

Deep Purple

Offshore hydrogen technologies for CO₂-free,
stable energy production



Content

- TechnipFMC
- Deep Purple project and purpose
- Control System

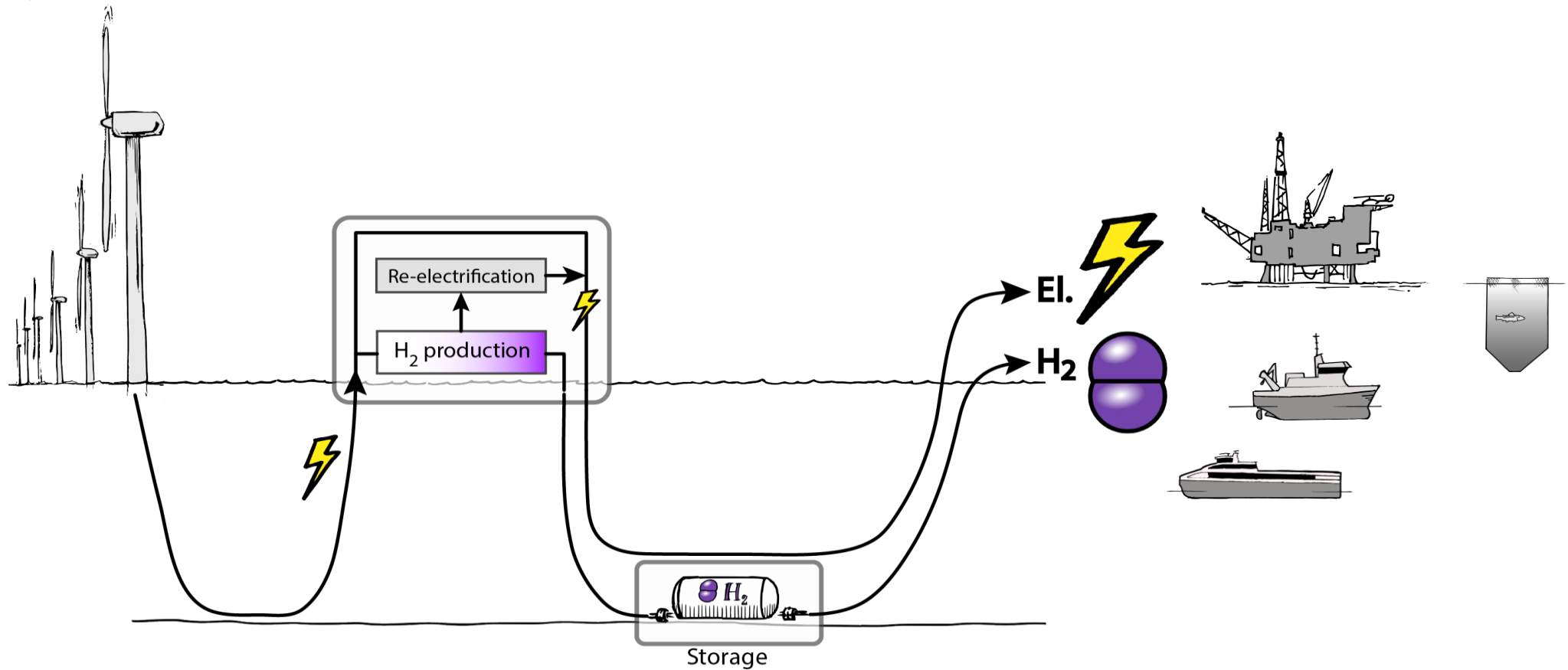


Onshore/Offshore

Surface

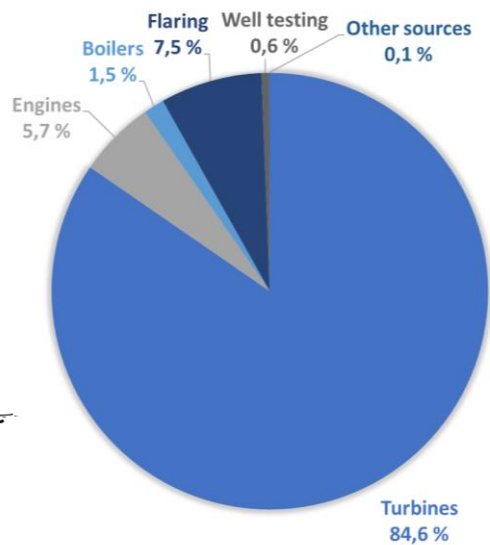
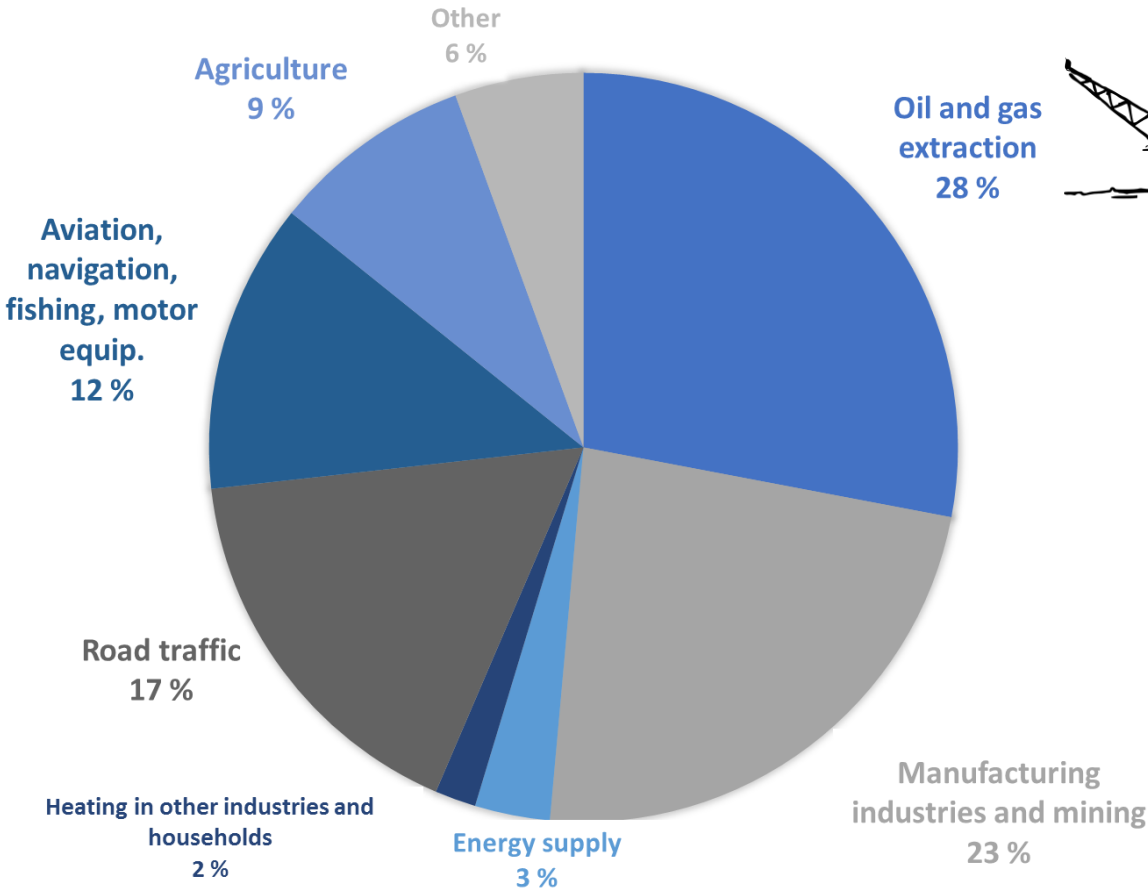
Subsea

Deep Purple - Offshore hydrogen technologies for CO₂-free energy production

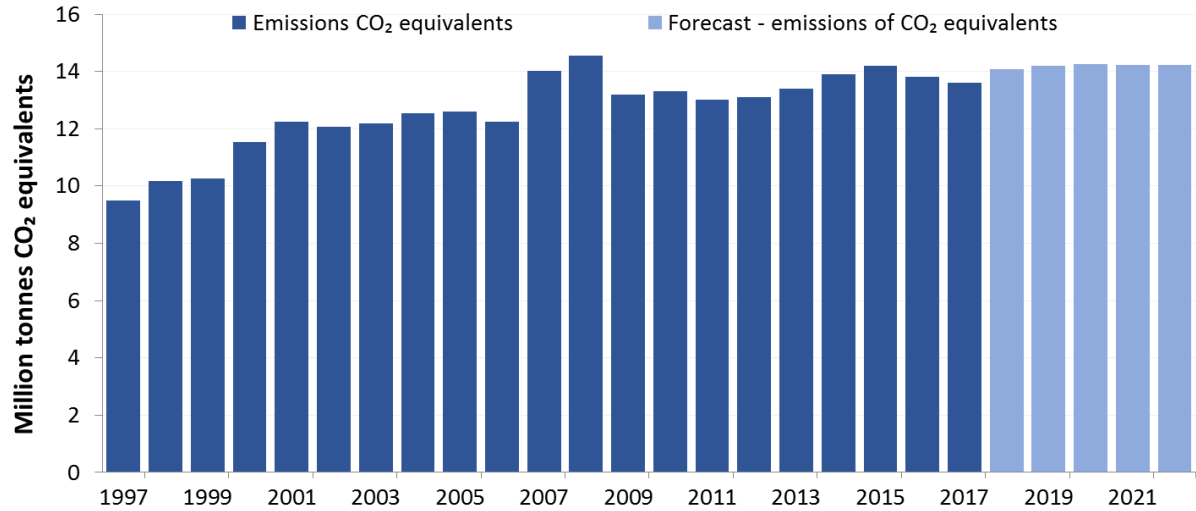


Step-change reduction in CO₂-emissions | Stable energy supply | Local energy production

