Joint Research Center (JRC)

Seminario Fondazione Cariplo - Il Patto dei Sindaci
Covenant of Mayors - CoM
Milano, 24 Novembre 2010

I Piani di Azione per l'Energia Sostenibile

Lo stato dell'arte, il ruolo del JRC,

le linee guida, consigli pratici

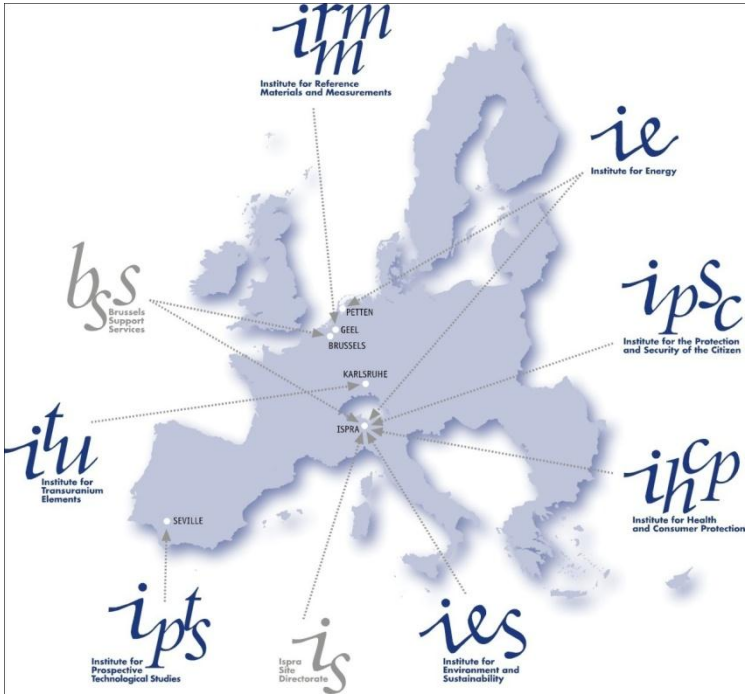
Michele Canova
IES- Institute for Environment and Sustainability
Ispra - Italy
http://ies.jrc.ec.europa.eu
http://www.jrc.ec.europa.eu/

JRC Covenant of Mayors team: Paolo Bertoldi, Michele Canova, Federica Paina, Ronald Piers

EUROPEAN COMMISSION Directorate-General for Energy and Transport
Covenant of Mayors Committed to local sustainable energy

JRC - Robust Science for Policy Making

As a Directorate-General
of the European Commission,
the JRC provides customer-driven
scientific and technical support
to Community policy making



Ruolo del JRC (CCR) nel Patto dei Sindaci:

“Supportare lo sviluppo, l’implementazione, e il monitoraggio del Patto dei Sindaci da un punto di vista tecnico e scientifico.”

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Il Patto dei Sindaci e' un impegno di citta' e comuni ad andare oltre gli obiettivi della politica energetica UE in termini di riduzione di emissioni di CO_2 attraverso misure di miglioramento dell'efficienza energetica nell'uso e produzione di energia e nell'aumento di produzione locale da energia rinnovabile.

"NOI, SINDACI, CI IMPEGNAMO

ad andare oltre gli obiettivi fissati per l'UE al 2020, riducendo le emissioni di CO2 nelle rispettive città di oltre il 20% attraverso l'attuazione di un Piano di Azione per l'Energia Sostenibile. Questo impegno e il relativo Piano di Azione saranno ratificati attraverso le proprie procedure amministrative."

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I. I firmatari

- I firmatari sono amministrazioni locali: metropoli, citta', cittadine, comuni, comunita' urbane, rurali, montane, borough, contee, etc.

- Diversi livelli amminstrativi, competenze, risorse e capacita'

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Lo Stato dell'arte Novembre 2010

Amministrazioni locali FIRMATARIE:

2147 (Italiane: 746)

Stima Popolazione coinvolta:

Oltre 130 milioni

STRUTTURE DI SUPPORTO: 115

Template inviati: 203

Piani di Azione Energia Sostenibile:

SEAP/PAES Presentati: 205

Firmatari attivi: 238

Per avere dati aggiornati quotidianamente:

http://www.eumayors.eu/covenant_cities/towns_cities_en.htm

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Impegni presi con la firma del Patto:

Preparare e inviare entro 1 anno dopo la firma:

- ***Un Piano di Azione per l'Energia Sostenbile (PAES) con un obiettivo di riduzione complessiva delle emissioni di CO_{2eq} di almeno il 20% al 2020 rispetto all'anno di riferimento: il Patto si concentra sul settore dell'energia (CO_2 principale gas serra).***

- ***Un Inventario di Riferimento delle Emissioni (BEI)***

Il BEI e' un prerequisito del PAES: fornisce la conoscenza necessaria per la redazione del piano.

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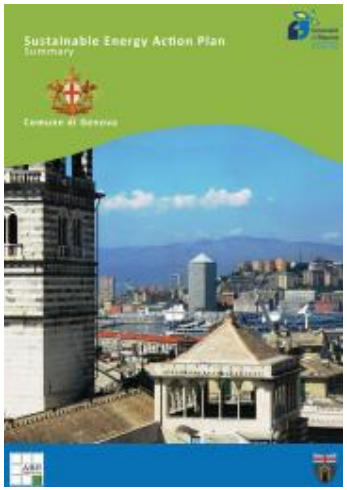
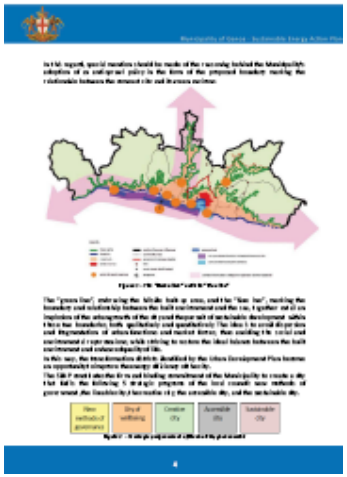
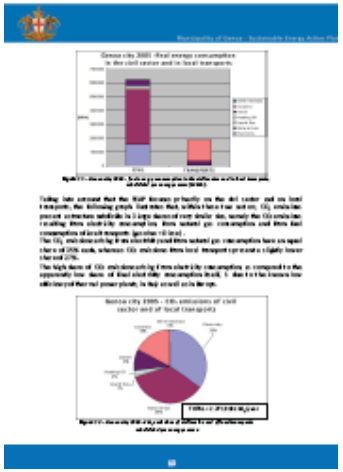
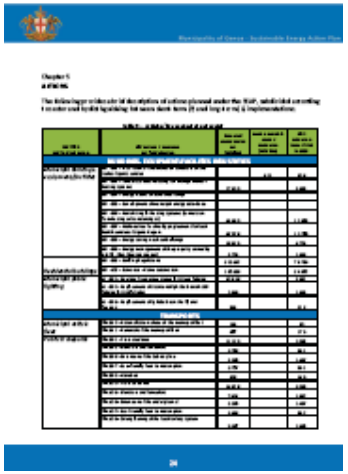
Esempio: Genova









