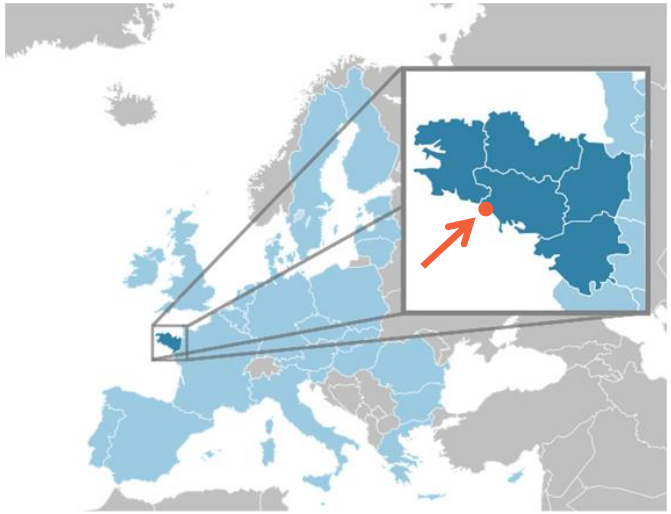
# PV crowdfunding's scheme – City of Lorient



**Lorient**
57 000 inhabitants (conurbation ~200 000)

→ Energy consumption (municipal buildings ~300 000m², public lighting ~9000 lamps, vehicles): 33,5GWh (2014) / 31GWh (2017)
→ Electricity consumption (municipal buildings): 7,3GWh (2014) / 6,5GWh (2017)
→ Electricity bills (municipal buildings): 1 327 000€ (2014) / 875 000€ (2017) (→ due to the strong decrease of electricity prices)

Climate Action Plan: « 3x30 » by 2020 on municipal buildings / public lighting / vehicles
- 30% CO2 emissions (baseline = 1990) (
- 30% energy efficiency (-6GWh / 2014 : long way to go…)
- 30% renewable energy (and 50% renewable heat on buildings) → wood and solar energy

# Photovoltaïc: municipal action plan (octobre 2015)

**Main goal: x2 of PV power by 2020 on municipal buildings → + 125 kWc**

- PV budget line

→ 60 000€ / year (investment) : *hard to achieve PV goal with just this funding…*

- **New crowfunding scheme for PV**

→ **In order to amplify city's PV budget**

- Keeping technical skills for city's workers, in order to implement new PV plants with a lesser cost

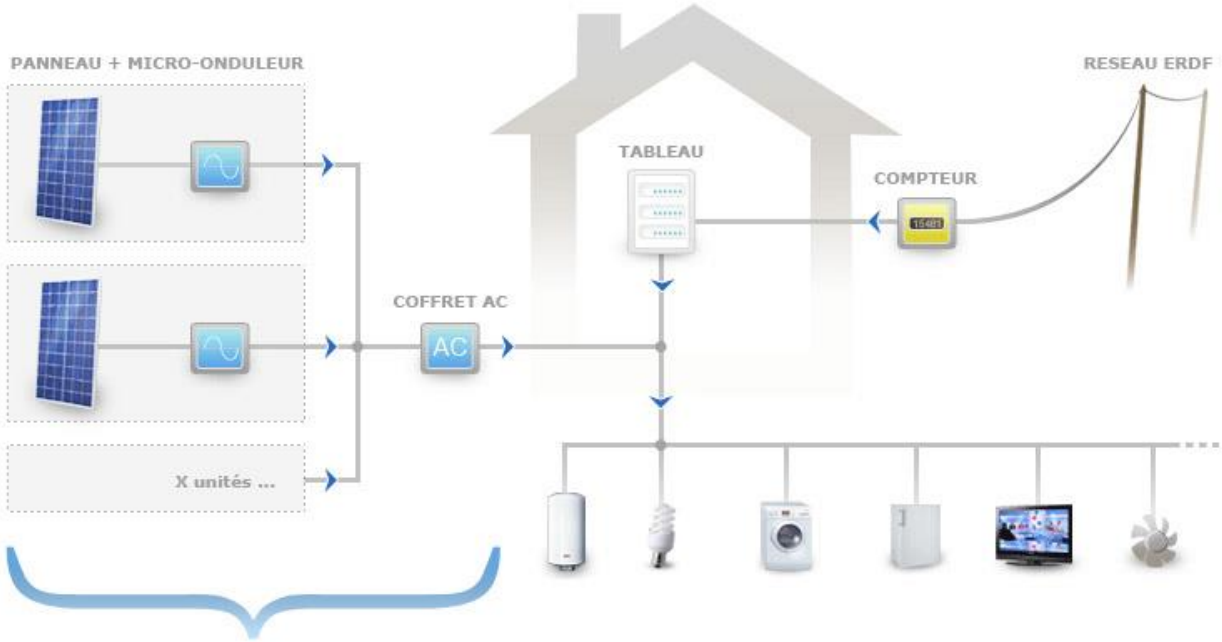
- Reduction of electricity consumption espacially on PV powered sites

