

# JMP® Saves Trees and Reduces Carbon Footprint

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## A Short Story on How We Saved Trees Using JMP

Prior to JMP, First Solar used a much slower product for data analysis. The Process engineers would have to come in 2 hours early in order to run the many macros and print out the 100's of graphs and charts for the daily process improvement meetings.

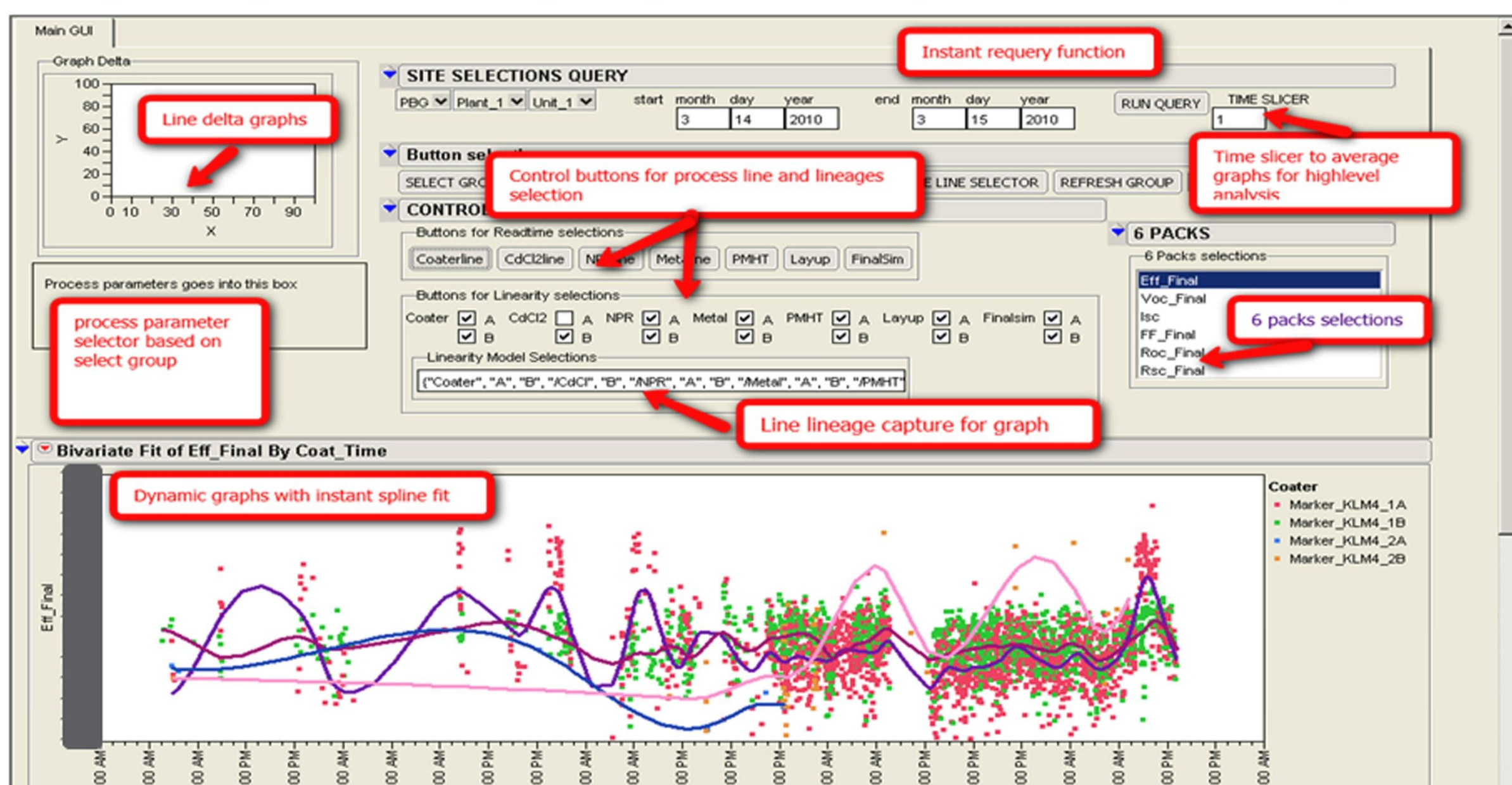
With JMP, we are able to run a series of scripts live during the meetings saving time and 2.1 MILLION pages of paper every year. (At today's volume.)