Il PAES e':
-Un documento politico
- Uno strumento di comunicazione e promozione
-Un riferimento ed uno strumento di attuazione

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Attivita' del JRC

1. **METODOLOGIE: Ricerca completa sulle metodologie e strumenti esistenti**
2. **LINEE GUIDA: Linee Guida per lo sviluppo e monitoraggio di Piani Azioni Sostenibili PAES (SEAP)**
3. **ANALISI: Analisi tecnico-scientifica di alto livello dei SEAP e relativa relazione ai firmatari**
4. **MONITORAGGIO: Monitoraggio implementazione CoM**
5. **HELPDESK: Servizio Tecnico di helpdesk per rispondere a quesiti di natura tecnico - scientifica dei firmatari**

SVILUPPO e AMPLIAMENTO: Estensione della portata del Patto dei Sindaci oltre gli attuali confini geografici e concettuali, definizione a livello globale di modelli per inventario delle emissioni per enti locali

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LINEE GUIDA (Guidebook)

Linee Guida per lo sviluppo dei Piani di Azione Energia Sostenibile SEAP

Attualmente in inglese, versione italiana prossimamente disponibile, la traduzione e' in corso

http://www.eumayors.eu/mm/staging/library/seap_gl/docs/001_Complete_version.pdf

Da considerare unitamente alle 51 Frequently Asked Questions presenti sul sito:

http://www.eumayors.eu/faq/index_en.htm

Le risposte forniscono chiarimenti e adattamenti delle Linee Guida all'enorme varieta' di situazioni e condizioni presenti a livello locale in Europa.

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Come Sviluppare un Piano di Azione Energia Sostenibile

Linee guida rivolte ai comuni/strutture di supporto al fine di aiutare nello sviluppo di un Piano Azione Energia Sostenibile SEAP

3 parti:

Parte I : Il Processo SEAP, fase per fase verso l'obiettivo del -20% al 2020

Parte II: Inventario di Base delle Emissioni

Parte III : Misure Tecniche per l'efficienza energetica e l'energia rinnovabile

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10 ELEMENTI CARDINE PER IL SUCCESSO

1. Approvazione del PAES da parte del Consiglio Municipale o locale
2. Impegno a ridurre le emissioni di CO2 almeno del 20% entro il 2020
3. Inventario di base delle emissioni di CO2 (IBE / BEI) rilevante per la situazione locale
4. Misure dettagliate relative ai settori chiave di attività
5. Strategie ed azioni fino al 2020
6. Adattamento delle strutture amministrative locali
7. Mobilitazione della società civile
8. Finanziamento
9. Monitoraggio e relazioni
10. Invio di 1) PAES in Italiano e 2) form in inglese, via web

