — at Thanphuying Vilai Amattayakun School, Umphang District, Tak Province, Thailand
2. To upgrade the existing Energy Sharing Devices at the School by integrating IoT modules.
3. To establish a communication network that connects and supports the IoT-enabled Energy Sharing Devices and the solar system.

III. Schedule:

Date	Location	Work	Person in charge
Day2	Thanphuying Vilai Amattayakun School, Umphang District, Tak Province, Thailand.	Tasks related to Objectives No.1, 2, and 3	All participants listed
Day3	(Cont.) Thanphuying Vilai Amattayakun School	Tasks related to Objectives No.1, 2, and 3	All participants listed
Day4	(Cont.) Mae Thanphuying Vilai Amattayakun School	Tasks related to Objectives No.1, 2, and 3	All participants listed

(Note: describe the final schedule here)

IV. Participants:

No.	Name	Organization
1	Mr. Natchpong Hatti	NECTEC

2	Mr. Surasak Nuilers	NECTEC
3	Mr. Prakob Komeswarakul	NECTEC
4		
5		

(Note: please add a participant list if there are a lot of people participating)

V. Summary of the activities corresponding to the objectives

(Note: Describe, in detail, the activities, e.g. how to install the equipment, maintain the equipment, train local researchers for data collection, etc.)



Figure 1 Install IoT module and upgrade AC/DC ESD Software



Figure 2 Consumer test

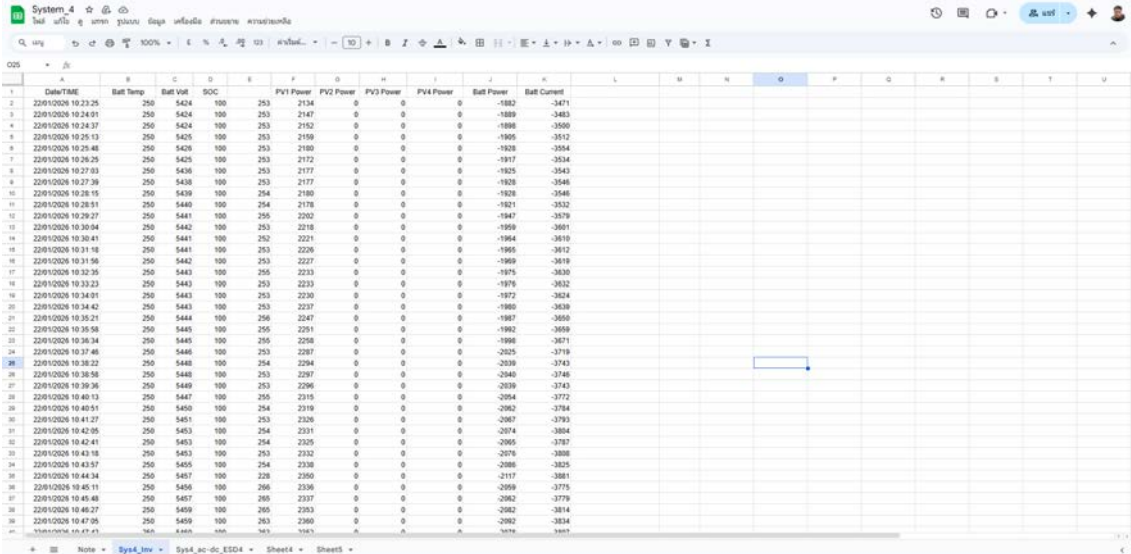
The activities conducted during 20–22 January 2026 focused on the installation of the IoT module board and software development for the prototype AC/DC Energy-Sharing Device (ESD) installed at the Teacher’s Residence Building, Thanphuying Vilai Amattayakun School. The IoT module was implemented to monitor operational data from both the Deye solar inverter and the AC/DC ESD, which will be used for energy management analysis in subsequent development stages. In addition, the IoT module enables remote control of the AC/DC ESD operation.

