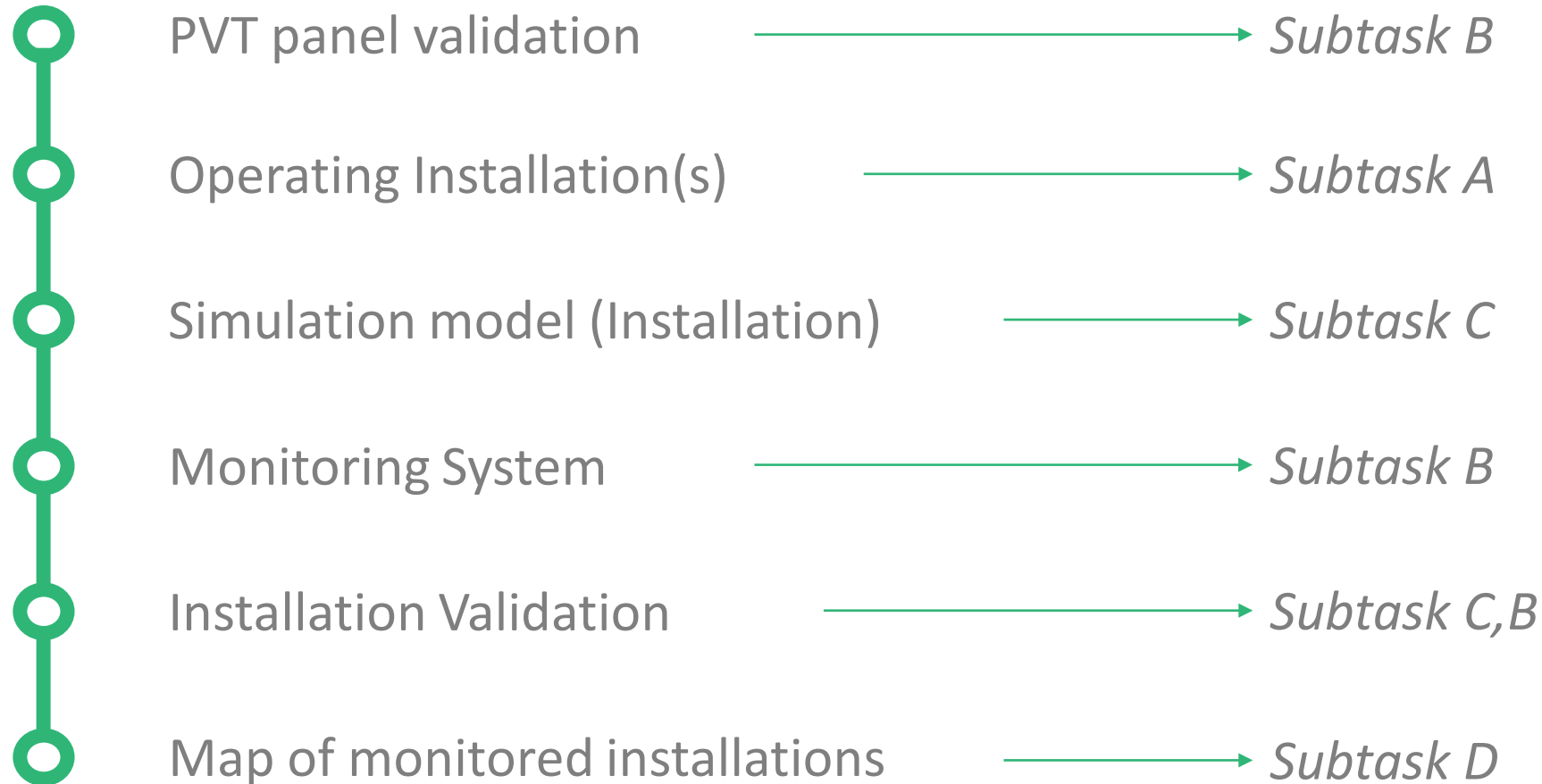


ABORA CONTRIBUTION TO TASK 60 4th meeting Oct.19

ABORA METHODOLOGY – TASK60



PANEL VALIDATION (Subtask B)



CENTRO TECNOLÓGICO DA CERÂMICA E DO VIDRO
Estrada: Parque Tecnológico do Góp-Ita, Lote 647
3400-000 Oeiras (Lisboa) Portugal
Tua Central Aluga: 212 20 30 30 30
www.ctcv.pt