CO₂ emissions in Norway



Historical CO₂-emissions for 1997-2017 and projections for 2018-2022



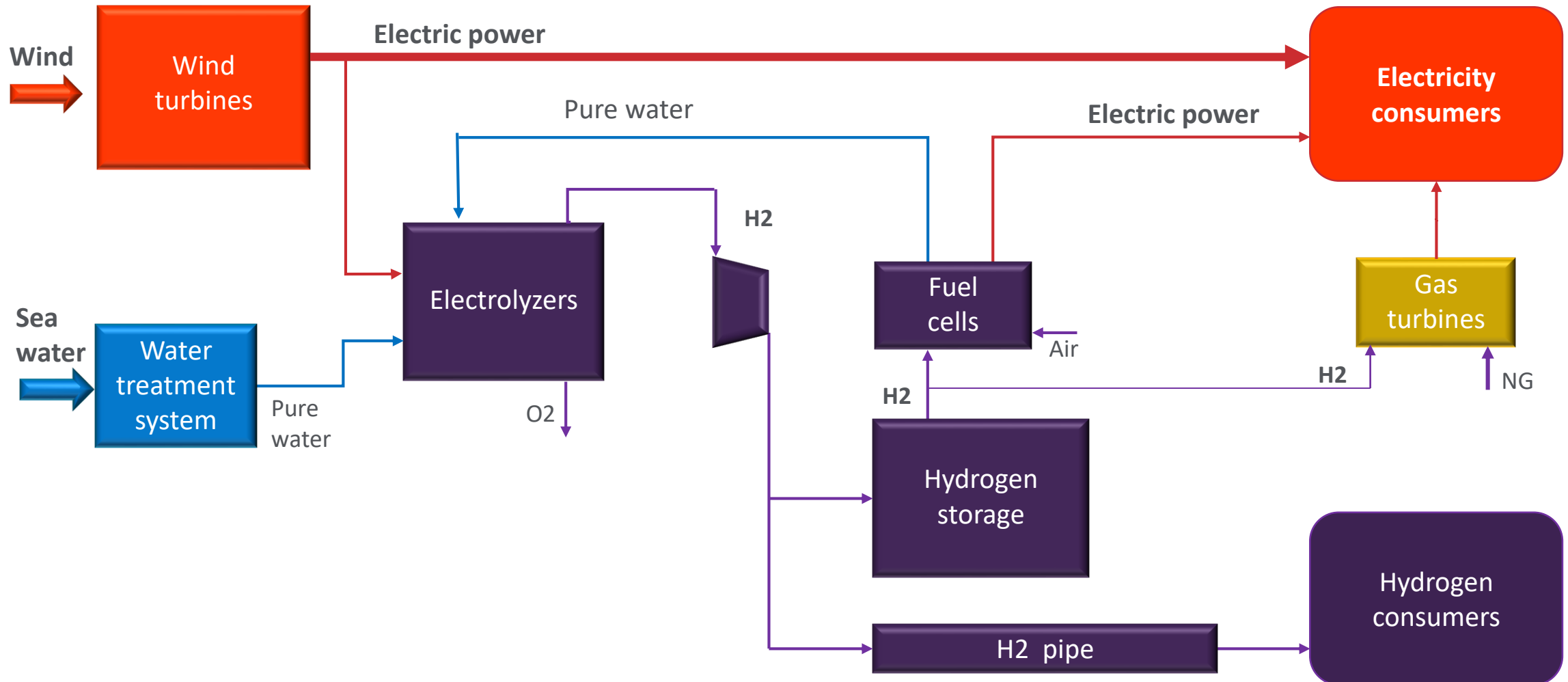
Source: Norwegian Petroleum Directorate

Source: Norwegian Environment Agency

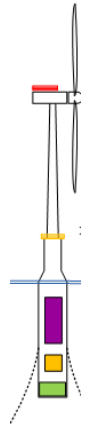


Deep Purple
Offshore hydrogen technologies for CO₂-free energy production

Deep Purple concept



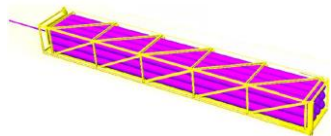
Deep Purple building blocks – scalable and modularized



Wind turbine sub-structure for hydrogen production

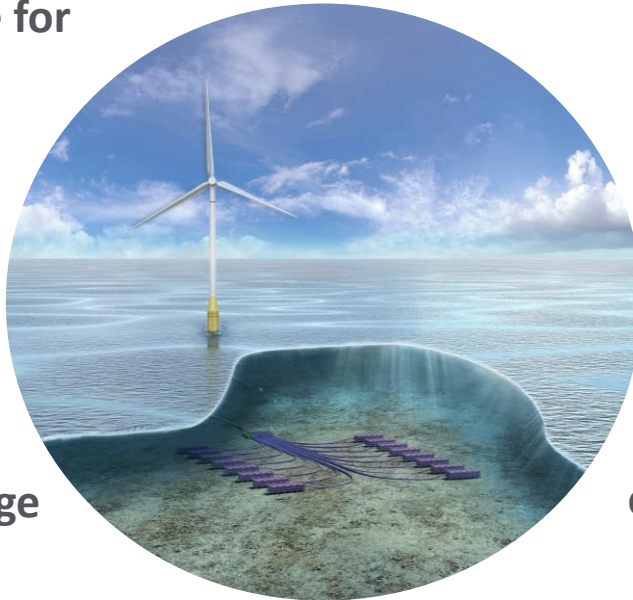
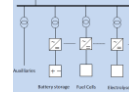


Dynamic hydrogen riser



Subsea hydrogen storage

Energy management system



PEM electrolyzers



PEM fuel cells



PowerCell M5-100

Hydrogen compressors



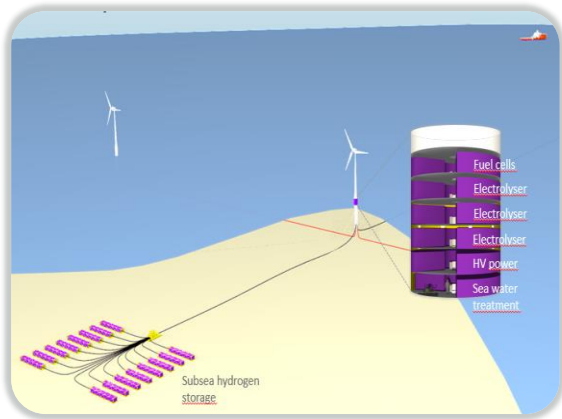
Deep Purple engineering tools:

- HyOpt – techno-economical optimization of concepts
- FlowManager – hydrogen process simulations
- NowiCob – availability and reliability simulations

Technology and engineering co-operation:



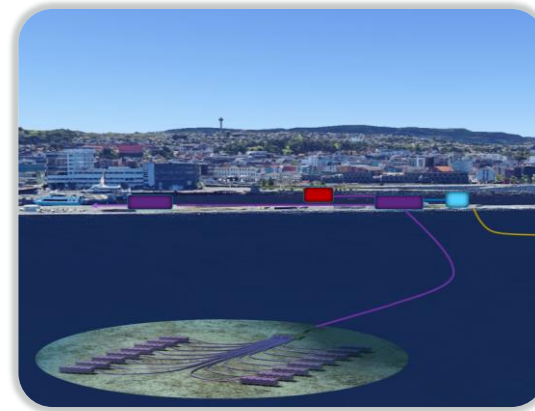
Deep Purple - Several applications in the Ocean Space



Stable and renewable
power to oil & gas
installations



Stable and renewable
power to remote
islands



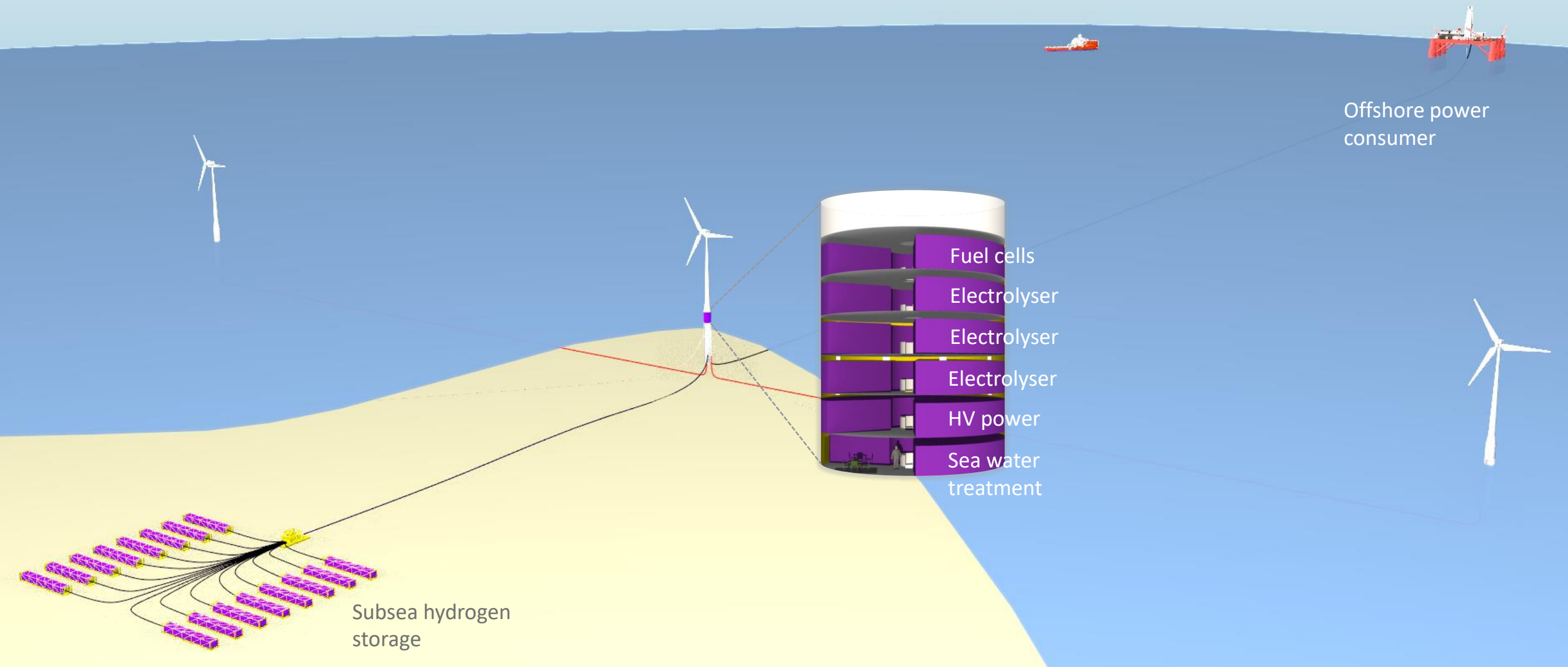
Coastal hydrogen
infrastructure to
maritime sector



