User Guide

**Sample Only**

This document was submitted by students in a previous class. Their requirements were different from yours. We offer it only as a sample of what a project was for that class. Copying this document, in whole or in part, and submitting the result as your own work, would be a violation of the honor code.

Revision 4

Solar

1 Location and meaning of input parameters and input streams

**Demand Analysis Worksheet:**

Interest Rate **(B4)** – the interest rate for financing a each solar system purchase (X.XX)

System Cost **(B5) –** price the company pays for each solar system in ($)

System Life **(B6)** – life expectancy of the system (years)

Household Energy Use **(B7)** –average annual household energy use (kWhr)

Initial Grid Sell Price **(B8)** – T(0) price for selling surplus energy to grid ($/kWhr)

System Price **(B10)** – price the company sells each solar system for ($)

UpRange(1-5) **(E6:E10)** – upper range of a opportunity cost range for a particular percent demand ($)

LowRange(1-5) **(G6:G10) –** lower range of a opportunity cost range for a particular percent demand ($)

PerDem(1-5) **(I6:I10)** – percent of total possible demand expected within a specific opportunity cost range (X.XX)

Grid Electricity Buy Price **(B15:M15)** – the twelve year projection of grid electricity price ($)

Solar System Output **(B16:M1)** – 12 year projection of the output a $20K dollar solar system will purchase.

Solar Corp Market Share **(B17:M17)** – 12 year projection of the Sun Corp (%)

**Pay Roll Analysis Worksheet**

President **(B2)** – total cost of each president for one year ($)

Marketer **(B3)** – total cost of each marketer for one year ($)

Purchasing Dept **(B4)** – total cost of each purchasing department for one year ($)

Sales Rep **(B5)** – total cost of each sales representative for one year ($)

Technicians **(B6)** – total cost of each installation technician for one year ($)

Lawyer **(B7)** – total cost of fixed contract legal council for one year ($)

Administrative Assistant **(B8)** – total cost of each admin asst. for one year ($)

Calls Per Day **(B9)** – number of sales calls each rep is capable of in a given day ($)

Work Days **(B10)** – number of work days in a year (days)

InstallationsPerDayPerPair **(B11)** – installs each team can do in a day (units/day)

**Operations Analysis Worksheet**

Personal Office Equipment **(B3)** – cost of office equipment package for each office person (desk phone, computer, desk, chair, other) ($/person)

Shared Office Equipment **(B4)** – cost of general office equipment package (copier, fax, water tank, printer, phones, other) ($/hire)

Office Supplies **(B5)** – consumable office supplies per person ($/Year)

Utilities **(B6)** – cost of utilities for office and warehouse facilities ($/Year)

Rent **(B7)** – Rent paid for office and warehouse facilities ($/Year)

Fuel Price Per Install **(B11)** – cost of fuel consumed by vehicles going from and to installation site ($/year)

Insurance Rate **(B12)** – cost of insurance for equipment ($/year)

Marketing/Sales Cost Ratio **(B13)** – the percent of revenues invested in sales and marketing campaigns ($/year)

Depreciation Rate **(B14)** – rate at which qualified office equipment depreciates (%/year)

Technicians Per Install **(B15)** – number of technicians on an installation team

Technicians Equipment **(B17)** – one time cost for setting up technicians with installation equipment and training ($)

**Inventory Analysis Worksheet**

Order Cost **(B2)** – estimated cost for placing each order ($/order)

Carry Cost **(B2)** – estimated cost for holding on to inventory ($/year)

2. Location and meaning of outputs

The outputs for the Sun Corp model are all part of the Income Statement Module on the Income Statement Analysis Worksheet. Output Stream 1 is the Revenue projections for Sun Corp over a 12 year period based on the assumptions and inputs of the previous four sheets. Sun Corps revenues are a vital metric for the company’s viability and within the context of other metrics (such as Net Income) plays an important role in developing a strategic plan for managers. Output Stream 2, Net Income, deducts all the costs of the business from the Revenues to reveal the profitability of the company. The two output steams were chosen because while each is useful together, they are most powerful when compared side-by-side. For example, it is possible for revenues to increase (typically a good thing), but net income decrease. In this ways, the model lets user back out scenarios to either avoid or incorporate as part of a strategic plan.