Data/Date: 02-05-2019
Página/Page: 1

RELATÓRIO DE ENSAIO

TEST REPORT
N.º 05/2019

COLETORES SOLARES TÉRMICOS

Solar Thermal Collectors

EN ISO 9806:2017 / EN 12975-1:2006 + A1:2010

Pedido por / Requested by: KIWA Cermet Italia S.p.A
em / on: 07-01-2019

Coeficientes de performance do coletor / Collector performance collector				
			Desvio Padrão / Standard Deviation	Incerteza* / Uncertainty*
$\eta_{0,hem}$	0,700	-	0,008	0,42
a_1	5,98	$W/m^2 \cdot K$	0,2507	0,42
a_2	0,000	$W/m^2 \cdot K^2$	-	0,42
Caudal nominal durante as medições / Nominal flowrate during the measurements			$\dot{m} = 0,033 \text{ kg/h}$	

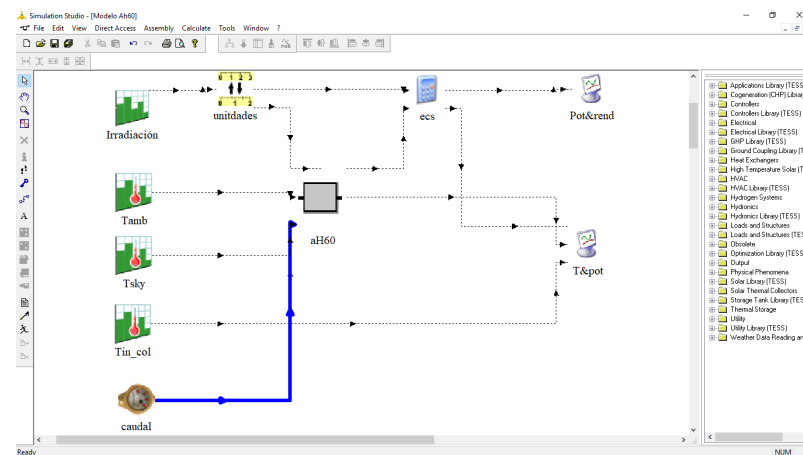
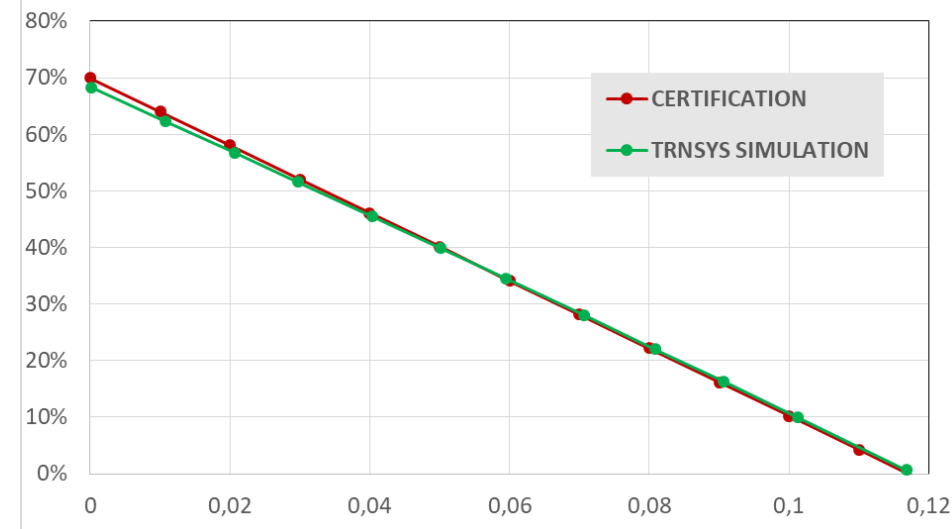
aH72

$$\eta = 0,7 - 5,98G^*$$

aH60

$$\eta = 0,667 - 5,7G^* - 0,004 \cdot G(G^*)^2$$

COLLECTOR PERFORMANCE aH72



OPERATING INSTALLATIONS (Subtask A)



Hotel (**** 1000px)