→ Mainly in schools

- Promoting the new crowdfunding scheme to local stakeholder, in order to developp it

→ Espacially with commercial buildings, fishing activity, …

# Behind the grid PV production

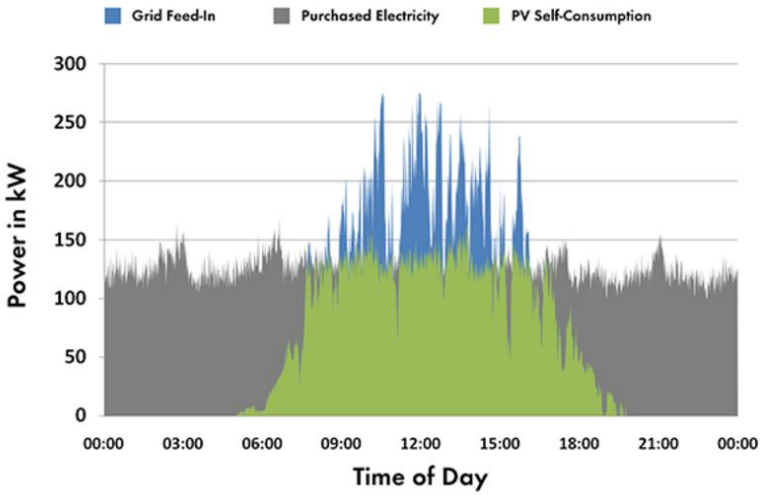



*Le système d'autoconsommation solaire vient se greffer sur l'installation électrique existante.*

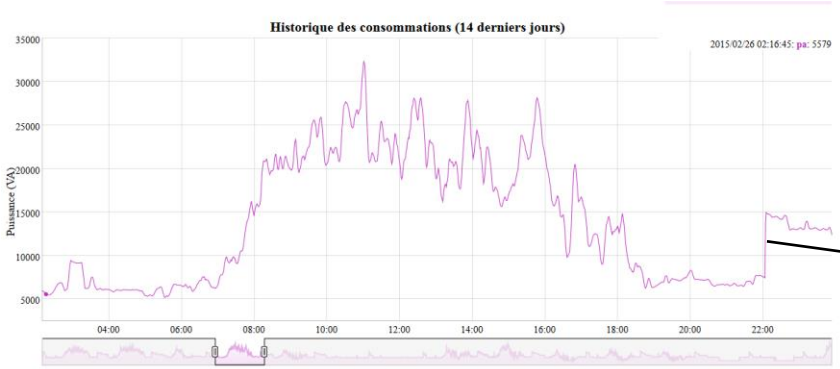
# First test of « behind the grid » PV plant: Kermelo school (2014-2015)

City workers

**15 kWp / 100 m²**
60 pannels of 250 Wp, one micro inverter per pannel
Price :35 000€ (no VAT!), → 2,3€/Wp
Ballasted supports ***(no hole in the roof!)***
Production / y. → **17,5 MWh**
Self consumption : 90%
Covert ratio (PV self consumption / total consumption): >**20 %**
kWh price: **11c€ /kWh**

