ASIA CLEAN ENERGY FORUM 2018
HARNESSING INNOVATION TO POWER THE FUTURE
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INCREASING ENERGY ACCESS

Innovative Solutions for Clean Cooking and Heating

"It's simply good value for money"

SGF
sustainable green fuel enterprise

Carlo Figà Talamanca
CEO

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SGFE

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SGFE produces **char-briquettes from recycled biomass waste**.

We don’t try to sell what we can produce… <u>we try to produce what we can sell!</u>

THE 3 “LAWS” OF CHAR-BRIQUETTES

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1. **Quality:** the char-briquette must be **comparable or of better quality than traditional charcoal**
2. **Production process:** the design, set-up and operation of a production process should ensure **consistent quality of the final product** and enable **production at competitive costs**
3. **Distribution and sales:** the setup of an **efficient and reliable distribution system** is a critical component for sales

1. QUALITY

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Chemical and physical properties depend from:

- raw materials
- charring technology
- binder
- mixing process
- particle size
- compression technology
- drying process
- etc.

EXAMPLE: quality related to raw materials and charring technologies

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No.	Sample	MC [%]	VM [%]	AC [%]	FC [%]
1	SGFE charcoal **(Coconut shell)**	1.96	6.52	2.40	91.08
2	Gasifier charcoal **(wood)**	13.91	6.80	5.97	87.23
3	Coconut shell charcoal	5.31	22.44	2.30	75.26
4	Traditional charcoal **(wood)**	5.77	31.37	4.29	64.34

MC: Moisture Content

VM: Volatile Matter

AC: Ash Content

FC: Fixed Carbon

EXAMPLE: SGFE's char-briquettes compared to other "commercial" char-briquettes

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5.1 Fuel test results

Table 1: Physical properties and heating value / calorific value of the fuels

Fuel Id	%Moisture content	%Volatile matter	% Analytical ash	%Fixed carbon	Heating Value (KJ/KJ)
[redacted]	8.6	19.6	32.8	39.0	19423
[redacted]	7.6	20.8	31.8	39.8	19479
[redacted]	7.3	20.9	22.4	48.7	18709
[redacted]	7.7	19.8	23.4	49.1	25105
[redacted]	7.0	18.2	34.4	40.4	20714
[redacted]	7.8	21.0	25.1	46.1	24007
[redacted]	8.5	21.7	19.4	50.3	23980
SGFE	11.5	12.5	3.2	74.1	28757
Traditional charcoal	7.8	20.7	5.7	65.7	29405
[redacted]	8.0	20.9	22.4	48.7	19845

2. SGFE’s FACTORY AND PRODUCTION PROCESS

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TX 3D Layout3D_v3.spp - Tecnomatix Plant Simulation 14 - [.Models.Frame1] SIEMENS

File Home Debugger Window Edit View Video Find a Command

Left Right Front Back Attach Detach Add Animate External Graphic Groups Point Clouds Hide Object Unhide Objects

TX 3D Layout3D_v3.spp - Tecnomatix Plant Simulation 14 - [.Models.Frame1] SIEMENS

File Home Debugger Window Edit View Video Find a Command

Open | Event Controller | MUs Icons | Animation | Open Location Open Origin Open Class Open 2D/3D | Navigate | Paste Cut Copy Delete Select All Rename Delete MUs | Edit | Icons Display Panel | 3D Properties Controls Observers User-defined Attributes Methods Statistics Report Structure Inheritance | Objects | Context Help | Manage Class Library | Model

SIMULATION VIDEO (45 sec.)

