

ZERO WASTE EUROPE LIVE!

5 NOVEMBER 2018

GABRIELE FOLLI

PAY AS YOU THROW

HOW WE IMPLEMENTED PAYT AND KERBSIDE COLLECTION
IN A CITY OF 200.000 INHABITANTS

PAY AS YOU THROW: THE ULTIMATE SYSTEM
TO REDUCE WASTE AND INCREASE RECYCLING



Parma – City general figures

2017 results

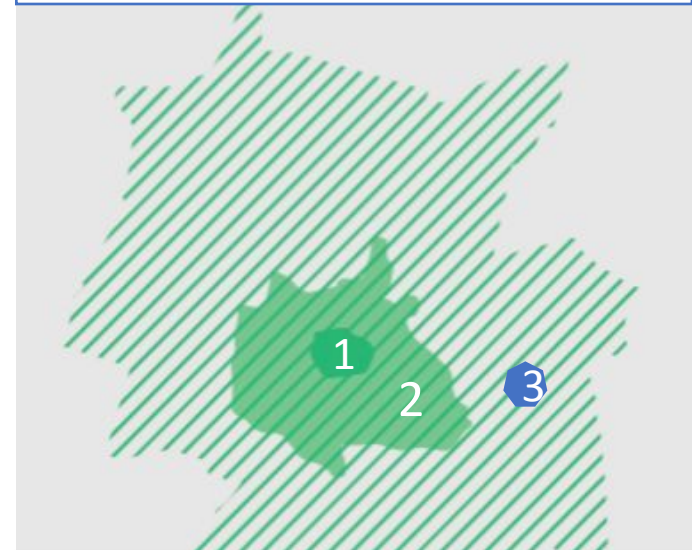
- 81% separate collection rate
- 106 kg/ inh/year of residual waste
- 103 kg/ inh/year of bio-waste



- 96.141 families, 12.337 business activities
- 15% of the population of different native language
- Important presence of University students coming from outside (66% on a total of 26.000 students)



■ 194.374 inhabitants in 260,6 km² (745 inh/km²)



- 24.124 in the historical center (2,4 km²; 10.093 inh/km²)
- 129.060 in urban area (29 km²; 4.407 inh/km²)
- 41.190 in rural area (229 km²; 178 inh/km²)