Local production of
power, hydrogen and
oxygen to fish farming

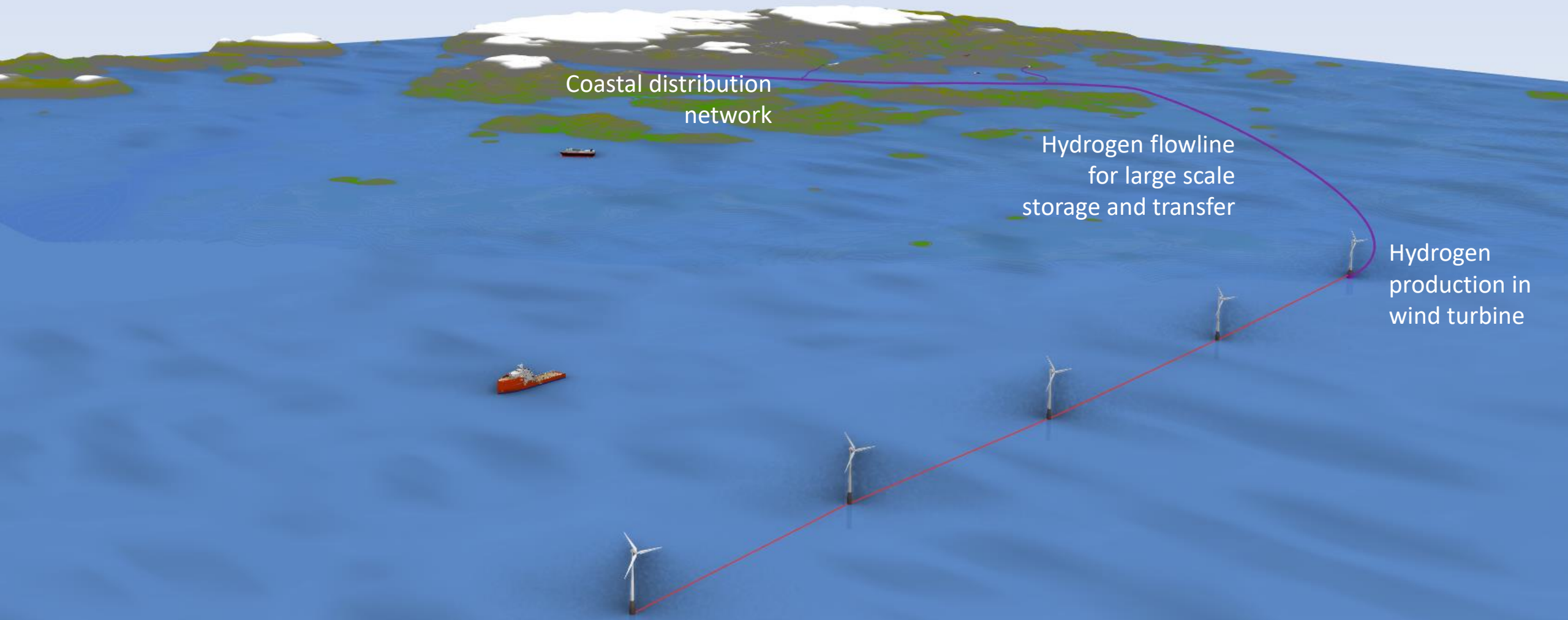
Application 1

Stable power to oil&gas installations with subsea hydrogen storage



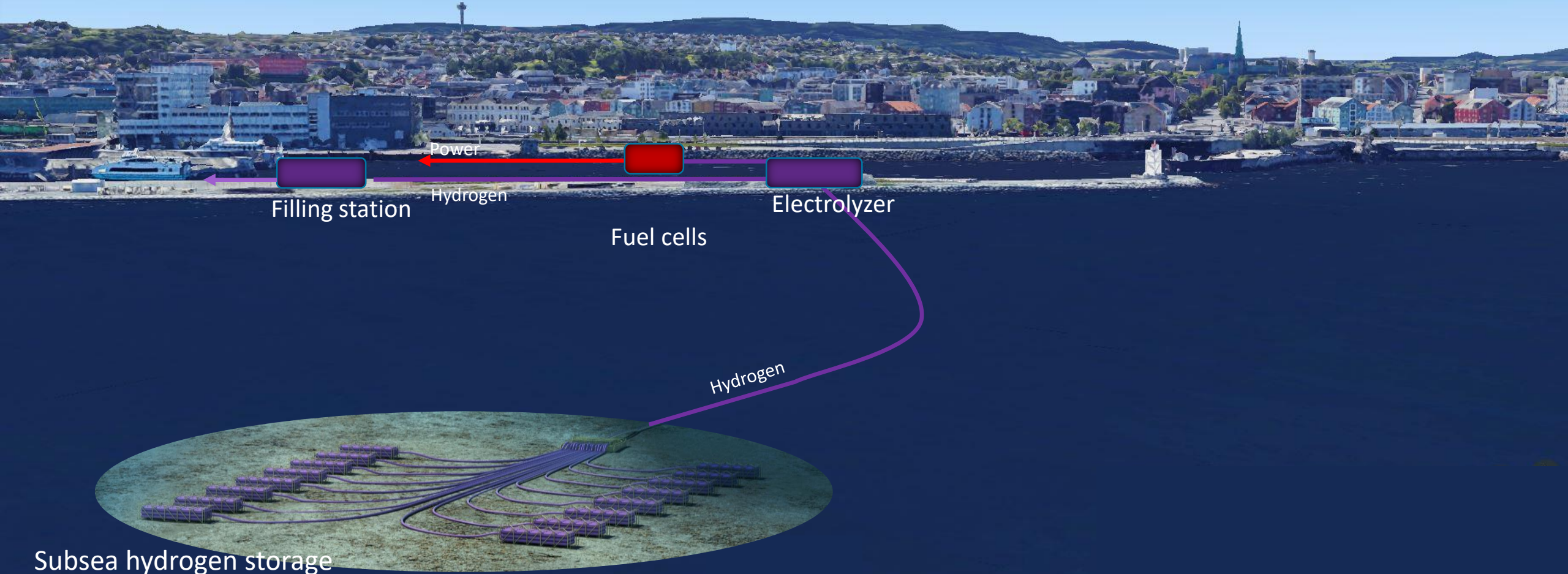
Application 2

Offshore hydrogen production and coastal subsea hydrogen distribution network



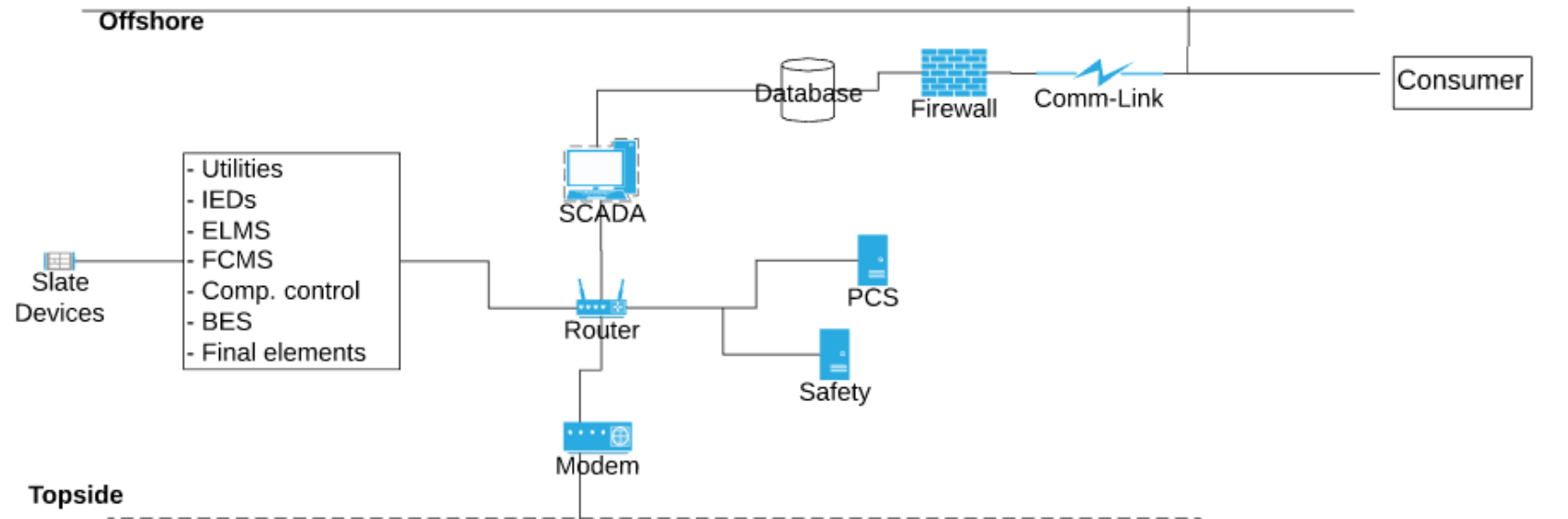
Application 3

Large scale subsea hydrogen storage in ports



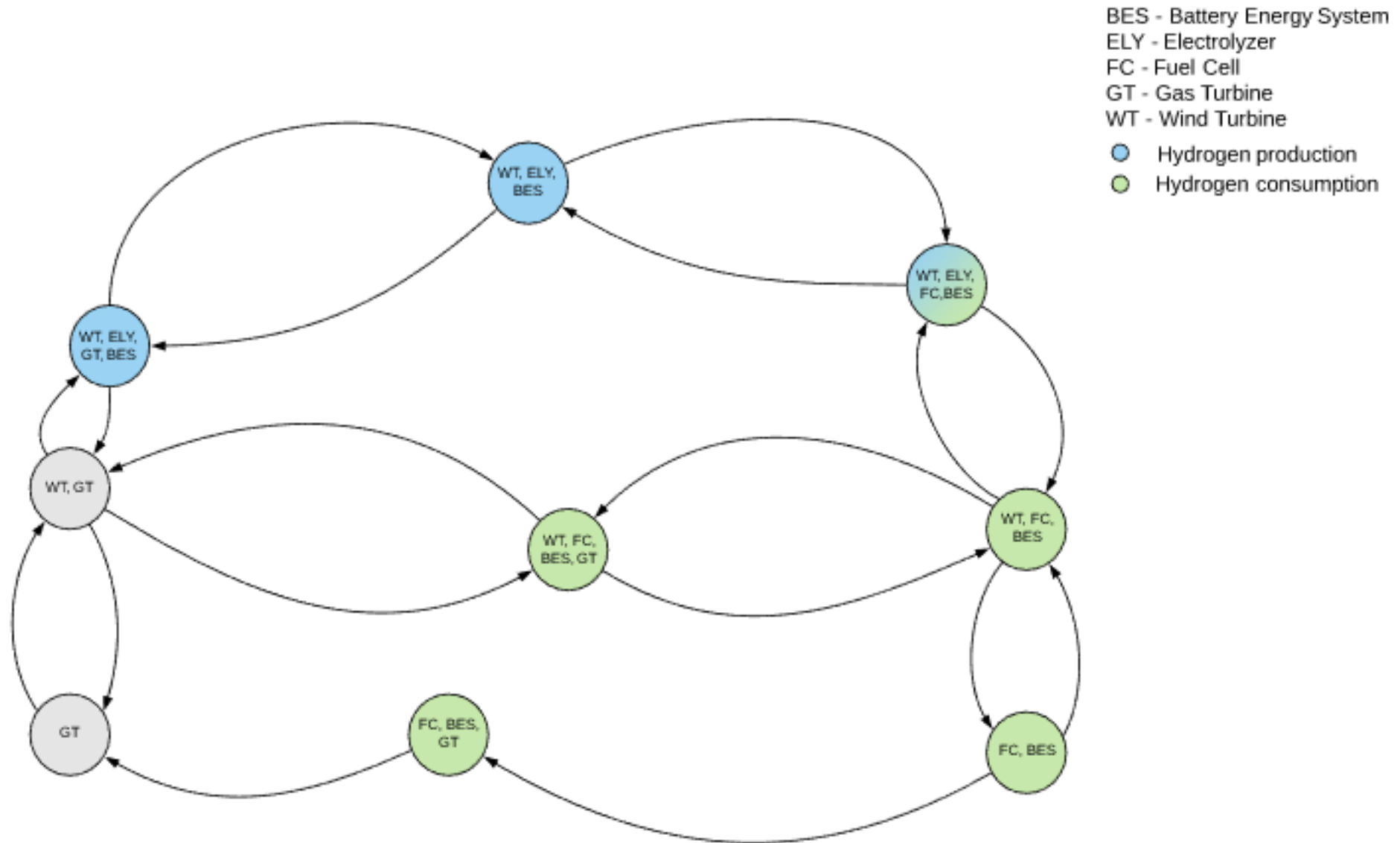
Control System

Control system architecture

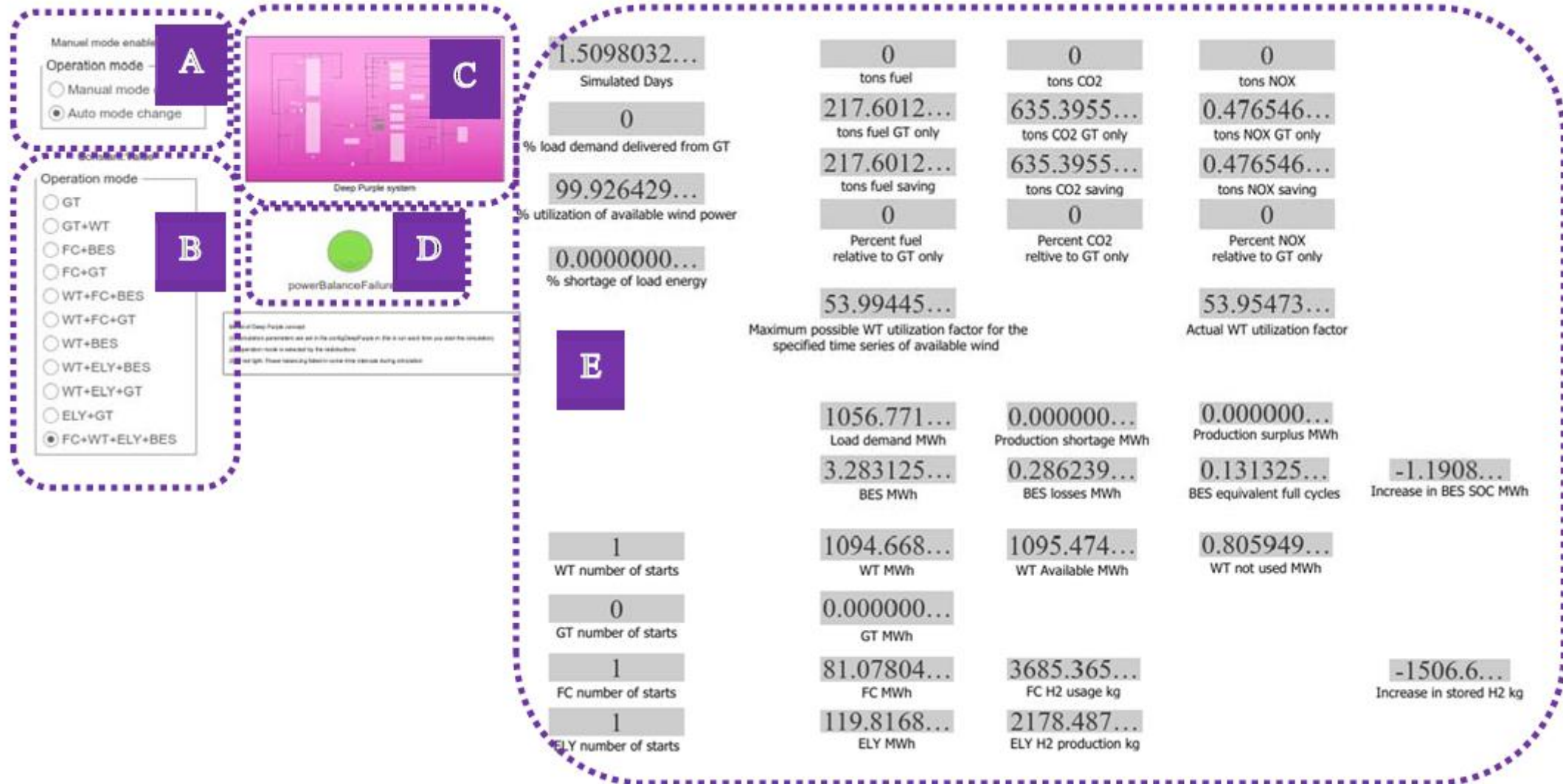


BES - Battery Energy System
ELMS - Electrolyzer Management System
FCMS - Fuel Cell Management System
HMI - Human Machine Interface
IED - Intelligent Electronic Device
OEM - Original Equipment Manufacturer
SCS - Subsea Control System