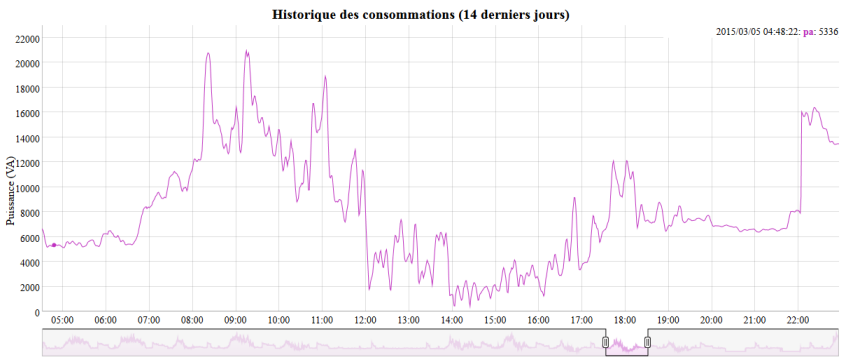


# Consumption measurments

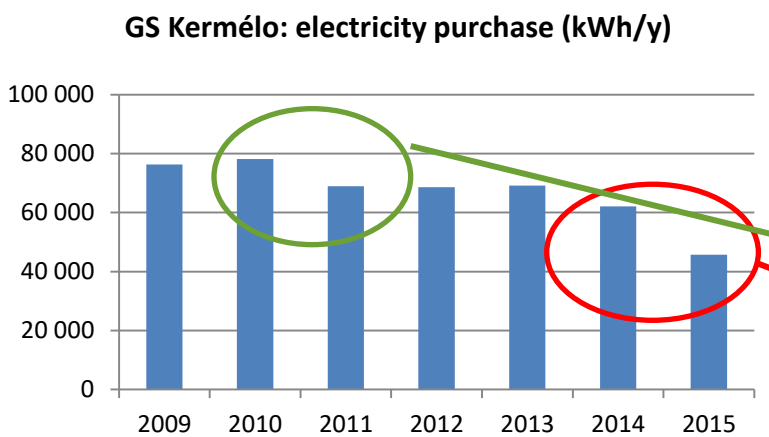



Before PV plant

*Electric hot water tank…*

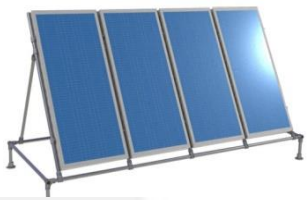



After PV plant implementation : after noon, the school produces nearly all of its own electricity needs




2009-2015: **-40% of electricity purchase (1/economy programm 2/PV plant)**

# New crowdfunding scheme



Renting 9000€/y for 45kWp , during 15 years
(city uses electricity credit line to rent the pannels)

Lorient city
- **Rents** Solar pannels
- **Purchase** other equipments (inverters, ballast, …)

Citizen own the PV pannels
( « Oncimè » company)
*(oncimè means something like « letsdoit » )*

**+ awarness campaigns, during 15 years**


Installation of PV pannels by city workers

# Citizen Oncimè company :

« Brittany citizen energy » non profit organization **(BEC) (2009)** 120 members

First project: Mellac solar roof (2009-2013)

**BEC was looking for new opportunities:**

- New funding schemes (PV « national » prices made a huge fall during the years 2011-2013)
- Looking for ways to involve more people
- Wishing to work with children

**New « tool »**: OnCIMè participating company

→ 1 people= 1 voice – 66 shareholders – 38 750€ capital

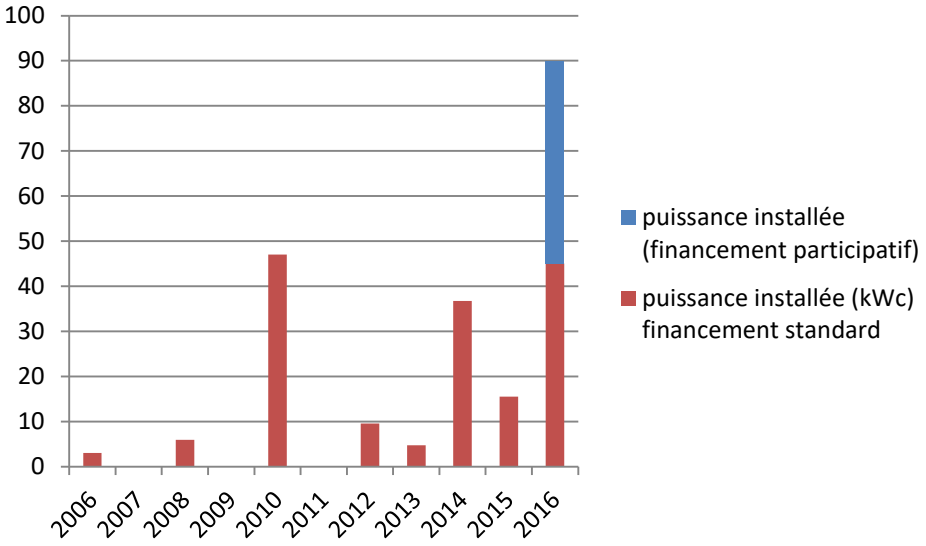
→ Executive comittee of 11 people (including 2 by drawing of lots !)

