Egged Group

EGGED familiarization

Egged – Business Card

- The Egged Cooperative was founded in 1933
- The most recognizable brand name in Israel in the area of public transportation.
- Egged provides about 48% of utility lines in Israel.
- The organization owns subsidiary companies, operating in the area of public transportation and other related fields.

Egged Subsidiaries companies

Egged Cooperative

Egged Holdings 100%	Egged Tours 100%	Egged Taavura 50%	Egged Heseim 100%
Operates outside of Israel in the public transportation area	Operates in the tourism field, inside and outside Israel	supply of public transportation services	supply of private transportation services

Egged in daily Numbers

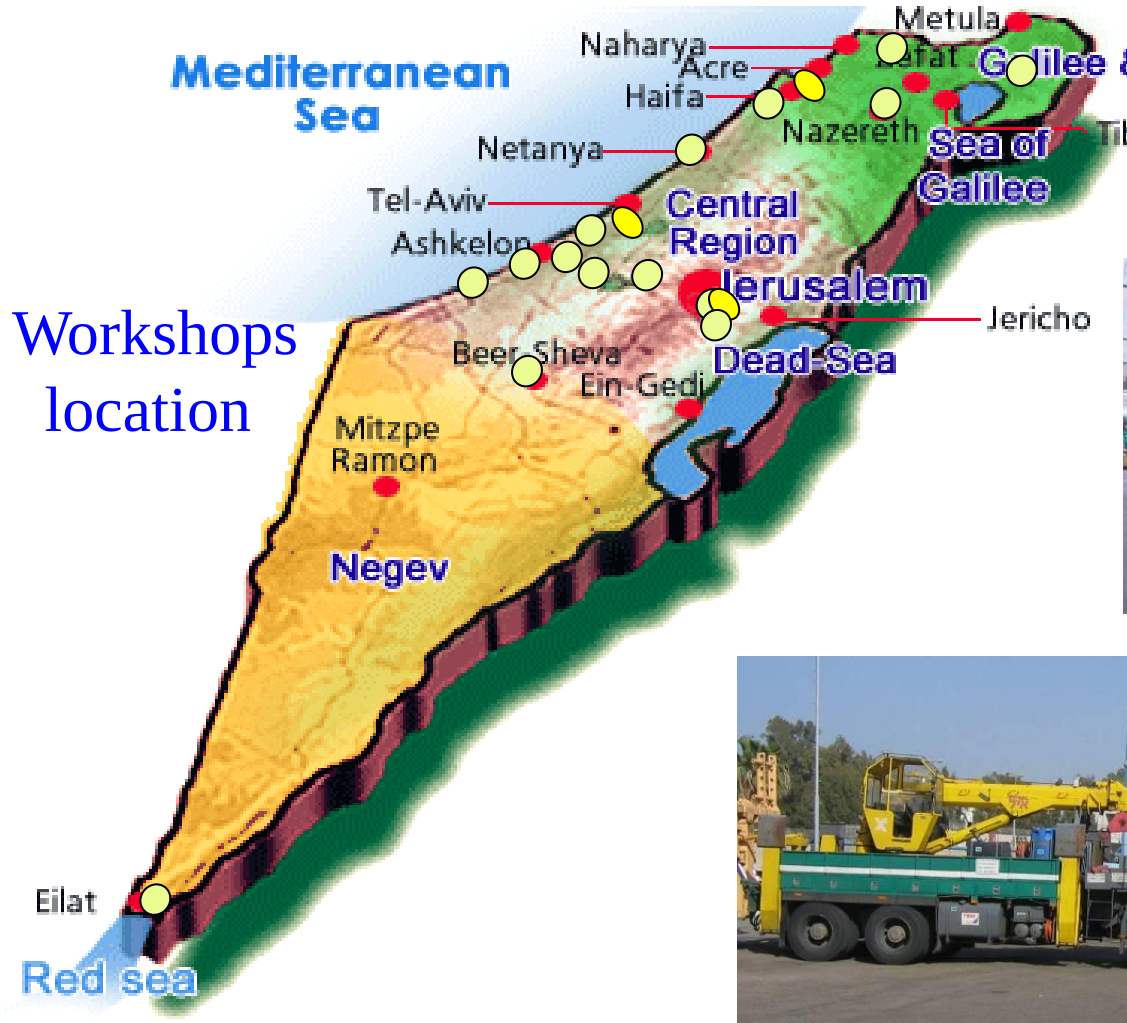
38,000 journeys	945 service routes
One million passengers	810,000 km
29 operational branches	20 central bus stations
About 3000 buses	6735 employees

