



Twinning Project IL/11

Implementation and Strengthening the Environmental Framework for
IPPC, Resource Efficiency and Eco-Management in Israel



Energy Management Beverage Sector

Workshop Manufacturer Association Israel
Tel Aviv, March 14, 2017

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Workshop Energy Management in Beverage Industry

Contribution to the Agenda ,Beverage Industry‘ (MAI)

10:00 Osnat Avital (MAI)

10:05 Horizontal Energy Management Guidance (‘mini’ EnMS)

10:20 EnMS - Implementation Tool

10:35 EnMS – Self Assessment Tool as internal Audit
(Save costs and external administrative efforts)

10:50 Discussion

10:50 Break

11:10 Vertical Guidance on Beverage Industry (Practical Example)

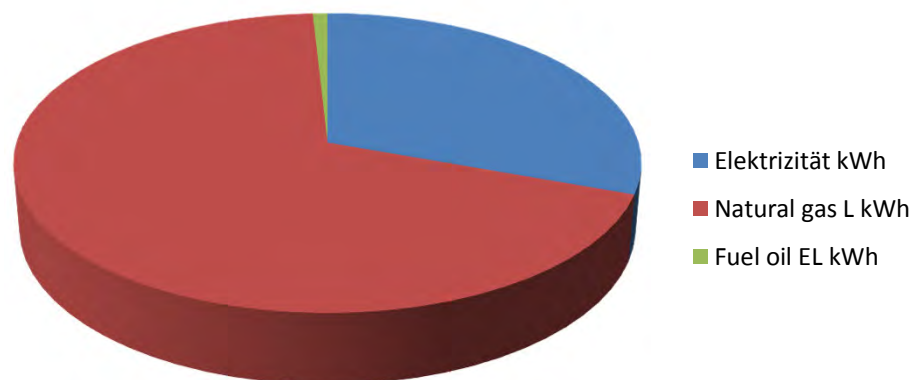
11:30 Interactive Application on Beverage Industry and Discussion

11:50 Final Discussion and Conclusion

12:00 Finish of contribution to the MAI Workshop



Vertical Guidance on Beverage Industry (Practical Example)



Fuel	Unit	Anual consumption	Anual energy consumption according to inventory	Parity
Electricity	kWh	1.224.610	1.287.207	95%
Natural gas L	kWh	2.757.301	2.649.480	104%
Fuel oil EL	kWh	34.726	30.816	113%

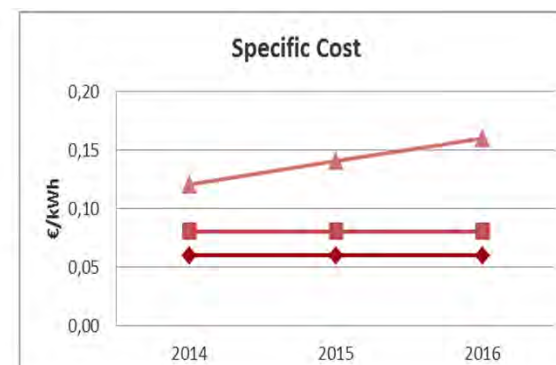
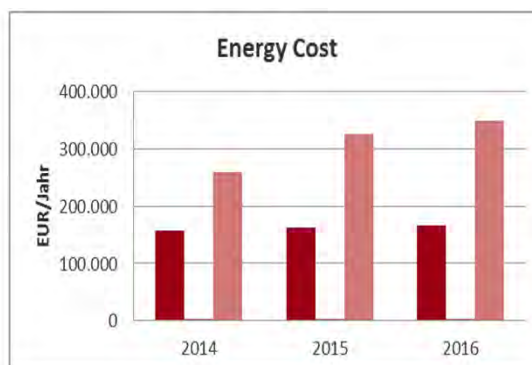
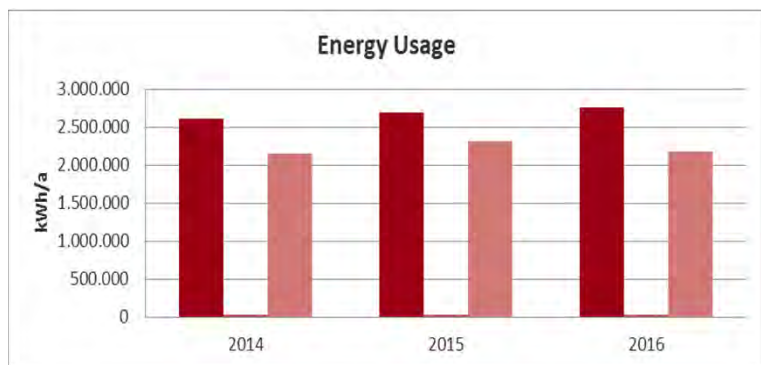




