SC22 SCC Dynamic Power Limit

From the SC22 SCC Rules (https://studentclustercompetition.us/2022/SCC22Rules.pdf):

> 3.1. The competition has a dynamic power limit: the power available to each team for their competition hardware at times during the competition may be as high as 4000-watts (but will usually be lower) and may be as low as 1500-watts (but will usually be higher).
>> ■ Teams must ensure that their hardware's power consumption while idle consumes no more than 1500W, and that their hardware can run the applications and benchmarks without consuming more than 4000W.
>> ■ The power limit during the benchmarking component will be 3000W

Power limits will be published via HTTP. The competition URL will be given later. json of the following form will be periodically published at the URL.

```
{
    "ValidUntil": "20221011T170000Z",
    "CapWatts":3000,

    "KnownEvents": [ {
        "Event": "Anticipated Surplus",
        "StartTime": "20221113T160000Z",
        "CapWatts": 3010
    }]
}
```

ValidUntil is a UTC timestamp for when the next update to the power bounds will be published. **CapWatts** is the current power limit.

The **KnownEvents** list contains upcoming changes to the power cap. The **Event** is a note about why the change is occurring, **StartTime** is the UTC timestamp for when the change takes effect, and **CapWatts** is the new limit starting at **StartTime**. If the list is not present, there are no known upcoming power limit changes for the time interval covered. In this example the limit will be negligibly higher (3010 watts) starting at 20221113T160000Z. It is possible that the **KnownEvents** list will contain 0, 1 or many entries.

New power limits will not be published more frequently than 5 minute intervals and are expected to be published much less frequently most of the time. The **ValidUntil** entry will let you know the soonest that updated power limit information may be available at the URL. Changes to the power limit will be published for at least 2 intervals before taking effect and no power limit

change will have less than 30 minutes of lead time (at least 30 minutes will elapse between first being published as a KnownEvent and being enforced as the limit).

The server publishing the power limits may employ defenses against abuse at the network layer. **Do not hammer the server with rapid repeated requests**, these will look like a DoS to the server and your network may be blacklisted by the server for the remainder of the competition (you will still be responsible for meeting the power limits but won't be able to access the URL that states what the limits are via HTTP).