

Fahrplanmanagement

Wärmepumpe Warmwasser (eBus)

Im Exemplarischen Wärmepumpenfahrplan wird davon ausgegangen, dass die WP für 2 Stunden Strom bezieht, wenn sie lediglich Warmwasser (WW) zubereitet (Sommermonate) und 20 Stunden Strom benötigt, wenn auch die Heizfunktion benötigt wird.

s.h. auch [eBus Anbindung](#)

- [flow_fahrplan_ebus_ww_ehp.png](#)

Flow

```
[
  {
    "id": "120b1f7b. ff6e21",
    "type": "tab",
    "label": "Fahrplan - Wärmepumpe",
    "disabled": false,
    "info": "Im Exemplarischen Wärmepumpenfahrplan wird davon ausgegangen, dass die WP für 2 Stunden Strom bezieht, wenn sie lediglich Warmwasser (WW) zubereitet (Sommermonate) und 20 Stunden Strom benötigt, wenn auch die Heizfunktion benötigt wird. \n\nUnterscheidung: \n - Durchschnitt > 15° = nur WW\n - Durchschnitt < 15° = WW + Heizung"
  },
  {
    "id": "23d88f0c. 9ff71",
    "type": "openweathermap",
    "z": "120b1f7b. ff6e21",
    "name": "Casa Corrently Weather",
    "wtype": "forecast",
    "lon": "8. 800295",
    "lat": "49. 342178",
    "city": "",
  }
]
```

```

    "country": "",
    "language": "de",
    "x": 430,
    "y": 80,
    "wires": [
      [
        "1a79c7f6.50c608"
      ]
    ]
  },
  {
    "id": "c314a744.a0c058",
    "type": "inject",
    "z": "120b1f7b.ff6e21",
    "name": "1h",
    "topic": "",
    "payload": "",
    "payloadType": "date",
    "repeat": "3600",
    "crontab": "",
    "once": true,
    "onceDelay": "5",
    "x": 210,
    "y": 80,
    "wires": [
      [
        "23d88f0c.9ff71"
      ]
    ]
  },
  {
    "id": "1a79c7f6.50c608",
    "type": "function",
    "z": "120b1f7b.ff6e21",
    "name": "Temperatur Stats",
    "func": "let min=99;\nlet cnt=0;\nlet sum=0;\n\nfor(let
i=0;(i<=msg.payload.length)&&(i<24);i++) {\n    sum+=msg.payload[i].main.temp;\n
cnt++;\n    if(i<24) {\n        if(msg.payload[i].main.temp < min) {\n
min=msg.payload[i].main.temp;\n        }\n    }\nlet avg =
sum/cnt;\nflow.set('temp_min',min);\nflow.set('temp_avg',avg);\nnode.status({text: \"Avg:"

```

```

\"+avg+\"°C\");\nreturn msg;",
  "outputs": 1,
  "noerr": 0,
  "x": 790,
  "y": 80,
  "wires": [
    [
      "331a1037.576a5"
    ]
  ]
},
{
  "id": "331a1037.576a5",
  "type": "function",
  "z": "120b1f7b.ff6e21",
  "name": "GSI integrieren",
  "func": "let gsi = global.get(\"eXgsi\");\n\nlet hours = [];\nlet hwset =
false;\n\nfor( let i=0;i<gsi.length;i++) {\n    if( flow.get(\"temp_avg\")>15) {\n
if(gsi[i].fields.s2 > 0) {\n                node.status({text: \"In \"+i+\"
Stunden\");\n                if(!hwset) {\n
flow.set('hwstart',Math.round(gsi[i].timestamp/1000000));\n
hwset=true;\n                }\n                }\n                \n                hours.push(gsi[i].fields.s2 *
1000);\n    } else {\n                hours.push(gsi[i].fields.s20 * 450);\n    }\n}\nmsg.payload =
hours;\n\nreturn msg;",
  "outputs": 1,
  "noerr": 0,
  "x": 400,
  "y": 180,
  "wires": [
    [
      "19814032.62214",
      "42cf6acb.56bbb4",
      "cb226a7c.26af58"
    ]
  ]
},
{
  "id": "19814032.62214",
  "type": "function",
  "z": "120b1f7b.ff6e21",

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```

    "name": "Flex Wirkleistung",
    "func": "let watt = msg.payload[0];\nconst subSUM='FlexConsumption';\n\nlet sum =
global.get(subSUM) * 1;\nif(isNaN(sum)) sum = 0;\n\nlet previous = context.get(\"previous\") *
1;\nif(isNaN(previous)) previous = 0;\n\nif(global.get(\"FlexSaldoID\") !=
context.get(\"FlexSaldoID\")) {\n
context.set(\"FlexSaldoID\", global.get(\"FlexSaldoID\"));\n    let options =
global.get(\"FlexOptions\");\n    options.push(msg.payload);\n
global.set(\"FlexOptions\", options);\n} else {\n    sum -= previous;\n}\nsum +=
watt;\n\ncontext.set(\"previous\", watt);\n\nglobal.set(subSUM, sum);\nif(watt > 0) {\n
flow.set(\"hwcOperatingMode\", \"on\");\n} else {\n
flow.set(\"hwcOperatingMode\", \"auto\");\n}    \nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 590,
    "y": 560,
    "wires": [
        [
            "4aaf8b92.9c52c4"
        ]
    ]
},
{
    "id": "c273455e.fabee8",
    "type": "mqtt in",
    "z": "120b1f7b.ff6e21",
    "name": "",
    "topic": "ebusd/ehp/HwcTemp",
    "qos": "2",
    "datatype": "auto",
    "broker": "33c6e085.87181",
    "x": 360,
    "y": 760,
    "wires": [
        [
            "6bcfb76.656a448"
        ]
    ]
},
{
    "id": "6bcfb76.656a448",

