Supplementary material for “Optimal Energy-logistic Dispatch for Seaport Green Vehicles: Leveraging Reversible Solid Oxide Cell Energy System for Sustainable Energy

A. Parameter of seaport energy system

Table. I: Parameters of seaport energy system.

Parameter	Value	Parameter	Value
$P^{net.\min}, P^{net.\max} / kWh$	0, 800	$c^{hp} / CNY \cdot kg^{-1}$	30
$H^{net.\min}, H^{net.\max} / kg$	0, 170		

B. Parameter of seaport logistic system

Table. II: Initial position and soc status of seaport transfer vehicles in Case 1. ("1_QC" represents the QC node of seaport terminal 1. "B" denotes electric transfer vehicles, and "H" denotes hydrogen transfer vehicles.)

VehicleIndex	Type	Location	Soc	VehicleIndex	Type	Location	Soc	VehicleIndex	Type	Location	Soc
1	B	1_QC	80	9	B	1_QC	80	17	H	1_QC	80
2	B	1_YC	80	10	B	1_YC	80	18	H	1_YC	80
3	B	2_QC	80	11	B	2_QC	80	19	H	2_QC	80
4	B	2_YC	80	12	B	2_YC	80	20	H	2_YC	80
5	B	1_QC	80	13	H	1_QC	80	21	H	1_QC	80
6	B	1_YC	80	14	H	1_YC	80	22	H	1_YC	80
7	B	2_QC	80	15	H	2_QC	80	23	H	2_QC	80
8	B	2_YC	80	16	H	2_YC	80	24	H	2_YC	80

Table. III: 300 transfer jobs of the seaport logistics system in Case 1. ("1_QC" represents the QC node of seaport terminal 1.)

JobIndex	Origin	Destination	Length	JobIndex	Origin	Destination	Length	JobIndex	Origin	Destination	Length
1	1_QC	2_YC	10	101	1_YC	1_QC	10	201	2_YC	2_QC	5
2	2_QC	1_YC	10	102	2_QC	2_YC	5	202	1_QC	2_YC	10
3	2_YC	1_QC	10	103	2_QC	1_YC	10	203	1_QC	2_YC	10
4	2_YC	1_QC	10	104	1_QC	1_YC	5	204	1_YC	1_QC	5
5	1_YC	2_QC	10	105	2_QC	2_YC	5	205	1_YC	2_QC	10
6	2_YC	2_QC	5	106	1_QC	2_YC	10	206	1_YC	1_QC	10
7	1_QC	2_YC	10	107	2_QC	1_YC	10	207	2_QC	2_YC	5