→ Co-ownership of solar pannels

# First results

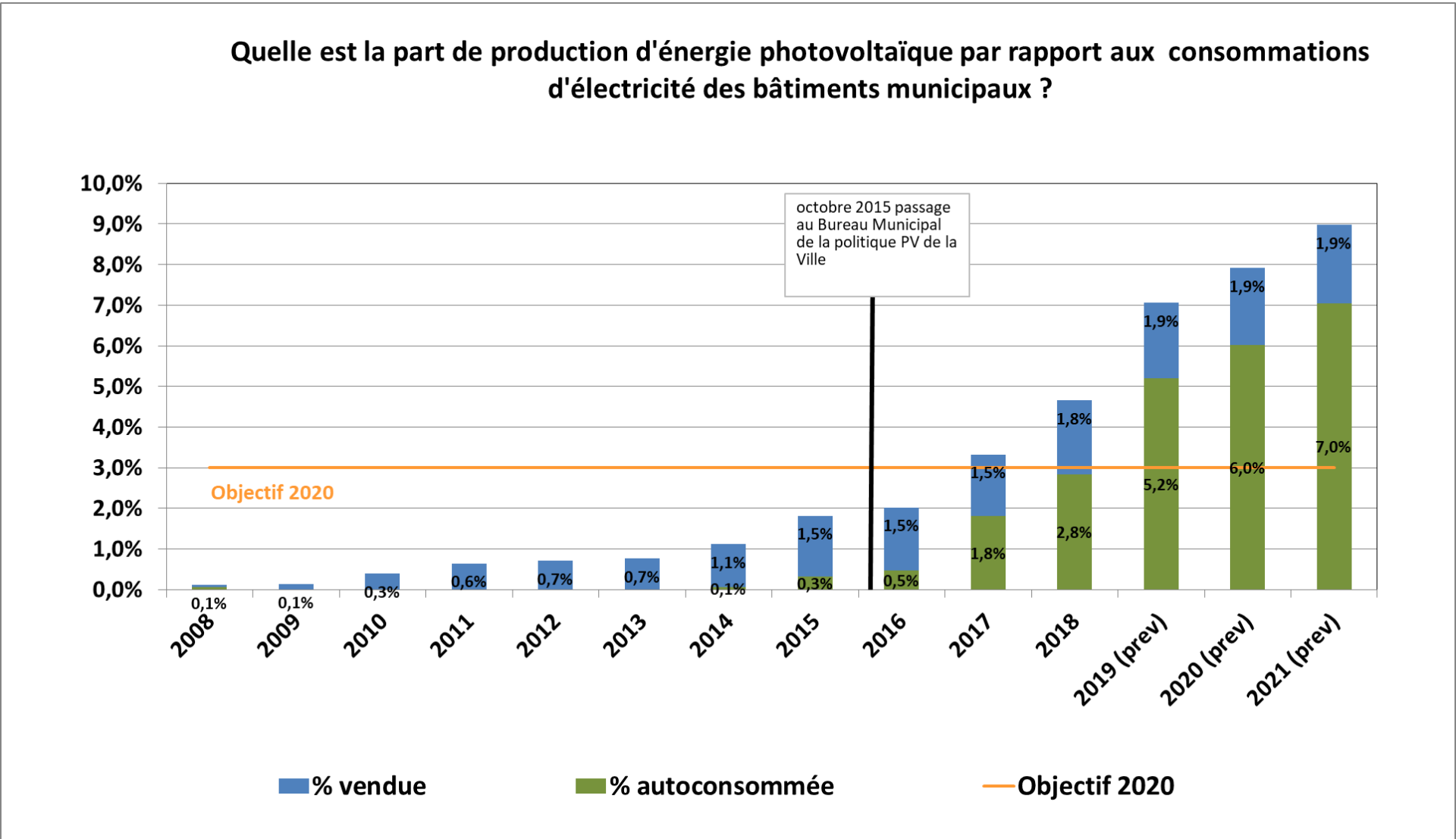
2006 - 2015: 125 kWp
2016 : 4 new plants !
- Lanveur School : 9kWc
- Keroman School : 36kWc
- City hall + Kersabiec School : 45 kWc
(crowdfunding)