```

```

    "type": "function",
    "z": "120b1f7b. ff6e21",
    "name": "Strip Status",
    "func": "msg.payload  = msg.payload.substr(0,msg.payload.indexOf(';')) *
1; \nnode.status({text: msg.payload}); \nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 570,
    "y": 760,
    "wires": [
        [
            "ba4fdafd. 45bd88"
        ]
    ]
},
{
    "id": "ba4fdafd. 45bd88",
    "type": "influxdb out",
    "z": "120b1f7b. ff6e21",
    "influxdb": "3116358f. 1e80ea",
    "name": "hwtemp",
    "measurement": "hwtemp",
    "precision": "",
    "retentionPolicy": "",
    "x": 1060,
    "y": 760,
    "wires": []
},
{
    "id": "9dcc6642. e066c8",
    "type": "mqtt out",
    "z": "120b1f7b. ff6e21",
    "name": "ebusd/hwc/Timer.Monday/set",
    "topic": "ebusd/hwc/Timer.Monday/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085. 87181",
    "x": 1120,
    "y": 160,
    "wires": []
}

```

```

},
{
  "id": "42cf6acb.56bbb4",
  "type": "function",
  "z": "120b1f7b.ff6e21",
  "name": "Mo-Fr",
  "func": "let tz_offset = 2;\nlet rt = 2;\n\nlet start = new
Date(flow.get('hwstart')).getHours() + tz_offset;\nlet end = start + rt;\nmsg.payload = start
+\":15;\"+end+\":15;-:-:-:-:-:-:-:-;Mo-Fr\";\nnode.status({text: \"Start:
\"+start+\":15\"});\nreturn msg;",
  "outputs": 1,
  "noerr": 0,
  "x": 750,
  "y": 180,
  "wires": [
    [
      "9dcc6642.e066c8",
      "c4db5437.eb92f8",
      "bcce9475.f904c8",
      "bb4f2986.fa5c98",
      "198fe03d.032c6"
    ]
  ]
},
{
  "id": "c4db5437.eb92f8",
  "type": "mqtt out",
  "z": "120b1f7b.ff6e21",
  "name": "ebusd/hwc/Timer.Tuesday/set",
  "topic": "ebusd/hwc/Timer.Tuesday/set",
  "qos": "1",
  "retain": "true",
  "broker": "33c6e085.87181",
  "x": 1130,
  "y": 220,
  "wires": []
},
{
  "id": "bcce9475.f904c8",
  "type": "mqtt out",

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```
    "z": "120b1f7b. ff6e21",
    "name": "ebusd/hwc/Timer. Wednesday/set",
    "topic": "ebusd/hwc/Timer. Wednesday/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085. 87181",
    "x": 1140,
    "y": 280,
    "wires": []
  },
  {
    "id": "bb4f2986. fa5c98",
    "type": "mqtt out",
    "z": "120b1f7b. ff6e21",
    "name": "ebusd/hwc/Timer. Thursday/set",
    "topic": "ebusd/hwc/Timer. Thursday/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085. 87181",
    "x": 1130,
    "y": 340,
    "wires": []
  },
  {
    "id": "198fe03d. 032c6",
    "type": "mqtt out",
    "z": "120b1f7b. ff6e21",
    "name": "ebusd/hwc/Timer. Friday/set",
    "topic": "ebusd/hwc/Timer. Friday/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085. 87181",
    "x": 1120,
    "y": 400,
    "wires": []
  },
  {
    "id": "bfa4d83b. 08dce8",
    "type": "mqtt out",
    "z": "120b1f7b. ff6e21",
```