We also found that the process engineers would leave the meetings with more meaningful actions as a result of achieving deeper insight in a shorter period of time. This has resulted in reduced improvement cycles which means we ship more efficient modules, further reducing carbon footprinting.

It's a win-win-win situation.

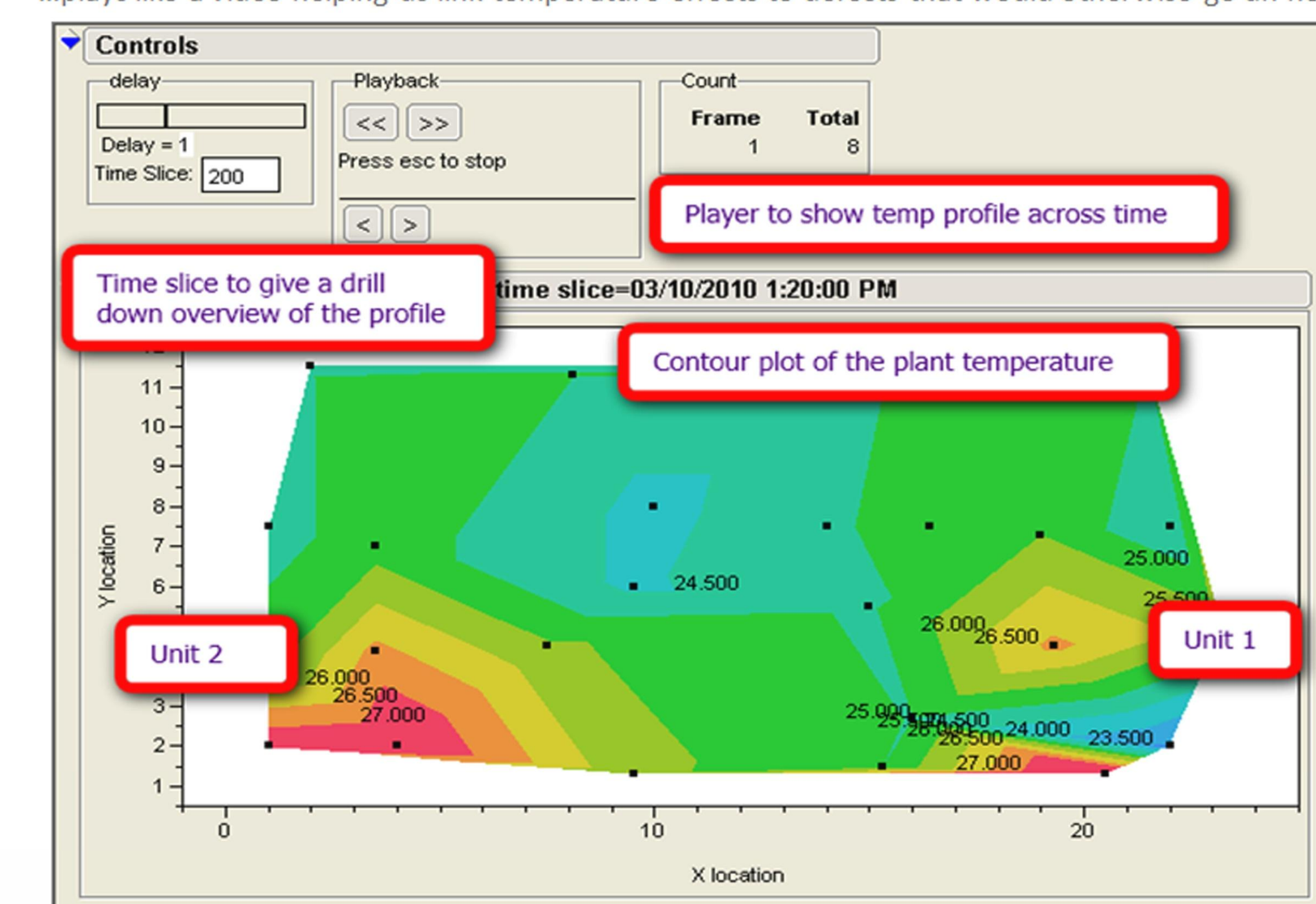
### MPG – Millions of Powerful Graphs

...are produced by this near real time exploratory dashboard that helps us understand the sources of process variation.

