Set of updated IEE Common performance indicators including their baseline and assumptions for extrapolation

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1 ABOUT THE SEEMORE PROJECT

1.1 Project Summary

SEEMORE shows that regional actors in 8 European coastal tourist regions are able to change the travel behavior of visitors within their regions towards more sustainable transport modes. The main objectives of the project are to:

- Increase visitors´ awareness of sustainable mobility;
- Strengthen the co-operation between the mobility and tourism sectors;
- Shift travel behaviour of tourists to sustainable transport modes; and
- Communicate and transfer experiences to other tourist regions.

1.2 The SEEMORE consortium

Project Partner	Country
CINESI Transport Consultancy (Coordinator)	Spain
Tourism Agency of the Balearic Islands	Spain
Mallorca Transports Consortium	Spain
Trivector Traffic AB	Sweden
Association of Local Authorities Fyrbodal	Sweden
FGM-AMOR Austrian Mobility Research	Austria
Common Europe Pomeranian Association	Poland
Municipality of Choczewo	Poland
Sustainable Development of Civil Society Club	Bulgaria
Province of Forlì-Cesena	Italy
Central European Initiative	Italy
Limassol Tourist Development and Promotion Co Ltd	Cyprus
Stratagem Energy Ltd	Cyprus
Horários do Funchal Public Transport	Portugal
Local Councils' Association	Malta

2 SUMMARY

This report aims at providing an update of the Intelligent Energy Europe Common Performance Indicators for the SEEMORE project: primary energy savings (toe/year) and reduction of greenhouse gas emissions (t CO2e/year) until the end of the project and year 2020.

This update has been done after a period of revision of calculations and estimations made during the proposal and negotiation phase. Moreover, it has been also taken into account the assumptions considered by the STARTER project, which also focuses on leisure mobility.

3 UPDATE OF IEE COMMON PERFORMANCE INDICATORS

3.1 Final calculations for target areas

The table below shows the final figures for each target area. The number of visitors and overnight stays has been reviewed. In addition, the estimated trips per day has been agreed with the STARTER project (3,5 trips).

	ESTIMATIONS FOR SEEMORE TARGET GROUP										
	Region	Inhabitants	Visitors in the SEEMORE target group per year	Overnight stays of visitors in the SEEMORE target group	Average stay	Estimated trips per day	Total trips	Private/rental vehicle modal share	Vehicle average occupancy	Estimated average length per trip (km)	Total Km by car per year inside the region (excluding trips to come or leave the region)
Island	Balearic Islands	1.095.426	2.905.136	24.416.045	9,17	3,5	91.266.430	35%	3	15	159.716.252
	Malta	412.966	1.074.270	6.553.047	6,10	3,5	28.361	40%	3	8	30.252
	Limassol	281.466	2.600.000	28.600.000	11,00	3,5	105.300.000	40%	3	8	112.320.000
	Madeira	240.000	1.637.700	9.007.350	5,50	3,5	34.801.125	35%	3	20	81.202.625
Mainland	Bohuslän	287.223	300.000	1.200.000	4,00	3,5	4.200.000	80%	3	15	16.800.000
	Dobrich	199.705	100.000	500.000	5,00	3,5	1.750.000	40%	3	15	3.500.000
	Forlì-Cessena	371.318	730.572	5.004.584	6,85	3,5	17.516.044	40%	3	15	35.032.088
	Pomerania	1.000.000	100.000	360.000	3,60	3,5	1.260.000	80%	3	15	5.040.000
	TOTAL	**3.888.104**	**9.447.678**	**75.641.026**			**256.121.960**				**413.641.216**

Table 1: Reviewed table of estimations in target areas.

3.2 IEE Common Performance Indicators

The methodology used for the calculation of IEE Performance Indicators follows the assumptions made on page 15 of the Annex I.