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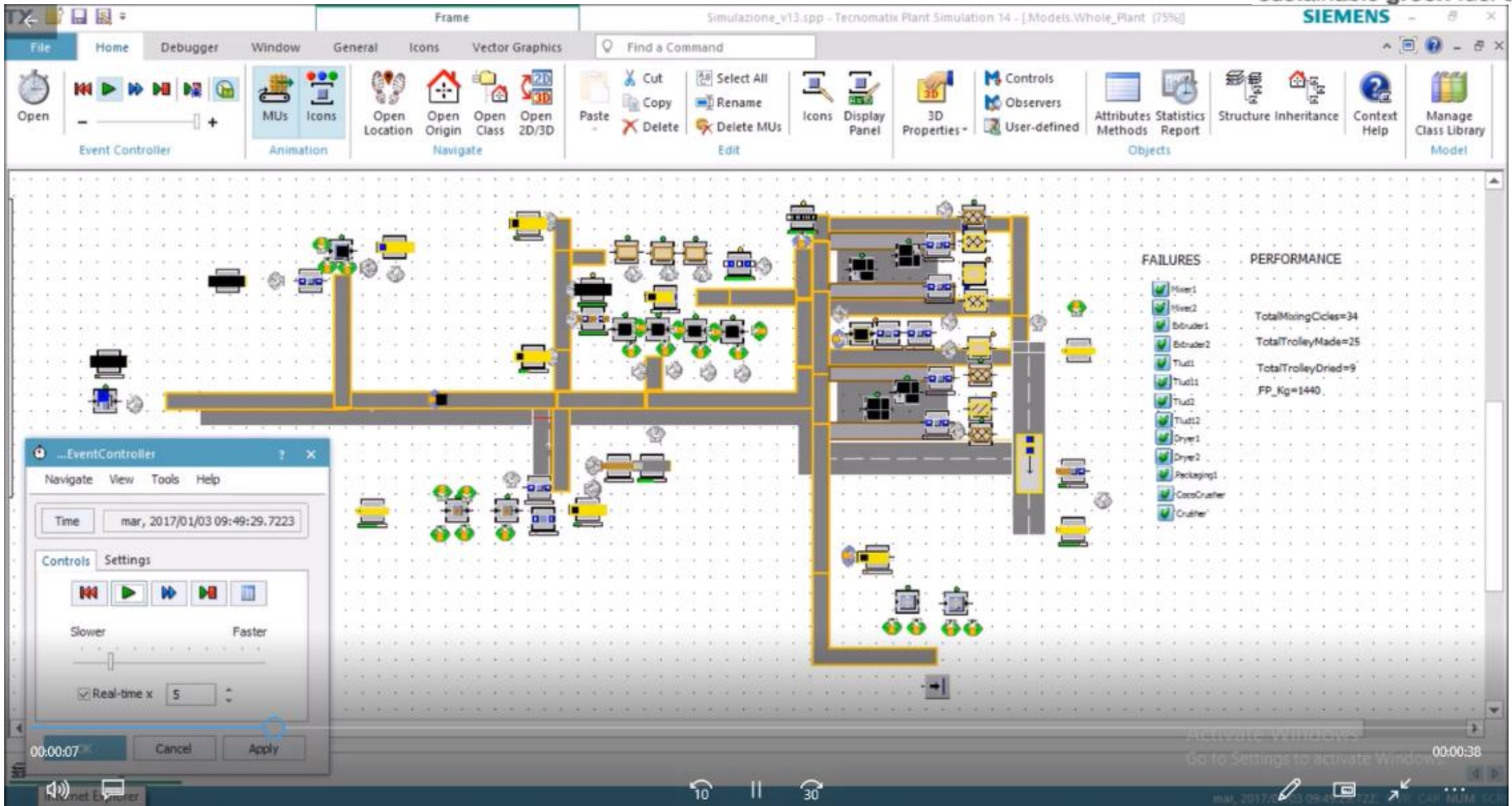
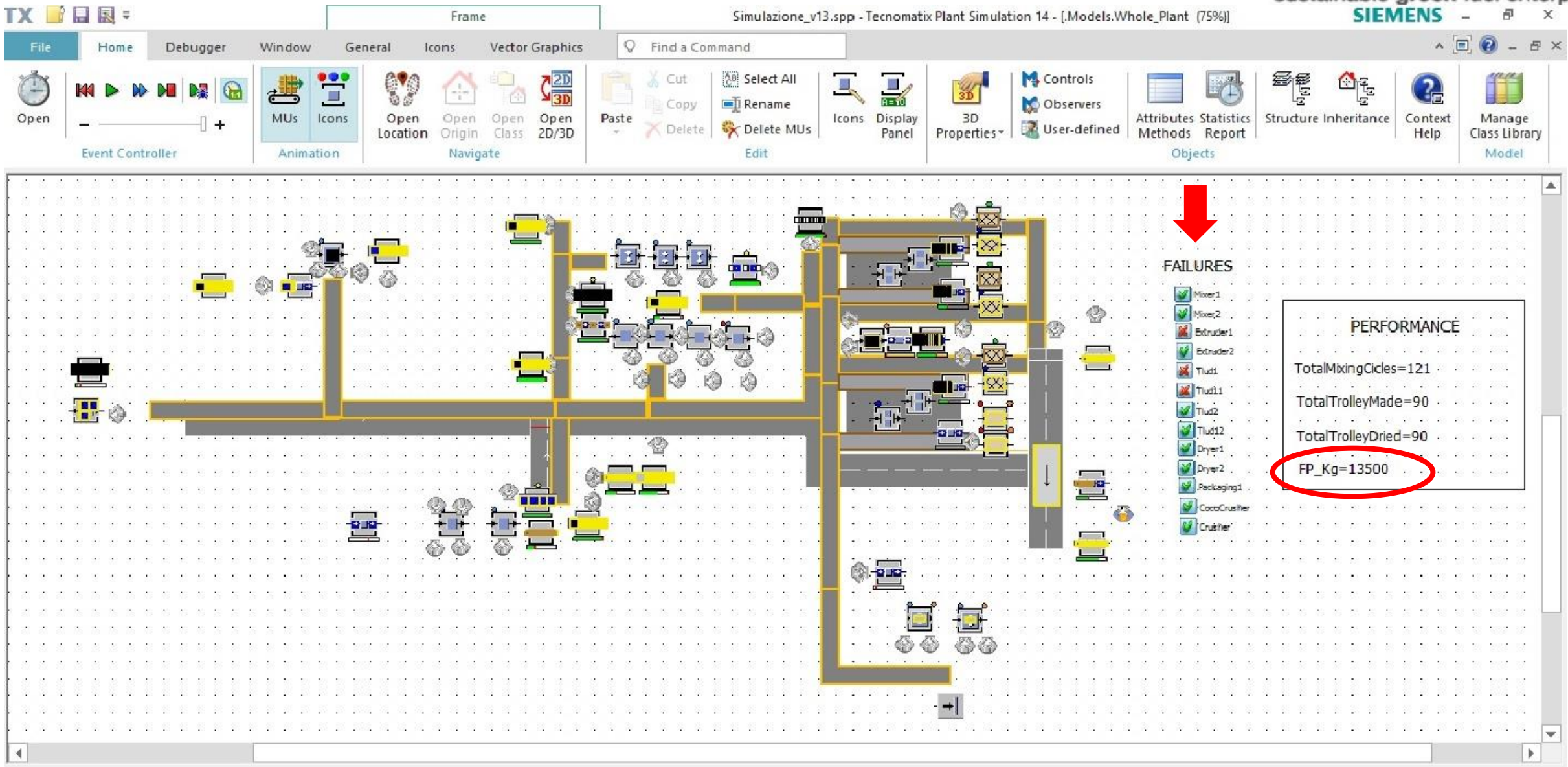