8	1_QC	2_YC	10	108	2_YC	1_QC	10	208	2_QC	1_YC	10
9	1_YC	1_QC	5	109	2_YC	1_QC	10	209	1_QC	1_YC	5
10	1_YC	2_QC	10	110	1_YC	2_QC	10	210	2_QC	2_YC	5
11	1_YC	1_QC	10	111	2_YC	2_QC	5	211	1_QC	2_YC	10
12	2_QC	2_YC	5	112	1_QC	2_YC	10	212	2_QC	1_YC	10
13	2_QC	1_YC	10	113	1_QC	2_YC	10	213	2_YC	1_QC	10
14	1_QC	1_YC	5	114	1_YC	1_QC	5	214	2_YC	1_QC	10
15	2_QC	2_YC	5	115	1_YC	2_QC	10	215	1_YC	2_QC	10
16	1_QC	2_YC	10	116	1_YC	1_QC	10	216	2_YC	2_QC	5
17	2_QC	1_YC	10	117	2_QC	2_YC	5	217	1_QC	2_YC	10
18	2_YC	1_QC	10	118	2_QC	1_YC	10	218	1_QC	2_YC	10
19	2_YC	1_QC	10	119	1_QC	1_YC	5	219	1_YC	1_QC	5
20	1_YC	2_QC	10	120	2_QC	2_YC	5	220	1_YC	2_QC	10
21	2_YC	2_QC	5	121	1_QC	2_YC	10	221	1_YC	1_QC	10
22	1_QC	2_YC	10	122	2_QC	1_YC	10	222	2_QC	2_YC	5
23	1_QC	2_YC	10	123	2_YC	1_QC	10	223	2_QC	1_YC	10
24	1_YC	1_QC	5	124	2_YC	1_QC	10	224	1_QC	1_YC	5
25	1_YC	2_QC	10	125	1_YC	2_QC	10	225	2_QC	2_YC	5
26	1_YC	1_QC	10	126	2_YC	2_QC	5	226	1_QC	2_YC	10
27	2_QC	2_YC	5	127	1_QC	2_YC	10	227	2_QC	1_YC	10
28	2_QC	1_YC	10	128	1_QC	2_YC	10	228	2_YC	1_QC	10
29	1_QC	1_YC	5	129	1_YC	1_QC	5	229	2_YC	1_QC	10
30	2_QC	2_YC	5	130	1_YC	2_QC	10	230	1_YC	2_QC	10
31	1_QC	2_YC	10	131	1_YC	1_QC	10	231	2_YC	2_QC	5
32	2_QC	1_YC	10	132	2_QC	2_YC	5	232	1_QC	2_YC	10
33	2_YC	1_QC	10	133	2_QC	1_YC	10	233	1_QC	2_YC	10
34	2_YC	1_QC	10	134	1_QC	1_YC	5	234	1_YC	1_QC	5
35	1_YC	2_QC	10	135	2_QC	2_YC	5	235	1_YC	2_QC	10
36	2_YC	2_QC	5	136	1_QC	2_YC	10	236	1_YC	1_QC	10
37	1_QC	2_YC	10	137	2_QC	1_YC	10	237	2_QC	2_YC	5
38	1_QC	2_YC	10	138	2_YC	1_QC	10	238	2_QC	1_YC	10
39	1_YC	1_QC	5	139	2_YC	1_QC	10	239	1_QC	1_YC	5
40	1_YC	2_QC	10	140	1_YC	2_QC	10	240	2_QC	2_YC	5
41	1_YC	1_QC	10	141	2_YC	2_QC	5	241	1_QC	2_YC	10
42	2_QC	2_YC	5	142	1_QC	2_YC	10	242	2_QC	1_YC	10
43	2_QC	1_YC	10	143	1_QC	2_YC	10	243	2_YC	1_QC	10
44	1_QC	1_YC	5	144	1_YC	1_QC	5	244	2_YC	1_QC	10
45	2_QC	2_YC	5	145	1_YC	2_QC	10	245	1_YC	2_QC	10
46	1_QC	2_YC	10	146	1_YC	1_QC	10	246	2_YC	2_QC	5
47	2_QC	1_YC	10	147	2_QC	2_YC	5	247	1_QC	2_YC	10
48	2_YC	1_QC	10	148	2_QC	1_YC	10	248	1_QC	2_YC	10
49	2_YC	1_QC	10	149	1_QC	1_YC	5	249	1_YC	1_QC	5
50	1_YC	2_QC	10	150	2_QC	2_YC	5	250	1_YC	2_QC	10