At the beginning - nov 2012

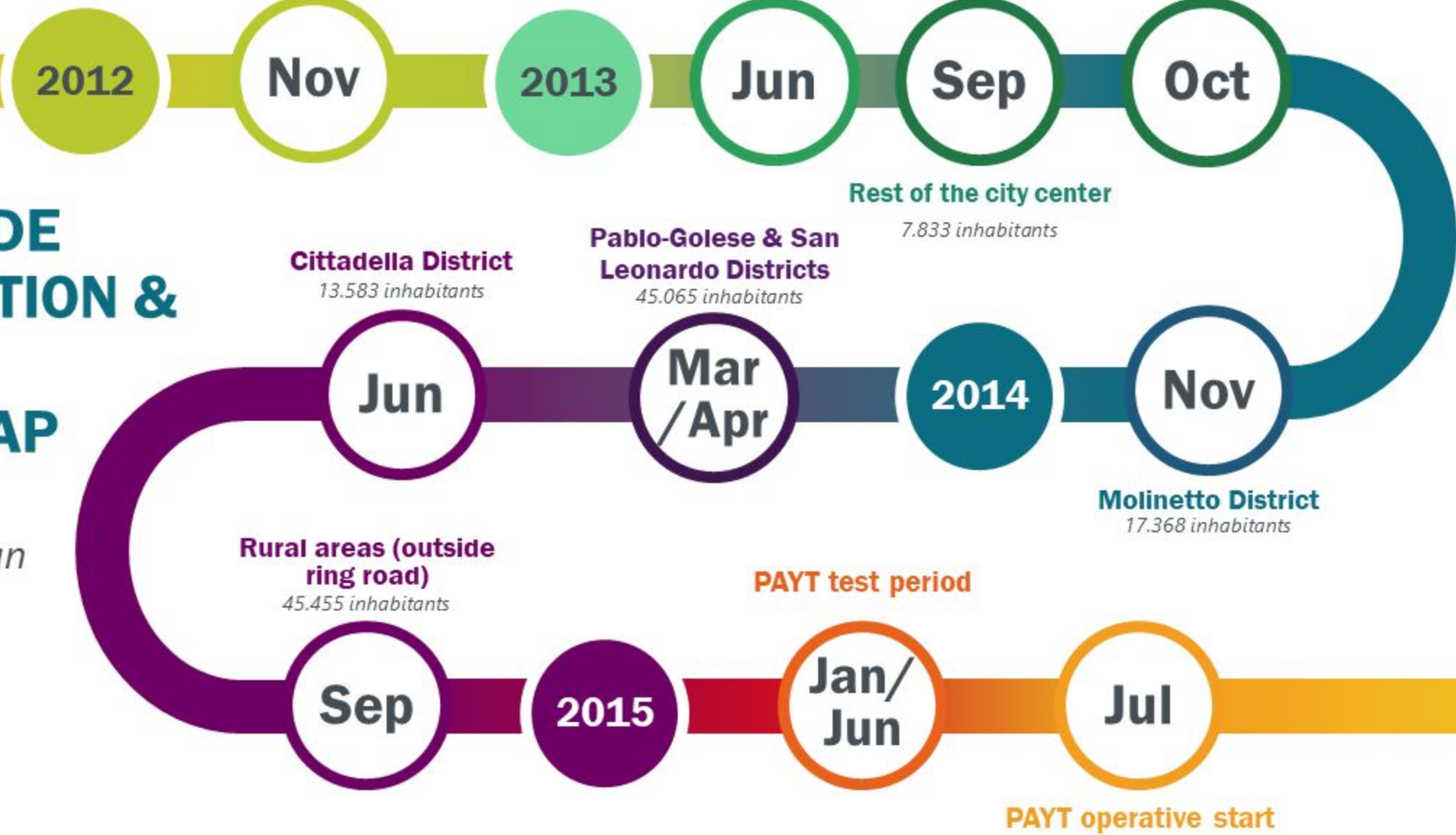
- 48,5% separate collection
- Most of the territory served with on road waste containers
- Less than 1/3 of the citizens served with door-to-door collection system
- City of Parma responsible for about 40% of the whole waste production in the province
- High incineration costs (170 Euro/ton)
- Low packaging recycling incomes (plastic, metals and glass collected together in one single stream)



PARMA KERBSIDE COLLECTION & PAYT ROADMAP

2012-2015

2 ½ Years Plan



2017 KPI: 81% separate collection rate - 106 kg/ inh/year of residual waste - 103 kg/ inh/year of bio-waste

Kerbside collection for 4 waste streams

■ Residual waste

- 1 a week (2 in the city center)



■ Paper and carton

- 1 a week



■ Organic waste

- 2 a week (3 in the city center)



■ Glass & Garden waste

- With road containers (future kerbside)

■ Plastic, metals and tetra-pack

- 1 a week



- Delivery between 7,30 pm and 9 pm
- Collection starting from 9 pm
- Calendar to concentrate on 2 days per week all the collection streams

Start-Up And Awareness Raising Campaigns

- Public meetings at the start of the new system in every district
- Meetings with foreign and religious group (senegal, islamic, etc)
- Meetings with shop owners, scouts, buildings administrators, schools
- Door-to-door information with operators



1,5-2%
per year
Cost of communication on the
total cost of the service

- Info points in every district
- Press, tv, social media, internet
- Smartphone apps

Information through web, apps & social media

- Dedicated portal and App for waste collection
- Dedicated website and App for invoicing
- Wide use of social media



Visita il nuovo portale

RACCOLTA RIFIUTI dove, come, quando.