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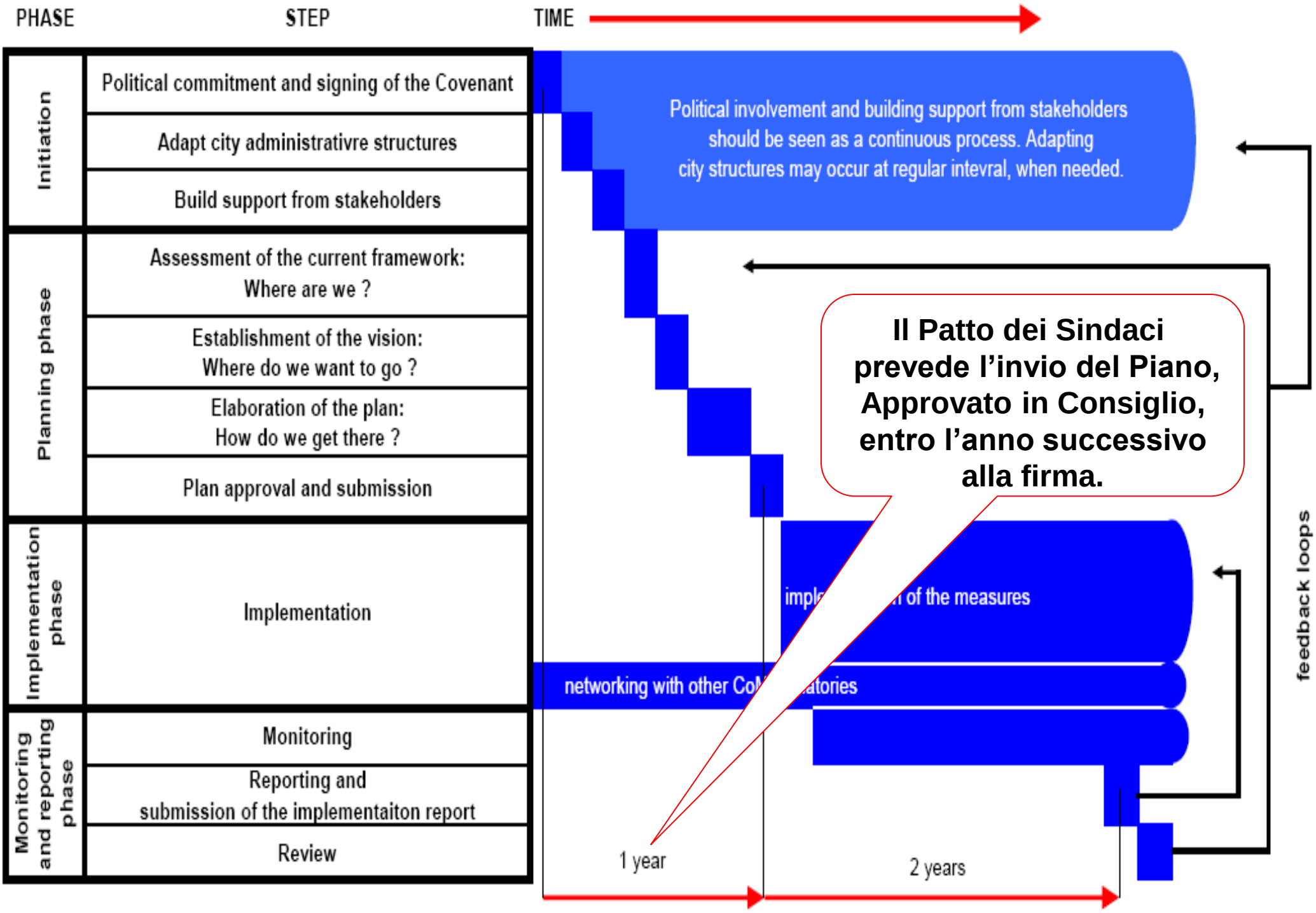
PHASE
STEP
TIME
Initiation
Political commitment and signing of the Covenant
Adapt city administrativre structures
Build support from stakeholders
Planning phase
Assessment of the current framework:
Where are we ?
Establishment of the vision:
Where do we want to go ?
Elaboration of the plan:
How do we get there ?
Plan approval and submission
Implementation phase
Implementation
Monitoring and reporting phase
Monitoring
Reporting and
submission of the implementaiton report
Review
Political involvement and building support from stakeholders
should be seen as a continuous process. Adapting
city structures may occur at regular intevral, when needed.
Il Patto dei Sindaci
prevede l'invio del Piano,
Approvato in Consiglio,
entro l'anno successivo
alla firma.
networking with other Co
atories
1 year
2 years
feedback loops

IL PROCESSO SEAP

Il processo dello sviluppo di un Piano d'Azione per l'Energia Sostenibile (SEAP o PAES): verso l'abbattimento di almeno il 20% delle emissioni di CO_2 entro il 2020

I - Fase Iniziale
II - Fase di Pianificazione
III - Fase di Implementazione
IV - Fase di Monitoraggio

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I - FASE INIZIALE

Impegno politico e firma del Patto dei sindaci

✓Decisione del consiglio municipale

Adattare le strutture della città

✓Mobilizzare sufficienti risorse umane e finanziarie

✓Istituire il "Coordinatore del Covenant" ed il team di lavoro

✓Coinvolgere vari dipartimenti del comune e creare unità di lavoro adeguate

Priorità:
Identificare un Responsabile/team gestionale Energia-Clima o un dipartimento direttamente collegato con l'Ufficio del sindaco

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FASE INIZIALE

Costruire il supporto degli stakeholders

✓Se gli stakeholders supportano il piano, nulla lo fermerà!

✓Politici, cittadini, media, camere di commercio, associazioni…




Coinvolgi gli ***STAKEHOLDERS locali e i cittadini***
Includi Azioni nei settori PUBBLICI E PRIVATI

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FASE DI PIANIFICAZIONE

Analisi della situazione attuale: Dove siamo?

✓ **Stabilire la situazione di partenza elaborando un inventario di base delle emissioni (BEI)**

SCEGLIERE L'ANNO DEL BEI

(1990 o più recente, a seconda della disponibilità dei dati)

IDENTIFICARE LE EMISSIONI DI CO_2

IDENTIFICARE IL CONSUMO ENERGETICO FINALE:

- **Edilizia (pubblica e privata)**
- **Attrezzature/strumentazioni**
- **Trasporto**
- **Industria (ove applicabile)**

+

IDENTIFICARE, OVE APPLICABILE, LA PRODUZIONE LOCALE DI ENERGIA

- **Elettricità**
- **Energia termica**

Come pianificare se non sappiamo da dove partiamo?

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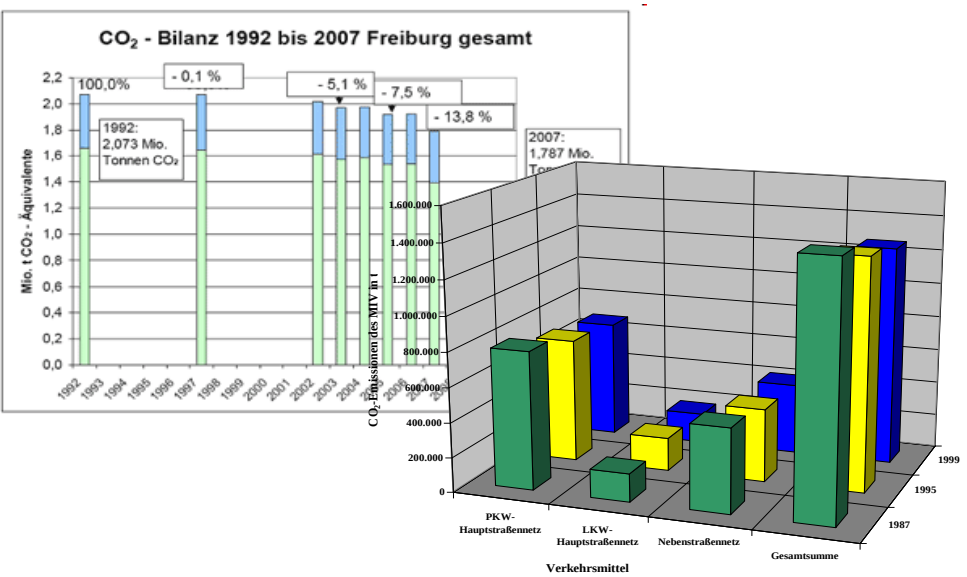
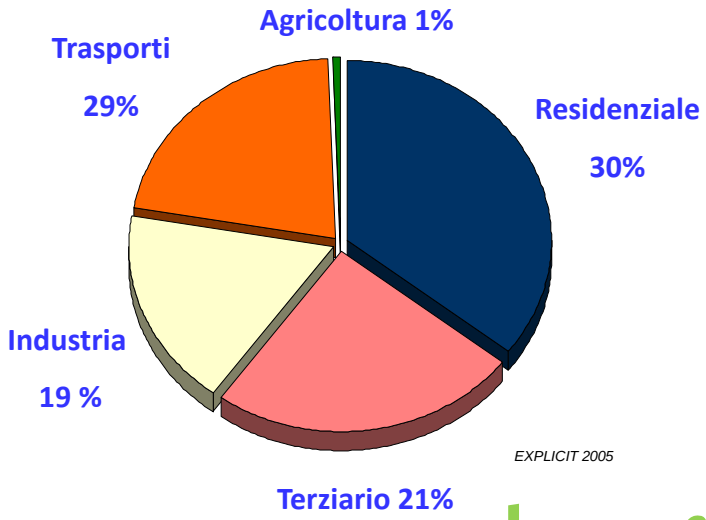
Analisi della situazione attuale: Dove siamo?