Maintenance

- EGGED is conducting in house maintenance to its buses as it considered to be core activity .
- EGGED maintain approximately 3500 buses.
- The maintenance structure contain:

Maintenance sites location

Maintenance facility



Workshops location

recovery trucks

Aggregate rebuilding plant capabilities










Fleet data,
In respect to emission edict

Detailed fleet info. by the end of 2014

Bus type	model	AMOUNT OF BUSES, 12/14						YEARLY AVARAGE (Km)					yearly total (Km)
		2	3	4	5	6	TOTAL	2	3	4	5	6	
intercity	DAF SB4000		26		88		114		119760		128328		102,478,128
	VOLVO B11R				5		5				117204		
	VOLVO B10B	151					151	71772					
	VOLVO B12B		151	1	5		157	0	118488	97896	95784		
	YUTONG ZK6129HY				1		1				118068		
	MAN 18350	196					196	63768					
	MAN 18360		10			1	11	0	58740			127764	
	MERCEDES 404	5					5	71376					
	MERCEDES OC500		106		103	72	281	0	130968		148776	123480	
	MERCEDES 405	25					25	55872					
	SCANIA			1	30		31			120672	162540		
	total	**377**	**293**	**2**	**232**	**73**	**977**						
articulated	MAN NL313		1				1		39792				20,065,884
	MAN NG353F			100			100			54288			
	MAN NG363		31				31		33816				
	MAN NG363F		127		2		129		45264		60180		
	MAN NG363F-BRT				135		135				56532		
	MERCEDES 405	2					2	24144					
	total	**2**	**159**	**100**	**137**	**0**	**398**						
city	MAN NL313		191				191		45576				71,897,364
	MAN NL313F		466	123			589		50412	56796			
	MAN NL323F				199		199				63264		
	MERCEDES 405	53					53	44580					
	SOLARIS 4116					1	1					43944	
	SCANIA N270UB		1	6			7		37920	44340	0	0	
	SCANIA N280UB				307		307				56724	0	
	total	**53**	**658**	**129**	**506**	**1**	**1347**						
		432	**1110**	**231**	**875**	**74**	**2722**						**194,441,376**

Bus quantities by the end of 2014

Bus type	AMOUNT OF BUSES per euro, 12/14					
	2	3	4	5	6	TOTAL
intercity	377	293	2	232	73	977
articulated	2	159	100	137	0	398
city	53	658	129	506	1	1347
	432	1110	231	875	74	2722

- Buses serve in EGGED up to 15 years with an average age of about 6.5 years.
- The purchase plan for the near future is about 160 buses per year.

Analysis of ministry of environmental protection edict

Predicted Fleet		Edict requirement		Edict Compliance		DPF installation by the year end
Year end	bus quantities	Fleet percentage within average emission of 0.03 gr/km	Forbidden use of	Predicted fleet percentage	Amount of remaining euro 3 buses	
2015	2554	60	Euro 1	60	1096	18
2016	2567	75	Euro 2	75	635	
2017	2580	85		85	806	
2018	2593	100		93	661	120
2019	2606				516	
2020	2606		Euro 3		358	230

DPF retrofit potential installation – up to 400
Meaning – about 80 DPF a year between 2017-2020

Euro 3 brands in EGGED (end of 2014)

No.	Bus type	model	quantity	Model year
1	city	MAN NL	466	2001-2004
2	city	MAN NL F	191	2001-2004
3	articulated	MAN NG	31	2004-2007
4	articulated	MAN NG F	127	2004-2007
6	intercity	MERCEDES OC500	106	2001-2007
7	intercity	VOLVO B12B	151	2002-2007
8	intercity	MAN 18.360	10	1999-2002
9	intercity	DAF SB4000	26	2006-2007
Total			1108	