la raccolta differenziata a portata di click



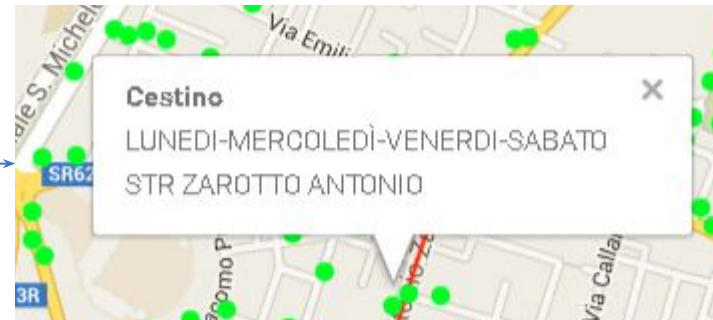
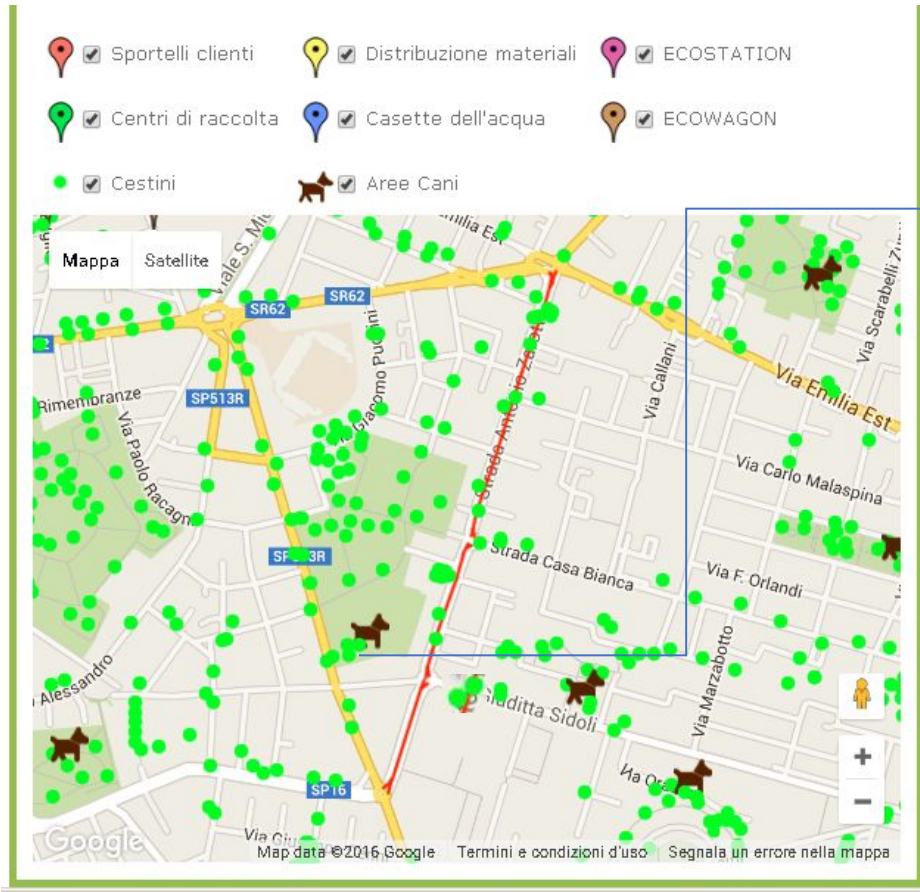
Dedicated portal and App for information on waste collection

Georeferenced information based on user address to give custom data on:

- Days, hours of collection for each type of waste
- Street cleaning dates
- Waste bin position and emptying calendar



Dedicated portal and App for information on waste collection



Pulizia strade e altri servizi

SPAZZAMENTO MANUALE

GIOVEDI (POMERIGGIO)
LUNEDI (MATTINO)
MERCOLEDI (MATTINO)
SABATO (MATTINO)
VENERDI (MATTINO)

COMBINATO (SPAZZATRICE+OPERATORE MANUALE)

OGNI 9 GG C.A. (MATTINO)

- Street cleaning dates and times (type of service, frequency, waste bin location and emptying frequency)

ZERO WASTE EUROPE LIVE!