The table shown below indicates the calculations made to figure out the total tons of oil equivalent and CO_2 produced per year in each demonstrator region. Explanations have been included in the table.

baseline: energy consumption and CO2 emissions in the demonstrator regions							
Region	Total Km driven by tourists by car per year inside the region (excluding trips to come or leave the region)	total litres of fuel consumed per year (assumption: average fuel consumption of a car is 0.059 l/passenger-km; assumption: average occupancy rate per car is 3 persons)	total litres of gasoline consumed per year (assumption: average fleet includes 30% diesel-cars and 70% gasoline-cars; and the average distance driven per car is equal for diesel- and gasoline-cars)	total litres of diesel consumed per year (assumption: average fleet includes 30% diesel-cars and 70% gasoline-cars; and the average distance driven per car is equal for diesel- and gasoline-cars)	total kJ used per year (1.177 litre gasoline equals 1 kg; 1.159 litre diesel equals 1 kg; 1 kg gasoline = 44000 kJ; 1kg diesel = 42300 kJ)	**tons of oil equivalent used per year (calculation: 41,868,000 kJ = 1 toe)**	**tons of CO2 produced per year (calculation: 2.33 kg CO2 result from 1 litre gasoline; 2.64 kg CO2 result from 1 litre diesel;)**
Balearic Islands	159.716.252	3.141.086	2.198.760	942.326	116.588.699.479	2.785	7.611
Malta	30.252	595	416	178	22.082.977	1	1
Limassol	112.320.000	2.208.960	1.546.272	662.688	81.990.671.533	1.958	5.352
Madeira	81.202.625	1.596.985	1.117.889	479.095	59.275.799.092	1.416	3.869
Bohuslän	16.800.000	330.400	231.280	99.120	12.263.561.981	293	801
Dobrich	3.500.000	68.833	48.183	20.650	2.554.908.746	61	167
Forlì-Cessena	35.032.088	688.964	482.275	206.689	25.572.510.865	611	1.669
Pomerania	5.040.000	99.120	69.384	29.736	3.679.068.594	88	240
TOTAL	413.641.216	**8.134.944**	**5.694.461**	**2.440.483**	**301.947.303.266**	**7.212**	**19.711**
						tons of oil equivalent (toe) produced until 2020 in the demonstrator regions	**tons of CO2 produced per year in the demonstrator regions**

Table 2: Baseline: energy consumption and CO_2 emissions in the demonstrator regions.

The table shown below indicates the calculations made to figure out the final total savings achieved by regions until the end of the project (2015).

Performance indicators: estimated reduction of energy use and CO2 achieved within the project's duration															
Savings									Extra consumptions by new services				Total savings	
Region	target of decrease of private car km by end of project	estimated decrease of private car km within the project duration	total litres of fuel saved (assumption: average fuel consumption of a car is 0.059 l/passenger-km; assumption: average occupancy rate per car is 3 persons)	total litres of gasoline saved (assumption: average fleet includes 30% diesel-cars and 70% gasoline-cars; and the average distance driven per car is equal for diesel- and gasoline-cars)	total litres of diesel saved (assumption: average fleet includes 30% diesel-cars and 70% gasoline-cars; and the average distance driven per car is equal for diesel- and gasoline-cars)	total kJsaved (1.177 litre gasoline equals 1 kg; 1.159 litre diesel equals 1 kg; 1 kg gasoline = 44000 kJ; 1kg diesel = 42300 kJ)	**tons of oil equivalent saved (calculation: 41,868,000 kJ = 1 toe)**	**tons of CO2 saved (calculation: 2.33 kg CO2 result from 1 litre gasoline; 2.64 kg CO2 result from 1 litre diesel;)**	total litres of diesel consumed by additional bus services (assumption: 25 new bus routes with an average trip length of 10 km will be introduced in the demonstrator regions; assumption: these routes will be served twice a day during the touristic season of 6 months per year; assumption: a bus uses on average 25 litre diesel for 100 km)	total kJ used by the additional bus services (1.159 litre diesel equals 1 kg; 1kg diesel = 42300 kJ)	**tons of oil equivalent used by the additional bus services (calculation: 41,868,000 kJ = 1 toe)**	**tons of CO2 used by the additional bus services (calculation: 2.64 kg CO2 result from 1 litre diesel;)**	**tons of oil equivalent saved by SEEMORE within the project's duration**	**tons of CO2 saved by SEEMORE within the project's duration**
Balearic Islands	15%	23.957.438	471.163	329.814	141.349	17.488.304.922	418	1.142						
Malta	10%	3.025	59	42	18	2.208.298	0	0						
Limassol	10%	11.232.000	220.896	154.627	66.269	8.199.067.153	196	535						
Madeira	8%	6.496.210	127.759	89.431	38.328	4.742.063.927	113	310						
Bohuslän	5%	840.000	16.520	11.564	4.956	613.178.099	15	40	**22.500**	**821.182.053**	**20**	**59**	**796**	**2.170**
Dobrich	10%	350.000	6.883	4.818	2.065	255.490.875	6	17						
Forlì-Cessena	10%	3.503.209	68.896	48.228	20.669	2.557.251.086	61	167						
Pomerania	8%	403.200	7.930	5.551	2.379	294.325.488	7	19						
TOTAL		46.785.082	920.107	644.075	276.032	34.151.889.848	816	2.229						