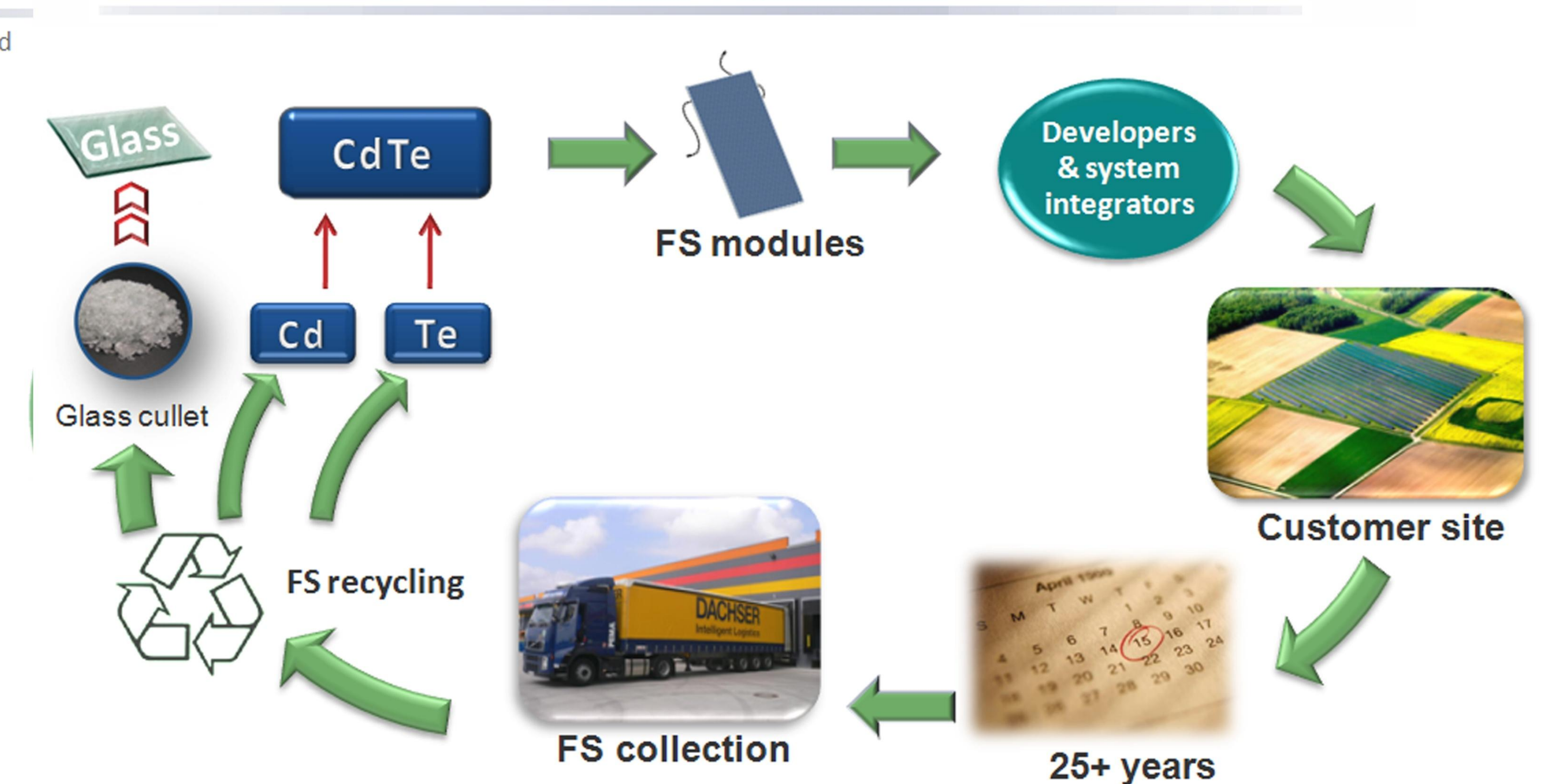


### Contour Plot of Plant Temperature

...plays like a video helping us link temperature effects to defects that would otherwise go unnoticed



### Environmental Responsibility



### Tree Related Carbon Removed After 10 Years

Pages Saved Per Year = 2.168 Million  
 Pages Per Tree = 80,500  
 Trees Saved Per Year = 27  
 Carbon Removed Per Year by One tree = 50 lbs.  
 Carbon Removed Per Year Using JMP = 1350 lbs.  
 Total Carbon After 10 Years Compounded = 74K lbs.