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    "name": "ebusd/hwc/Timer.Saturday/set",
    "topic": "ebusd/hwc/Timer.Saturday/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085.87181",
    "x": 1130,
    "y": 460,
    "wires": []
  },
  {
    "id": "497e21df.6117a",
    "type": "mqtt out",
    "z": "120b1f7b.ff6e21",
    "name": "ebusd/hwc/Timer.Sunday/set",
    "topic": "ebusd/hwc/Timer.Sunday/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085.87181",
    "x": 1120,
    "y": 500,
    "wires": []
  },
  {
    "id": "cb226a7c.26af58",
    "type": "function",
    "z": "120b1f7b.ff6e21",
    "name": "Sa-So",
    "func": "let tz_offset = 2;\nlet rt = 2;\n\nlet start = new
Date( flow.get('hwstart') ).getHours() + tz_offset;\nlet end = start + rt;\nmsg.payload = start
+\":15;\"+end+\":15;--:--:--:--:--:--;Sa-So\";\nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 750,
    "y": 240,
    "wires": [
      [
        "bfa4d83b.08dce8",
        "497e21df.6117a"
      ]
    ]
  }
]

```



```

},
{
  "id": "4aaf8b92.9c52c4",
  "type": "function",
  "z": "120b1f7b.ff6e21",
  "name": "Set hwcOperatingMode",
  "func": "msg.payload =
flow.get(\"hwcOperatingMode\");\nnode.status({text: msg.payload});\nreturn msg;",
  "outputs": 1,
  "noerr": 0,
  "x": 810,
  "y": 560,
  "wires": [
    [
      "8e6eb620.37bf88"
    ]
  ]
},
{
  "id": "8e6eb620.37bf88",
  "type": "mqtt out",
  "z": "120b1f7b.ff6e21",
  "name": "ebusd/hwc/OperatingMode/set",
  "topic": "ebusd/hwc/OperatingMode/set",
  "qos": "1",
  "retain": "true",
  "broker": "33c6e085.87181",
  "x": 1130,
  "y": 560,
  "wires": []
},
{
  "id": "e5f66c42.8870a",
  "type": "comment",
  "z": "120b1f7b.ff6e21",
  "name": "WarmWasser Programm",
  "info": "",
  "x": 810,
  "y": 140,
  "wires": []
}

```

```

},
{
  "id": "38c7aca7.85be64",
  "type": "influxdb in",
  "z": "120b1f7b.ff6e21",
  "influxdb": "3116358f.1e80ea",
  "name": "Netzsaldo",
  "query": "SELECT mean(`value`) FROM `e2saldo` WHERE time>now()-10m GROUP BY
time(5m) fill(linear)",
  "rawOutput": false,
  "precision": "",
  "retentionPolicy": "",
  "x": 320,
  "y": 700,
  "wires": [
    [
      "58d95890.fb3df8"
    ]
  ]
},
{
  "id": "2834f7ea.e27e38",
  "type": "inject",
  "z": "120b1f7b.ff6e21",
  "name": "20m",
  "topic": "",
  "payload": "",
  "payloadType": "date",
  "repeat": "1200",
  "crontab": "",
  "once": true,
  "onceDelay": "20",
  "x": 130,
  "y": 700,
  "wires": [
    [
      "38c7aca7.85be64"
    ]
  ]
},

```