GABRIELE FOLLI

How we implemented PAYT and kerbside collection in a city of 200.000 inhabitants



App & Web Portal to Control invoices and verify container micro-chip reading

- In pay-as-you-throw systems part of the bill is related to how many times the residual waste container is emptied
- With the app users can check in real time how many times the container has been emptied



Total integration between ERP and App/web portal information to citizens

App & Web Portal to Control invoices and verify container micro-chip reading

- Users can verify invoices not only for waste but even for electricity, gas and tele-heating services (if applied)

The screenshot displays the iren web portal interface. At the top left is the iren logo. At the top right, it says "BENVENUTO GABRIELE.FOLLI@GMAIL.COM" with a "> LOGOUT" link. Below this is a dark navigation bar with links: Home, Contratti, Fatture, Sportelli, Contatti, Extra, and Profilo Utente. Underneath the navigation bar is a search bar labeled "Ricerca avanzata". The main content area shows six utility contract cards arranged in a 2x3 grid. Each card features an icon, contract details, address, and a link to "ULTERIORI DETTAGLI >".

Contract Type	Contract Number	Address	Intestatario
Contratto Rifiuti	N° 000: 5371	Via 43123 Parma Pr	Folli Gabriele
Contratto Teleriscaldamento	N° 000: 735	Via 43123 Pr	Folli Gabriele
Contratto Luce	N° 000: 5381	Via 43123 Pr	Folli Gabriele
Contratto Gas	N° 000: 0571	Via 43123 Pr	Folli Gabriele
Contratto Rifiuti	N° 00008: 06 CESSATO IL 08-03-2006	Via Augusto, 7 43126 Parma Pr	Folli Gabriele
Contratto Rifiuti	N° 0001: '09 CESSATO IL 22-12-2008	Via 43123 Parma Pr	Folli Gabriele

ZERO WASTE EUROPE LIVE!

GABRIELE FOLLI

How we implemented PAYT and kerbside collection in a city of 200.000 inhabitants



App & Web Portal to Send feedback

Through a dedicated app for smartphones users are invited to send feedback to waste collection company with photo and address (geo-referenced) for:

- littering
- damaged containers
- missing collection
- Other



Inviare segnalazioni

Attraverso un sistema di **"fotosegnalazione"** l'App EcoIren puoi diventare una "sentinella ambientale": puoi infatti fotografare rifiuti abbandonati, cassonetti danneggiati o altre situazioni anomale e inviare la foto a Iren allegata ad un breve testo descrittivo. Insieme all'immagine verranno registrate le **coordinate geografiche** relative allo scatto. Iren si attiverà per verificare la situazione nella via segnalata e, dove necessario, provvederà ad inviare personale sul posto.

Start-up – Coupling bin delivery with citizens database review

- Delivery of the bins with transponder is the opportunity to review the customer's database
- Each bin is personally delivered to each individual and business activity and coupled with the invoicing system being also the chance to find tax evasion



ZERO WASTE EUROPE LIVE!

GABRIELE FOLLI

How we implemented PAYT and kerbside collection in a city of 200.000 inhabitants



Pay As You Throw Or Volume Based Waste Fees

- Each family/commercial user has a dedicated bin equipped with a transponder for the residual waste
- A part of the cost of the bill is calculated on the times that the bin has been delivered for emptying
- A minimum number of bin deliveries is already included in the bill to avoid littering



Pay As You Throw Or Volume Based Waste Fees

- In the first 6 months of PAYT system application, more than 80% of the families and more than 70% of business activities has reached the maximum discount
- Each extra delivery is charged for 1,40 Euro (in case of 40 ltrs bin)



Example of a family of 3 persons in a 100 sqm apartment

Method of billing	Euro	# deliveries
Old method (based on surface/nr. of persons)	262	n.a.
PAYT - maximum discount	244	24
PAYT - point of equivalence	262	36
PAYT - maximum cost	285	52

Number of bin emptying included in the bill (according to nr. of persons and container type)

Nr persons/family	1	2	3	4	5 and more
40 litres bin	12	18	24	30	36
120 litres bin	4	6	8	10	12

Data referred
to 2016

ZERO WASTE EUROPE LIVE!

