PVsyst软件仿真原理和快速入门

讲师：蒋华庆

坎德拉学院

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- ✓ PVsyst软件的框架和仿真原理
- ✓ PVsyst软件全局参数设置
- ✓ 如何在PVsyst中建立一个工程
- ✓ 怎么分析PVsyst的计算结果

PVsyst软件的框架和仿真原理

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- ✓ PVsyst软件由瑞士Geneva大学环境科学学院André Mermoud开发的。
- ✓ 2007年1月推出PVsyst4.1版本，之后陆续更新。
- ✓ 目前最新已至6.3.9版本。
- ✓ 本次课程采用6.1.2版本。

- ✓ 国内也陆续在普及；
- ✓ 国外应用广泛。

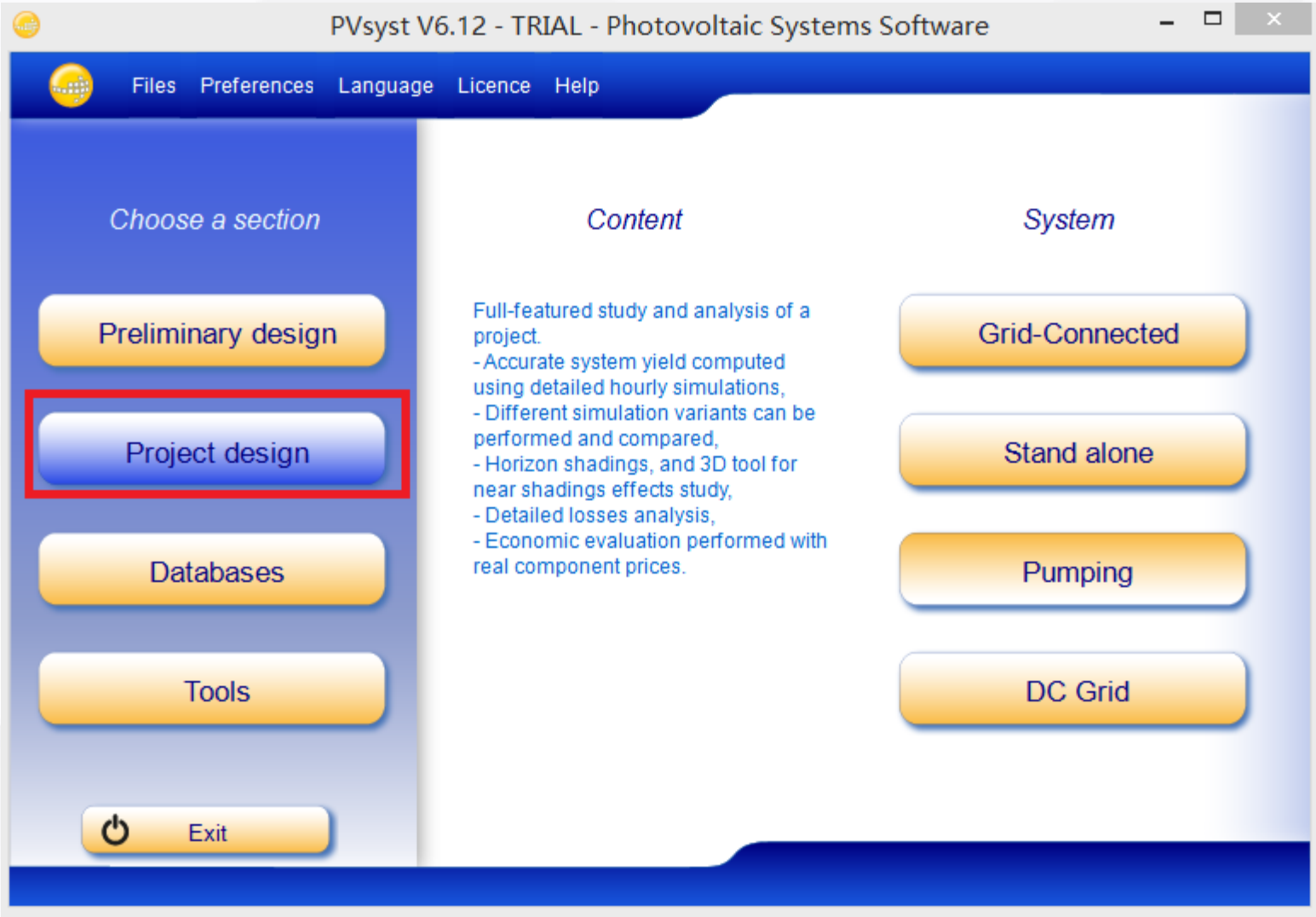
16_GTC-673_Chapter (2)_Appendix A-10_Technical Data Sheet_v4.pdf - Adobe Acrobat Pro

