SDC 2nd Training

Grid Connection and Data Interconnection

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SDC committee

能源消耗总量

15003 kWh

可再生能源总量

17541 kWh

碳排放总量

16699 kWh

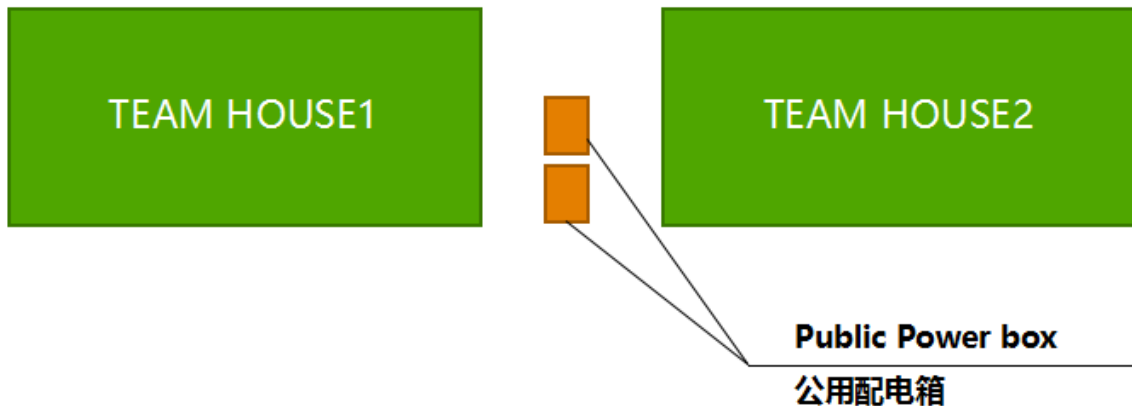# Topic

➢ Grid Connection

➢ Data Interconnection

FAQ

➢ 组委会只提供220/380V 50Hz供电，采用其他频率和电压范围设备的赛队需自行解决。

Organizers will supply with max 24KW, 220/380 V, 50 Hz, 5-wire service.

➢ 两个赛队共用一个户外配电箱（三个断路器、两块电表）

Organizers will supply the panels and it is located in the middle of two team sites.(Three switches and two electric meters)

TEAM HOUSE1

TEAM HOUSE2

Public Power box
公用配电箱

FAQ

➤ 户外配电箱到赛队房屋的电缆由赛队提供，户外配电箱侧的安装由组委会负责。

Teams take charge of the cables between outdoor boxes and team house. SDC takes charge of the installation on outdoor box side.

➤ 每套住宅用电负荷超过12kW时，宜采用三相电源进户，电能表应能按相序计量。（JGJ 242—2011）

If the team's load gets more than 12KW, it must ues 3 phases.

➤ 光伏电源通过并网逆变器并网发电需要满足中国国家电网并网规范及产品要求。

The connection of PV and grid is required to meet China Grid's products standard.

Efficency 转换效率	≥90%
Frequency 输出频率	50±0.5Hz
Output Voltage 输出电压	3P4W，230/400V±3%
THD 谐波分量	≤3%

Fixed Connection Method

FAQ

➤ 储能电池容量不超过10 kWh

Battery capacity of these devices may not exceed 10 kWh.

➤ 必须选择市面上销售的直流负载

Any DC Loads used must be commercially available.

➤ 电动汽车最高时速不低于100 km/hr（知豆ZD2s）

Electric vehicle should be no less than 100 km/hr.

➤ 充电桩输出功率不超过7KW

Charging pile output power should be no more than7KW

➤ 电动汽车必须选择市面上可销售的

Any vehicle used must be commercially available to all teams at the beginning of the contest week

Innovation **DNA**

Date co**N**nection & **A**nalysis

Data Interconnection - Naming

Data naming specification：

SDC2017_house Name _System name_Equipment mame_Data

Eg：SDC2017_House1_IH_"light1"_switch

System Name	System number
Power distribution system	Elec
Photovoltaic system	PV
Solar heat collection system	SC
Heating Ventilating & Air Conditioning	HVAC
Intelligent lighting	IL
Intelligent home	IH
Charging pile	CP
Energy storage	ES

Note: The system Naming can be refered to the table

Data Interconnection - Data Table

- Refer to Attachment I:Date Table
- Do not strictly comply with the attachment in the form of a list of data types.The team upload data can be more or less than the attachment.

系统类型	数据点描述	参数命名	单位	说明
光伏系统	光伏发电发电量（电表内的数据）	GenE	kWh	累计发电总量，每日发电总量
	光伏发电输出功率（直流输出功率）		kW	
	逆变器功率（交流输出功率）		kW	交直流都测可以计算出逆变器效率
	光伏组件发电平面阳光辐射量		W／m2	采集光伏组件平面实时阳光辐射量，测算出光伏组件时时转化效率
	环境光照度（阳光辐射量）（输入量）	OutLI	W／m2	用于评判发电效率
	监控逆变器、功率质量测量仪等设备的状态及设备报警	GenPerc	%	发电功率与额定发电功率比
	气象数据（风速、风向、太阳光照量气象数据）（阳光辐射量，环境温度）			预测光伏发电情况
	光伏发电供给参赛房屋使用的功率		kW	分析光伏发电给平台供电情况，根据光伏发电情况，必要时减少增加
	光伏电池板角度（控制）		rad	控制电池板的角度使阳光辐射量最大
	无功补偿装置投切状态			应该不需要
	每日发电有效利用小时数		h	系统每天的发电量／系统的额定功率
	PR		%	
	参赛房屋与电网的交换功率		kW	分析光伏发电并网情况，根据预测的光伏发电情况，必要时减少或增加
暖通系统	设备电耗（设备功率指示）	ElecC	kW	用电量
	设备水耗	WaterC	Ton	用水量
	设备蒸汽用量（好像没有赛队会采用蒸汽设备）	SteamC	m³	蒸汽耗费量
	设备运行状态	SAT		设备运行状态，开/关
	风机新风/回风温度	FT/RT	℃	
	风机新风/回风湿度	FH/RH	%	
	风机送风温度	ST	℃	
	风机送风湿度	SH	%	
	风机频率（风机转速）	FR	Hz	
	设备负荷		%	表明设备当前负荷与最大负荷的比值
	风机阀门开度	SD	%	

**附件一：SDC赛队
房屋数据采集表.xls**

Data Interconnection Specification - Data Transfer

➤ Integrate systems and data firstly in team's house

➤ Use Jason(JavaScript Object Notation) data interchange format

```
[{
    "meterlocalId":"testtagcode-1",//Local data
    "acquisitionDatetime":2014-12-31T18:30:00,// Data acquisition time stamp
    "value":14.93, //data value
    "channelId": "1"
},{
    "meterlocalId":"testtagcode-1",
    "acquisitionDatetime":2014-12-31T19:30:00,
    "value":18.93,
    "channelId": "1"
},{
    "meterlocalId":"testtagcode-2",
    "acquisitionDatetime":2014-12-31T19:30:00,
    "value":118.93,
    "channelId": "1"
}]
```

附件二：SDC赛队
房屋数据上传规范>

Equipment List

Provide relevant information based on the list in Attachment III:SDC team

house electrical equipment list.

	Equipment List			
System	Discription	Product type	No.	Brand
PV				
HVAC				

附件三：SDC赛队
房屋电气设备列表

Problem feedback

After this training, teams will have many questions.you can provide the "Questions list".

We will arrange the problems and answer for the teams later.

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Reply information

➢ Data table which can be collected in your house.

➢ Electric equipment list.

➢ Questions List (Optional)

Note: pls feedkback before 1st of March, 2017

Thanks