GABRIELE FOLLI

How we implemented PAYT and kerbside collection in a city of 200.000 inhabitants



Pay As You Throw Or Volume Based Waste Fees

- Each family/business activity can predict the bill to pay thanks to a calculator form available on the website

Calcola la tua TARI

Benvenuto nella sezione di calcolo della TARI (Tassa Rifiuti)

Comune	<input type="text" value="I034027 - PARMA"/>
Mq	<input type="text" value="100"/>
Componenti	<input type="text" value="3"/>
Contenitore (vuotature min)	Numero vuotature eccedenti
<input type="text" value="Mastella 40 lt. (24)"/>	<input type="text" value="5"/>
<input type="text" value="Sacchetto 50 lt. (48)"/>	
<input type="text" value="Mastella 40 lt. (24)"/>	
<input type="text" value="Bidoncino 120 lt. (8)"/>	

TARIFFA UTENZE DOMESTICHE

Comune: I034027 - PARMA

Metri quadrati:

Numero componenti

Importo da pagare:



14 pro-capite)

Tale importo è suddiviso in **Calcola la tua TARI**

Parte fissa: € 78,90

Attività di Igiene Ambientale quali spazzamento e lavaggio strade, gestione dei rifiuti abbandonati su ecc.

Parte variabile: € 161,51

Quota contenitori € 37,10

Raccolta e trasporto dei rifiuti, raccolta differenziata e avvio al recupero, gestione e attività degli imp

Contributo ambientale provinciale (5%): € 12,02

Calcolo effettuato con le tariffe deliberate per l'anno 2015.

[Nuovo Calcolo](#)

[Stampa](#)

Two different ERP systems

- Ecos for containers and transponder reading
- SAP for the billing

ZERO WASTE EUROPE LIVE!

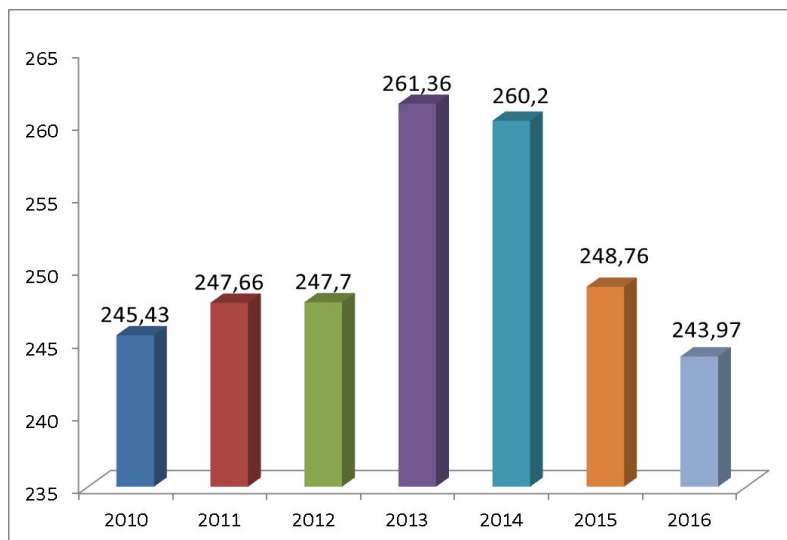
GABRIELE FOLLI

How we implemented PAYT and kerbside collection in a city of 200.000 inhabitants



Comparing the waste bill between capital cities in Emilia-Romagna

- Considering the bill for 1 apartment of 100 sqm with 3 people residents
- Parma the second lower waste bill in the region