### Boulder City, Nevada, USA

#### Project Profile



System Size: 10MW (58MW at Completion)  
 Commissioned: November, 2008  
 Developer: First Solar, Inc.  
 Module Type: FS-270, 272, 275

By co-locating next to an existing power plant with an electric infrastructure already in place, First Solar eliminated the need for siting, permitting, new power lines, or substations. First Solar is developing an additional 48MW (AC) power plant on this site.

### Outside Developers



Margreid, Italy  
 697kW  
 juwi Solar GmbH



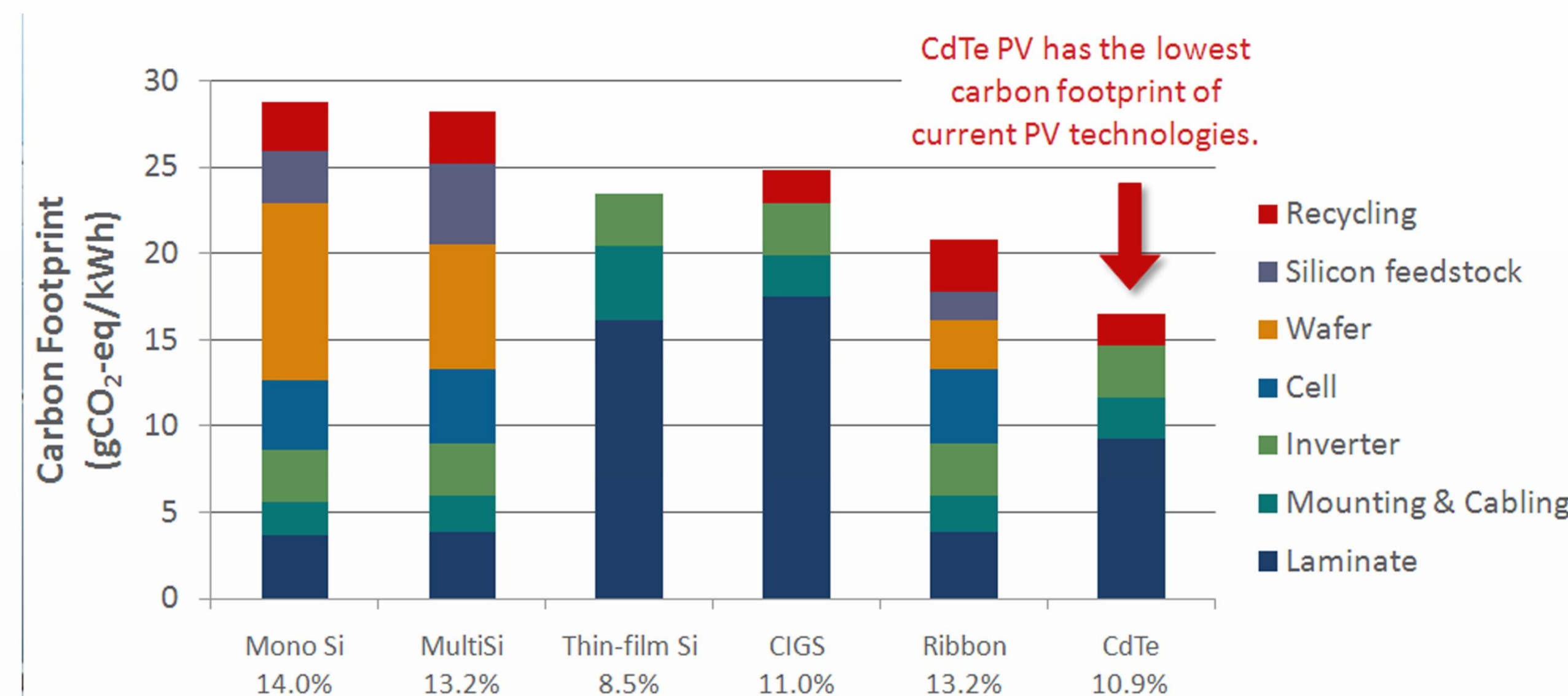
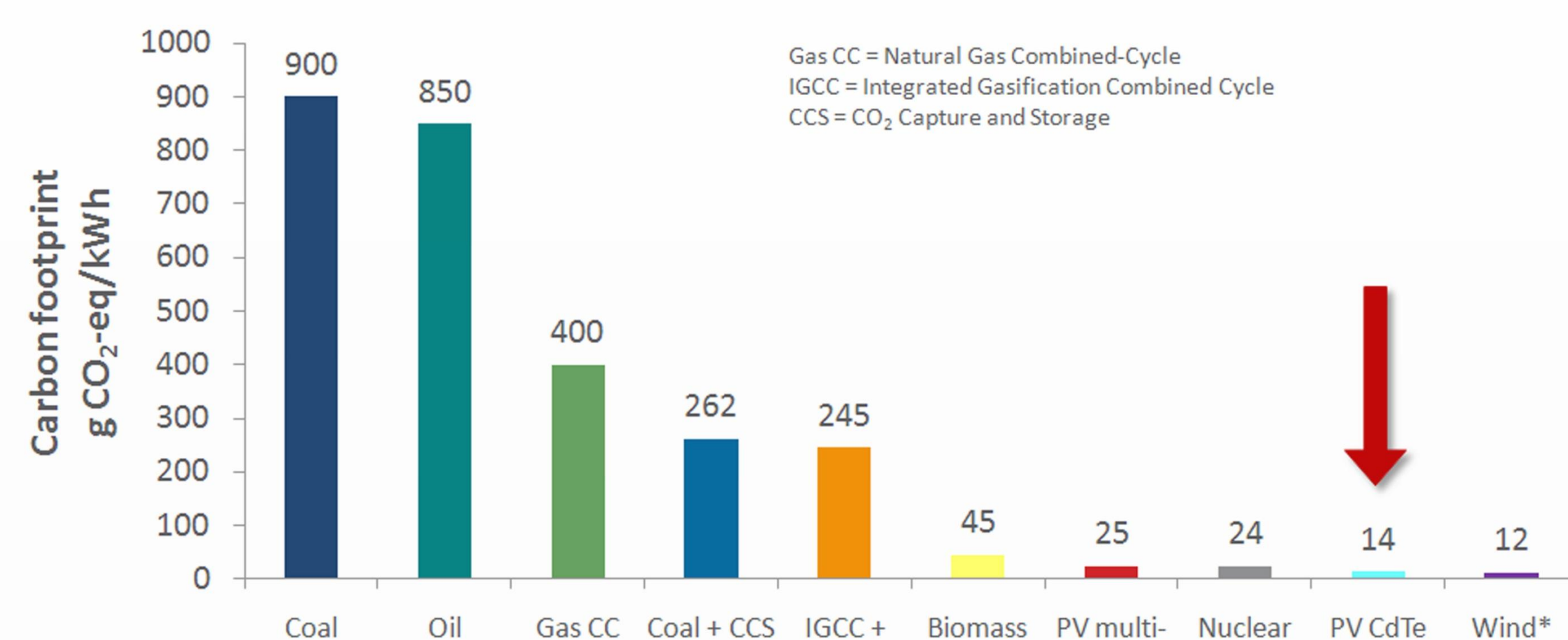
Narbonne, France  
 7MW  
 EDF Energies Nouvelles



Bullas, Spain  
 5MW  
 Gehrlicher Solar AG

EPBT: The amount of time a system must operate to recover the energy that was required to fabricate the system.

$$- EPBT = E \text{ input} / (E \text{ output} / \text{year}) < 1 \text{ year for FS}$$



By accelerating our efficiency improvements, we reduce carbon footprint even further.

**Our Mission :** To create enduring value by enabling a world powered by clean, affordable solar electricity.

**How we accomplish our mission :** First Solar deploys a unique combination of Theory of Constraints philosophy with JMP analytics to form a highly effective improvement process.