```

{
  "id": "58d95890. fb3df8",
  "type": "function",
  "z": "120b1f7b. ff6e21",
  "name": "Ladung bei Überschuss (+250W)",
  "func": "if(msg.payload[msg.payload.length-1].mean > 250) {\n    msg.payload =
\non\n\n} else {\n    msg.payload = \"auto\n\n}\nnode.status({text: msg.payload});\nreturn
msg;",
  "outputs": 1,
  "noerr": 0,
  "x": 640,
  "y": 700,
  "wires": [
    [
      "3b6aa897. d31468",
      "1dcb5c61. 951c74"
    ]
  ]
},
{
  "id": "3b6aa897. d31468",
  "type": "mqtt out",
  "z": "120b1f7b. ff6e21",
  "name": "ebusd/hwc/OperatingMode/set",
  "topic": "ebusd/hwc/OperatingMode/set",
  "qos": "1",
  "retain": "true",
  "broker": "33c6e085. 87181",
  "x": 1130,
  "y": 640,
  "wires": []
},
{
  "id": "1dcb5c61. 951c74",
  "type": "switch",
  "z": "120b1f7b. ff6e21",
  "name": "HW Load",
  "property": "payload",
  "propertyType": "msg",
  "rules": [

```

```
    {
      "t": "eq",
      "v": "on",
      "vt": "str"
    }
  ],
  "checkall": "true",
  "repair": false,
  "outputs": 1,
  "x": 900,
  "y": 700,
  "wires": [
    [
      "eca7dae8.212f18"
    ]
  ]
},
{
  "id": "eca7dae8.212f18",
  "type": "mqtt out",
  "z": "120b1f7b.ff6e21",
  "name": "ebusd/mc/load/set",
  "topic": "ebusd/mc/load/set",
  "qos": "1",
  "retain": "true",
  "broker": "33c6e085.87181",
  "x": 1090,
  "y": 700,
  "wires": []
},
{
  "id": "33c6e085.87181",
  "type": "mqtt-broker",
  "z": "",
  "name": "Local Mosquito (Port 1883)",
  "broker": "localhost",
  "port": "1883",
  "clientid": "node-red",
  "usetls": false,
  "compatmode": false,
```

```

    "keepalive": "60",
    "cleansession": true,
    "birthTopic": "",
    "birthQos": "0",
    "birthPayload": "",
    "closeTopic": "",
    "closeQos": "0",
    "closePayload": "",
    "willTopic": "",
    "willQos": "0",
    "willPayload": ""
  },
  {
    "id": "3116358f.1e80ea",
    "type": "influxdb",
    "z": "",
    "hostname": "127.0.0.1",
    "port": "8086",
    "protocol": "http",
    "database": "casacorrently",
    "name": "InfluxDB",
    "usetls": false,
    "tls": ""
  }
]

```

```

[
  {
    "id": "120b1f7b.ff6e21",
    "type": "tab",
    "label": "Fahrplan - Wärmepumpe",
    "disabled": false,
    "info": "Im Exemplarischen Wärmepumpenfahrplan wird davon ausgegangen, dass die WP für
2 Stunden Strom bezieht, wenn sie lediglich Warmwasser (WW) zubereitet (Sommermonate) und 20
Stunden Strom benötigt, wenn auch die Heizfunktion benötigt wird. \n\nUnterscheidung: \n -
Durchschnitt > 15° = nur WW\n - Durchschnitt < 15° = WW + Heizung"
  },
  {
    "id": "23d88f0c.9ff71",
    "type": "openweathermap",

```

```
    "z": "120b1f7b. ff6e21",
    "name": "Casa Corrently Weather",
    "wtype": "forecast",
    "lon": "8. 800295",
    "lat": "49. 342178",
    "city": "",
    "country": "",
    "language": "de",
    "x": 430,
    "y": 80,
    "wires": [
      [
        "1a79c7f6. 50c608"
      ]
    ]
  },
```

```
{
  "id": "c314a744. a0c058",
  "type": "inject",
  "z": "120b1f7b. ff6e21",
  "name": "1h",
  "topic": "",
  "payload": "",
  "payloadType": "date",
  "repeat": "3600",
  "crontab": "",
  "once": true,
  "onceDelay": "5",
  "x": 210,
  "y": 80,
  "wires": [
    [
      "23d88f0c. 9ff71"
    ]
  ]
}
```

```
},
{
  "id": "1a79c7f6. 50c608",
  "type": "function",
  "z": "120b1f7b. ff6e21",
```