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Vertical Guidance on Beverage Industry (Practical Example)



Energy Used in Year 2016									
Fuel	Unit	Accounting from	to (date)	Fuel Use	Unit/Duration	total Cost	Specific Cost	Fuel uses kWh	Annual Cost
Power	kWh	01.01.2016	31.12.2016	1.224.610kWh/365 Tage		348.850 €	0,16€/kWh	2.180.310	348.849,60 €
Natural gas L	kWh	01.01.2016	31.12.2016	2.757.301kWh/365 Tage		165.438 €	0,06€/kWh	2.757.301	165.438,05 €
Fuel oil EL	Liter	01.01.2016	31.12.2016	3.490Liter/365 Tage		2.792 €	0,80€/Liter	34.726	2.792,00 €

Energy Used in Year 2015									
Fuel	Unit	Accounting from	to (date)	Fuel Use	Unit/Duration	total Cost	Specific Cost	Fuel uses kWh	Annual Cost
Power	kWh	01.01.2015	31.12.2015	1.202.610kWh/364 Tage		324.843 €	0,14€/kWh	2.320.310	325.735,83 €
Natural gas L	kWh	01.01.2016	31.12.2016	2.697.301kWh/365 Tage		161.838 €	0,06€/kWh	2.697.301	161.838,05 €
Fuel oil EL	Liter	01.01.2016	31.12.2016	3.420Liter/365 Tage		2.736 €	0,80€/Liter	34.029	2.736,00 €

Energy Used in Year 2014									
Fuel	Unit	Accounting from	to (date)	Fuel Use	Unit/Duration	total Cost	Specific Cost	Fuel uses kWh	Annual Cost
Power	kWh	01.01.2014	31.12.2014	1.198.610kWh/364 Tage		258.028 €	0,12€/kWh	2.150.230	258.736,47 €
Natural gas L	kWh	01.01.2016	31.12.2016	2.610.301kWh/365 Tage		156.618 €	0,06€/kWh	2.610.301	156.618,05 €
Fuel oil EL	Liter	01.01.2016	31.12.2016	3.510Liter/365 Tage		2.808 €	0,80€/Liter	34.925	2.808,00 €



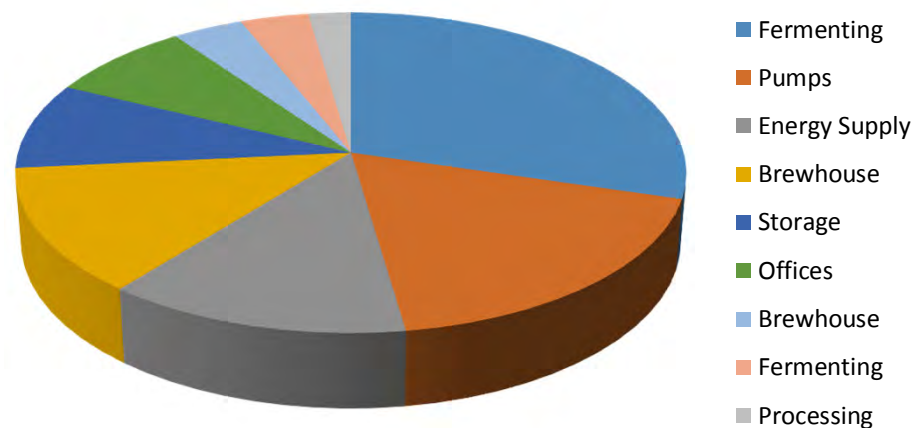
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Energy Management
Beverage Sector
Tel Aviv, March 14, 2017



Vertical Guidance on Beverage Industry (Practical Example)