Num. Panels: 102

Model: aH72

Surface: 200 m²

Solar Thermal Fraction: 25%

PV power: 30 kW_p

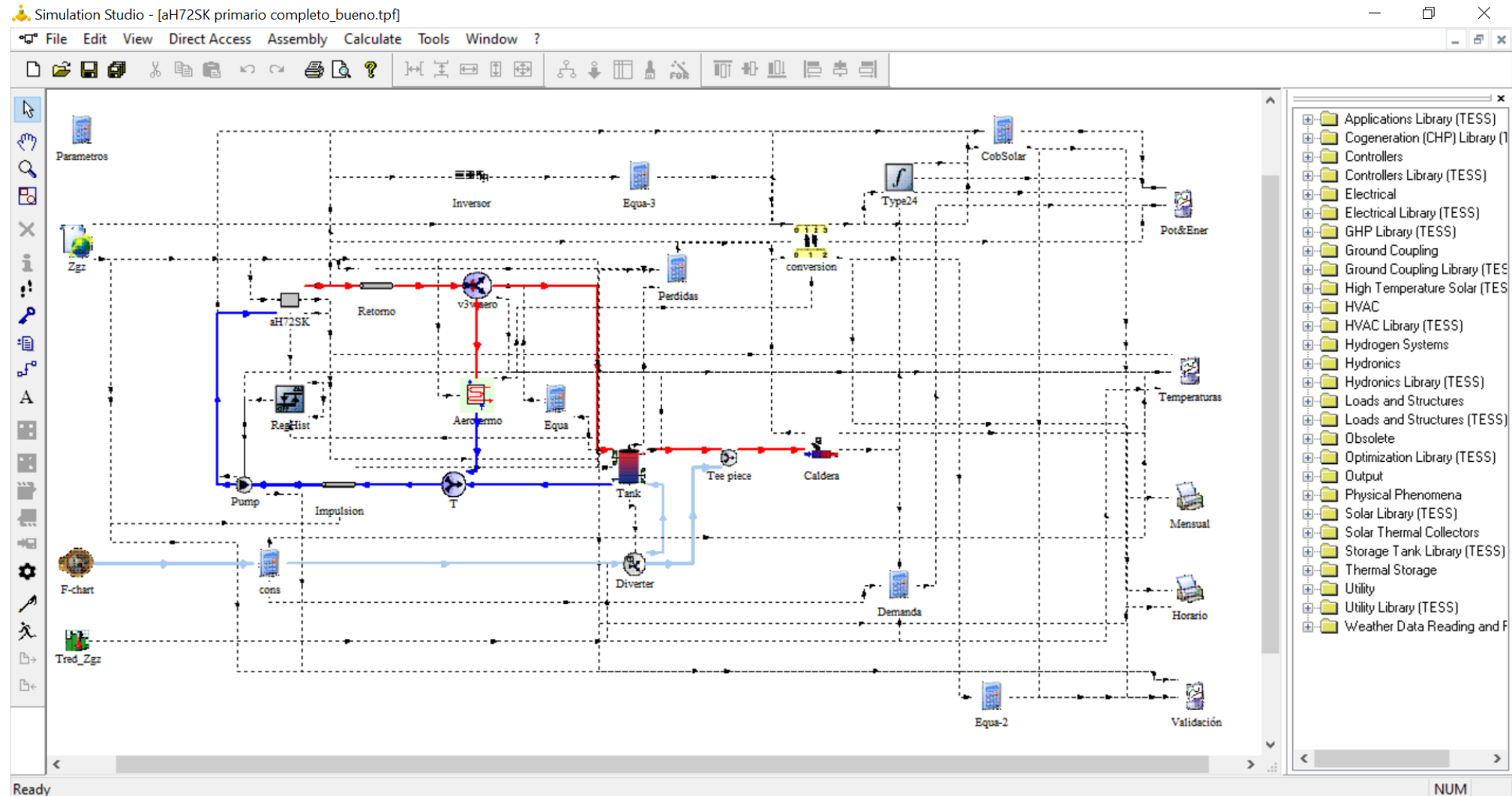
Location: Canary Islands

OPERATING INSTALLATIONS (Subtask A)



Industry
(Truck Washing)
Num. Panels: 160
Model: aH60
Surface: 264 m²
ST Fraction: 45%
PV power: 45 kWp
Location: NE Spain

SIMULATION MODEL (Subtask C)



MONITORING SYSTEM (Subtask B)