EXAMPLE: simulation of production with broken machines



EXAMPLE: simulation of workload of machines and of production workers

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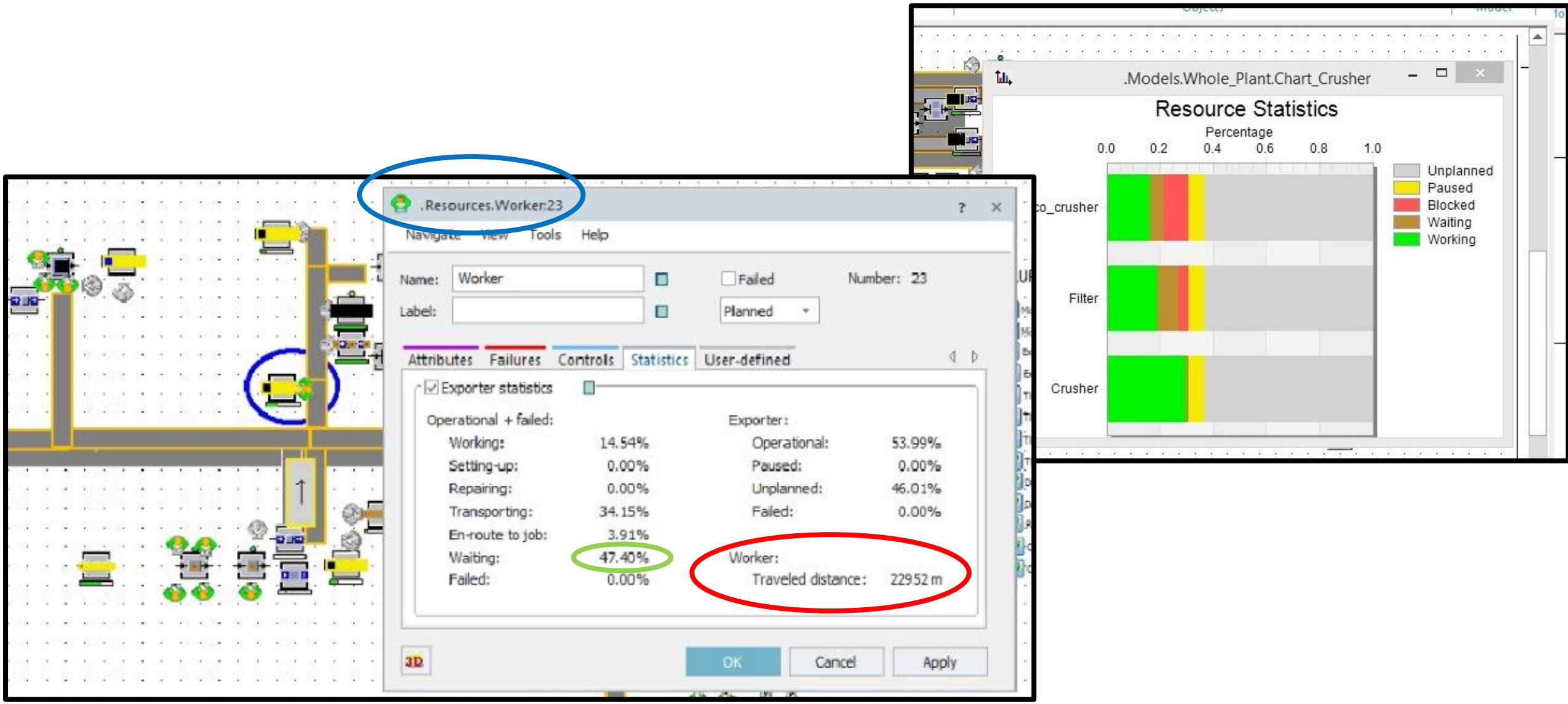

3. SGFE’s SALES AND DISTRIBUTION

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SOME OF OUR DIRECT END-USERS

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MOST OF OUR DIRECT END-USERS

