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Energie AG Oberösterreich Umwelt Service GmbH

telematics system
implementation – drivers as
factor of success

TELEMATICS SYSTEM IMPLEMENTATION – DRIVERS AS FACTOR OF SUCCESS

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INTRODUCTION

ENERGIE AG UMWELT SERVICE – FACTS AND FIGURES

market leader in Austria



turnover (in M€, 2015)	employees	serviced inhabitants (in M)	industrial clients	municipal clients	sites	truck fleet	subcompanies
197,9	900	2,4	16.000	1.000	25	550	9



INTRODUCTION

PLANTS AND SITES

mechanical plant capacities	
Hörsching (packaging sorting)	40.000 t/a
Wels (commercial and bulky waste processing)	220.000 t/a
Redlham (alternative fuel production)	104.700 t/a
Timelkam (waste wood processing)	59.500 t/a
Timelkam (refrigerator processing)	5.000 t/a
Timelkam (display screen processing)	4.500 t/a
Linz Bäckermühlweg (paper sorting)	80.000 t/a

thermal plant capacities	
Wels (Wels recycling)	343.000 t/a
Lenzing (Lenzing waste recycling)	317.257 t/a



plant network in detail	
scrap iron processing plants	1
waste wood treatment plants	1
waste paper sorting plants	4
baling presses	13
biological waste water treatment plants	1
cogeneration plants	2
CPA-plants	1
CPO-plants	1
landfills	2
RDF-production plants	2
waste electronics processing	2
emulsion processing (ultrafiltration)	1
compost and biogas plants	1
mechanical sorting plants	4
incinerator plants	3

INITIAL SITUATION

EMAS & EEEFG

core indicator EMAS

fuel consumption (truck fleet)	measuring unit	absolute 2013	absolute 2014	absolute 2015	measuring unit	relative 2013	relative 2014	relative 2015
diesel (trucks)	[l]	4.626.841	4.564.746	4.471.978	[l/100 km]	43,91	43,59	43,78
petroleum gas (trucks)	[kg]	48.870	49.204	44.395	[kg/100 km]	61,58	56,22	61,13
diesel (floor-borne vehicle)	[l]	753.957	715.021	717.111	[l/operating hour]	7,57	7,07	7,49
diesel (automobiles)	[l]	216.592	201.221	182.485	[l/100 km]	6,45	6,43	6,31

obligation for distributors EEEFG

total end energy saving: 262.473 [kWh/a]
CO₂ – equivalent: 73.492 [kg]



MOTIVATION

- each sustainability-oriented company tries to gain CO₂ saving potentials
- drivers are motivated by employee profit sharing
- work always has to be stress-free and safe
- advantage in competition (first waste management company in austria with area-wide telematics system)

TIME SCHEDULE

2012
-
2015

- **test phase**
- goal: evaluation basic data and potentials for the sites Redlham, Hörsching, Wien
- 10 trucks were rebuilt and results with different drivers were analysed
- permanent involvement of work council

2015
-
2016

- **field test**
- goal: definition of saving potentials for the whole company
- premiums for the participating drivers (coordinated with work council)
- participation of 40 trucks, start 2016, duration 1 – 1,5 years

2017

- **operating start**
- area-wide rollout to 180 trucks
- area-wide premiums (coordinated with work council)

TELEMATICS

PARAMETER

Up to 124 parameters available!

parameter	measuring unit
consumption	l
consumption	l/100km
consumption auxiliary drive system	l
rate of utilisation	%
retarder	%, h
coasting mode	%, h
driving brake	%, h
action time	h
kilometrage	km

parameter	measuring unit
motor brake	%, h
Ø speed	km/h
Ø drive	min-1
braking time	h
max speed	km/h
overspeed	h
delay	m/sec ²
anticipatory driving	m/sec ³
consumption without auxiliary drive system	l/100km

(an abstract of the most important)

EVALUATION

Export (Excel)
←

Kontakt
Impressum
Logout

ENERGIEAG
Energy Services
 Wir denken an morgen

Fahrzeuganalyse

Auswahl

Fahreranalyse

Auswahl

Dashboard

Verwaltung

Auswahl | Fahrer

Österreich (ausgewählt)

Wien (ausgewählt)

Fahrzeughersteller

Abrollkipper (ausgewählt)

überregional (ausgewählt)

-

1.1.2013 (ausgewählt)

31.1.2013 (ausgewählt)

-

Pos	Fahrer	Standzeit	Betriebsstunden	Verbrauch	Gesamts trecke	Ø km/h	CO2	POINTS
1	Franz	23%	1:40:30	35,25	20.520	58 km/h	4353	99
2	Karl	21%	2:20:30	35,14	10.520	67 km/h	2354	95
3	Johannes	22%	1:30:30	40,25	10.520	74 km/h	7456	94
4	Lars	34%	5:20:30	50,30	10.520	84 km/h	2356	88
5	Jürgen	54%	1:50:30	51,64	10.520	40 km/h	4567	87
5 Fahrer		32%	15:20:14	41,25	60.800	14.547		

Betriebsstunden

Verbrauch

Schematische Darstellung!