inventario emissioni CO2 - BEI)





Come pianificare se non sappiamo da dove partiamo?

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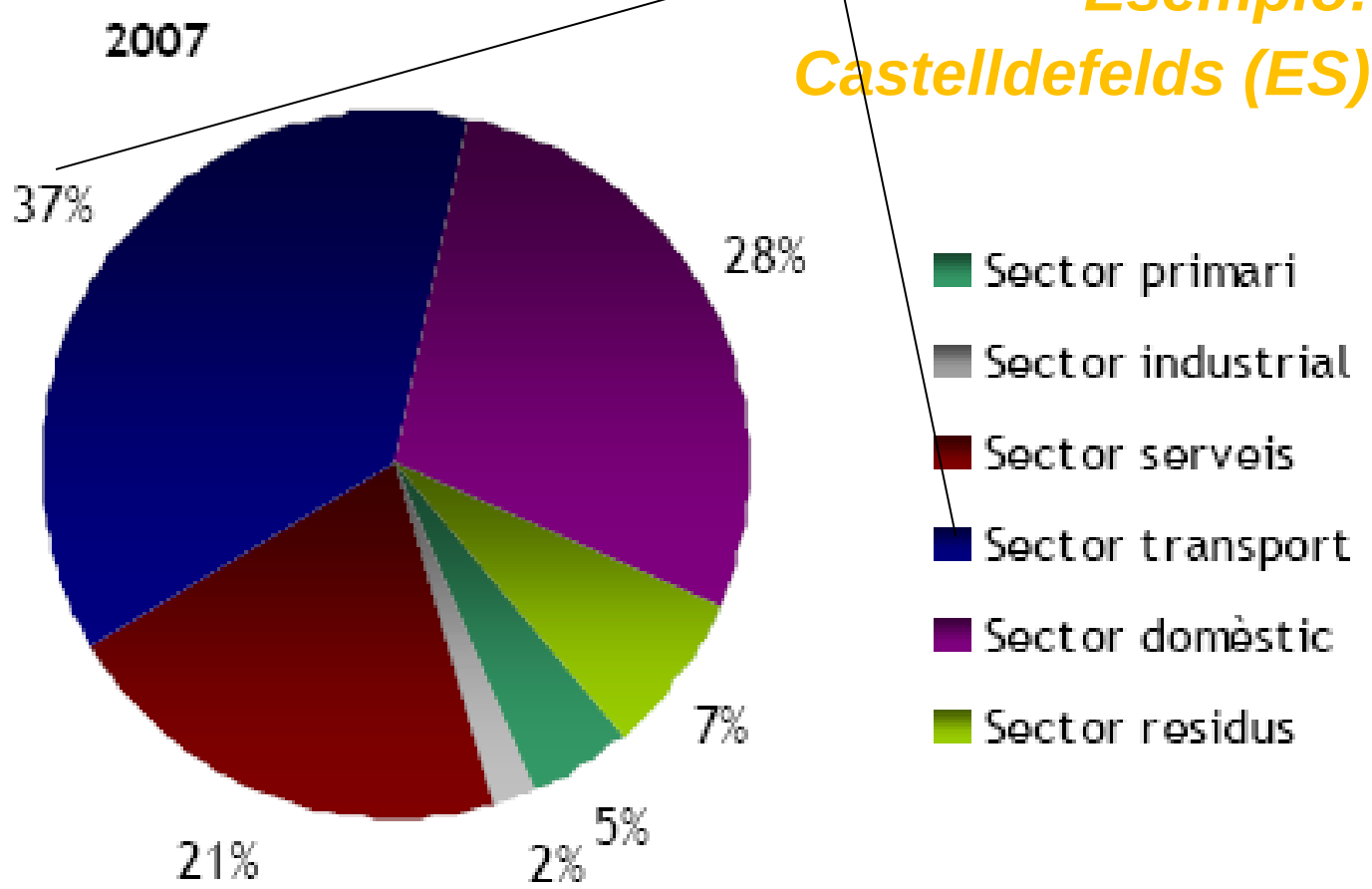
Importanza del BEI

L'inventario serve a stabilire dove Ottenere i maggiori effetti di Riduzione, a monitorare il Progresso verso L'obiettivo E a mantenere Alto l'attenzione Di tutti Gli attori

Esempio: Castelldefelds (ES)