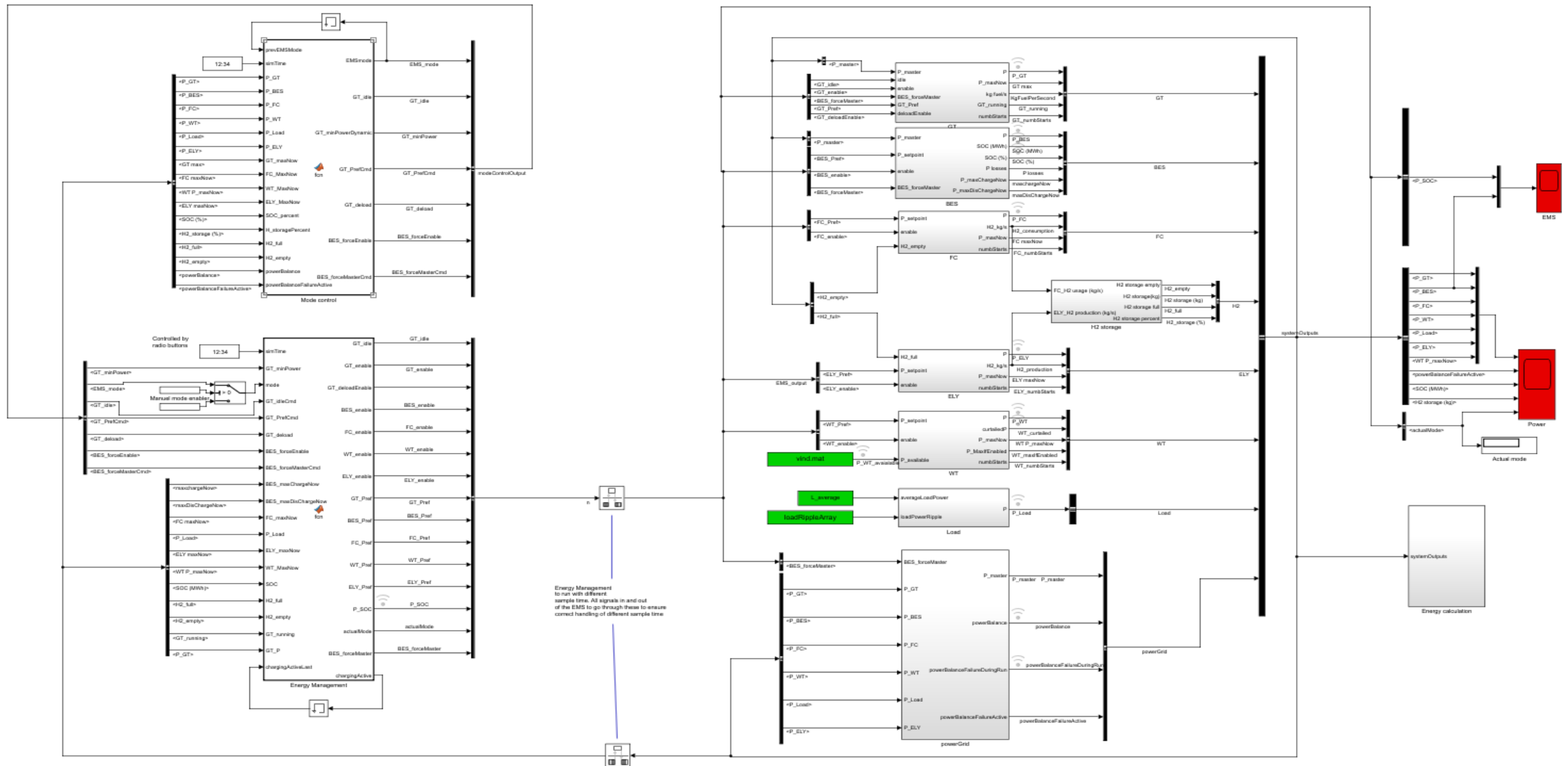
State diagram normal operation



EMS simulator



EMS simulator



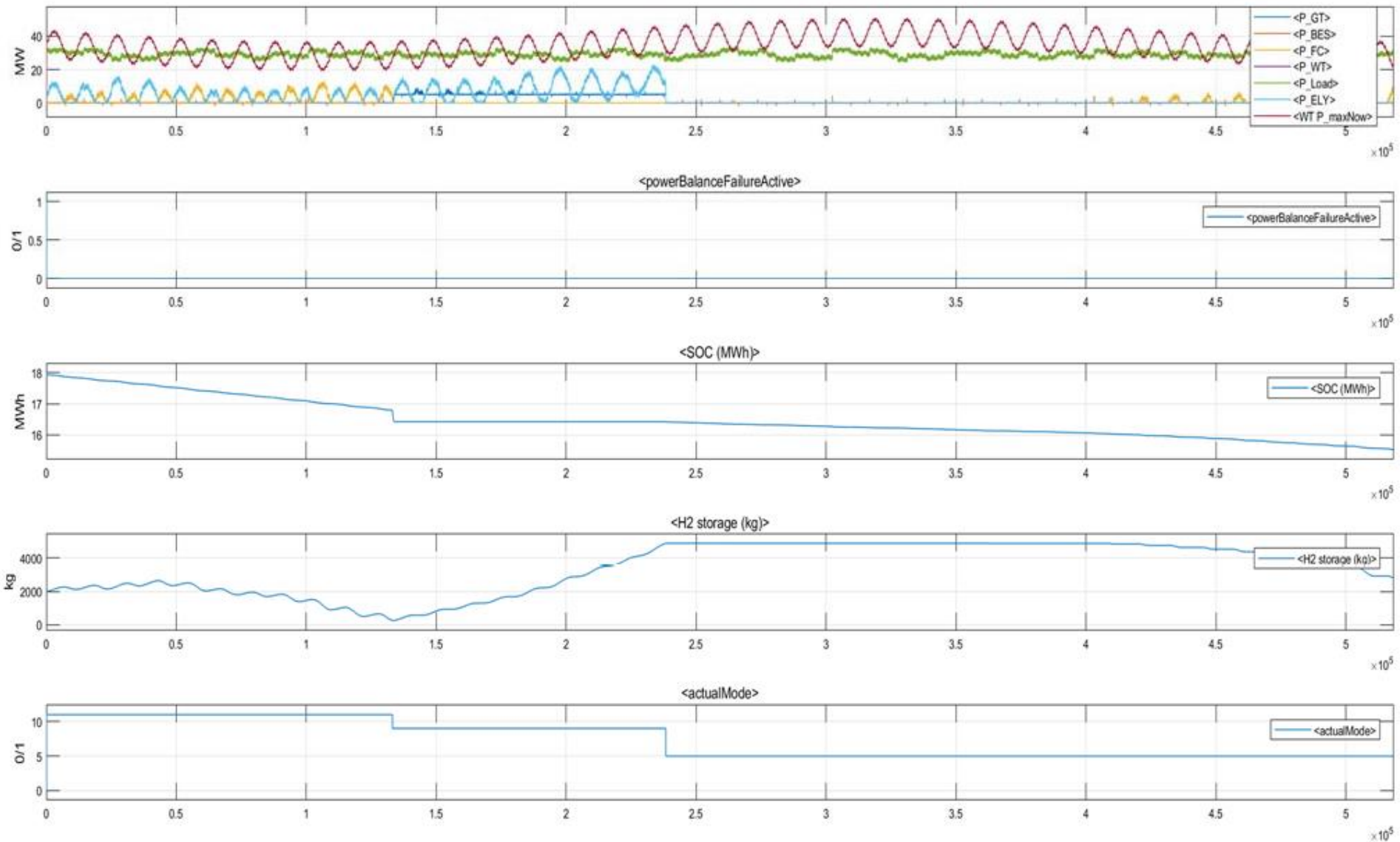
Energy Management

```
1 // Initialize variables and parameters
2 // ...
3 // ...
4 // ...
5 // ...
6 // ...
7 // ...
8 // ...
9 // ...
10 // ...
11 // ...
12 // ...
13 // ...
14 // ...
15 // ...
16 // ...
17 // ...
18 // ...
19 // ...
20 // ...
21 // ...
22 // ...
23 // ...
24 // ...
25 // ...
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28 // ...
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31 // ...
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41 // ...
42 // ...
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76 // ...
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78 // ...
79 // ...
80 // ...
81 // ...
82 // ...
83 // ...
84 // ...
85 // ...
86 // ...
87 // ...
88 // ...
89 // ...
90 // ...
91 // ...
92 // ...
93 // ...
94 // ...
95 // ...
96 // ...
97 // ...
98 // ...
99 // ...
100 // ...
```