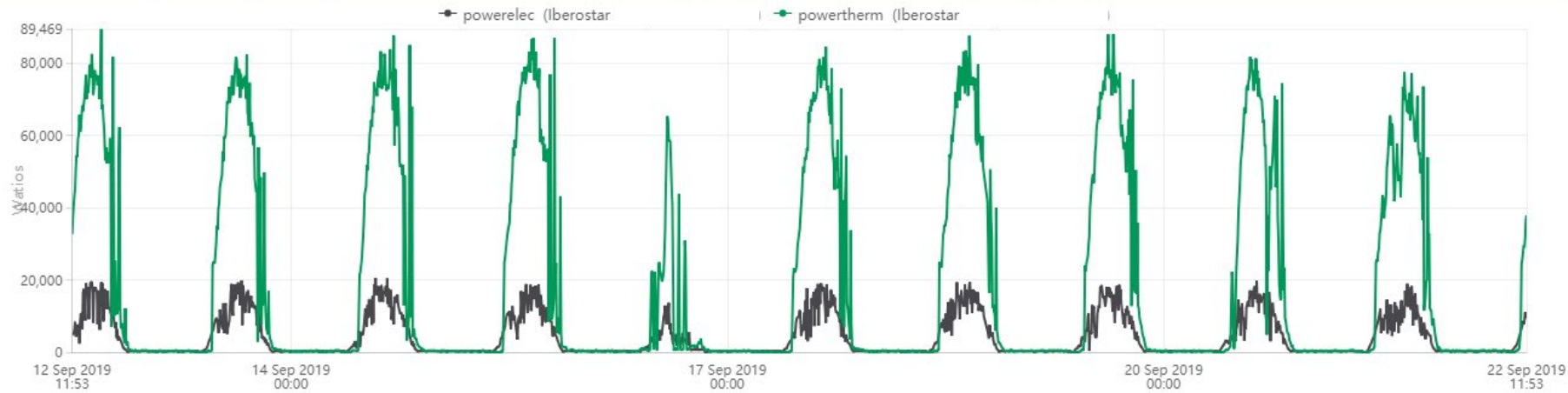
- **Modular design** to monitor installations of different complexity. As many sensors as necessary.
- Very **affordable price** to include in all PVT installations → **huge volume of real data** to analyze.

Currently Monitored:	6
Monitored before end 2019:	17

- ✓ 13 Spain península
- ✓ 1 Canary Islands
- ✓ 1 France
- ✓ 1 Iceland
- ✓ 1 Switzerland

MONITORING SYSTEM (Subtask B)

Potencia Térmica y Eléctrica (Wattios)



Energía Térmica y Eléctrica (kWh)