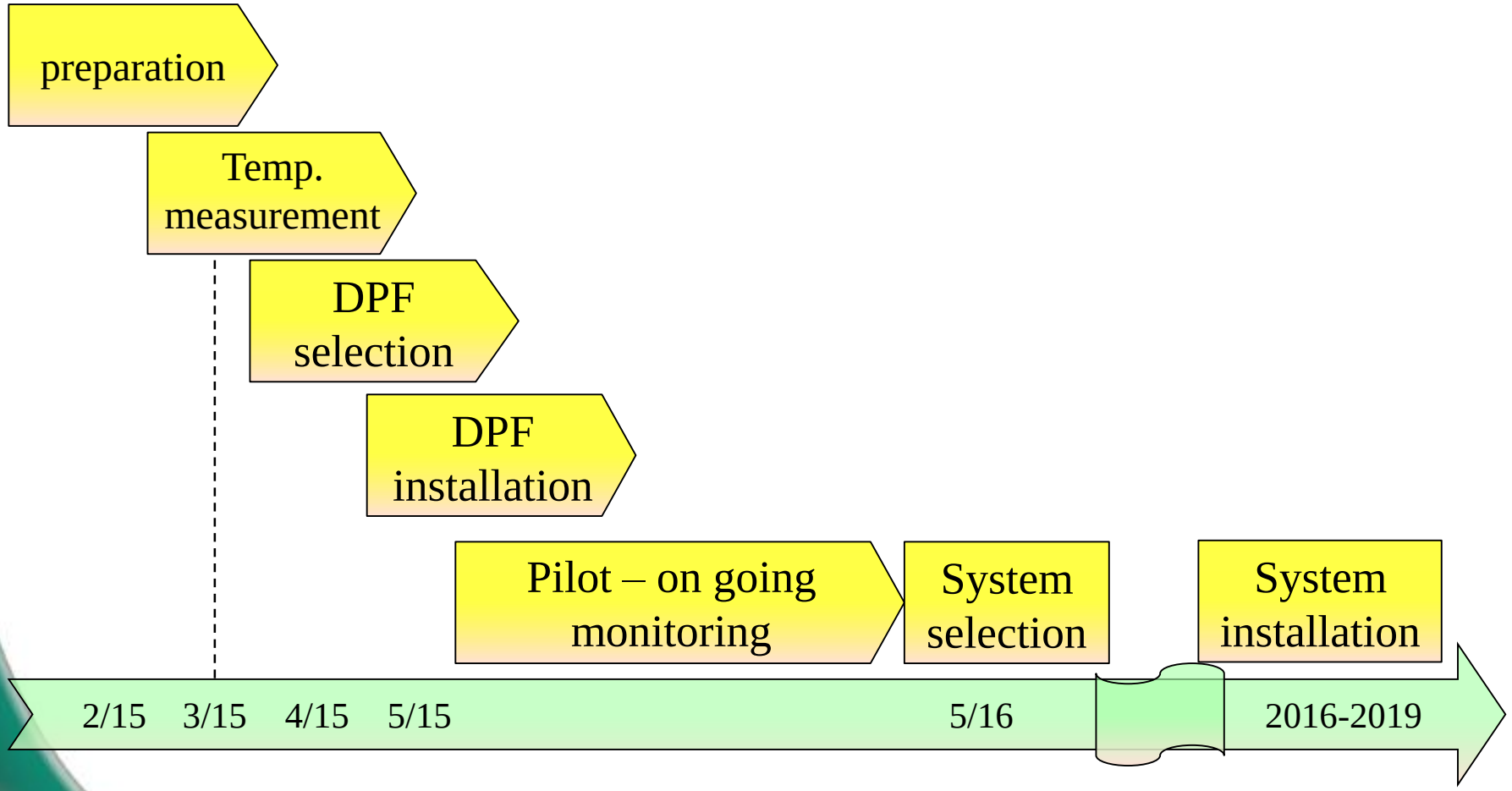
Dpf installation – main concerns

- **Installation**
  - chassis manufacturers approval to retrofit.
  - no regulation for DPF retrofit.
  - Matching the DPF to the engine
- **Safety**
  - risk of fire due to hot filter.
- **Maintenance**
  - high quality maintenance.
  - Back pressure /Self cleaning of DPF
- **Cost**
  - Installation cost
  - cost due to the lifetime of the DPF
  - Increased fuel consumption
  - equipment for cleaning the filter.