```

    "name": "Temperatur Stats",
    "func": "let min=99;\nlet cnt=0;\nlet sum=0;\n\nfor( let
i=0;( i<=msg.payload.length)&&( i<24);i++) {\n    sum+=msg.payload[i].main.temp;\n
cnt++;;\n    if(i<24) {\n        if(msg.payload[i].main.temp < min) {\n
min=msg.payload[i].main.temp;\n            }\n        }\n}\nlet avg =
sum/cnt;\nflow.set('temp_min',min);\nflow.set('temp_avg',avg);\nnode.status({text: \"Avg:
\"+avg+\"°C\"});\nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 790,
    "y": 80,
    "wires": [
        [
            "331a1037.576a5"
        ]
    ]
},
{
    "id": "331a1037.576a5",
    "type": "function",
    "z": "120b1f7b.ff6e21",
    "name": "GSI integrieren",
    "func": "let gsi = global.get(\"eXgsi\");\n\nlet hours = [];\nlet hwset =
false;\n\nfor( let i=0;i<gsi.length;i++) {\n    if( flow.get(\"temp_avg\")>15) {\n
if( gsi[i].fields.s2 > 0) {\n        node.status({text: \"In \"+i+\"
Stunden\"});\n        if(!hwset) {\n
flow.set('hwstart',Math.round(gsi[i].timestamp/1000000));\n
hwset=true;\n            }\n        }\n        hours.push(gsi[i].fields.s2 *
1000);\n    } else {\n        hours.push(gsi[i].fields.s20 * 450);\n    }\n}\nmsg.payload =
hours;\n\nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 400,
    "y": 180,
    "wires": [
        [
            "19814032.62214",
            "42cf6acb.56bbb4",
            "cb226a7c.26af58"
        ]
    ]
}

```

```

    ]
  },
  {
    "id": "19814032.62214",
    "type": "function",
    "z": "120b1f7b.ff6e21",
    "name": "Flex Wirkleistung",
    "func": "let watt = msg.payload[0];\nconst subSUM='FlexConsumption';\n\nlet sum =
global.get(subSUM) * 1;\nif(isNaN(sum)) sum = 0;\n\nlet previous = context.get(\"previous\") *
1;\nif(isNaN(previous)) previous = 0;\n\nif(global.get(\"FlexSaldoID\") !=
context.get(\"FlexSaldoID\")) {\n
context.set(\"FlexSaldoID\", global.get(\"FlexSaldoID\"));\n  let options =
global.get(\"FlexOptions\");\n  options.push(msg.payload);\n
global.set(\"FlexOptions\", options);\n} else {\n  sum -= previous;\n}\nsum +=
watt;\n\ncontext.set(\"previous\", watt);\n\nglobal.set(subSUM, sum);\nif(watt > 0) {\n
flow.set(\"hwcOperatingMode\", \"on\");\n} else {\n
flow.set(\"hwcOperatingMode\", \"auto\");\n}  \nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 590,
    "y": 560,
    "wires": [
      [
        "4aaf8b92.9c52c4"
      ]
    ]
  }
},
  {
    "id": "c273455e.fabee8",
    "type": "mqtt in",
    "z": "120b1f7b.ff6e21",
    "name": "",
    "topic": "ebusd/ehp/HwcTemp",
    "qos": "2",
    "datatype": "auto",
    "broker": "33c6e085.87181",
    "x": 360,
    "y": 760,
    "wires": [
      [

```



```

        "6bcfb76. 656a448"
    ]
]
},
{
    "id": "6bcfb76. 656a448",
    "type": "function",
    "z": "120b1f7b. ff6e21",
    "name": "Strip Status",
    "func": "msg.payload  = msg.payload.substr(0,msg.payload.indexOf(';')) *
1; \nnode.status({text: msg.payload}); \nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 570,
    "y": 760,
    "wires": [
        [
            "ba4fdafd. 45bd88"
        ]
    ]
},
{
    "id": "ba4fdafd. 45bd88",
    "type": "influxdb out",
    "z": "120b1f7b. ff6e21",
    "influxdb": "3116358f. 1e80ea",
    "name": "hwtemp",
    "measurement": "hwtemp",
    "precision": "",
    "retentionPolicy": "",
    "x": 1060,
    "y": 760,
    "wires": []
},
{
    "id": "9dcc6642. e066c8",
    "type": "mqtt out",
    "z": "120b1f7b. ff6e21",
    "name": "ebusd/hwc/Timer.Monday/set",
    "topic": "ebusd/hwc/Timer.Monday/set",

```