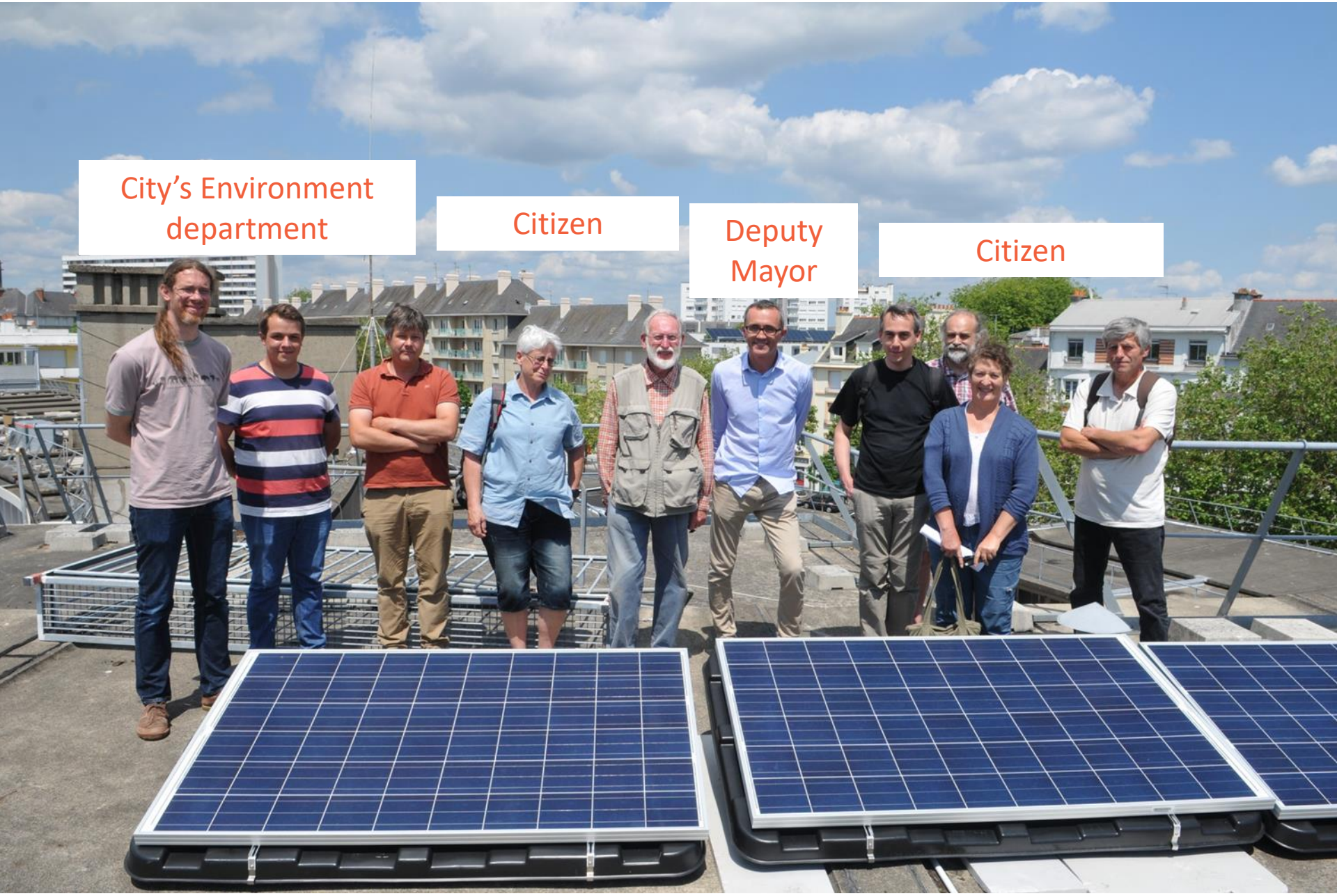
Total 2016 : + 90kWp
(2015-2020 goal = +125kWp)