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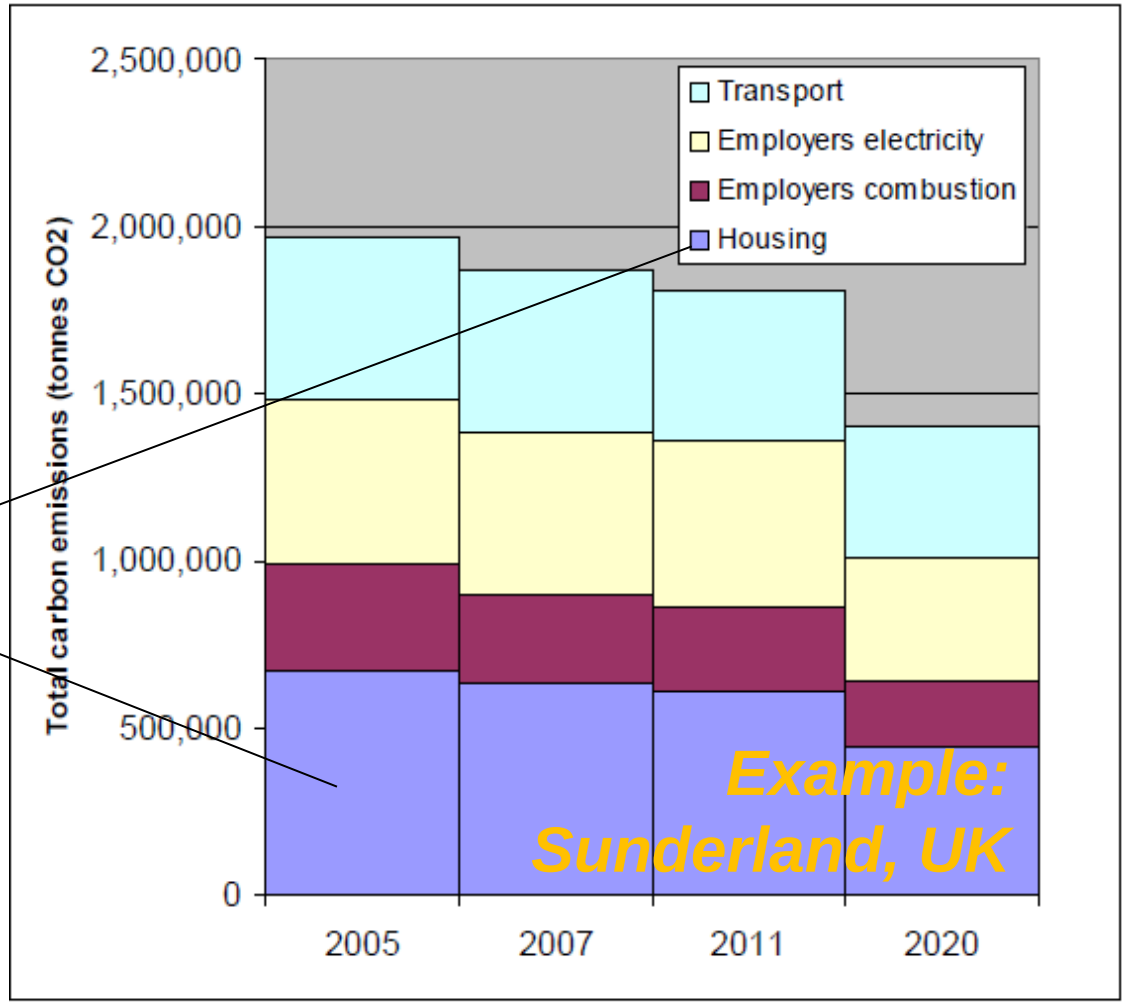

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Quali risultati principali riporta?

Risultati	Edifici, equipaggiamenti/ strutture/industrie	Trasporto
1. Consumo finale di energia	√	√
2. Emissioni $C0_2$	√	√

Risultati	Eolico, Idroelettrico, Solare PV, CHP cogenerazione,..
3. Produzione locale di energia e corrispondenti emissioni di CO2	√

Risultati	CHP, impianti teleriscaldamento, …
4. Produzione locale di caldo e freddo **e corrispondenti emissioni di CO2**	√

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Gli elementi chiave

“NOI, SINDACI, CI IMPEGNAMO

ad andare oltre gli obiettivi fi ssati per l’UE al 2020, riducendo le emissioni di CO2 nelle rispettive città di oltre il 20% attraverso l’attuazione di un Piano di Azione per l’Energia Sostenibile. Questo impegno e il relativo Piano di Azione saranno ratifi cati attraverso le proprie procedure amministrative”

=> 2 principi

Il Patto segue *essenzialmente* un approccio territoriale

Il patto si concentra sull’energia

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Århus

General | Contacts | Supporting Structures | SEAP | Benchma

Overall Strategy | Emission Inventory | Sustainable Energy Actio

Overall Strategy

Green fields: mandatory fields

1) Overall CO2 emission reduction target

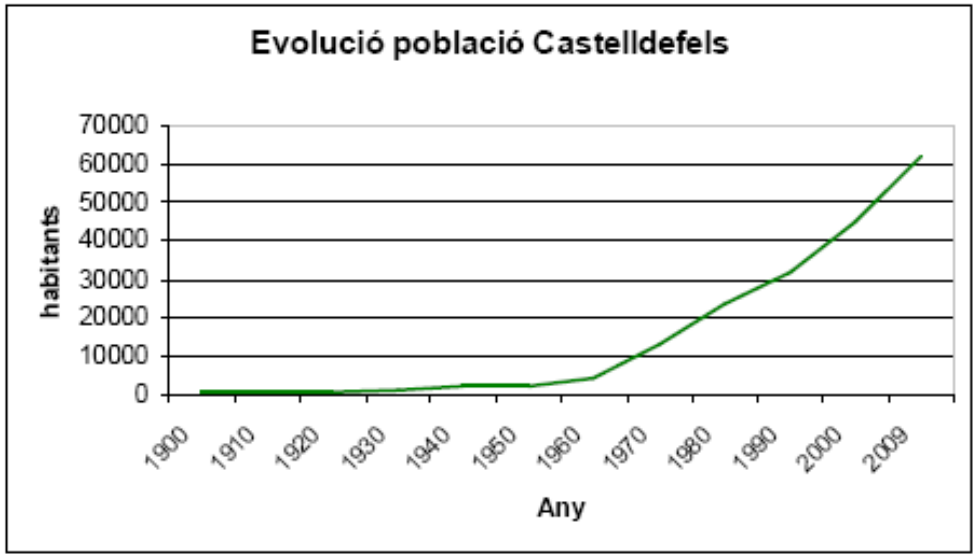
(%) by 2020

20

Please tick the corresponding box

- ○ Absolute reduction
- ◉ Per capita reduction

Obiettivo assoluto (kt CO2) o pro capite (ktCO2 / inhabitant)?