Mode Management

```
1 // Mode Management: Handling and Switching between Modes
2
3 // Mode 1: Normal Operation
4 #define MODE_NORMAL 1
5 #define MODE_NORMAL_NAME "Normal"
6
7 // Mode 2: Maintenance Mode
8 #define MODE_MAINT 2
9 #define MODE_MAINT_NAME "Maintenance"
10
11 // Mode 3: Emergency Stop
12 #define MODE_ES 3
13 #define MODE_ES_NAME "Emergency Stop"
14
15 // Mode 4: Calibration Mode
16 #define MODE_CAL 4
17 #define MODE_CAL_NAME "Calibration"
18
19 // Mode 5: Diagnostic Mode
20 #define MODE_DIAG 5
21 #define MODE_DIAG_NAME "Diagnostic"
22
23 // Mode 6: Shutdown Mode
24 #define MODE_SHUTDOWN 6
25 #define MODE_SHUTDOWN_NAME "Shutdown"
26
27 // Mode 7: Standby Mode
28 #define MODE_STANDBY 7
29 #define MODE_STANDBY_NAME "Standby"
30
31 // Mode 8: Sleep Mode
32 #define MODE_SLEEP 8
33 #define MODE_SLEEP_NAME "Sleep"
34
35 // Mode 9: Power Off Mode
36 #define MODE_POWEROFF 9
37 #define MODE_POWEROFF_NAME "Power Off"
38
39 // Mode 10: Factory Reset Mode
40 #define MODE_FACTORY 10
41 #define MODE_FACTORY_NAME "Factory Reset"
42
43 // Mode 11: User Setup Mode
44 #define MODE_USERSETUP 11
45 #define MODE_USERSETUP_NAME "User Setup"
46
47 // Mode 12: Test Mode
48 #define MODE_TEST 12
49 #define MODE_TEST_NAME "Test"
50
51 // Mode 13: Calibration Mode
52 #define MODE_CALIBRATION 13
53 #define MODE_CALIBRATION_NAME "Calibration"
54
55 // Mode 14: Diagnostic Mode
56 #define MODE_DIAGNOSTIC 14
57 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
58
59 // Mode 15: Shutdown Mode
60 #define MODE_SHUTDOWN 15
61 #define MODE_SHUTDOWN_NAME "Shutdown"
62
63 // Mode 16: Standby Mode
64 #define MODE_STANDBY 16
65 #define MODE_STANDBY_NAME "Standby"
66
67 // Mode 17: Sleep Mode
68 #define MODE_SLEEP 17
69 #define MODE_SLEEP_NAME "Sleep"
70
71 // Mode 18: Power Off Mode
72 #define MODE_POWEROFF 18
73 #define MODE_POWEROFF_NAME "Power Off"
74
75 // Mode 19: Factory Reset Mode
76 #define MODE_FACTORY 19
77 #define MODE_FACTORY_NAME "Factory Reset"
78
79 // Mode 20: User Setup Mode
80 #define MODE_USERSETUP 20
81 #define MODE_USERSETUP_NAME "User Setup"
82
83 // Mode 21: Test Mode
84 #define MODE_TEST 21
85 #define MODE_TEST_NAME "Test"
86
87 // Mode 22: Calibration Mode
88 #define MODE_CALIBRATION 22
89 #define MODE_CALIBRATION_NAME "Calibration"
90
91 // Mode 23: Diagnostic Mode
92 #define MODE_DIAGNOSTIC 23
93 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
94
95 // Mode 24: Shutdown Mode
96 #define MODE_SHUTDOWN 24
97 #define MODE_SHUTDOWN_NAME "Shutdown"
98
99 // Mode 25: Standby Mode
100 #define MODE_STANDBY 25
101 #define MODE_STANDBY_NAME "Standby"
102
103 // Mode 26: Sleep Mode
104 #define MODE_SLEEP 26
105 #define MODE_SLEEP_NAME "Sleep"
106
107 // Mode 27: Power Off Mode
108 #define MODE_POWEROFF 27
109 #define MODE_POWEROFF_NAME "Power Off"
110
111 // Mode 28: Factory Reset Mode
112 #define MODE_FACTORY 28
113 #define MODE_FACTORY_NAME "Factory Reset"
114
115 // Mode 29: User Setup Mode
116 #define MODE_USERSETUP 29
117 #define MODE_USERSETUP_NAME "User Setup"
118
119 // Mode 30: Test Mode
120 #define MODE_TEST 30
121 #define MODE_TEST_NAME "Test"
122
123 // Mode 31: Calibration Mode
124 #define MODE_CALIBRATION 31
125 #define MODE_CALIBRATION_NAME "Calibration"
126
127 // Mode 32: Diagnostic Mode
128 #define MODE_DIAGNOSTIC 32
129 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
130
131 // Mode 33: Shutdown Mode
132 #define MODE_SHUTDOWN 33
133 #define MODE_SHUTDOWN_NAME "Shutdown"
134
135 // Mode 34: Standby Mode
136 #define MODE_STANDBY 34
137 #define MODE_STANDBY_NAME "Standby"
138
139 // Mode 35: Sleep Mode
140 #define MODE_SLEEP 35
141 #define MODE_SLEEP_NAME "Sleep"
142
143 // Mode 36: Power Off Mode
144 #define MODE_POWEROFF 36
145 #define MODE_POWEROFF_NAME "Power Off"
146
147 // Mode 37: Factory Reset Mode
148 #define MODE_FACTORY 37
149 #define MODE_FACTORY_NAME "Factory Reset"
150
151 // Mode 38: User Setup Mode
152 #define MODE_USERSETUP 38
153 #define MODE_USERSETUP_NAME "User Setup"
154
155 // Mode 39: Test Mode
156 #define MODE_TEST 39
157 #define MODE_TEST_NAME "Test"
158
159 // Mode 40: Calibration Mode
160 #define MODE_CALIBRATION 40
161 #define MODE_CALIBRATION_NAME "Calibration"
162
163 // Mode 41: Diagnostic Mode
164 #define MODE_DIAGNOSTIC 41
165 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
166
167 // Mode 42: Shutdown Mode
168 #define MODE_SHUTDOWN 42
169 #define MODE_SHUTDOWN_NAME "Shutdown"
170
171 // Mode 43: Standby Mode
172 #define MODE_STANDBY 43
173 #define MODE_STANDBY_NAME "Standby"
174
175 // Mode 44: Sleep Mode
176 #define MODE_SLEEP 44
177 #define MODE_SLEEP_NAME "Sleep"
178
179 // Mode 45: Power Off Mode
180 #define MODE_POWEROFF 45
181 #define MODE_POWEROFF_NAME "Power Off"
182
183 // Mode 46: Factory Reset Mode
184 #define MODE_FACTORY 46
185 #define MODE_FACTORY_NAME "Factory Reset"
186
187 // Mode 47: User Setup Mode
188 #define MODE_USERSETUP 47
189 #define MODE_USERSETUP_NAME "User Setup"
190
191 // Mode 48: Test Mode
192 #define MODE_TEST 48
193 #define MODE_TEST_NAME "Test"
194
195 // Mode 49: Calibration Mode
196 #define MODE_CALIBRATION 49
197 #define MODE_CALIBRATION_NAME "Calibration"
198
199 // Mode 50: Diagnostic Mode
200 #define MODE_DIAGNOSTIC 50
201 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
202
203 // Mode 51: Shutdown Mode
204 #define MODE_SHUTDOWN 51
205 #define MODE_SHUTDOWN_NAME "Shutdown"
206
207 // Mode 52: Standby Mode
208 #define MODE_STANDBY 52
209 #define MODE_STANDBY_NAME "Standby"
210
211 // Mode 53: Sleep Mode
212 #define MODE_SLEEP 53
213 #define MODE_SLEEP_NAME "Sleep"
214
215 // Mode 54: Power Off Mode
216 #define MODE_POWEROFF 54
217 #define MODE_POWEROFF_NAME "Power Off"
218
219 // Mode 55: Factory Reset Mode
220 #define MODE_FACTORY 55
221 #define MODE_FACTORY_NAME "Factory Reset"
222
223 // Mode 56: User Setup Mode
224 #define MODE_USERSETUP 56
225 #define MODE_USERSETUP_NAME "User Setup"
226
227 // Mode 57: Test Mode
228 #define MODE_TEST 57
229 #define MODE_TEST_NAME "Test"
230
231 // Mode 58: Calibration Mode
232 #define MODE_CALIBRATION 58
233 #define MODE_CALIBRATION_NAME "Calibration"
234
235 // Mode 59: Diagnostic Mode
236 #define MODE_DIAGNOSTIC 59
237 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
238
239 // Mode 60: Shutdown Mode
240 #define MODE_SHUTDOWN 60
241 #define MODE_SHUTDOWN_NAME "Shutdown"
242
243 // Mode 61: Standby Mode
244 #define MODE_STANDBY 61
245 #define MODE_STANDBY_NAME "Standby"
246
247 // Mode 62: Sleep Mode
248 #define MODE_SLEEP 62
249 #define MODE_SLEEP_NAME "Sleep"
250
251 // Mode 63: Power Off Mode
252 #define MODE_POWEROFF 63
253 #define MODE_POWEROFF_NAME "Power Off"
254
255 // Mode 64: Factory Reset Mode
256 #define MODE_FACTORY 64
257 #define MODE_FACTORY_NAME "Factory Reset"
258
259 // Mode 65: User Setup Mode
260 #define MODE_USERSETUP 65
261 #define MODE_USERSETUP_NAME "User Setup"
262
263 // Mode 66: Test Mode
264 #define MODE_TEST 66
265 #define MODE_TEST_NAME "Test"
266
267 // Mode 67: Calibration Mode
268 #define MODE_CALIBRATION 67
269 #define MODE_CALIBRATION_NAME "Calibration"
270
271 // Mode 68: Diagnostic Mode
272 #define MODE_DIAGNOSTIC 68
273 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
274
275 // Mode 69: Shutdown Mode
276 #define MODE_SHUTDOWN 69
277 #define MODE_SHUTDOWN_NAME "Shutdown"
278
279 // Mode 70: Standby Mode
280 #define MODE_STANDBY 70
281 #define MODE_STANDBY_NAME "Standby"
282
283 // Mode 71: Sleep Mode
284 #define MODE_SLEEP 71
285 #define MODE_SLEEP_NAME "Sleep"
286
287 // Mode 72: Power Off Mode
288 #define MODE_POWEROFF 72
289 #define MODE_POWEROFF_NAME "Power Off"