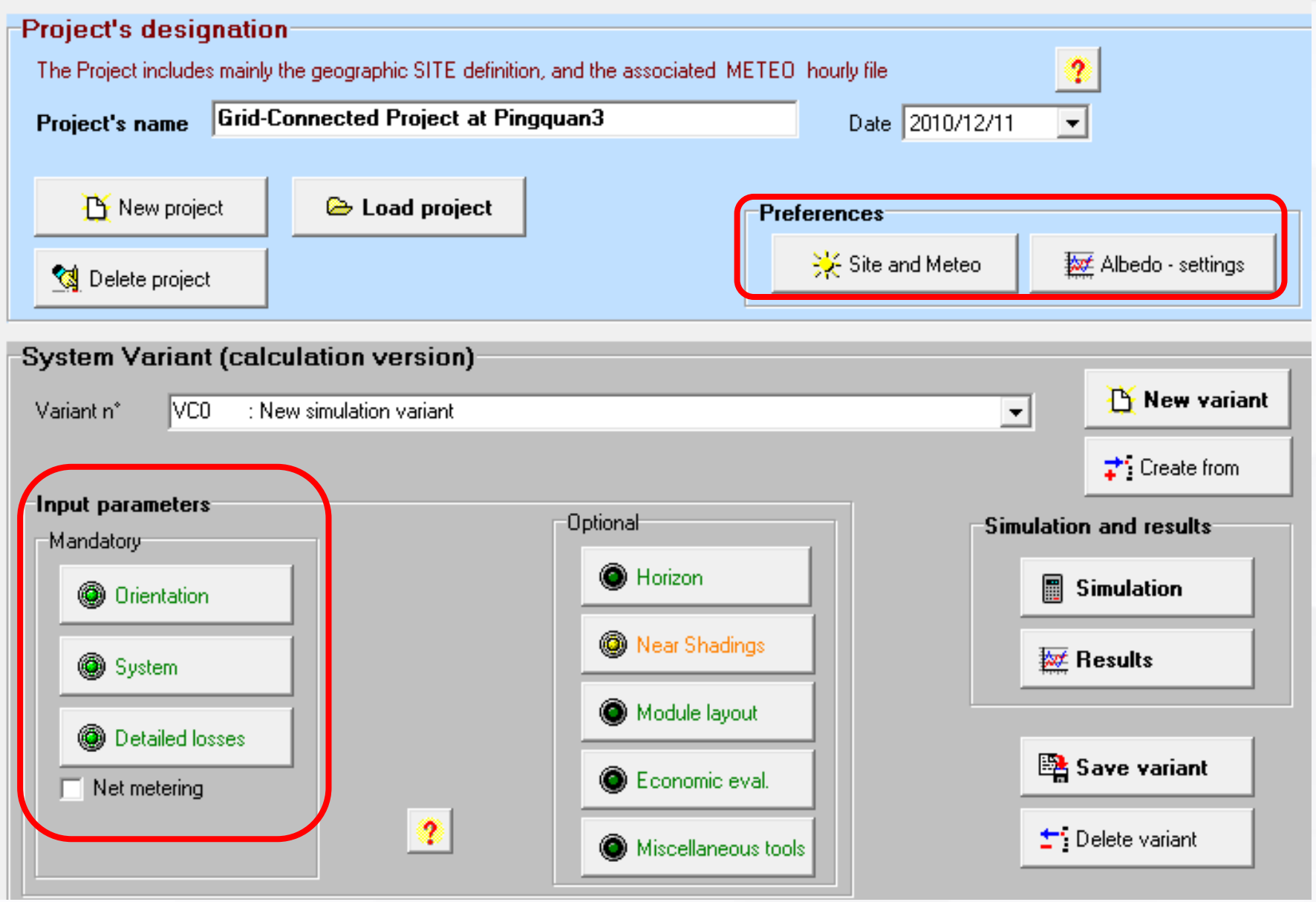
Transformer [%]		
Others (if any)		
Unavailability [%]	0% (fixed)	0% (fixed)