La scelta e' libera, ma in caso di comuni con popolazione in calo rispetto all'anno base lo spirito del Patto comporterebbe un obiettivo pro capite.

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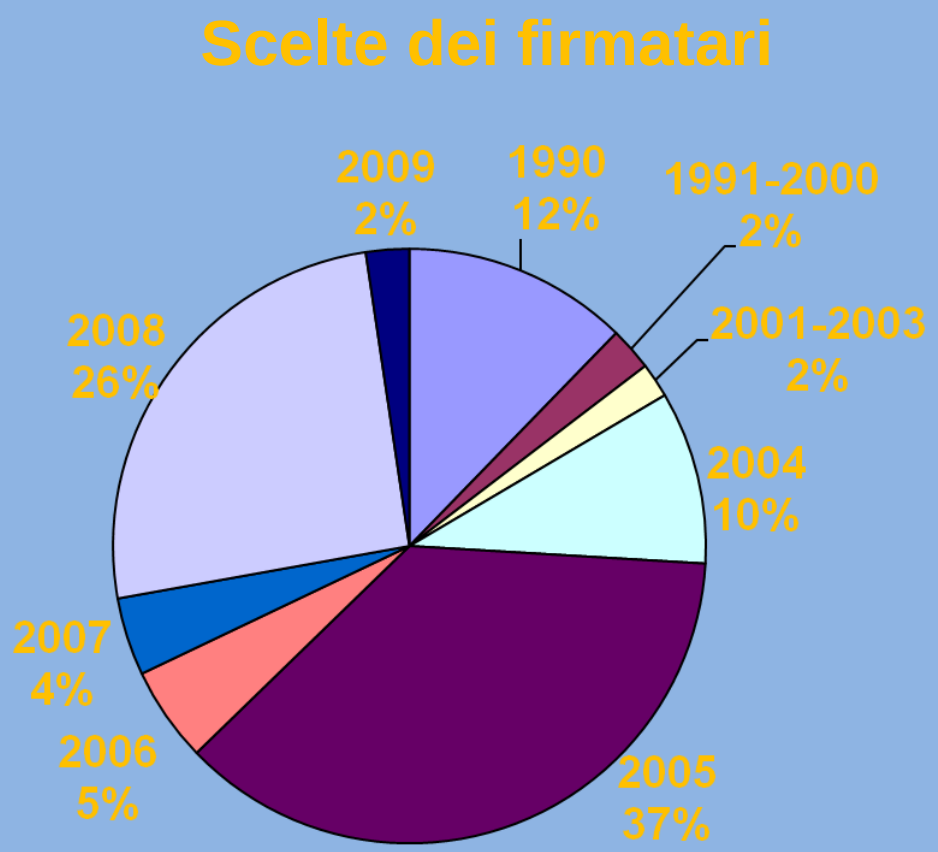
Scelta dell'anno di riferimento

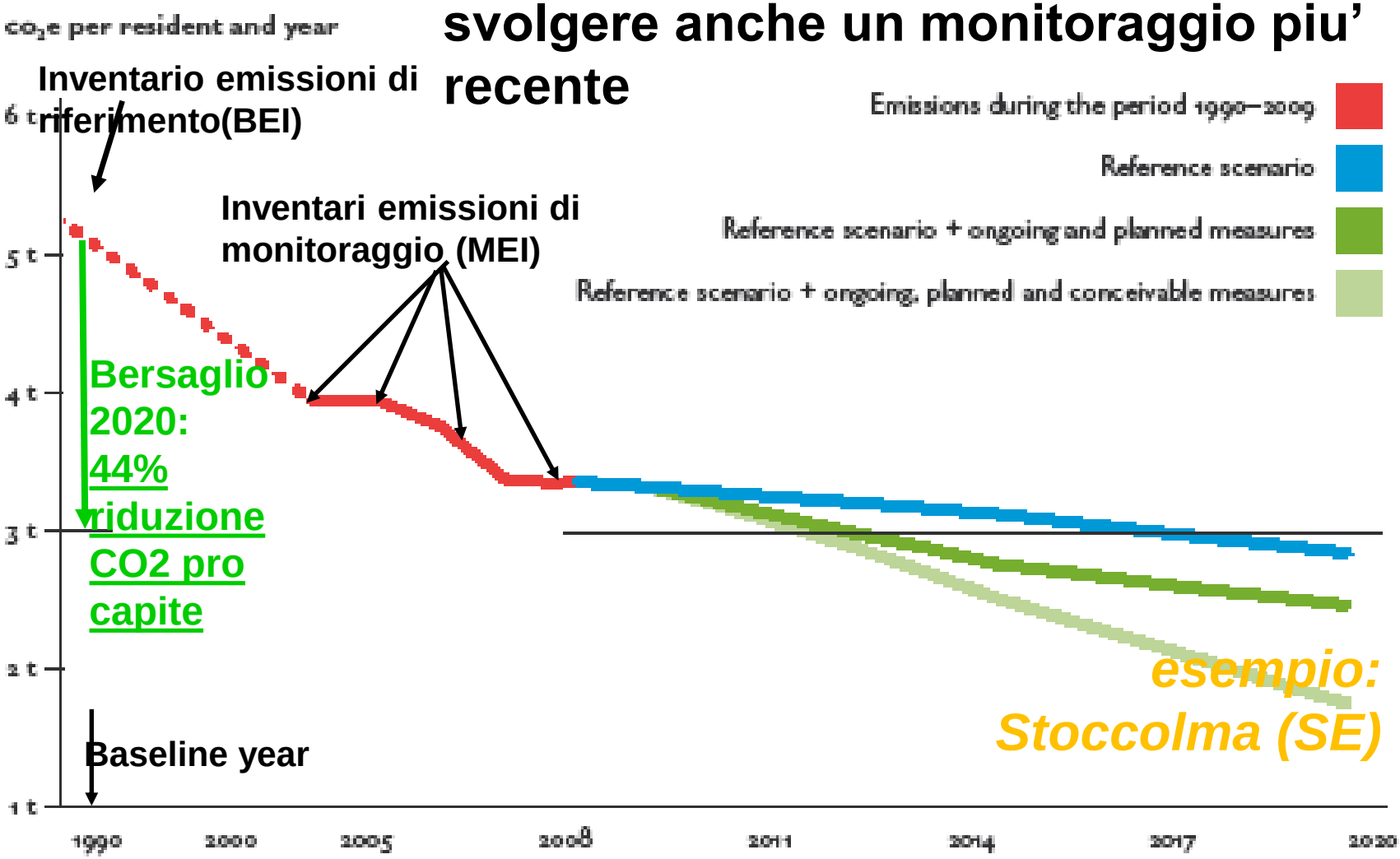
Obiettivo UE:
Riduzione emissioni del 20 % entro il **2020** rispetto al **1990**.
⇒ 1990 e' l'anno di riferimento raccomandato.