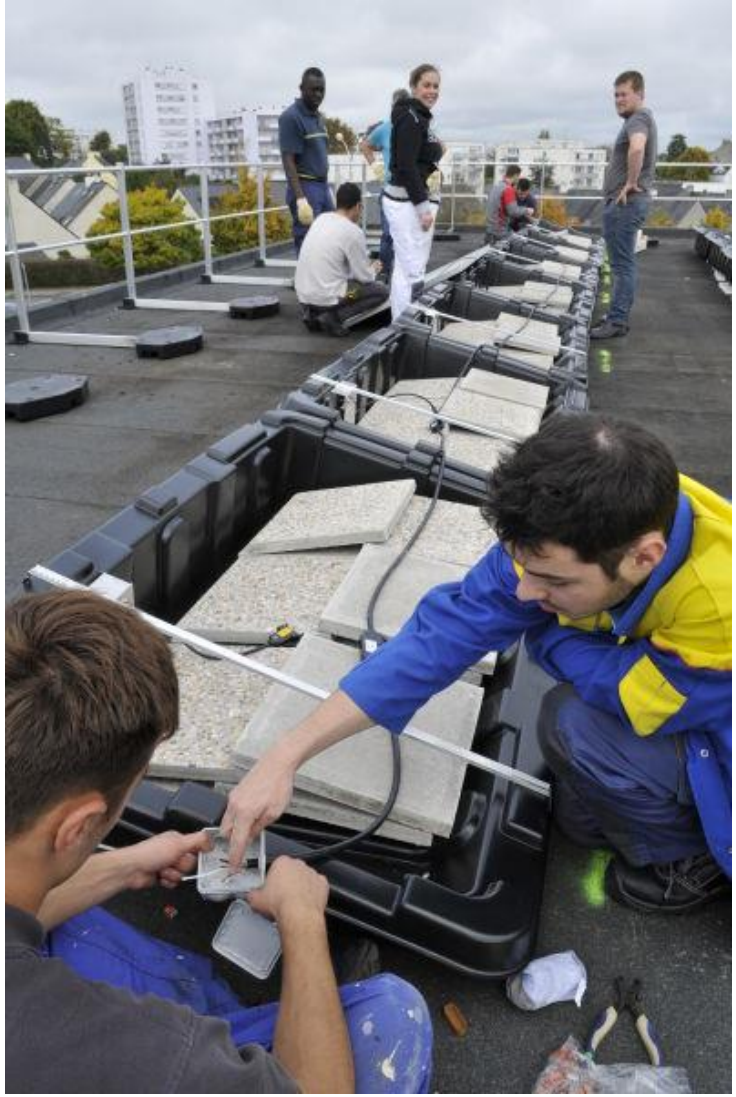



*Implantation of solar pannels (kWp / year )*

# Next results




City's Environment department
Citizen
Deputy Mayor
Citizen



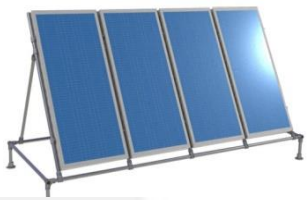
Installation of citizen solar panels at the Apprenticeship Training Centre (October to December 2017). 3rd citizen centre of Lorient (after the town hall and a school group in 2016)

**Total citizen power plants at the end of 2018: 4 power plants, 100kWp**

- Panels belonging to Oncimè
- Studies, project management and complementary investments: city of Lorient
- Installation site: apprentices, citizens and city officials

Activities in schools provided by Oncimè (self-consumption model created by the Bretagne Energie Citoyenne association)

# New crowdfunding scheme



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Installation of PV pannels by city workers

Merci pour votre attention!

(photo: citizen solar pannels - Kersabiec school on 12/05/2016)