```

    "qos": "1",
    "retain": "true",
    "broker": "33c6e085.87181",
    "x": 1120,
    "y": 160,
    "wires": []
  },
  {
    "id": "42cf6acb.56bbb4",
    "type": "function",
    "z": "120b1f7b.ff6e21",
    "name": "Mo-Fr",
    "func": "let tz_offset = 2;\nlet rt = 2;\n\nlet start = new
Date(flow.get('hwstart')).getHours() + tz_offset;\nlet end = start + rt;\nmsg.payload = start
+\":15;\\\"+end+\":15;-:-:-:-:-:-:-;Mo-Fr\\\";\nnode.status({text: \\\"Start:
\\\"+start+\":15\\\"});\nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 750,
    "y": 180,
    "wires": [
      [
        "9dcc6642.e066c8",
        "c4db5437.eb92f8",
        "bcce9475.f904c8",
        "bb4f2986.fa5c98",
        "198fe03d.032c6"
      ]
    ]
  },
  {
    "id": "c4db5437.eb92f8",
    "type": "mqtt out",
    "z": "120b1f7b.ff6e21",
    "name": "ebusd/hwc/Timer.Tuesday/set",
    "topic": "ebusd/hwc/Timer.Tuesday/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085.87181",
    "x": 1130,

```

```
    "y": 220,  
    "wires": []  
  },  
  {  
    "id": "bcce9475.f904c8",  
    "type": "mqtt out",  
    "z": "120b1f7b.ff6e21",  
    "name": "ebusd/hwc/Timer.Wednesday/set",  
    "topic": "ebusd/hwc/Timer.Wednesday/set",  
    "qos": "1",  
    "retain": "true",  
    "broker": "33c6e085.87181",  
    "x": 1140,  
    "y": 280,  
    "wires": []  
  },  
  {  
    "id": "bb4f2986.fa5c98",  
    "type": "mqtt out",  
    "z": "120b1f7b.ff6e21",  
    "name": "ebusd/hwc/Timer.Thursday/set",  
    "topic": "ebusd/hwc/Timer.Thursday/set",  
    "qos": "1",  
    "retain": "true",  
    "broker": "33c6e085.87181",  
    "x": 1130,  
    "y": 340,  
    "wires": []  
  },  
  {  
    "id": "198fe03d.032c6",  
    "type": "mqtt out",  
    "z": "120b1f7b.ff6e21",  
    "name": "ebusd/hwc/Timer.Friday/set",  
    "topic": "ebusd/hwc/Timer.Friday/set",  
    "qos": "1",  
    "retain": "true",  
    "broker": "33c6e085.87181",  
    "x": 1120,  
    "y": 400,
```

```

    "wires": []
  },
  {
    "id": "bfa4d83b.08dce8",
    "type": "mqtt out",
    "z": "120b1f7b.ff6e21",
    "name": "ebusd/hwc/Timer.Saturday/set",
    "topic": "ebusd/hwc/Timer.Saturday/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085.87181",
    "x": 1130,
    "y": 460,
    "wires": []
  },
  {
    "id": "497e21df.6117a",
    "type": "mqtt out",
    "z": "120b1f7b.ff6e21",
    "name": "ebusd/hwc/Timer.Sunday/set",
    "topic": "ebusd/hwc/Timer.Sunday/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085.87181",
    "x": 1120,
    "y": 500,
    "wires": []
  },
  {
    "id": "cb226a7c.26af58",
    "type": "function",
    "z": "120b1f7b.ff6e21",
    "name": "Sa-So",
    "func": "let tz_offset = 2;\nlet rt = 2;\n\nlet start = new
Date(flow.get('hwstart')).getHours() + tz_offset;\nlet end = start + rt;\nmsg.payload = start
+\":15;\"+end+\":15;-:-:-:-:-:-:-;Sa-So\";\nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 750,
    "y": 240,

```

```

    "wires": [
      [
        "bfa4d83b.08dce8",
        "497e21df.6117a"
      ]
    ]
  },
  {
    "id": "4aaf8b92.9c52c4",
    "type": "function",
    "z": "120b1f7b.ff6e21",
    "name": "Set hwcOperatingMode",
    "func": "msg.payload =
flow.get(\"hwcOperatingMode\");\nnode.status({text: msg.payload});\nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 810,
    "y": 560,
    "wires": [
      [
        "8e6eb620.37bf88"
      ]
    ]
  },
  {
    "id": "8e6eb620.37bf88",
    "type": "mqtt out",
    "z": "120b1f7b.ff6e21",
    "name": "ebusd/hwc/OperatingMode/set",
    "topic": "ebusd/hwc/OperatingMode/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085.87181",
    "x": 1130,
    "y": 560,
    "wires": []
  },
  {
    "id": "e5f66c42.8870a",
    "type": "comment",

```