Tuttavia, se i dati disponibili sono insufficienti, allora dovra' essere scelto il primo anno successivo disponibile.



Anno di riferimento

NB: se sceglite il 1990, si raccomanda di svolgere anche un monitoraggio piu' recente



esempio: Stoccolma (SE)

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JRC
EUROPEAN COMMISSION

Milano 24 Novembre 2010

Århus

General | Contacts | Supporting Structures | SEAP | Benchmarks of Excellence | Account

Overall Strategy | Emission Inventory | Sustainable Energy Action Plan | SEAP Submission | Archive

Baseline Emission Inventory

Instructions

Green fields: mandatory fields

1) Inventory year:

Year

2007

Please precise the number of inhabitants during the inventory year

296000

Relevant emission factors

2) Emission factors:

Please tick the corresponding box.

Approach:

- (•) Standard emission factors in line with the IPCC principles
- ( ) LCA (Life Cycle Assessment) factors

Emission reporting unit

- (•) CO_2 emissions
- ( ) CO_2 equivalent emissions

Save

Selezionare anno di riferimento

Inserire la popolazione relativa

Salvare!!!

Scelta dell'approccio

Due opzioni per la contabilizzazione dei GHG:

Approccio IPCC :

(Intergovernmental Panel on Climate Change)
Basato sul contenuto di Carbonio dei combustibili utilizzati .

Vantaggi: - semplice
- in linea con gli standard internazionali (UNFCC, protocollo di Kyoto …)

Approccio LCA:

(Life Cycle Analysis)
Include emissioni incorporate a monte di quelle territoriali:

Vantaggio: - migliore visione dell'impatto globale delle attivita' che avvengono nel territorio considerato

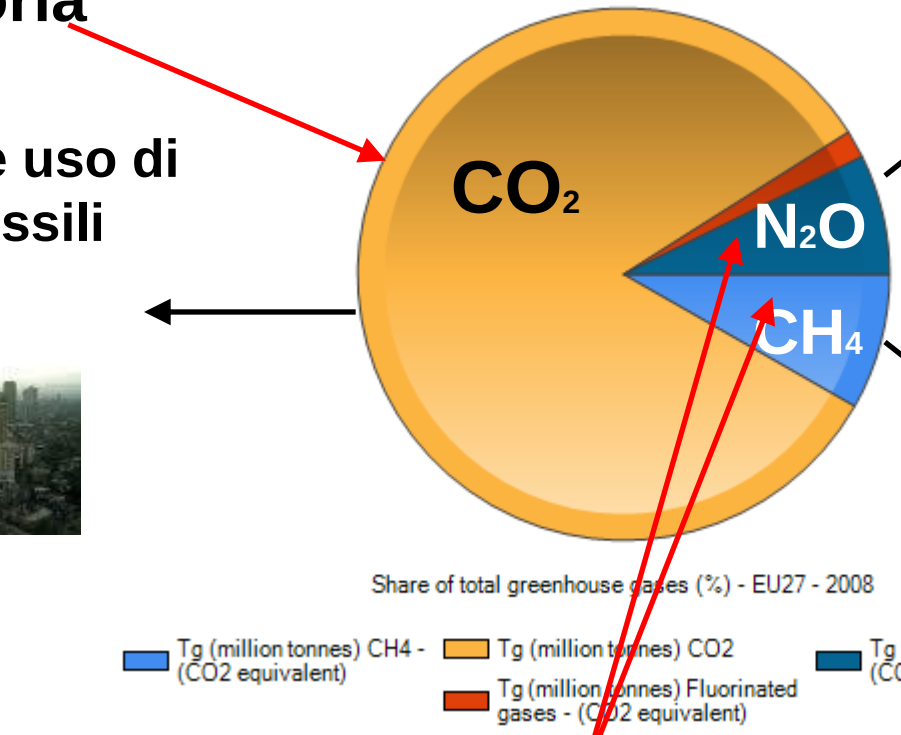
Nota: Gli approcci differiscono particorarmente nel caso della biomassa

Scelta dei gas da considerare (GHG) nel BEI

Quote di GHG sul totale – EU27 - 2008

Obbligatoria

Combustione e uso di combustibili fossili



Agricultura (75%)
Industria (10%)

Agricoltura (50%)
Rifiuti (30%)

Emissioni Fuggitive (15%)

Inclusione raccomndata solo se si intende intervenire con relative azioni nel SEAP