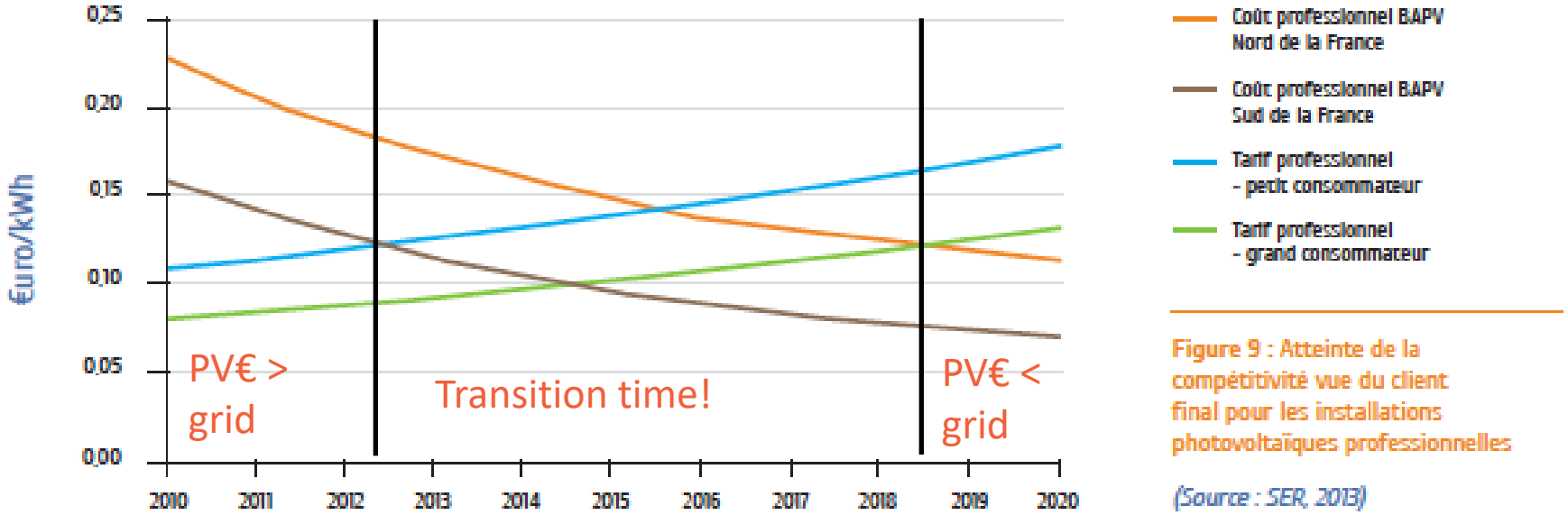


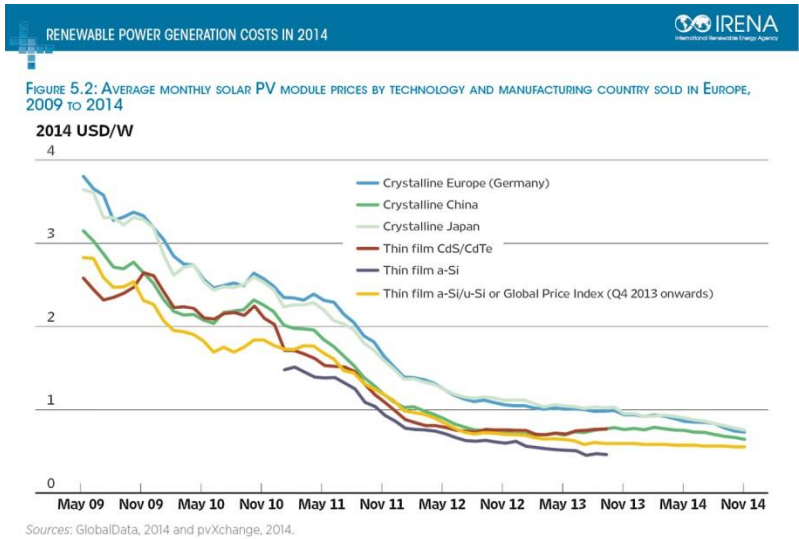

Figure 9 : Atteinte de la compétitivité vue du client final pour les installations photovoltaïques professionnelles

(Source : SER, 2013)

- Electricity prices (fourniture, distribution, taxes) seems to be rising for the next years in France

- Solar pannel prices strongly decreasing →

**→ self-consummed (« behind the meter ») electricity tends to cost less than grid electricity**



# Le montage du projet « investissement citoyen »

## Etude de faisabilité par

**Location, crédit bail?**

- Crédit – bail: nécessité d'une société financière: **abandonné rapidement**

- Location: **possibilité à toute société de répondre**. Durée retenue: 15ans → ni trop long (pour la collectivité), ni trop court (pour la société). Devenir des panneaux à l'issue du contrat à négocier par acte séparé.

## ➔ MAPA pour un premier lot de 45kWc (300m²)

**Critères d'attribution des offres:**

- La **qualité technique** des panneaux : qualité de fabrication, durabilité, fiabilité. (critère comptant pour 25% de la notation)