```

    "z": "120b1f7b. ff6e21",
    "name": "WarmWasser Programm",
    "info": "",
    "x": 810,
    "y": 140,
    "wires": []
  },
  {
    "id": "38c7aca7. 85be64",
    "type": "influxdb in",
    "z": "120b1f7b. ff6e21",
    "influxdb": "3116358f. 1e80ea",
    "name": "Netzsaldo",
    "query": "SELECT mean(\"value\") FROM \"e2saldo\" WHERE time>now()-10m GROUP BY
time(5m) fill(linear)",
    "rawOutput": false,
    "precision": "",
    "retentionPolicy": "",
    "x": 320,
    "y": 700,
    "wires": [
      [
        "58d95890. fb3df8"
      ]
    ]
  },
  {
    "id": "2834f7ea. e27e38",
    "type": "inject",
    "z": "120b1f7b. ff6e21",
    "name": "20m",
    "topic": "",
    "payload": "",
    "payloadType": "date",
    "repeat": "1200",
    "crontab": "",
    "once": true,
    "onceDelay": "20",
    "x": 130,
    "y": 700,

```

```

    "wires": [
      [
        "38c7aca7.85be64"
      ]
    ]
  },
  {
    "id": "58d95890.fb3df8",
    "type": "function",
    "z": "120b1f7b.ff6e21",
    "name": "Ladung bei Überschuss (+250W)",
    "func": "if(msg.payload[msg.payload.length-1].mean > 250) {\n    msg.payload = \n\"on\"\n\n} else {\n    msg.payload = \"auto\"\n\n}\nnode.status({text: msg.payload});\nreturn msg;",
    "outputs": 1,
    "noerr": 0,
    "x": 640,
    "y": 700,
    "wires": [
      [
        "3b6aa897.d31468",
        "1dcb5c61.951c74"
      ]
    ]
  },
  {
    "id": "3b6aa897.d31468",
    "type": "mqtt out",
    "z": "120b1f7b.ff6e21",
    "name": "ebusd/hwc/OperatingMode/set",
    "topic": "ebusd/hwc/OperatingMode/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085.87181",
    "x": 1130,
    "y": 640,
    "wires": []
  },
  {
    "id": "1dcb5c61.951c74",

```

```
    "type": "switch",
    "z": "120b1f7b.ff6e21",
    "name": "HW Load",
    "property": "payload",
    "propertyType": "msg",
    "rules": [
      {
        "t": "eq",
        "v": "on",
        "vt": "str"
      }
    ],
    "checkall": "true",
    "repair": false,
    "outputs": 1,
    "x": 900,
    "y": 700,
    "wires": [
      [
        "eca7dae8.212f18"
      ]
    ]
  },
  {
    "id": "eca7dae8.212f18",
    "type": "mqtt out",
    "z": "120b1f7b.ff6e21",
    "name": "ebusd/mc/load/set",
    "topic": "ebusd/mc/load/set",
    "qos": "1",
    "retain": "true",
    "broker": "33c6e085.87181",
    "x": 1090,
    "y": 700,
    "wires": []
  },
  {
    "id": "33c6e085.87181",
    "type": "mqtt-broker",
    "z": "",
```



```
    "name": "Local Mosquito (Port 1883)",
    "broker": "localhost",
    "port": "1883",
    "clientid": "node-red",
    "usetls": false,
    "compatmode": false,
    "keepalive": "60",
    "cleansession": true,
    "birthTopic": "",
    "birthQos": "0",
    "birthPayload": "",
    "closeTopic": "",
    "closeQos": "0",
    "closePayload": "",
    "willTopic": "",
    "willQos": "0",
    "willPayload": ""
  },
  {
    "id": "3116358f.1e80ea",
    "type": "influxdb",
    "z": "",
    "hostname": "127.0.0.1",
    "port": "8086",
    "protocol": "http",
    "database": "casacorrently",
    "name": "InfluxDB",
    "usetls": false,
    "tls": ""
  }
]
```

Revision #1

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