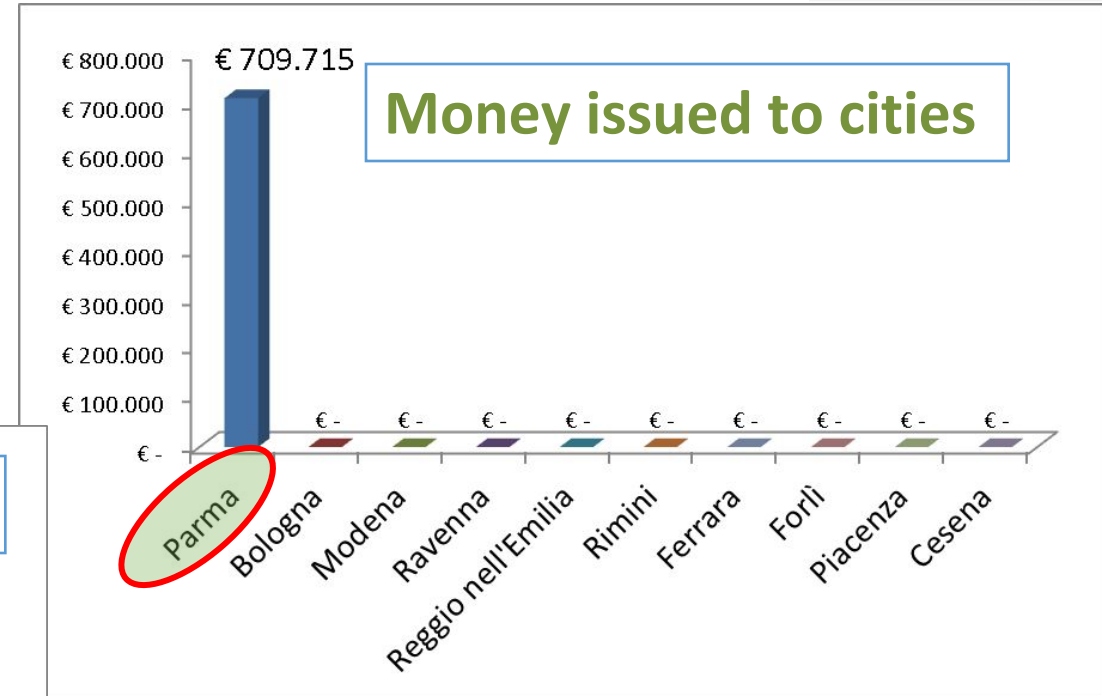
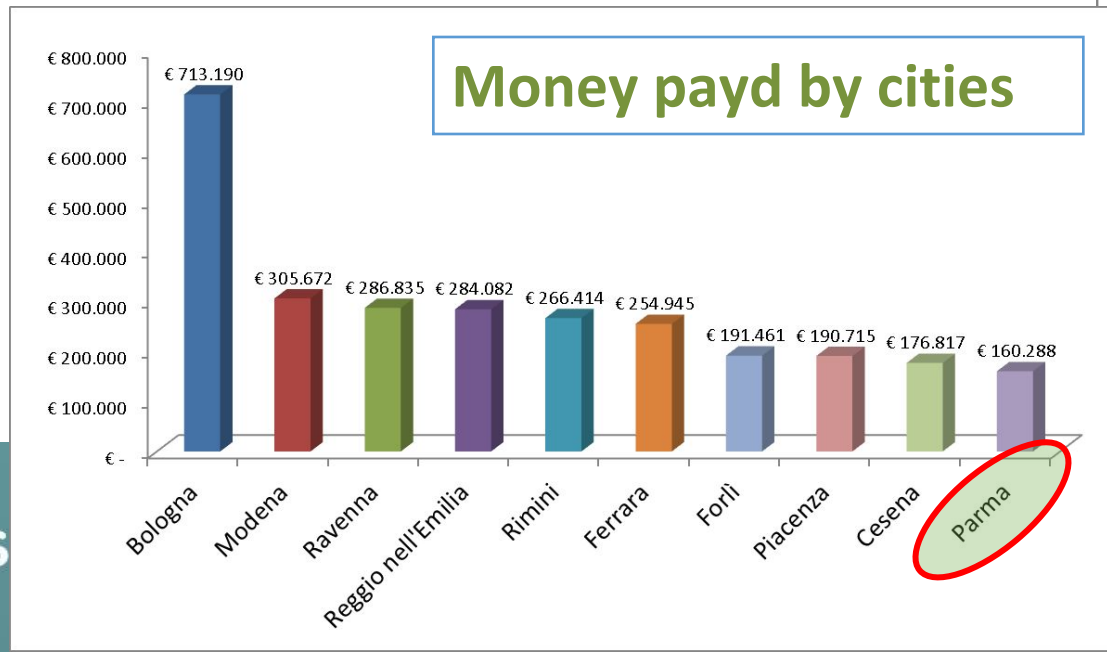