51	2_YC	2_QC	5	151	1_QC	2_YC	10	251	1_YC	1_QC	10
52	1_QC	2_YC	10	152	2_QC	1_YC	10	252	2_QC	2_YC	5
53	1_QC	2_YC	10	153	2_YC	1_QC	10	253	2_QC	1_YC	10
54	1_YC	1_QC	5	154	2_YC	1_QC	10	254	1_QC	1_YC	5
55	1_YC	2_QC	10	155	1_YC	2_QC	10	255	2_QC	2_YC	5
56	1_YC	1_QC	10	156	2_YC	2_QC	5	256	1_QC	2_YC	10
57	2_QC	2_YC	5	157	1_QC	2_YC	10	257	2_QC	1_YC	10
58	2_QC	1_YC	10	158	1_QC	2_YC	10	258	2_YC	1_QC	10
59	1_QC	1_YC	5	159	1_YC	1_QC	5	259	2_YC	1_QC	10
60	2_QC	2_YC	5	160	1_YC	2_QC	10	260	1_YC	2_QC	10
61	1_QC	2_YC	10	161	1_YC	1_QC	10	261	2_YC	2_QC	5
62	2_QC	1_YC	10	162	2_QC	2_YC	5	262	1_QC	2_YC	10
63	2_YC	1_QC	10	163	2_QC	1_YC	10	263	1_QC	2_YC	10
64	2_YC	1_QC	10	164	1_QC	1_YC	5	264	1_YC	1_QC	5
65	1_YC	2_QC	10	165	2_QC	2_YC	5	265	1_YC	2_QC	10
66	2_YC	2_QC	5	166	1_QC	2_YC	10	266	1_YC	1_QC	10
67	1_QC	2_YC	10	167	2_QC	1_YC	10	267	2_QC	2_YC	5
68	1_QC	2_YC	10	168	2_YC	1_QC	10	268	2_QC	1_YC	10
69	1_YC	1_QC	5	169	2_YC	1_QC	10	269	1_QC	1_YC	5
70	1_YC	2_QC	10	170	1_YC	2_QC	10	270	2_QC	2_YC	5
71	1_YC	1_QC	10	171	2_YC	2_QC	5	271	1_QC	2_YC	10
72	2_QC	2_YC	5	172	1_QC	2_YC	10	272	2_QC	1_YC	10
73	2_QC	1_YC	10	173	1_QC	2_YC	10	273	2_YC	1_QC	10
74	1_QC	1_YC	5	174	1_YC	1_QC	5	274	2_YC	1_QC	10
75	2_QC	2_YC	5	175	1_YC	2_QC	10	275	1_YC	2_QC	10
76	1_QC	2_YC	10	176	1_YC	1_QC	10	276	2_YC	2_QC	5
77	2_QC	1_YC	10	177	2_QC	2_YC	5	277	1_QC	2_YC	10
78	2_YC	1_QC	10	178	2_QC	1_YC	10	278	1_QC	2_YC	10
79	2_YC	1_QC	10	179	1_QC	1_YC	5	279	1_YC	1_QC	5
80	1_YC	2_QC	10	180	2_QC	2_YC	5	280	1_YC	2_QC	10
81	2_YC	2_QC	5	181	1_QC	2_YC	10	281	1_YC	1_QC	10
82	1_QC	2_YC	10	182	2_QC	1_YC	10	282	2_QC	2_YC	5
83	1_QC	2_YC	10	183	2_YC	1_QC	10	283	2_QC	1_YC	10
84	1_YC	1_QC	5	184	2_YC	1_QC	10	284	1_QC	1_YC	5
85	1_YC	2_QC	10	185	1_YC	2_QC	10	285	2_QC	2_YC	5
86	1_YC	1_QC	10	186	2_YC	2_QC	5	286	1_QC	2_YC	10
87	2_QC	2_YC	5	187	1_QC	2_YC	10	287	2_QC	1_YC	10
88	2_QC	1_YC	10	188	1_QC	2_YC	10	288	2_YC	1_QC	10
89	1_QC	1_YC	5	189	1_YC	1_QC	5	289	2_YC	1_QC	10
90	2_QC	2_YC	5	190	1_YC	2_QC	10	290	1_YC	2_QC	10
91	1_QC	2_YC	10	191	1_YC	1_QC	10	291	2_YC	2_QC	5
92	2_QC	1_YC	10	192	2_QC	2_YC	5	292	1_QC	2_YC	10
93	2_YC	1_QC	10	193	2_QC	1_YC	10	293	1_QC	2_YC	10

94	2_YC	1_QC	10	194	1_QC	1_YC	5	294	1_YC	1_QC	5
95	1_YC	2_QC	10	195	2_QC	2_YC	5	295	1_YC	2_QC	10
96	2_YC	2_QC	5	196	1_QC	2_YC	10	296	1_YC	1_QC	10
97	1_QC	2_YC	10	197	2_QC	1_YC	10	297	2_QC	2_YC	5
98	1_QC	2_YC	10	198	2_YC	1_QC	10	298	2_QC	1_YC	10
99	1_YC	1_QC	5	199	2_YC	1_QC	10	299	1_QC	1_YC	5
100	1_YC	2_QC	10	200	1_YC	2_QC	10	300	2_QC	2_YC	5