DPF pilot

(Will be conducted with the help of VERT associations and the TECHNION university)

Pilot time table

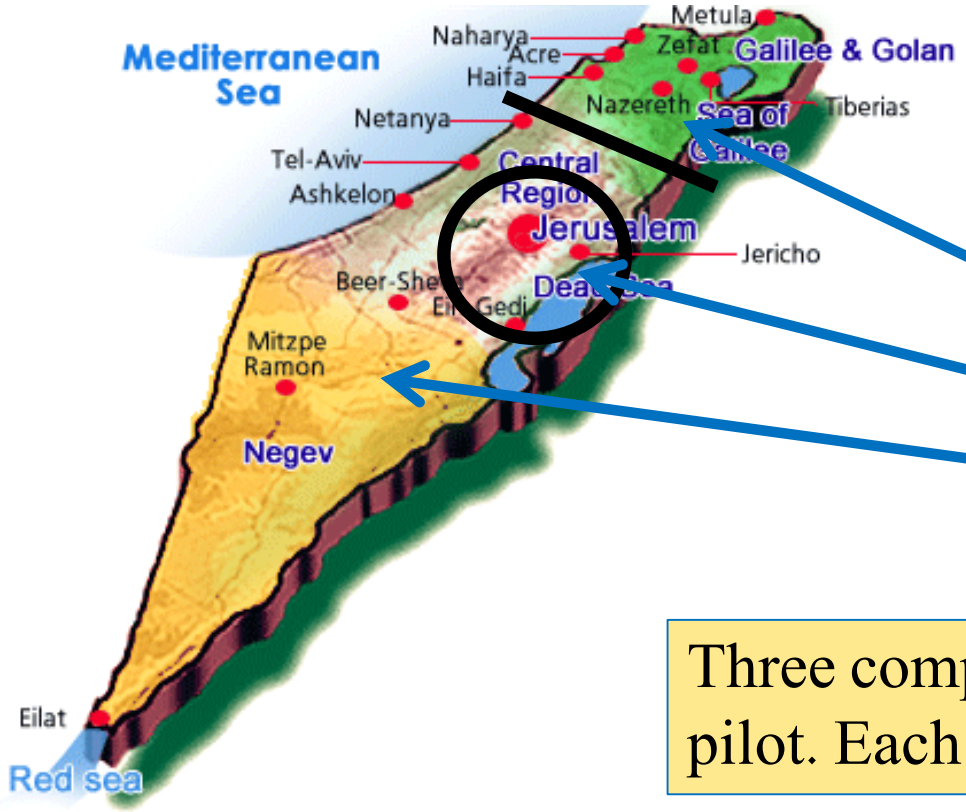


Preparation phase

- **Bus selection**
  - One city bus and one intercity bus, to cover all future demands.
  - Intercity bus – Mercedes OC500, euro 3, 2007.
  - City bus – MAN NL313, euro 3, 2007
- **Lines selection**
  - The lines eventually were selected according to:
    - Current location of the above buses
    - actual lines they are traveling
    - Select from this lines as pilot lines

Preparation phase cont.

- **Pilot principals -** Installation of **18** DPF according to:



	Mercedes Oc500	MAN NL313
North area	3	3
Jerusalem area	3	3
South area	3	3
total	**9**	**9**

Three companies will participate in the pilot. Each to supply 6 DPF's

Temp. measurement phase

- **Principal**
  - 6 buses will be installed with temp. sensors for emission gases and data loggers.
  - buses distribution:

	Mercedes Oc500	MAN NL313
North area	1	1
Jerusalem area	1	1
South area	1	1

  - Temp. measurement will last approximately one month.
  - Buses will travel their regular lines.
- **Hardware** – CPK automotive systems

Temp. measurement phase cont.

DPF selection phase

- **The DPF that will participate in the pilot will be chosen according to the following criteria:**
  - **Mandatory** : In respective to the temp. profile.
  - **preferred**:
    - The manufacturer have suitable systems for both kind of buses.
    - System simplicity.
    - Simple logistic.
    - Manufacturer plan to support the pilot and future installation
    - Having local Israeli representative.
    - cost estimation (for serial installation)

DPF installation phase

- **We expect manufacturer present in Israel during installation.**

Pilot – on going monitoring phase

- **The following data will be monitored during pilot:**
  - Emission temp.
  - Emission back pressure
  - Fuel consumption
  - DPF condition
  - DPF regeneration – during regular driving or active regeneration
  - DPF life expectancy
  - DPF cleaning
  - Sensitivity to engine component failure
  - Periodical particle measurement
  - Unusual events

System selection phase

- **Hopefully we will finish the pilot with 3 competitors.**
- System that reached the pilot finish line – meaning that we didn't have technical problem.
- The decision with whom to continue will take into consideration the following:
  - Manufacturer support plan.
  - Unit price.
  - Other cost – logistic, fuel,
  - Local representative

Thank you for your attention