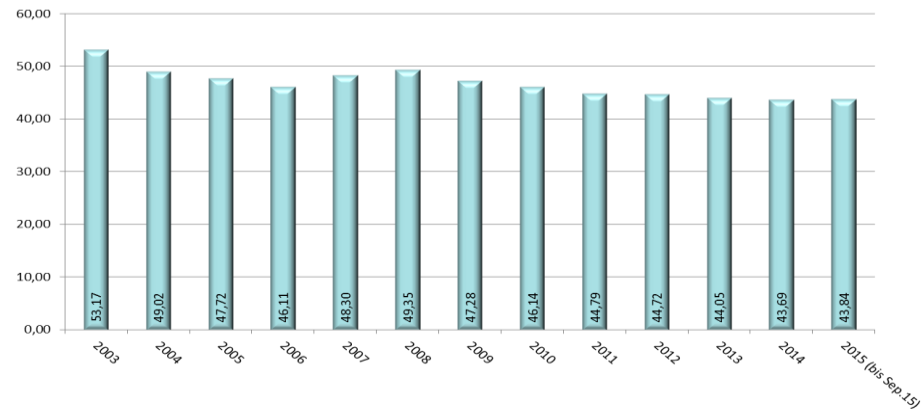
6

9

TELEMATICS

EFFORT/BENEFIT

- telematics box - one time
- installation in company-owned repair station (ca. 2 hours)
- monthly fee per truck
- specific software development EAG US - onetime
- internal costs, service, course of instruction, evaluation



goal:
average diesel consumption 40 l/100 km

considering that 100.000 km are yearly driven it means a consumption saving up to **5.000 l per truck!**

EVALUATION OF DRIVERS

evaluation of drivers follows a point system.

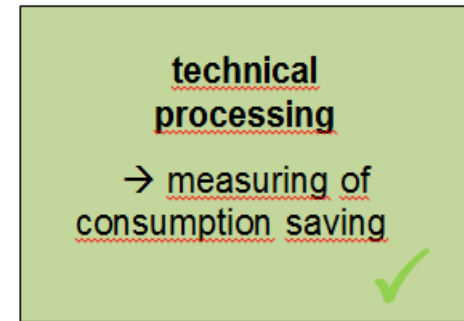
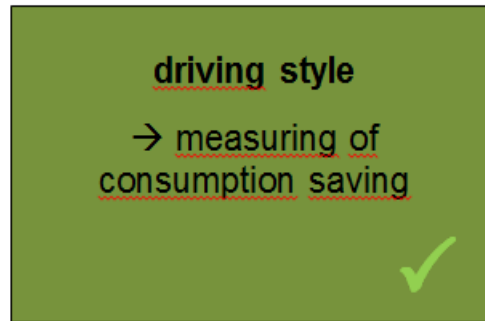
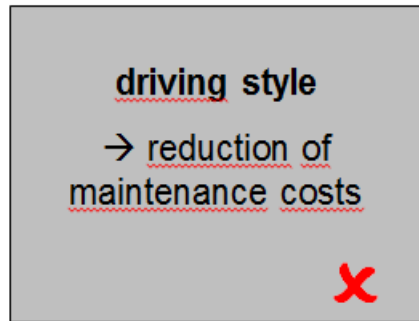
(points 1 – 100; 1 → bad; 100 → good)

parameters (examples)	points
delay	1 - 100
acceleration	1 - 100
∅ drive	1 - 100
coasting mode	1 - 100
consumption	1 - 100
number of rides	1 - 100
holding time	1 - 100

- 14 scalable parameters
- individual threshold value per truck/truck group
- clear evaluation matrix

PREMIUMS

MEASURING OF CONSUMPTION SAVING



No evaluation:

- not exactly measurable
 rsp. very expensive
- permanent discussions
 with drivers
- dependance on
 truck type, service,....