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SOME OF OUR RETAILERS

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MOST OF OUR RETAILERS

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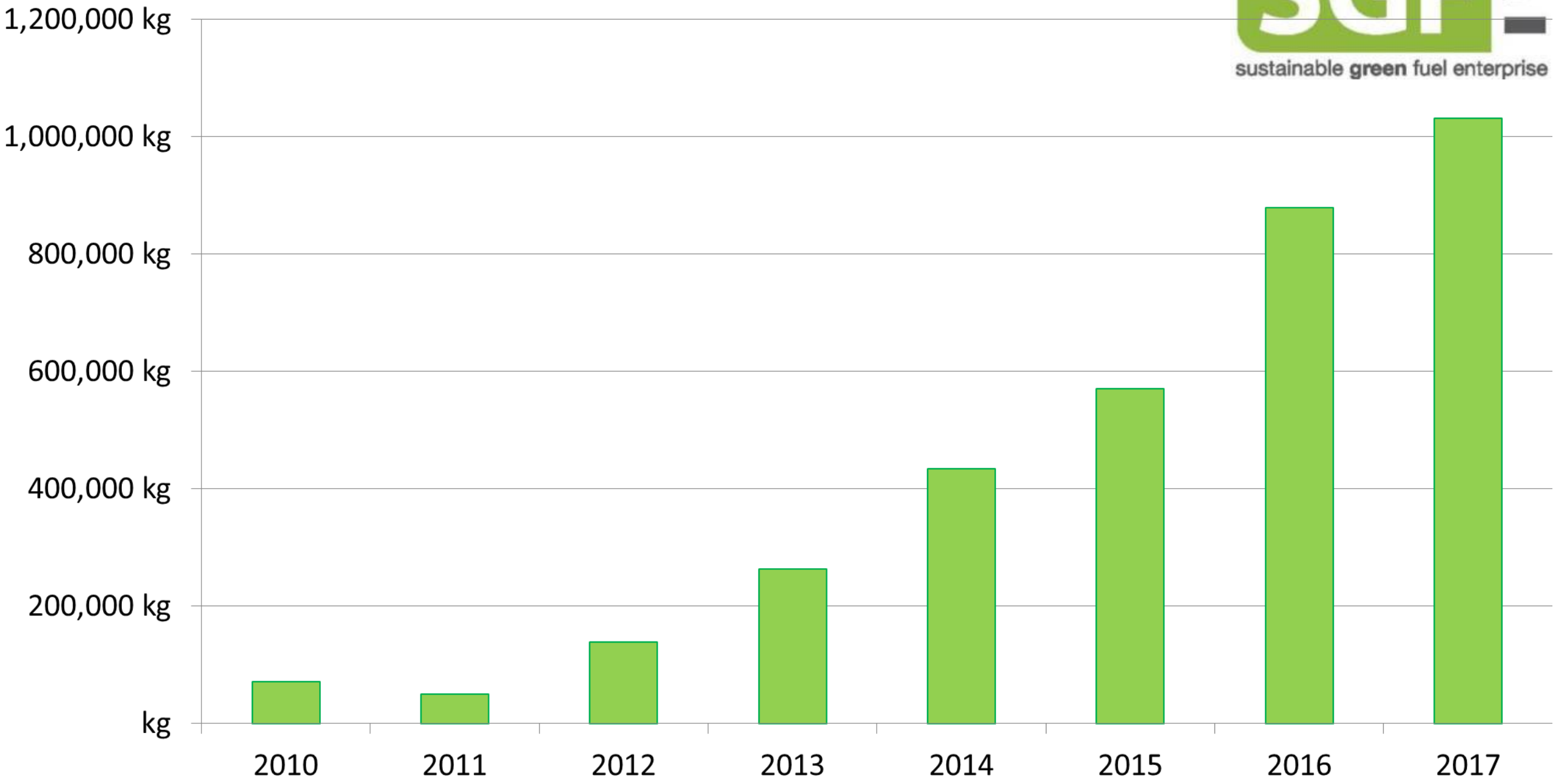
SGFE's SALES: 2010-2017



Thank you for your attention!

Carlo Figà Talamanca – CEO
M: +855 (0)97 8159256
E: carlo@sgfe-cambodia.com

SGFE office & factory:
Phlove Lom, Phoum Russey, Sangkat Stueng Meanchey, Khan Meanchey, Phnom Penh, CAMBODIA
T: +855 (0)23 5121888
W: www.sgfe-cambodia.com

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