The Contractor shall provide the PV Syst reports for each building, as well as its calculation formula and explanation to determine the production of the whole plant.

PVsyst主要用途？

- ✓ PVsyst软件主要用来对光伏发电系统进行建模仿真，分析影响发电量的各种因素，并最终计算得出光伏发电系统的发电量。


PVsyst V6.12 - TRIAL - Photovoltaic Systems Software
Files
Preferences
Language
Licence
Help
Choose a section
Preliminary design
Project design
Databases
Tools
Exit
Content
Full-featured study and analysis of a project.
- Accurate system yield computed using detailed hourly simulations,
- Different simulation variants can be performed and compared,
- Horizon shadings, and 3D tool for near shadings effects study,
- Detailed losses analysis,
- Economic evaluation performed with real component prices.
System
Grid-Connected
Stand alone
Pumping
DC Grid


Project's designation
The Project includes mainly the geographic SITE definition, and the associated METEO hourly file
Project's name
Grid-Connected Project at Pingquan3
Date
2010/12/11
New project
Load project
Delete project
Preferences
Site and Meteo
Albedo - settings
System Variant (calculation version)
Variant n°
VC0 : New simulation variant
New variant
Create from
Input parameters
Mandatory
Orientation
System
Detailed losses
Net metering
Optional
Horizon
Near Shadings
Module layout
Economic eval.
Miscellaneous tools
Simulation and results
Simulation
Results
Save variant
Delete variant

Project design仿真原理？

- ✓ 要计算全年、每月的发电量，只需要分别仿真计算出全年的8760个小时的发电量。

Project design仿真原理?

2014年1月23日　11:30-12:30的某光伏发电量（kWh）

↓

2014年1月23日　12:00的某光伏的出力（kW）

Site and Meteo | Albedo - settings

- ✓ 直接辐照度(kW/m²)
- ✓ 散射辐照度(kW/m²)
- ✓ 地面反射系数
- ✓ 太阳高度角
- ✓ 太阳方位角

光伏方阵安装方式

Orientation

- ✓ 光伏组件表面接收到的太阳总辐照度（kW/m²）
- ✓ 光线在组件表面的入射角
- ✓ 散射辐照度(kW/m²)