Figure 1 illustrates the installation of the IoT module, the development of software for both the IoT module and the AC/DC ESD, and the testing of remote control functionality.

Figure 2 shows user testing of the newly developed system.

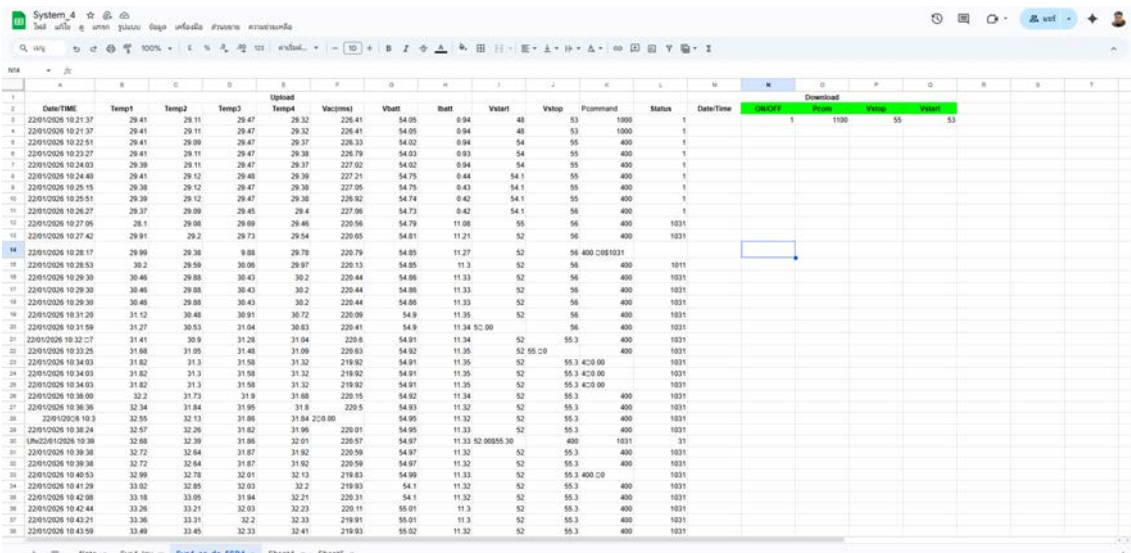
Figures 3 and 4 present data obtained from Google Sheets for the Deye solar inverter and the AC/DC ESD, respectively.

Furthermore, Google Sheets was configured not only for data monitoring but also for controlling and adjusting AC/DC ESD operating parameters, such as on/off status, power command, and voltage hysteresis band. All collected data from Google Sheets will be utilized for further application development to enable monitoring and control via mobile devices or computers, as well as for detailed energy management analysis.