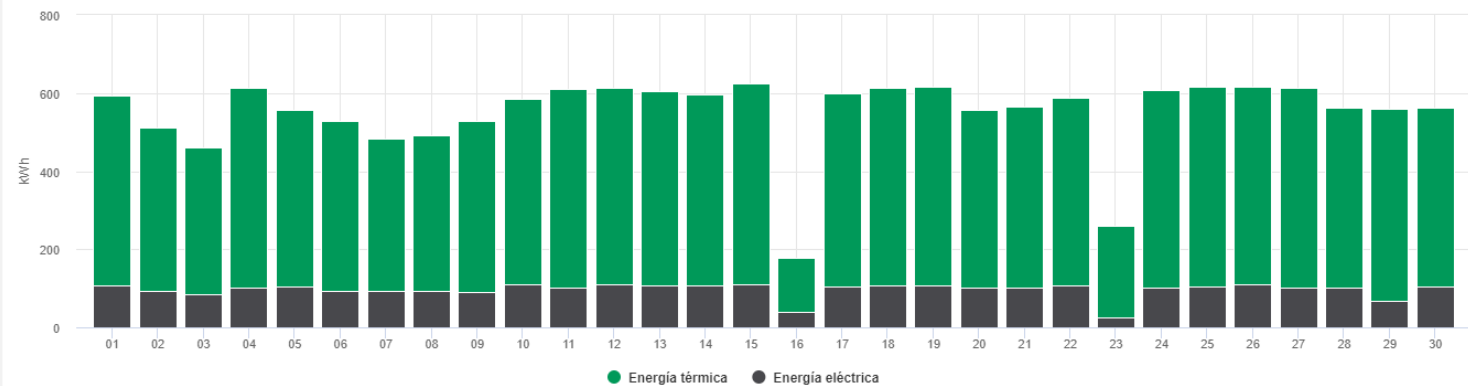
Mensual Anual

Septiembre

2019

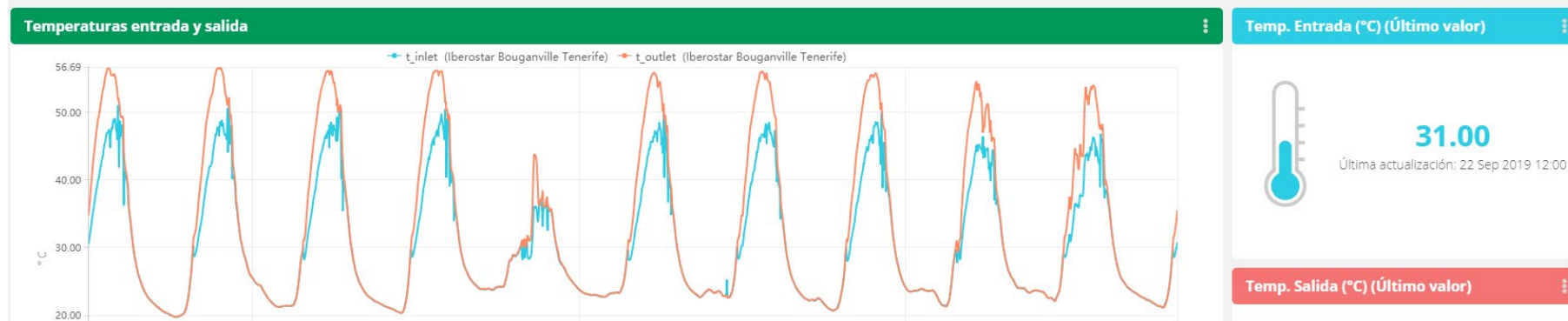
Aplicar

Energía Diaria Producida



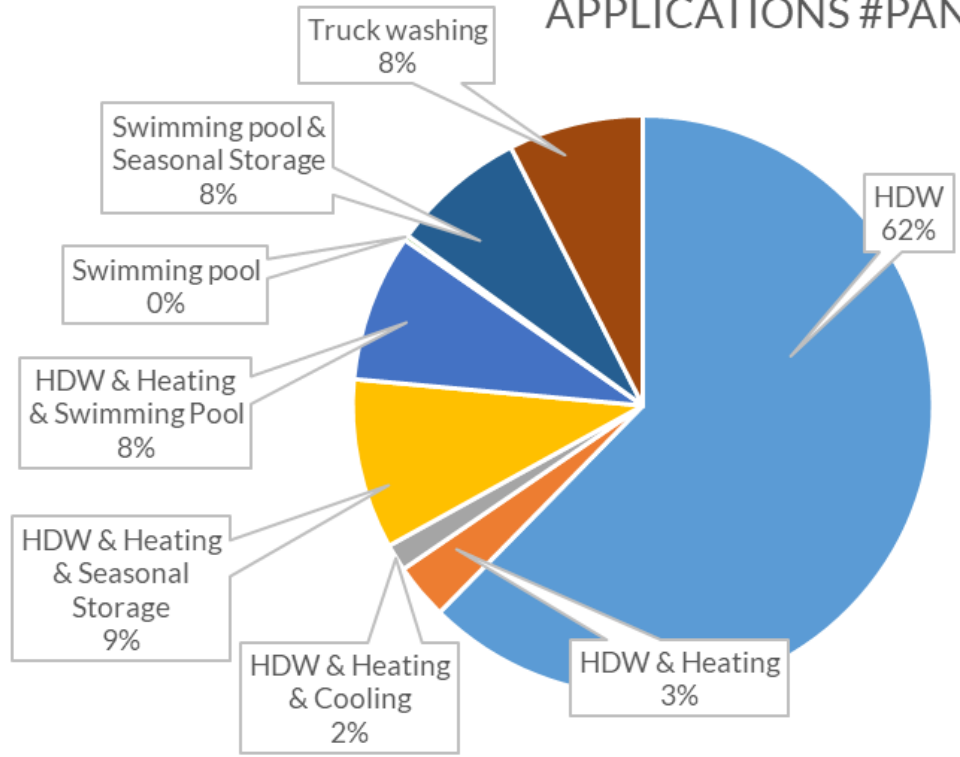
MONITORING SYSTEM (Subtask B)