Table 3: Estimated reduction of energy use and CO_2 achieved within the project's duration.

On the other hand, results achieved by 2020 are:

Performance indicator: estimated reduction of energy used and CO2 achieved until 2020														
Savings									Extra consumptions by new services				Total savings	
Region	target of decrease of private car km by 2020	Descrease in car kilometers in 2020 as compared to 2010	total litres of fuel saved (assumption: average fuel consumption of a car is 0.059 l/passenger-km; assumption: average occupancy rate per car is 3 persons)	total litres of gasoline saved (assumption: average fleet includes 30% diesel-cars and 70% gasoline-cars; and the average distance driven per car is equal for diesel- and gasoline-cars)	total litres of diesel saved (assumption: average fleet includes 30% diesel-cars and 70% gasoline-cars; and the average distance driven per car is equal for diesel- and gasoline-cars)	total kJsaved (1.177 litre gasoline equals 1 kg; 1.159 litre diesel equals 1 kg; 1 kg gasoline = 44000 kJ; 1kg diesel = 42300 kJ)	**tons of oil equivalent saved (calculation: 41,868,000 kJ = 1 toe)**	**tons of CO2 saved (calculation: 2.33 kg CO2 result from 1 litre gasoline; 2.64 kg CO2 result from 1 litre diesel;)**	total litres of diesel consumed by additional bus services (assumption: 25 new bus routes with an average trip length of 10 km will be introduced in the demonstrator regions; assumption: these routes will be served twice a day during the touristic season of 6 months per year; assumption: a bus uses on average 25 litre diesel for 100 km)	total kJ used by the additional bus services (1.159 litre diesel equals 1 kg; 1kg diesel = 42300 kJ)	**tons of oil equivalent used by the additional bus services (calculation: 41,868,000 kJ = 1 toe)**	**tons of CO2 used by the additional bus services (calculation: 2.64 kg CO2 result from 1 litre diesel;)**	**tons of oil equivalent saved by demonstrator regions until 2020**	**tons of CO2 saved by demonstrator regions until 2020**
Balearic Islands	20%	31.943.250	628.217	439.752	188.465	23.317.739.896	557	1.522						
Malta	12%	3.630	71	50	21	2.649.957	0	0						
Limassol	12%	13.478.400	265.075	185.553	79.523	9.838.880.584	235	642						
Madeira	10%	8.120.263	159.698	111.789	47.910	5.927.579.909	142	387						
Bohuslän	7%	1.176.000	23.128	16.190	6.938	858.449.339	21	56	**112.500**	**4.105.910.267**	**98**	**297**	**945**	**2.555**
Dobrich	12%	420.000	8.260	5.782	2.478	306.589.050	7	20						
Forlì-Cessena	12%	4.203.851	82.676	57.873	24.803	3.068.701.304	73	200						
Pomerania	10%	504.000	9.912	6.938	2.974	367.906.859	9	24						
TOTAL		59.849.394	1.177.038	823.927	353.111	43.688.496.897	1.043	2.852						
							tons of oil equivalent (toe) saved by 2020 in the demonstrator regions through reduction of car trips	**tons of CO2 saved until 2020 in the demonstrator regions through reduction of car trips**						

Table 4: Estimated reduction of energy use and CO2 achieved until 2020.