Date/Time	Batt Temp	Batt Volt	SOC	PV1 Power	PV2 Power	PV3 Power	PV4 Power	Batt Power	Batt Current	
22/01/2026 10:23:25	250	5424	100	253	2134	0	0	0	-1832	-3471
22/01/2026 10:24:01	250	5424	100	253	2147	0	0	0	-1889	-3483
22/01/2026 10:24:37	250	5424	100	253	2152	0	0	0	-1888	-3500
22/01/2026 10:25:13	250	5425	100	253	2159	0	0	0	-1895	-3512
22/01/2026 10:25:48	250	5426	100	253	2180	0	0	0	-1928	-3554
22/01/2026 10:26:25	250	5425	100	253	2172	0	0	0	-1917	-3534
22/01/2026 10:27:03	250	5437	100	253	2177	0	0	0	-1925	-3542
22/01/2026 10:27:39	250	5439	100	253	2177	0	0	0	-1928	-3548
22/01/2026 10:28:15	250	5439	100	254	2180	0	0	0	-1928	-3548
22/01/2026 10:28:51	250	5440	100	254	2178	0	0	0	-1921	-3532
22/01/2026 10:29:27	250	5441	100	255	2202	0	0	0	-1947	-3578
22/01/2026 10:30:04	250	5442	100	253	2218	0	0	0	-1959	-3591
22/01/2026 10:30:41	250	5441	100	252	2221	0	0	0	-1964	-3619
22/01/2026 10:31:18	250	5441	100	253	2226	0	0	0	-1965	-3612
22/01/2026 10:31:56	250	5442	100	253	2227	0	0	0	-1969	-3618
22/01/2026 10:32:35	250	5443	100	255	2233	0	0	0	-1975	-3630
22/01/2026 10:33:23	250	5443	100	253	2233	0	0	0	-1976	-3632
22/01/2026 10:34:01	250	5443	100	253	2287	0	0	0	-1972	-3624
22/01/2026 10:34:42	250	5443	100	253	2237	0	0	0	-1980	-3638
22/01/2026 10:35:21	250	5444	100	256	2247	0	0	0	-1987	-3650
22/01/2026 10:35:58	250	5445	100	255	2251	0	0	0	-1992	-3658
22/01/2026 10:36:34	250	5445	100	255	2258	0	0	0	-1998	-3671
22/01/2026 10:37:46	250	5446	100	253	2287	0	0	0	-2025	-3719
22/01/2026 10:38:22	250	5448	100	254	2294	0	0	0	-2039	-3743
22/01/2026 10:38:58	250	5448	100	253	2287	0	0	0	-2040	-3748
22/01/2026 10:39:36	250	5449	100	253	2296	0	0	0	-2039	-3743
22/01/2026 10:40:13	250	5447	100	255	2315	0	0	0	-2054	-3772
22/01/2026 10:40:51	250	5450	100	255	2319	0	0	0	-2062	-3784
22/01/2026 10:41:27	250	5451	100	253	2326	0	0	0	-2067	-3793
22/01/2026 10:42:05	250	5453	100	254	2331	0	0	0	-2074	-3804
22/01/2026 10:42:41	250	5453	100	254	2329	0	0	0	-2065	-3792
22/01/2026 10:43:18	250	5453	100	253	2332	0	0	0	-2078	-3808
22/01/2026 10:43:57	250	5455	100	254	2338	0	0	0	-2088	-3825
22/01/2026 10:44:34	250	5457	100	228	2390	0	0	0	-2117	-3881
22/01/2026 10:45:11	250	5456	100	266	2336	0	0	0	-2099	-3775
22/01/2026 10:45:48	250	5457	100	265	2337	0	0	0	-2082	-3779
22/01/2026 10:46:27	250	5459	100	265	2383	0	0	0	-2082	-3814
22/01/2026 10:47:06	250	5459	100	263	2360	0	0	0	-2082	-3814
22/01/2026 10:47:43	250	5460	100	263	2363	0	0	0	-2078	-3807

Figure 3 Data from the solar inverter, Deye.