**Model Outputs:**

Revenues **(B4:M4)** – the total number of units sold multiplied times the price of each unit.

Net Income **(B15:M15) –** the profit generated by the company each year. This is calculated by subtracting all the expenses incurred to generate revenues each year.
3. Guide to visual cues

This model provides visual cues to guide the user while manipulating the model.

Specifically, model identifies the parameter area, input streams, input parameters, intermediate streams and output streams on each worksheet. Only the yellow cells within the designated input areas are designed to be modified by the user. These areas can be easily found by locating the grey area at the top of each worksheet labeled “\_ Input”. The highlighted green value streams located on the first four sheets identify important intermediate value streams. These intermediate values are what “link” the worksheet together from inputs to outputs. The final page has no inputs (yellow) or intermediate (green) values, but rather orange values. These values are the output, final product, of the model.

4. Step-by-step use of the model

***Projecting Demand (Demand Analysis Worksheet)***

Before starting, locate the graphs at the bottom of the Demand Analysis Worksheet. These graphs are designed to aid the users input decisions. Keep an eye on these graphs as you enter data.
Step1 – Projecting Demand: fill in the input parameters for “other parameters”, if an explanation is needed for an input refer to the definitions in the first part of this guide.

Step2 – Set the “Opportunity Cost to Demand” parameters. This is where the graph becomes extremely useful. The range parameters of this section create a step-wise function regardless, by the length and height of each step is controlled by these parameters. This is easier to do if you can see the relative values, which the graph on the lower right helps you do.

Step3 – Enter your twelve year projects for the price of grid electricity, solar system output and the company’s market share. These values can be ascending, descending, oscillating, and even random.

Step4 – Check the cells in the Energy Opportunity Cost Module and Solar Demand Module to make sure there are no errors in any of the cells

Step5 – Inspect the cells volume and charts for rationality

***Calculating Personnel Costs (Payroll Analysis Worksheet)***

Step6 – Enter the total annual cost per year for each personnel category. This is not the salary, but the total cost including benefits, etc.

Step7 – Enter the number of calls each sales person can do, the number of workdays scheduled and the number installations each installation team (2 technicians) can perform in a day.

Step8 – Review the information generated by the Staff required Module and Staff Hired Module. Check for errors in cells and also check to see if the data makes sense. A Sales Volume Reference is provided at the top of the Staff Required Module (B18:M18).

**Calculating Operating Expenses (Operations Analysis Worksheet)**

Step9 – Fill in the input parameters in the input section of the worksheet. There are a total of 20 parameter that must be entered.

Step 10 – Inspect the Operations Equipment Module for cell errors and values that seem irrational.

Step 11 – Inspect the Other Operations Expense Module for cell error and values that seem irrational.

**Calculating the Cost of Goods Sold (Inventory Cost Analysis Worksheet)**

Step 12 – Enter the Order Cost and Carry Cost

Step 13 – Check the Inventory Cost Modules for errors or irrational values

***Analyzing Sun Corp Income (Income Analysis Worksheet)***

Step 14 – Inspect the income statement module for errors and irrational values

Step 15 – Locate Output Stream 1, Revenues

Step 16 – Locate Output Stream 2 Net Income

As mentioned briefly previously, the final product of this model is the output streams from step 15 and 16 that are used to determine the health of Sun Corp. There are many relevant ways to compare revenues within the model to reveal extended information about the company without changing the model itself. For example both the revenue and profit streams can be compared to each of the intermediate value streams to simultaneously in hopes of revealing a particular area to innovate in order increase profitability. Furthermore, Output stream1 and 2 should be analyzed against the assumption in the Demand Analysis, in particular the assumptions about the opportunity cost ranges.

The model was designed to lend itself naturally to the iterative cycles of optimization and the user should be aware of the fact that the model should measured against actual performance and adjusted over time. For any adjustments that cannot be made directly from the input space, the attached reference guides provides the user with a basic introduction the working of the model. The reference model can help guide the modifier through the inner workings of the model should the need arise.

Solar recommends the user to rerun the two scenarios with different system output performance than the assumed one in the current model. This would allow the company to project market demand with a different systems output performance that the one assumed in this particular model.