In addition, the impact resulting from including follower regions (in total, 80) is the following:

Impact created by the follower regions													
	Savings							Extra consumptions by new services				Total savings	
Followers	decrease of private car kilometres in the 80 follower regions (assumption: on average the follower regions will perform like the average demonstrator region - thus each follower region will achieve 75% of the average demonstrator region, since the measures implemented in the follower regions are only effective from around 2018)	total litres of fuel saved (assumption: average fuel consumption of a car is 0.059 l/passenger-km; assumption: average occupancy rate per car is 3 persons)	total litres of gasoline saved (assumption: average fleet includes 30% diesel-cars and 70% gasoline-cars; and the average distance driven per car is equal for diesel- and gasoline-cars)	total litres of diesel saved (assumption: average fleet includes 30% diesel-cars and 70% gasoline-cars; and the average distance driven per car is equal for diesel- and gasoline-cars)	total kJsaved (1.177 litre gasoline equals 1 kg; 1.159 litre diesel equals 1 kg; 1 kg gasoline = 44000 kJ; 1kg diesel = 42300 kJ)	**tons of oil equivalent saved (calculation: 41,868,000 kJ = 1 toe)**	**tons of CO2 saved (calculation: 2.33 kg CO2 result from 1 litre gasoline; 2.64 kg CO2 result from 1 litre diesel;)**	total litres of diesel consumed by additional bus services (assumption: 25 new bus routes with an average trip length of 10 km will be introduced in the demonstrator regions; assumption: these routes will be served twice a day during the touristic season of 6 months per year; assumption: a bus uses on average 25 litre diesel for 100 km)	total kJ used by the additional bus services (1.159 litre diesel equals 1 kg; 1kg diesel = 42300 kJ)	**tons of oil equivalent used by the additional bus services (calculation: 41,868,000 kJ = 1 toe)**	**tons of CO2 used by the additional bus services (calculation: 2.64 kg CO2 result from 1 litre diesel;)**	**tons of oil equivalent saved by follower regions until 2020**	**tons of CO2 saved by follower regions until 2020**
	448.870.452	8.827.786	6.179.450	2.648.336	327.663.726.731	**7.826**	**21.390**	281.250	10.264.775.669	**245**	**743**	**7.581**	**20.647**

Table 5: Impact created by follower regions.

Thus, the total amount of savings by 2020 is:

	tons of oil equivalent saved until 2020	**tons of CO2 saved until 2020**
Regions	945	2.555
Followers	7.581	20.647
Total	**8.526**	**23.202**

Table 6: Total amount of savings by 2020.

As a result, the IEE Common Performance Indicators have changed. The following table summarizes the final estimated achievements:

Specific and strategic objective	Target within the action duration	Target by 2020
Contribution to the EU 2020 targets on energy efficiency and renewable energy sources	796 Primary savings (toe/year)	8.526 Primary savings (toe/year)
	2.170 Reduction of greenhouse gas emissions (t CO_2e/year)	23.202 Reduction of greenhouse gas emissions (t CO_2e/year)

Table 7: Update of IEE Common Performance Indicators.

Thus, the expected figures to achieve are:

- Reduction of annual primary energy use of **796** toe/year by 2015.
- Reduction of annual primary energy use of **8.526** toe/year by 2020.
- Reduction of greenhouse gas emissions of **2.170** t CO_2e/year by 2015.
- Reduction of greenhouse gas emissions of **23.202** t CO_2e/year by 2020.