Date/Time	Temp1	Temp2	Temp3	Temp4	Ugrid	Vgrid	Vbatt	Vstart	Vstop	Pcommand	Status	Date/Time	SWCUT	Pmax	Vmax	Vbatn
22/01/2026 10:21:37	29.41	29.11	29.47	29.32	226.41	54.05	0.94	48	53	1000	1					
22/01/2026 10:21:37	29.41	29.11	29.47	29.32	226.41	54.05	0.94	48	53	1000	1					
22/01/2026 10:21:51	29.41	29.09	29.47	29.37	226.33	54.02	0.94	54	55	400	1					
22/01/2026 10:23:27	29.41	29.11	29.47	29.38	226.79	54.03	0.93	54	55	400	1					
22/01/2026 10:24:03	29.39	29.11	29.47	29.37	227.02	54.02	0.94	54	55	400	1					
22/01/2026 10:24:40	29.41	29.12	29.48	29.36	227.21	54.79	0.44	54.1	55	400	1					
22/01/2026 10:25:15	29.38	29.12	29.47	29.38	227.05	54.75	0.43	54.1	55	400	1					
22/01/2026 10:25:51	29.39	29.12	29.47	29.38	226.92	54.74	0.42	54.1	55	400	1					
22/01/2026 10:26:27	29.37	29.09	29.45	29.4	227.06	54.73	0.42	54.1	56	400	1					
22/01/2026 10:27:05	29.1	29.08	29.69	29.46	226.56	54.79	11.08	55	56	400	1031					
22/01/2026 10:27:42	29.91	29.2	29.73	29.54	226.65	54.81	11.21	52	56	400	1031					
22/01/2026 10:28:17	29.99	29.38	9.88	29.78	226.79	54.85	11.27	52	56	400	1031					
22/01/2026 10:28:53	30.2	29.59	30.06	29.97	226.13	54.85	11.3	52	56	400	1011					
22/01/2026 10:29:30	30.46	29.88	30.43	30.2	226.44	54.86	11.33	52	56	400	1031					
22/01/2026 10:29:30	30.46	29.88	30.43	30.2	226.44	54.86	11.33	52	56	400	1031					
22/01/2026 10:29:30	30.46	29.88	30.43	30.2	226.44	54.86	11.33	52	56	400	1031					
22/01/2026 10:31:20	31.12	30.48	30.91	30.72	226.09	54.9	11.35	52	56	400	1031					
22/01/2026 10:31:59	31.27	30.53	31.04	30.83	226.41	54.9	11.34	52:00	56	400	1031					
22/01/2026 10:32:27	31.41	30.9	31.26	31.04	226.6	54.91	11.34	52	55.3	400	1031					
22/01/2026 10:33:26	31.68	31.05	31.48	31.09	226.63	54.82	11.35	52:55:20	400	1031						
22/01/2026 10:34:03	31.82	31.3	31.58	31.32	219.82	54.91	11.35	52	55.3	400:00	1031					
22/01/2026 10:34:03	31.82	31.3	31.58	31.32	219.82	54.91	11.35	52	55.3	400:00	1031					
22/01/2026 10:34:03	31.82	31.3	31.58	31.32	219.82	54.91	11.35	52	55.3	400:00	1031					
22/01/2026 10:36:00	32.2	31.73	31.9	31.68	226.15	54.82	11.34	52	55.3	400	1031					
22/01/2026 10:36:36	32.34	31.84	31.95	31.8	226.5	54.93	11.32	52	55.3	400	1031					
22/01/2026 10:37	32.55	32.13	31.86	31.84	226.80	54.95	11.32	52	55.3	400	1031					
22/01/2026 10:38:24	32.57	32.26	31.82	31.96	226.01	54.95	11.33	52	55.3	400	1031					
19/02/2026 10:39	32.68	32.39	31.86	32.01	226.57	54.97	11.33	52:00:55:30	400	1031	31					
22/01/2026 10:39:38	32.72	32.64	31.87	31.92	226.59	54.97	11.32	52	55.3	400	1031					
22/01/2026 10:39:38	32.72	32.64	31.87	31.92	226.59	54.97	11.32	52	55.3	400	1031					
22/01/2026 10:40:53	32.99	32.78	32.01	32.13	219.83	54.99	11.33	52	55.3	400:20	1031					
22/01/2026 10:41:29	33.02	32.85	32.03	32.2	219.93	54.1	11.32	52	55.3	400	1031					
22/01/2026 10:43:08	33.18	33.05	31.84	32.21	226.31	54.1	11.32	52	55.3	400	1031					
22/01/2026 10:42:44	33.26	33.21	32.03	32.23	220.11	55.01	11.3	52	55.3	400	1031					
22/01/2026 10:43:21	33.36	33.31	32.2	32.33	219.91	55.01	11.3	52	55.3	400	1031					
22/01/2026 10:43:59	33.49	33.45	32.33	32.41	219.93	55.02	11.32	52	55.3	400	1031					

Figure 4 Data from AC/DC ESD.

VI. Others

pictures here