- ✓ 光伏组件的模型
- ✓ 光伏组件串并联模型
- ✓ 组件的散热条件

- ✓ 环境温度
- ✓ 上个时刻电池PN结的温度
- ✓ 风速

Site and Meteo

- ✓ 光伏方阵输出的电功率、电压、电流

- ✓ 直流汇集电缆

- ✓ 逆变器直流侧输入功率

- ✓ 逆变器模型

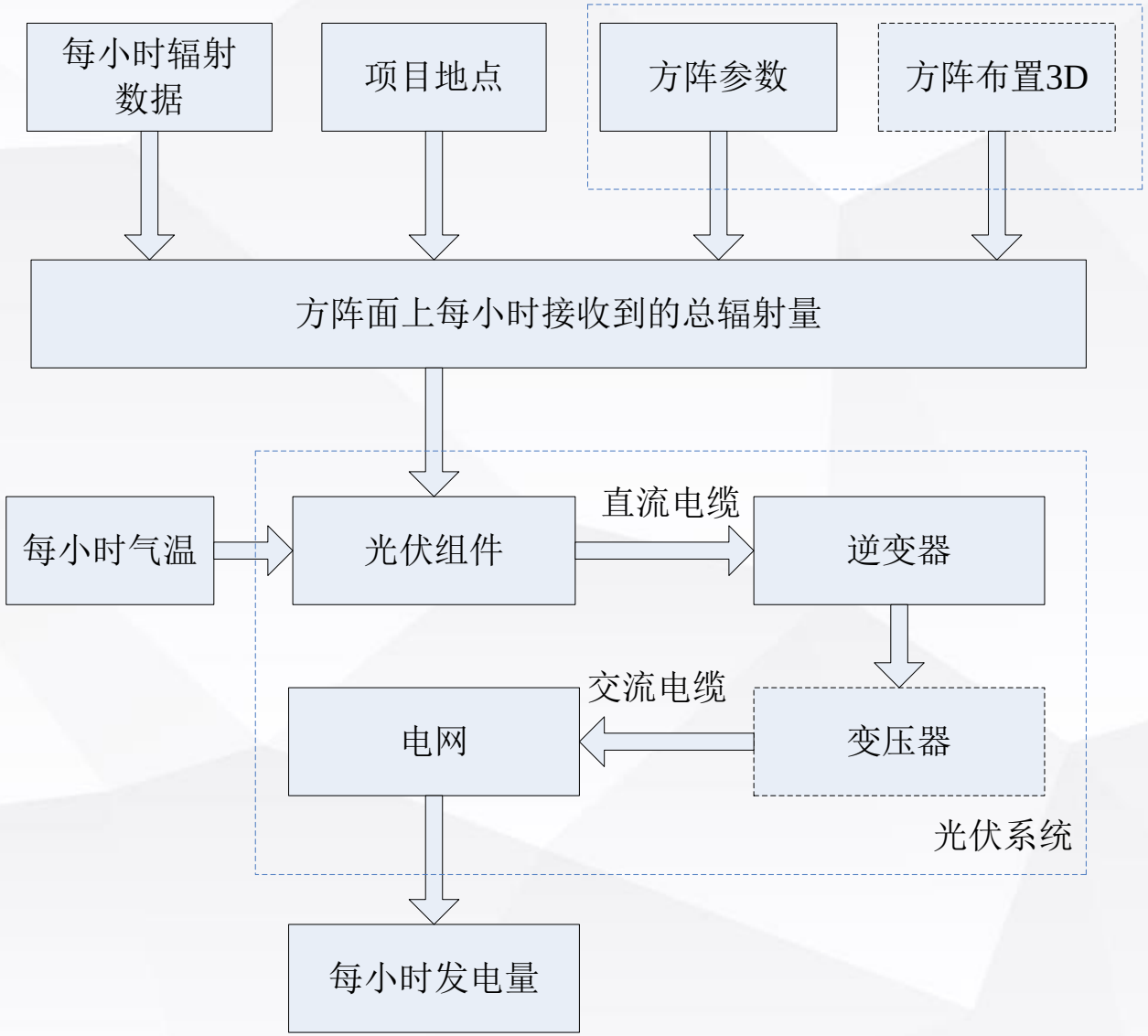
System

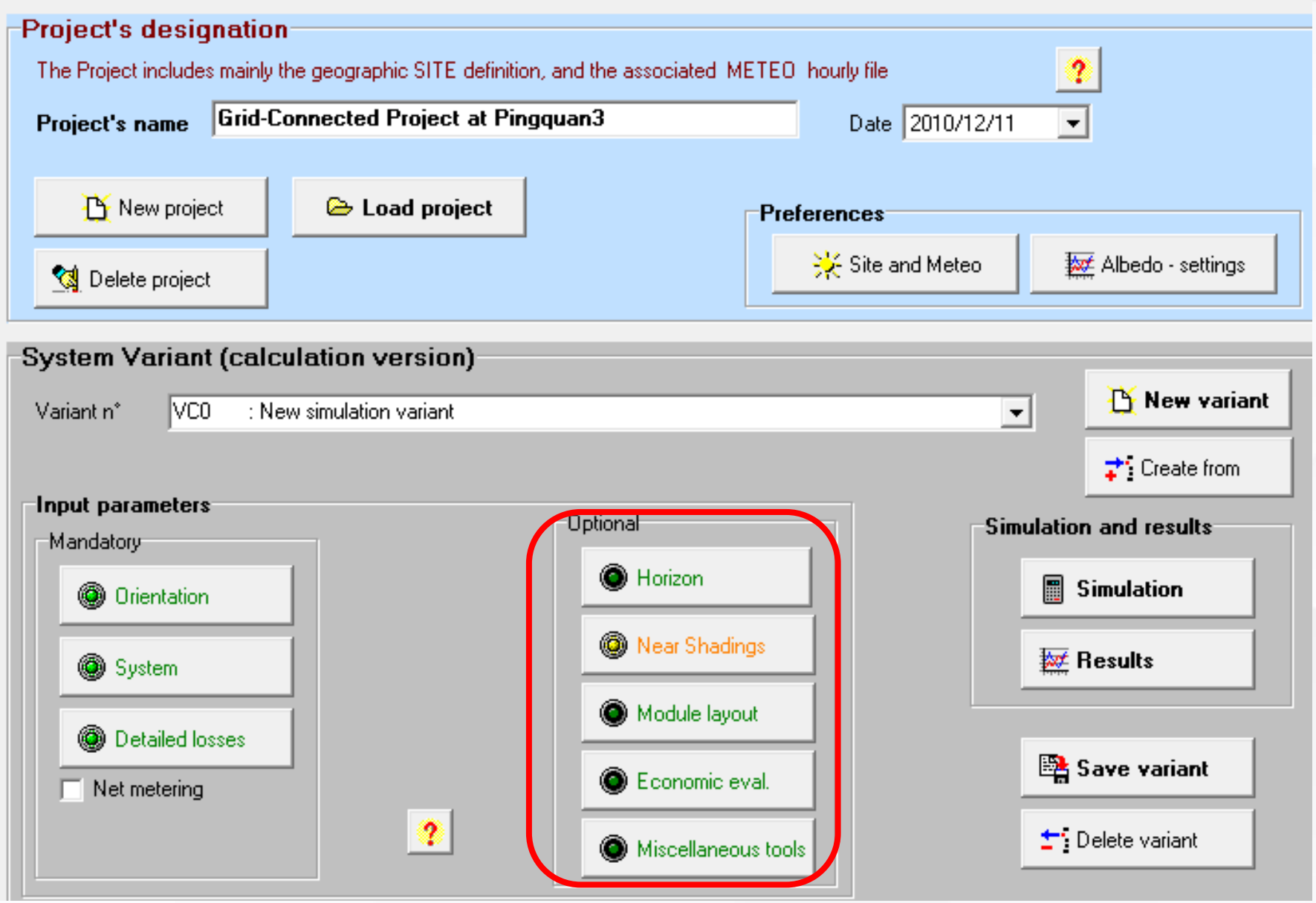
Detailed losses

- ✓ 逆变器交流侧输出

- ✓ 交流电缆、线路
- ✓ 变压器模型

- ✓ 并网点交流输出功率、电流


每小时辐射数据
项目地点
方阵参数
方阵布置3D
方阵面上每小时接收到的总辐射量
每小时气温
光伏组件
直流电缆
逆变器
交流电缆
电网
变压器
光伏系统
每小时发电量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Databases
Tools
Exit
Content
Pre-sizing step of a project, after few clics, without real components.
- First evaluation of the system's and component's sizes,
- System yield quick evaluations performed using monthly values,
Please do not use these gross estimations for a presentation to your customer !
System
Grid-Connected
Stand alone
Pumping
DC Grid

本PPT为蒋华庆老师《PVsyst仿真原理及快速入门》系列课程讲义资料.请百度搜索”坎德拉学院”，观看本节课程视频.

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