290
291 // Mode 73: Factory Reset Mode
292 #define MODE_FACTORY 73
293 #define MODE_FACTORY_NAME "Factory Reset"
294
295 // Mode 74: User Setup Mode
296 #define MODE_USERSETUP 74
297 #define MODE_USERSETUP_NAME "User Setup"
298
299 // Mode 75: Test Mode
300 #define MODE_TEST 75
301 #define MODE_TEST_NAME "Test"
302
303 // Mode 76: Calibration Mode
304 #define MODE_CALIBRATION 76
305 #define MODE_CALIBRATION_NAME "Calibration"
306
307 // Mode 77: Diagnostic Mode
308 #define MODE_DIAGNOSTIC 77
309 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
310
311 // Mode 78: Shutdown Mode
312 #define MODE_SHUTDOWN 78
313 #define MODE_SHUTDOWN_NAME "Shutdown"
314
315 // Mode 79: Standby Mode
316 #define MODE_STANDBY 79
317 #define MODE_STANDBY_NAME "Standby"
318
319 // Mode 80: Sleep Mode
320 #define MODE_SLEEP 80
321 #define MODE_SLEEP_NAME "Sleep"
322
323 // Mode 81: Power Off Mode
324 #define MODE_POWEROFF 81
325 #define MODE_POWEROFF_NAME "Power Off"
326
327 // Mode 82: Factory Reset Mode
328 #define MODE_FACTORY 82
329 #define MODE_FACTORY_NAME "Factory Reset"
330
331 // Mode 83: User Setup Mode
332 #define MODE_USERSETUP 83
333 #define MODE_USERSETUP_NAME "User Setup"
334
335 // Mode 84: Test Mode
336 #define MODE_TEST 84
337 #define MODE_TEST_NAME "Test"
338
339 // Mode 85: Calibration Mode
340 #define MODE_CALIBRATION 85
341 #define MODE_CALIBRATION_NAME "Calibration"
342
343 // Mode 86: Diagnostic Mode
344 #define MODE_DIAGNOSTIC 86
345 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
346
347 // Mode 87: Shutdown Mode
348 #define MODE_SHUTDOWN 87
349 #define MODE_SHUTDOWN_NAME "Shutdown"
350
351 // Mode 88: Standby Mode
352 #define MODE_STANDBY 88
353 #define MODE_STANDBY_NAME "Standby"
354
355 // Mode 89: Sleep Mode
356 #define MODE_SLEEP 89
357 #define MODE_SLEEP_NAME "Sleep"
358
359 // Mode 90: Power Off Mode
360 #define MODE_POWEROFF 90
361 #define MODE_POWEROFF_NAME "Power Off"
362
363 // Mode 91: Factory Reset Mode
364 #define MODE_FACTORY 91
365 #define MODE_FACTORY_NAME "Factory Reset"
366
367 // Mode 92: User Setup Mode
368 #define MODE_USERSETUP 92
369 #define MODE_USERSETUP_NAME "User Setup"
370
371 // Mode 93: Test Mode
372 #define MODE_TEST 93
373 #define MODE_TEST_NAME "Test"
374
375 // Mode 94: Calibration Mode
376 #define MODE_CALIBRATION 94
377 #define MODE_CALIBRATION_NAME "Calibration"
378
379 // Mode 95: Diagnostic Mode
380 #define MODE_DIAGNOSTIC 95
381 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
382
383 // Mode 96: Shutdown Mode
384 #define MODE_SHUTDOWN 96
385 #define MODE_SHUTDOWN_NAME "Shutdown"
386
387 // Mode 97: Standby Mode
388 #define MODE_STANDBY 97
389 #define MODE_STANDBY_NAME "Standby"
390
391 // Mode 98: Sleep Mode
392 #define MODE_SLEEP 98
393 #define MODE_SLEEP_NAME "Sleep"
394
395 // Mode 99: Power Off Mode
396 #define MODE_POWEROFF 99
397 #define MODE_POWEROFF_NAME "Power Off"
398
399 // Mode 100: Factory Reset Mode
400 #define MODE_FACTORY 100
401 #define MODE_FACTORY_NAME "Factory Reset"
402
403 // Mode 101: User Setup Mode
404 #define MODE_USERSETUP 101
405 #define MODE_USERSETUP_NAME "User Setup"
406
407 // Mode 102: Test Mode
408 #define MODE_TEST 102
409 #define MODE_TEST_NAME "Test"
410
411 // Mode 103: Calibration Mode
412 #define MODE_CALIBRATION 103
413 #define MODE_CALIBRATION_NAME "Calibration"
414
415 // Mode 104: Diagnostic Mode
416 #define MODE_DIAGNOSTIC 104
417 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
418
419 // Mode 105: Shutdown Mode
420 #define MODE_SHUTDOWN 105
421 #define MODE_SHUTDOWN_NAME "Shutdown"
422
423 // Mode 106: Standby Mode
424 #define MODE_STANDBY 106
425 #define MODE_STANDBY_NAME "Standby"
426
427 // Mode 107: Sleep Mode
428 #define MODE_SLEEP 107
429 #define MODE_SLEEP_NAME "Sleep"
430
431 // Mode 108: Power Off Mode
432 #define MODE_POWEROFF 108
433 #define MODE_POWEROFF_NAME "Power Off"
434
435 // Mode 109: Factory Reset Mode
436 #define MODE_FACTORY 109
437 #define MODE_FACTORY_NAME "Factory Reset"
438
439 // Mode 110: User Setup Mode
440 #define MODE_USERSETUP 110
441 #define MODE_USERSETUP_NAME "User Setup"
442
443 // Mode 111: Test Mode
444 #define MODE_TEST 111
445 #define MODE_TEST_NAME "Test"
446
447 // Mode 112: Calibration Mode
448 #define MODE_CALIBRATION 112
449 #define MODE_CALIBRATION_NAME "Calibration"
450
451 // Mode 113: Diagnostic Mode
452 #define MODE_DIAGNOSTIC 113
453 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
454
455 // Mode 114: Shutdown Mode
456 #define MODE_SHUTDOWN 114
457 #define MODE_SHUTDOWN_NAME "Shutdown"
458
459 // Mode 115: Standby Mode
460 #define MODE_STANDBY 115
461 #define MODE_STANDBY_NAME "Standby"
462
463 // Mode 116: Sleep Mode
464 #define MODE_SLEEP 116
465 #define MODE_SLEEP_NAME "Sleep"
466
467 // Mode 117: Power Off Mode
468 #define MODE_POWEROFF 117
469 #define MODE_POWEROFF_NAME "Power Off"
470
471 // Mode 118: Factory Reset Mode
472 #define MODE_FACTORY 118
473 #define MODE_FACTORY_NAME "Factory Reset"
474
475 // Mode 119: User Setup Mode
476 #define MODE_USERSETUP 119
477 #define MODE_USERSETUP_NAME "User Setup"
478
479 // Mode 120: Test Mode
480 #define MODE_TEST 120
481 #define MODE_TEST_NAME "Test"
482
483 // Mode 121: Calibration Mode
484 #define MODE_CALIBRATION 121
485 #define MODE_CALIBRATION_NAME "Calibration"
486
487 // Mode 122: Diagnostic Mode
488 #define MODE_DIAGNOSTIC 122
489 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
490
491 // Mode 123: Shutdown Mode
492 #define MODE_SHUTDOWN 123
493 #define MODE_SHUTDOWN_NAME "Shutdown"
494
495 // Mode 124: Standby Mode
496 #define MODE_STANDBY 124
497 #define MODE_STANDBY_NAME "Standby"
498
499 // Mode 125: Sleep Mode
500 #define MODE_SLEEP 125
501 #define MODE_SLEEP_NAME "Sleep"
502
503 // Mode 126: Power Off Mode
504 #define MODE_POWEROFF 126
505 #define MODE_POWEROFF_NAME "Power Off"
506
507 // Mode 127: Factory Reset Mode
508 #define MODE_FACTORY 127
509 #define MODE_FACTORY_NAME "Factory Reset"
510
511 // Mode 128: User Setup Mode
512 #define MODE_USERSETUP 128
513 #define MODE_USERSETUP_NAME "User Setup"
514
515 // Mode 129: Test Mode
516 #define MODE_TEST 129
517 #define MODE_TEST_NAME "Test"
518
519 // Mode 130: Calibration Mode
520 #define MODE_CALIBRATION 130
521 #define MODE_CALIBRATION_NAME "Calibration"
522
523 // Mode 131: Diagnostic Mode
524 #define MODE_DIAGNOSTIC 131
525 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
526
527 // Mode 132: Shutdown Mode
528 #define MODE_SHUTDOWN 132
529 #define MODE_SHUTDOWN_NAME "Shutdown"
530
531 // Mode 133: Standby Mode
532 #define MODE_STANDBY 133
533 #define MODE_STANDBY_NAME "Standby"
534
535 // Mode 134: Sleep Mode
536 #define MODE_SLEEP 134
537 #define MODE_SLEEP_NAME "Sleep"
538
539 // Mode 135: Power Off Mode
540 #define MODE_POWEROFF 135
541 #define MODE_POWEROFF_NAME "Power Off"
542
543 // Mode 136: Factory Reset Mode
544 #define MODE_FACTORY 136
545 #define MODE_FACTORY_NAME "Factory Reset"
546
547 // Mode 137: User Setup Mode
548 #define MODE_USERSETUP 137
549 #define MODE_USERSETUP_NAME "User Setup"
550
551 // Mode 138: Test Mode
552 #define MODE_TEST 138
553 #define MODE_TEST_NAME "Test"
554
555 // Mode 139: Calibration Mode
556 #define MODE_CALIBRATION 139
557 #define MODE_CALIBRATION_NAME "Calibration"
558
559 // Mode 140: Diagnostic Mode
560 #define MODE_DIAGNOSTIC 140
561 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
562
563 // Mode 141: Shutdown Mode
564 #define MODE_SHUTDOWN 141
565 #define MODE_SHUTDOWN_NAME "Shutdown"
566
567 // Mode 142: Standby Mode
568 #define MODE_STANDBY 142
569 #define MODE_STANDBY_NAME "Standby"