CITY	TARI 2017	TARI 2016	Diff % 2017/2016
Ravenna	€ 242	€ 239	1,30%
Parma *	€ 244	€ 244	0,00%
Cesena	€ 276	€ 263	4,90%
Piacenza	€ 276	€ 276	0,00%
Rimini	€ 279	€ 277	0,70%
Forlì	€ 284	€ 279	1,80%
Bologna	€ 286	€ 286	0,00%
Modena	€ 293	€ 288	1,70%
Reggio E.	€ 303	€ 295	2,70%
Ferrara	€ 325	€ 325	0,00%

New regional law to support virtuous and behaviours and put cities in competition



- New regional law issued in 2015
- Every city pay a tax for each kg of residual waste produced
- This money goes to form a fund that is revolved to cities that each year reach residual waste reduction goals



Parma vs other capital cities in the region



Capital cities in Emilia Romagna	Inhabitants	% separate collection	Residual waste (kg/inh/yr)	Bio-waste (kg/inh/yr)	Total urban waste (kg/inh/yr)
Parma	194.934	81%	105,92	102,52	552,11
Reggio Emilia	172.139	67%	221,00	52,41	660,11
Cesena	97.234	64%	250,56	80,50	691,96
Ferrara	132.921	63%	250,94	54,78	683,45
Modena	185.268	62%	259,43	35,55	691,46
Rimini	150.007	64%	260,62	129,39	733,76
Forli	118.263	62%	272,20	49,24	716,82
Bologna	389.261	48%	296,01	54,90	571,82
Piacenza	103.262	57%	317,10	45,30	745,67
Ravenna	159.522	56%	337,98	37,30	771,90

■ Parma is the only city in the region that has introduced kerbside collection and pay-a-you-throw system

* Source: ARPA report 2017

Alternatives to kerbside collection - Eco-Station & Eco-Wagon

- Automated collecting stations for each waste type accessible with badge or twin-tub trucks with fixed paths and stops for city center active on days when standard service is not available
- Supplementary services offered to users as an alternative to standard calendar for:
 - Working shifts, commuters
 - Extra production of waste
 - Holidays, etc.



Eco-Stations

- Located in park + ride facilities
- Access granted 24/7 with badge or health insurance card
- 8 doors of delivery for residual waste (volumetric controlled), plastics/metals, paper, bio-waste
- Controlled by cameras to prevent littering
- Remote control of the filling level
- Solar panels on the roof to power batteries



ZERO WASTE EUROPE LIVE!

5 NOVEMBER 2018

THANKS FOR YOUR ATTENTION

GABRIELE FOLLI

FORMER DEPUTY MAYOR FOR ENVIRONMENT

(2012-2017) COMUNE DI PARMA

E-MAIL: GABRIELE.FOLLI@GMAIL.COM

PAY AS YOU THROW: THE ULTIMATE SYSTEM
TO REDUCE WASTE AND INCREASE RECYCLING