Premiums for consumption saving:

- **clearly measurable**
 - consumption per truck and driver
 - kilometrage
 - diesel price (same for all trucks!)
→ average consumption → evaluation
- **drivers benefit from processing**
 - premiums valid up to Euro 6
 - in the next 25 years 15-25 trucks per year will be purchased

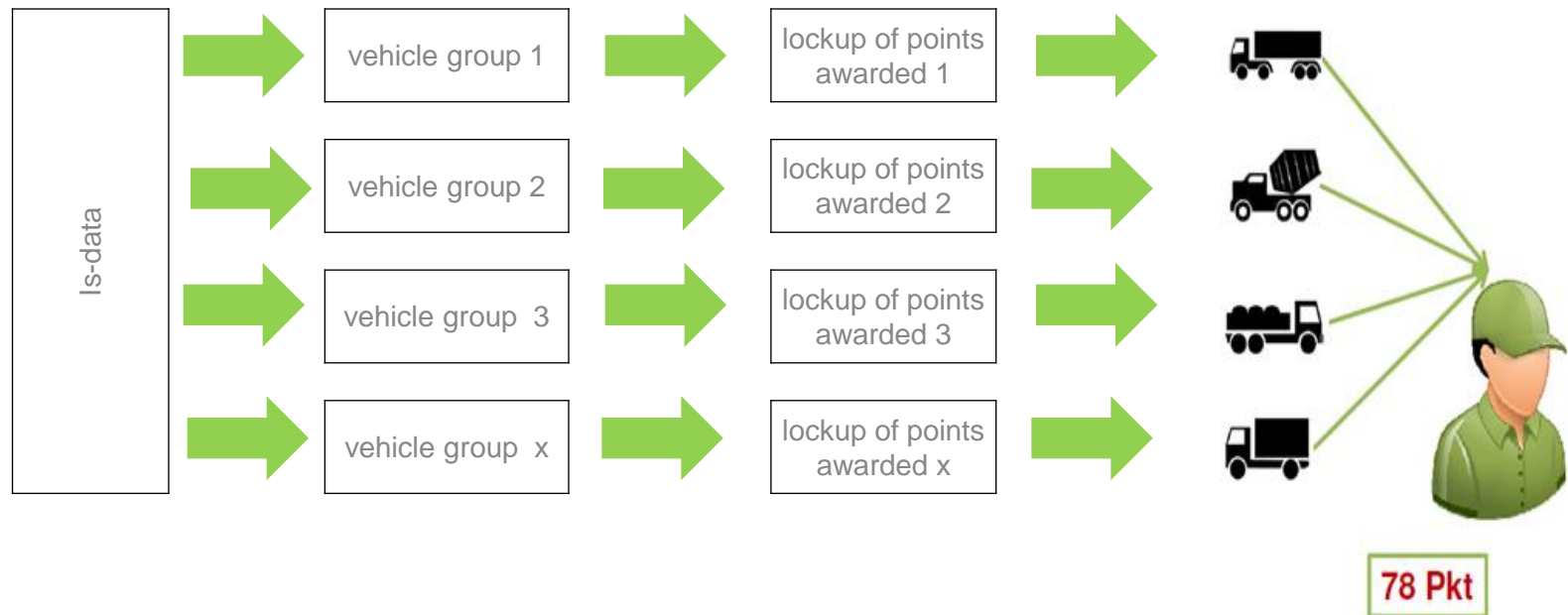
PREMIUMS

DRIVER REVIEW – POINT SYSTEM RUNNING

evaluation basis data
actual state

definition benchmarks

drivers' coaching



PREMIUMS

PROFIT SHARING

	saving	diesel consumption	diesel consumption*		premiums scale*
	[%]	[l/km]	[Mio. l/a]	[€/a]	[%]
base situation	0%	40,4	0,000	0	0%
saving step 1	-4%	38,8	0,120	102.000	10%
saving step 2	-8%	37,2	0,240	204.000	20%
saving step 3	-12%	35,6	0,360	306.000	30%
saving step 4	-16%	33,9	0,480	408.000	40%
saving step 5	-20%	32,3	0,600	510.000	50%

* fuel consumption and fuel price (december 2015)

SETTLEMENT

employment agreement essentially consists:

- implementation of telematics system in general
- access authority and protection of personal data
- duration of data storage
- profit sharing

PREMIUMS

EXPERIENCE

- biggest part of saving is the interest of the driver´s!
- operation difficulty rsp. operation area is not decisive – the more difficult the operation the more potential for saving.
- test drivers results showed sustainable success (big differences)

SUMMARY

RESULTS

- energy saving potential 324.000 l/a \triangleq
3.210.840 kWh
- cost saving potential about 324.000 €/a
(depending on the diesel price)
- CO₂-saving potential 858 t CO₂/a
- investment costs € 198.153
- pay-back time about 7 months!!

THANK YOU FOR YOUR ATTENTION!

CONTACT

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