570
571 // Mode 143: Sleep Mode
572 #define MODE_SLEEP 143
573 #define MODE_SLEEP_NAME "Sleep"
574
575 // Mode 144: Power Off Mode
576 #define MODE_POWEROFF 144
577 #define MODE_POWEROFF_NAME "Power Off"
578
579 // Mode 145: Factory Reset Mode
580 #define MODE_FACTORY 145
581 #define MODE_FACTORY_NAME "Factory Reset"
582
583 // Mode 146: User Setup Mode
584 #define MODE_USERSETUP 146
585 #define MODE_USERSETUP_NAME "User Setup"
586
587 // Mode 147: Test Mode
588 #define MODE_TEST 147
589 #define MODE_TEST_NAME "Test"
590
591 // Mode 148: Calibration Mode
592 #define MODE_CALIBRATION 148
593 #define MODE_CALIBRATION_NAME "Calibration"
594
595 // Mode 149: Diagnostic Mode
596 #define MODE_DIAGNOSTIC 149
597 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
598
599 // Mode 150: Shutdown Mode
600 #define MODE_SHUTDOWN 150
601 #define MODE_SHUTDOWN_NAME "Shutdown"
602
603 // Mode 151: Standby Mode
604 #define MODE_STANDBY 151
605 #define MODE_STANDBY_NAME "Standby"
606
607 // Mode 152: Sleep Mode
608 #define MODE_SLEEP 152
609 #define MODE_SLEEP_NAME "Sleep"
610
611 // Mode 153: Power Off Mode
612 #define MODE_POWEROFF 153
613 #define MODE_POWEROFF_NAME "Power Off"
614
615 // Mode 154: Factory Reset Mode
616 #define MODE_FACTORY 154
617 #define MODE_FACTORY_NAME "Factory Reset"
618
619 // Mode 155: User Setup Mode
620 #define MODE_USERSETUP 155
621 #define MODE_USERSETUP_NAME "User Setup"
622
623 // Mode 156: Test Mode
624 #define MODE_TEST 156
625 #define MODE_TEST_NAME "Test"
626
627 // Mode 157: Calibration Mode
628 #define MODE_CALIBRATION 157
629 #define MODE_CALIBRATION_NAME "Calibration"
630
631 // Mode 158: Diagnostic Mode
632 #define MODE_DIAGNOSTIC 158
633 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
634
635 // Mode 159: Shutdown Mode
636 #define MODE_SHUTDOWN 159
637 #define MODE_SHUTDOWN_NAME "Shutdown"
638
639 // Mode 160: Standby Mode
640 #define MODE_STANDBY 160
641 #define MODE_STANDBY_NAME "Standby"
642
643 // Mode 161: Sleep Mode
644 #define MODE_SLEEP 161
645 #define MODE_SLEEP_NAME "Sleep"
646
647 // Mode 162: Power Off Mode
648 #define MODE_POWEROFF 162
649 #define MODE_POWEROFF_NAME "Power Off"
650
651 // Mode 163: Factory Reset Mode
652 #define MODE_FACTORY 163
653 #define MODE_FACTORY_NAME "Factory Reset"
654
655 // Mode 164: User Setup Mode
656 #define MODE_USERSETUP 164
657 #define MODE_USERSETUP_NAME "User Setup"
658
659 // Mode 165: Test Mode
660 #define MODE_TEST 165
661 #define MODE_TEST_NAME "Test"
662
663 // Mode 166: Calibration Mode
664 #define MODE_CALIBRATION 166
665 #define MODE_CALIBRATION_NAME "Calibration"
666
667 // Mode 167: Diagnostic Mode
668 #define MODE_DIAGNOSTIC 167
669 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
670
671 // Mode 168: Shutdown Mode
672 #define MODE_SHUTDOWN 168
673 #define MODE_SHUTDOWN_NAME "Shutdown"
674
675 // Mode 169: Standby Mode
676 #define MODE_STANDBY 169
677 #define MODE_STANDBY_NAME "Standby"
678
679 // Mode 170: Sleep Mode
680 #define MODE_SLEEP 170
681 #define MODE_SLEEP_NAME "Sleep"
682
683 // Mode 171: Power Off Mode
684 #define MODE_POWEROFF 171
685 #define MODE_POWEROFF_NAME "Power Off"
686
687 // Mode 172: Factory Reset Mode
688 #define MODE_FACTORY 172
689 #define MODE_FACTORY_NAME "Factory Reset"
690
691 // Mode 173: User Setup Mode
692 #define MODE_USERSETUP 173
693 #define MODE_USERSETUP_NAME "User Setup"
694
695 // Mode 174: Test Mode
696 #define MODE_TEST 174
697 #define MODE_TEST_NAME "Test"
698
699 // Mode 175: Calibration Mode
700 #define MODE_CALIBRATION 175
701 #define MODE_CALIBRATION_NAME "Calibration"
702
703 // Mode 176: Diagnostic Mode
704 #define MODE_DIAGNOSTIC 176
705 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
706
707 // Mode 177: Shutdown Mode
708 #define MODE_SHUTDOWN 177
709 #define MODE_SHUTDOWN_NAME "Shutdown"
710
711 // Mode 178: Standby Mode
712 #define MODE_STANDBY 178
713 #define MODE_STANDBY_NAME "Standby"
714
715 // Mode 179: Sleep Mode
716 #define MODE_SLEEP 179
717 #define MODE_SLEEP_NAME "Sleep"
718
719 // Mode 180: Power Off Mode
720 #define MODE_POWEROFF 180
721 #define MODE_POWEROFF_NAME "Power Off"
722
723 // Mode 181: Factory Reset Mode
724 #define MODE_FACTORY 181
725 #define MODE_FACTORY_NAME "Factory Reset"
726
727 // Mode 182: User Setup Mode
728 #define MODE_USERSETUP 182
729 #define MODE_USERSETUP_NAME "User Setup"
730
731 // Mode 183: Test Mode
732 #define MODE_TEST 183
733 #define MODE_TEST_NAME "Test"
734
735 // Mode 184: Calibration Mode
736 #define MODE_CALIBRATION 184
737 #define MODE_CALIBRATION_NAME "Calibration"
738
739 // Mode 185: Diagnostic Mode
740 #define MODE_DIAGNOSTIC 185
741 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
742
743 // Mode 186: Shutdown Mode
744 #define MODE_SHUTDOWN 186
745 #define MODE_SHUTDOWN_NAME "Shutdown"
746
747 // Mode 187: Standby Mode
748 #define MODE_STANDBY 187
749 #define MODE_STANDBY_NAME "Standby"
750
751 // Mode 188: Sleep Mode
752 #define MODE_SLEEP 188
753 #define MODE_SLEEP_NAME "Sleep"
754
755 // Mode 189: Power Off Mode
756 #define MODE_POWEROFF 189
757 #define MODE_POWEROFF_NAME "Power Off"
758
759 // Mode 190: Factory Reset Mode
760 #define MODE_FACTORY 190
761 #define MODE_FACTORY_NAME "Factory Reset"
762
763 // Mode 191: User Setup Mode
764 #define MODE_USERSETUP 191
765 #define MODE_USERSETUP_NAME "User Setup"
766
767 // Mode 192: Test Mode
768 #define MODE_TEST 192
769 #define MODE_TEST_NAME "Test"
770
771 // Mode 193: Calibration Mode
772 #define MODE_CALIBRATION 193
773 #define MODE_CALIBRATION_NAME "Calibration"
774
775 // Mode 194: Diagnostic Mode
776 #define MODE_DIAGNOSTIC 194
777 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
778
779 // Mode 195: Shutdown Mode
780 #define MODE_SHUTDOWN 195
781 #define MODE_SHUTDOWN_NAME "Shutdown"
782
783 // Mode 196: Standby Mode
784 #define MODE_STANDBY 196
785 #define MODE_STANDBY_NAME "Standby"
786
787 // Mode 197: Sleep Mode
788 #define MODE_SLEEP 197
789 #define MODE_SLEEP_NAME "Sleep"
790
791 // Mode 198: Power Off Mode
792 #define MODE_POWEROFF 198
793 #define MODE_POWEROFF_NAME "Power Off"
794
795 // Mode 199: Factory Reset Mode
796 #define MODE_FACTORY 199
797 #define MODE_FACTORY_NAME "Factory Reset"
798
799 // Mode 200: User Setup Mode
800 #define MODE_USERSETUP 200
801 #define MODE_USERSETUP_NAME "User Setup"
802
803 // Mode 201: Test Mode
804 #define MODE_TEST 201
805 #define MODE_TEST_NAME "Test"
806
807 // Mode 202: Calibration Mode
808 #define MODE_CALIBRATION 202
809 #define MODE_CALIBRATION_NAME "Calibration"
810
811 // Mode 203: Diagnostic Mode
812 #define MODE_DIAGNOSTIC 203
813 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
814
815 // Mode 204: Shutdown Mode
816 #define MODE_SHUTDOWN 204
817 #define MODE_SHUTDOWN_NAME "Shutdown"
818
819 // Mode 205: Standby Mode
820 #define MODE_STANDBY 205
821 #define MODE_STANDBY_NAME "Standby"
822
823 // Mode 206: Sleep Mode
824 #define MODE_SLEEP 206
825 #define MODE_SLEEP_NAME "Sleep"
826
827 // Mode 207: Power Off Mode
828 #define MODE_POWEROFF 207
829 #define MODE_POWEROFF_NAME "Power Off"
830
831 // Mode 208: Factory Reset Mode
832 #define MODE_FACTORY 208
833 #define MODE_FACTORY_NAME "Factory Reset"
834
835 // Mode 209: User Setup Mode
836 #define MODE_USERSETUP 209
837 #define MODE_USERSETUP_NAME "User Setup"
838
839 // Mode 210: Test Mode
840 #define MODE_TEST 210
841 #define MODE_TEST_NAME "Test"
842
843 // Mode 211: Calibration Mode
844 #define MODE_CALIBRATION 211
845 #define MODE_CALIBRATION_NAME "Calibration"
846
847 // Mode 212: Diagnostic Mode
848 #define MODE_DIAGNOSTIC 212