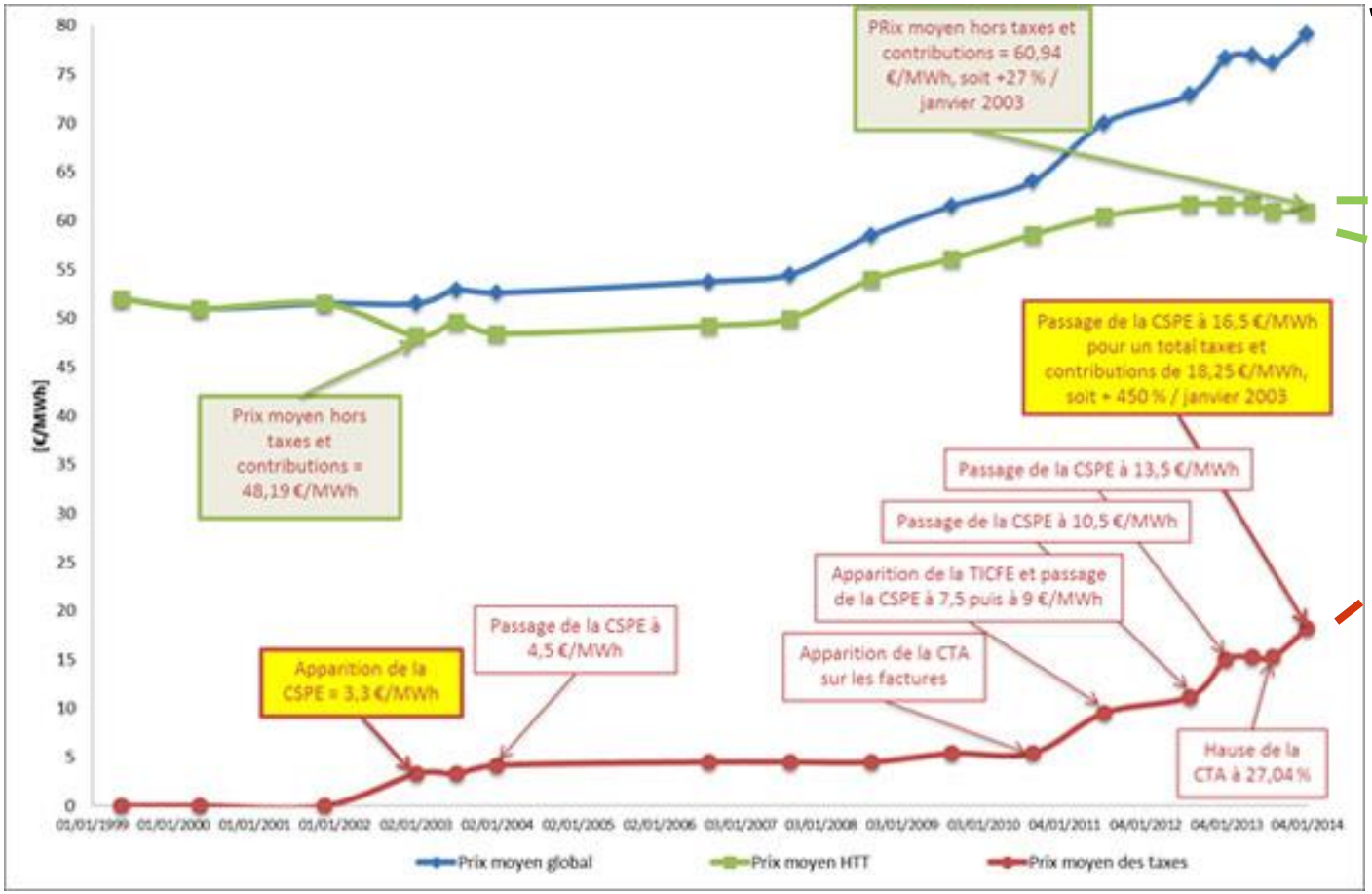
- La qualité de **l'implication des habitants** (non spécifiquement usagers des bâtiments) dans la démarche de valorisation de l'énergie photovoltaïque (conférences, ateliers, voire tout autre proposition) (10%)

- La qualité de **l'animation annuelle** proposée dans le cadre du contrat de location (chaque site recevant des panneaux solaires devra faire l'objet d'un projet d'animation)

  - Présentation du **projet** d'animation (25%)
  - **Implication** des membres de la structure dans le projet d'animation (10%)

- Le **prix de location**. (30%)

# L'atteinte de la « parité réseau »




?

Prix de l'électricité

?

?

Prix de fourniture (centrales)

?

Prix de distribution + taxes

- un prix de marché européen de **fourniture** orienté à la **baisse** (différent du marché français, orienté à la hausse pour l'électronucléaire),
- des **tarifs de distribution et des taxes à la hausse**.

➔ Un prix de l'électricité en hausse?