Energy use by Units		
Elektrische Verbraucher		
	Energieverbrauch in kWh_el/a	Installierte Leistung kW_el
Fermenting	311.695	188
Pumps	274.380	253
Brewhouse	210.454	93
Energy Supply	137.700	60
Processing	97.920	48
Storage	91.800	80
Offices	83.589	139
Brewhouse	40.574	26
Fermenting	39.095	30
Gesamtergebnis	1.287.207	916

Energieverbrauch in kWh_el/a

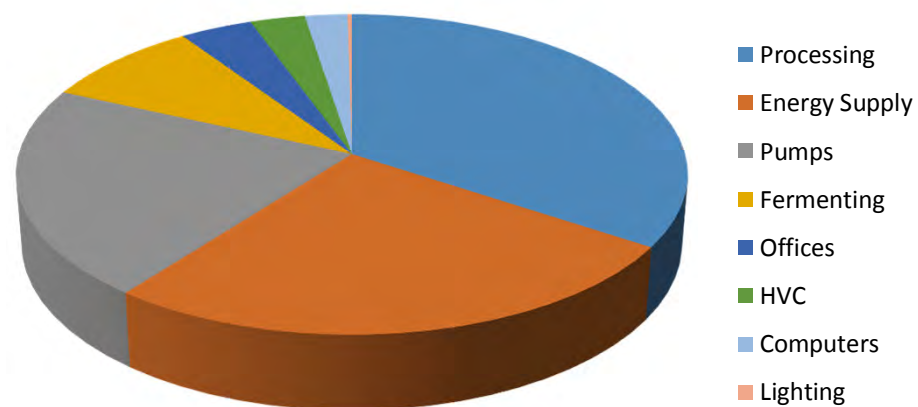




Vertical Guidance on Beverage Industry (Practical Example)

Energy use Category		
Equipment		
	Energy use in kWh_el/a	Installed power kW_el
Processing	441.143	225
Energy Supply	336.925	192
Pumps	274.380	253
Fermenting	112.649	83
Offices	50.694	105
HVC	38.520	25
Computers	29.835	26
Lighting	3.060	8
Gesamtergebnis	1.287.207	916

Energy use in kWh_el/a





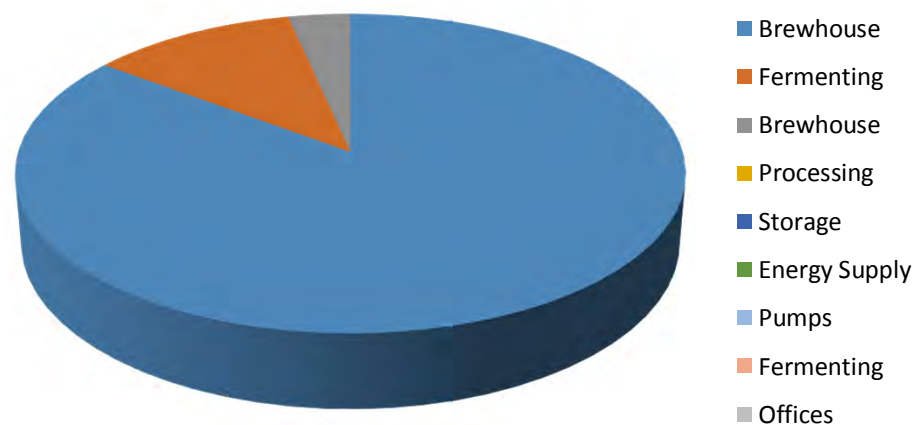
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Thermal User			
	Sum of Thermal Nominal Power in kW	Sum of Energy demand, thermal in kWh	Sum of Energy costs, Thermal
Brewhouse	375	1.468.896	88.731
Fermenting	50	1.058.400	63.504
Brewhouse	15	153.000	9.180
Processing	-	-	-
Storage	-	-	-
Energy Supply	-	-	-
Pumps	-	-	-
Fermenting	-	-	-
Offices	-	-	-
Gesamtergebnis	440	2.680.296	161.415

Sum of Thermal Nominal Power in kW





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Conclusions:

- **Energy consumption through installed Pumps are considerable and this processing category and unit should be analyzed and assessed**
- **Natural Gas consumption for Steam production could be reduced through optimizing recovery from other heat processes**