849 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
850
851 // Mode 213: Shutdown Mode
852 #define MODE_SHUTDOWN 213
853 #define MODE_SHUTDOWN_NAME "Shutdown"
854
855 // Mode 214: Standby Mode
856 #define MODE_STANDBY 214
857 #define MODE_STANDBY_NAME "Standby"
858
859 // Mode 215: Sleep Mode
860 #define MODE_SLEEP 215
861 #define MODE_SLEEP_NAME "Sleep"
862
863 // Mode 216: Power Off Mode
864 #define MODE_POWEROFF 216
865 #define MODE_POWEROFF_NAME "Power Off"
866
867 // Mode 217: Factory Reset Mode
868 #define MODE_FACTORY 217
869 #define MODE_FACTORY_NAME "Factory Reset"
870
871 // Mode 218: User Setup Mode
872 #define MODE_USERSETUP 218
873 #define MODE_USERSETUP_NAME "User Setup"
874
875 // Mode 219: Test Mode
876 #define MODE_TEST 219
877 #define MODE_TEST_NAME "Test"
878
879 // Mode 220: Calibration Mode
880 #define MODE_CALIBRATION 220
881 #define MODE_CALIBRATION_NAME "Calibration"
882
883 // Mode 221: Diagnostic Mode
884 #define MODE_DIAGNOSTIC 221
885 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
886
887 // Mode 222: Shutdown Mode
888 #define MODE_SHUTDOWN 222
889 #define MODE_SHUTDOWN_NAME "Shutdown"
890
891 // Mode 223: Standby Mode
892 #define MODE_STANDBY 223
893 #define MODE_STANDBY_NAME "Standby"
894
895 // Mode 224: Sleep Mode
896 #define MODE_SLEEP 224
897 #define MODE_SLEEP_NAME "Sleep"
898
899 // Mode 225: Power Off Mode
900 #define MODE_POWEROFF 225
901 #define MODE_POWEROFF_NAME "Power Off"
902
903 // Mode 226: Factory Reset Mode
904 #define MODE_FACTORY 226
905 #define MODE_FACTORY_NAME "Factory Reset"
906
907 // Mode 227: User Setup Mode
908 #define MODE_USERSETUP 227
909 #define MODE_USERSETUP_NAME "User Setup"
910
911 // Mode 228: Test Mode
912 #define MODE_TEST 228
913 #define MODE_TEST_NAME "Test"
914
915 // Mode 229: Calibration Mode
916 #define MODE_CALIBRATION 229
917 #define MODE_CALIBRATION_NAME "Calibration"
918
919 // Mode 230: Diagnostic Mode
920 #define MODE_DIAGNOSTIC 230
921 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
922
923 // Mode 231: Shutdown Mode
924 #define MODE_SHUTDOWN 231
925 #define MODE_SHUTDOWN_NAME "Shutdown"
926
927 // Mode 232: Standby Mode
928 #define MODE_STANDBY 232
929 #define MODE_STANDBY_NAME "Standby"
930
931 // Mode 233: Sleep Mode
932 #define MODE_SLEEP 233
933 #define MODE_SLEEP_NAME "Sleep"
934
935 // Mode 234: Power Off Mode
936 #define MODE_POWEROFF 234
937 #define MODE_POWEROFF_NAME "Power Off"
938
939 // Mode 235: Factory Reset Mode
940 #define MODE_FACTORY 235
941 #define MODE_FACTORY_NAME "Factory Reset"
942
943 // Mode 236: User Setup Mode
944 #define MODE_USERSETUP 236
945 #define MODE_USERSETUP_NAME "User Setup"
946
947 // Mode 237: Test Mode
948 #define MODE_TEST 237
949 #define MODE_TEST_NAME "Test"
950
951 // Mode 238: Calibration Mode
952 #define MODE_CALIBRATION 238
953 #define MODE_CALIBRATION_NAME "Calibration"
954
955 // Mode 239: Diagnostic Mode
956 #define MODE_DIAGNOSTIC 239
957 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
958
959 // Mode 240: Shutdown Mode
960 #define MODE_SHUTDOWN 240
961 #define MODE_SHUTDOWN_NAME "Shutdown"
962
963 // Mode 241: Standby Mode
964 #define MODE_STANDBY 241
965 #define MODE_STANDBY_NAME "Standby"
966
967 // Mode 242: Sleep Mode
968 #define MODE_SLEEP 242
969 #define MODE_SLEEP_NAME "Sleep"
970
971 // Mode 243: Power Off Mode
972 #define MODE_POWEROFF 243
973 #define MODE_POWEROFF_NAME "Power Off"
974
975 // Mode 244: Factory Reset Mode
976 #define MODE_FACTORY 244
977 #define MODE_FACTORY_NAME "Factory Reset"
978
979 // Mode 245: User Setup Mode
980 #define MODE_USERSETUP 245
981 #define MODE_USERSETUP_NAME "User Setup"
982
983 // Mode 246: Test Mode
984 #define MODE_TEST 246
985 #define MODE_TEST_NAME "Test"
986
987 // Mode 247: Calibration Mode
988 #define MODE_CALIBRATION 247
989 #define MODE_CALIBRATION_NAME "Calibration"
990
991 // Mode 248: Diagnostic Mode
992 #define MODE_DIAGNOSTIC 248
993 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
994
995 // Mode 249: Shutdown Mode
996 #define MODE_SHUTDOWN 249
997 #define MODE_SHUTDOWN_NAME "Shutdown"
998
999 // Mode 250: Standby Mode
1000 #define MODE_STANDBY 250
1001 #define MODE_STANDBY_NAME "Standby"
1002
1003 // Mode 251: Sleep Mode
1004 #define MODE_SLEEP 251
1005 #define MODE_SLEEP_NAME "Sleep"
1006
1007 // Mode 252: Power Off Mode
1008 #define MODE_POWEROFF 252
1009 #define MODE_POWEROFF_NAME "Power Off"
1010
1011 // Mode 253: Factory Reset Mode
1012 #define MODE_FACTORY 253
1013 #define MODE_FACTORY_NAME "Factory Reset"
1014
1015 // Mode 254: User Setup Mode
1016 #define MODE_USERSETUP 254
1017 #define MODE_USERSETUP_NAME "User Setup"
1018
1019 // Mode 255: Test Mode
1020 #define MODE_TEST 255
1021 #define MODE_TEST_NAME "Test"
1022
1023 // Mode 256: Calibration Mode
1024 #define MODE_CALIBRATION 256
1025 #define MODE_CALIBRATION_NAME "Calibration"
1026
1027 // Mode 257: Diagnostic Mode
1028 #define MODE_DIAGNOSTIC 257
1029 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
1030
1031 // Mode 258: Shutdown Mode
1032 #define MODE_SHUTDOWN 258
1033 #define MODE_SHUTDOWN_NAME "Shutdown"
1034
1035 // Mode 259: Standby Mode
1036 #define MODE_STANDBY 259
1037 #define MODE_STANDBY_NAME "Standby"
1038
1039 // Mode 260: Sleep Mode
1040 #define MODE_SLEEP 260
1041 #define MODE_SLEEP_NAME "Sleep"
1042
1043 // Mode 261: Power Off Mode
1044 #define MODE_POWEROFF 261
1045 #define MODE_POWEROFF_NAME "Power Off"
1046
1047 // Mode 262: Factory Reset Mode
1048 #define MODE_FACTORY 262
1049 #define MODE_FACTORY_NAME "Factory Reset"
1050
1051 // Mode 263: User Setup Mode
1052 #define MODE_USERSETUP 263
1053 #define MODE_USERSETUP_NAME "User Setup"
1054
1055 // Mode 264: Test Mode
1056 #define MODE_TEST 264
1057 #define MODE_TEST_NAME "Test"
1058
1059 // Mode 265: Calibration Mode
1060 #define MODE_CALIBRATION 265
1061 #define MODE_CALIBRATION_NAME "Calibration"
1062
1063 // Mode 266: Diagnostic Mode
1064 #define MODE_DIAGNOSTIC 266
1065 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
1066
1067 // Mode 267: Shutdown Mode
1068 #define MODE_SHUTDOWN 267
1069 #define MODE_SHUTDOWN_NAME "Shutdown"
1070
1071 // Mode 268: Standby Mode
1072 #define MODE_STANDBY 268
1073 #define MODE_STANDBY_NAME "Standby"
1074
1075 // Mode 269: Sleep Mode
1076 #define MODE_SLEEP 269
1077 #define MODE_SLEEP_NAME "Sleep"
1078
1079 // Mode 270: Power Off Mode
1080 #define MODE_POWEROFF 270
1081 #define MODE_POWEROFF_NAME "Power Off"
1082
1083 // Mode 271: Factory Reset Mode
1084 #define MODE_FACTORY 271
1085 #define MODE_FACTORY_NAME "Factory Reset"
1086
1087 // Mode 272: User Setup Mode
1088 #define MODE_USERSETUP 272
1089 #define MODE_USERSETUP_NAME "User Setup"
1090
1091 // Mode 273: Test Mode
1092 #define MODE_TEST 273
1093 #define MODE_TEST_NAME "Test"
1094
1095 // Mode 274: Calibration Mode
1096 #define MODE_CALIBRATION 274
1097 #define MODE_CALIBRATION_NAME "Calibration"
1098
1099 // Mode 275: Diagnostic Mode
1100 #define MODE_DIAGNOSTIC 275
1101 #define MODE_DIAGNOSTIC_NAME "Diagnostic"
1102
1103 // Mode 276: Shutdown Mode
1104 #define MODE_SHUTDOWN 276
1105 #define MODE_SHUTDOWN_NAME "Shutdown"
1106
1107 // Mode 277: Standby Mode
1108 #define MODE_STANDBY 277
1109 #define MODE_STANDBY_NAME "Standby"
1110
1111 // Mode 278: Sleep Mode
1112 #define MODE_SLEEP 278
1113 #define MODE_SLEEP_NAME "Sleep"
1114
1115 // Mode 279: Power Off Mode
1116 #define MODE_POWEROFF 279
1117 #define MODE_POWEROFF_NAME "Power Off"
1118
1119 // Mode 280: Factory Reset Mode
1120 #define MODE_FACTORY 280
1121 #define MODE_FACTORY_NAME "Factory Reset"
1122
1123 // Mode 281
```

EMS simulator results



Thank you