FECHA	PRESIÓN (BAR)	T° ENTRADA (°C)	T° SALIDA (°C)	CAUDAL (LITROS/MINUTO)	POTENCIA TÉRMICA (W)	FECHA	CORRIENTE AC (AMPERIOS)	POTENCIA ELÉCTRICA (W)
22/09/2019 12:00	4.46	31.00	35.81	118.42	39,587.21	22/09/2019 12:00	14.76	10,184.40
22/09/2019 11:55	4.47	30.62	35.25	112.54	36,213.68	22/09/2019 11:55	17.29	11,930.10
22/09/2019 11:50	4.47	30.25	34.69	118.37	36,526.61	22/09/2019 11:50	13.59	9,377.10
22/09/2019 11:45	4.46	30.06	34.19	112.72	32,354.58	22/09/2019 11:45	16.54	11,412.60
22/09/2019 11:40	4.47	29.69	33.62	112.52	30,733.15	22/09/2019 11:40	15.38	10,612.20
22/09/2019 11:35	4.47	29.44	33.19	111.35	29,020.59	22/09/2019 11:35	12.76	8,804.40
22/09/2019 11:30	4.47	29.19	32.81	119.86	30,155.58	22/09/2019 11:30	10.52	7,258.80
22/09/2019 11:25	4.48	28.88	32.31	121.20	28,892.26	22/09/2019 11:25	11.86	8,183.40
22/09/2019 11:20	4.47	28.69	31.94	121.67	27,482.21	22/09/2019 11:20	12.35	8,521.50
22/09/2019 11:15	4.47	28.50	31.69	112.57	24,957.33	22/09/2019 11:15	10.69	7,376.10

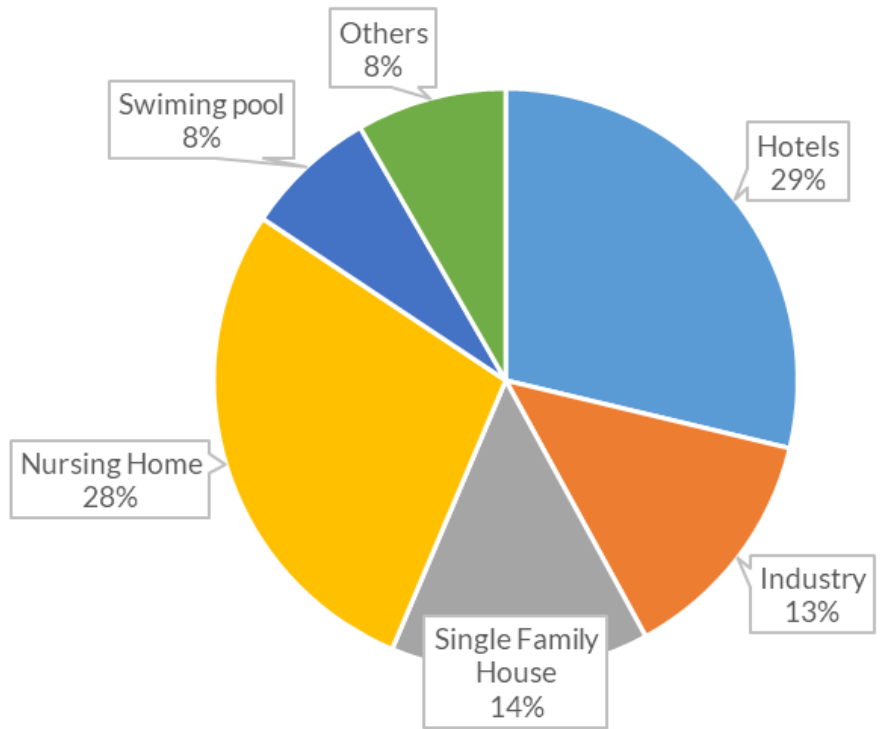


OPERATING INSTALLATIONS

APPLICATIONS #PANELS



SECTORS #PANELS



MODEL	
aH60	1446
aH72	816

Total Surface [m2]
4018

Thank you!

marta.canada@abora-solar.com

adelamo@abora-solar.com