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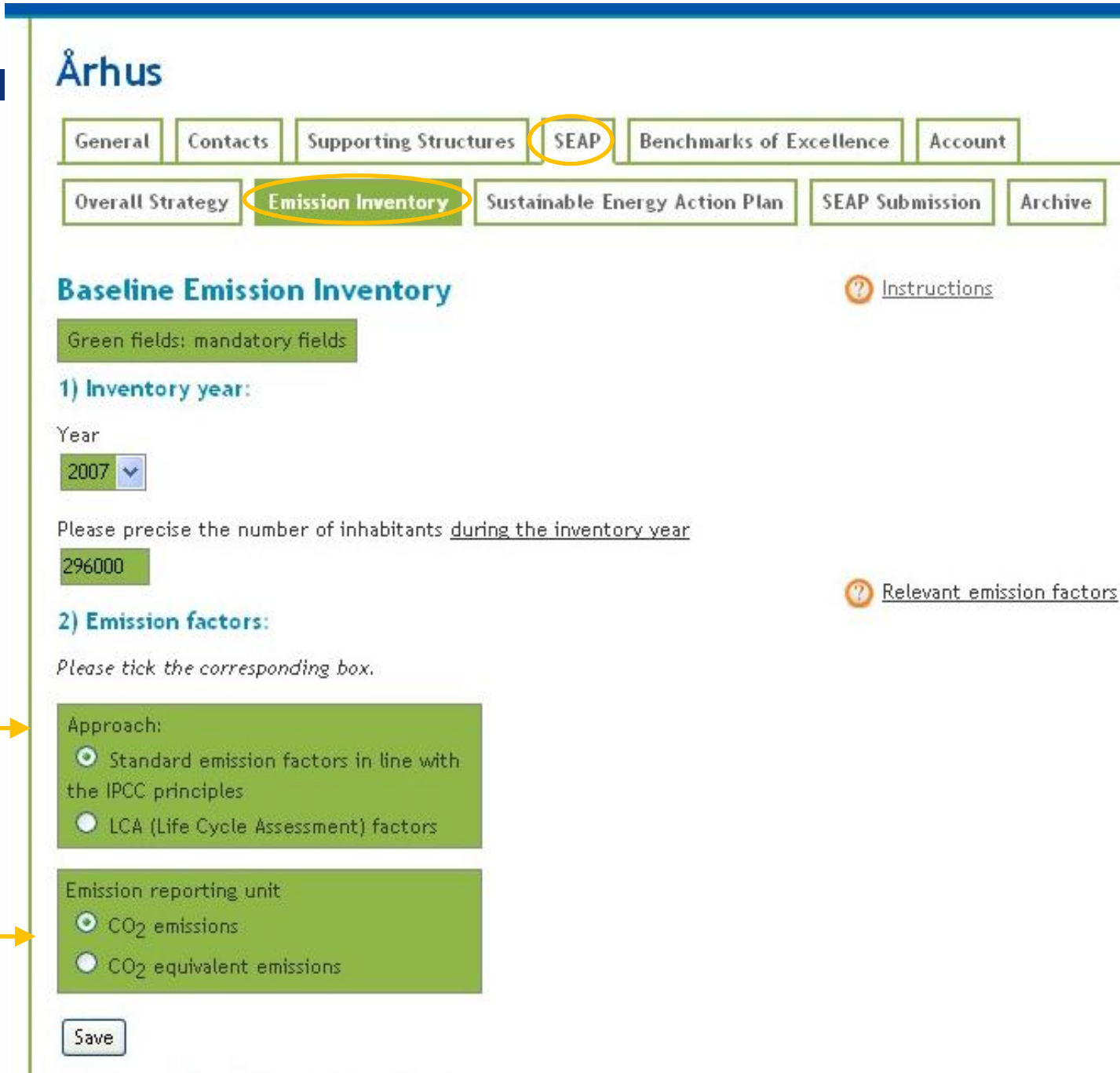
Scelta dei GHG

Se si considerano altri GHG, occorre convertire le quantita' in CO_2 equivalent secondo la seguente tabella (tab. 3 p.60 delle linee guida)

TABLE 3. CONVERSION OF CH_4 AND N_2O TO CO_2-EQUIVALENT UNITS	
MASS OF GHG AS T COMPOUND	MASS OF GHG AS T CO_2-EQUIVALENT
1 t CO_2	1 t CO_2-eq
1 t CH_4	21 t CO_2-eq
1 t N_2O	310 t CO_2-eq

Select approach

Select reporting unit



Settori da includere nel BEI

Quattro categorie di dati:

Focus of the Covenant

1. Consumi finali di energia negli edifici, impianti/attrezzature e industrie
2. Consumi finali di energia nei trasporti

3. Other emission sources (not related to energy consumption; e.g. agriculture, waste …)

4. Energy production (electricity, h…)

Considered indirectly, via emission factors (for heat electricity or cold)

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Settori da includere

1

3 possibili risposte

TABLE 1. SECTORS INCLUDED IN THE BEI/MEI		
SECTOR	INCLUDED?	NOTE
Final energy consumption in buildings, equipment/facilities and industries		
Municipal buildings, equipment/facilities	YES	These sectors cover all energy consuming buildings, equipment and facilities in the territory of the local authority which are not excluded below. For example, energy consumption in water and waste management facilities is included in this sector. Municipal waste incineration plants are also included here if they are not used to produce energy. For energy producing waste incineration plants, see Sections 3.4 and 3.5.
Tertiary (non-municipal) buildings, equipment/facilities	YES	
Residential buildings	YES	
Municipal public lighting	YES	
Industries involved in EU ETS	NO	
Industries not involved in EU ETS	YES if in SEAP	

(p 57 delle linee guida)

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SECTOR	INCLUDED?	NOTE
Final energy consumption in transportation		
2 Urban road transportation: municipal fleet (e.g. municipal cars, waste transportation, police and emergency vehicles)	YES	These sectors cover all road transportation on the street network that is in the competence of the local authority.
Urban road transportation: public transportation	YES	
Urban road transportation: private and commercial transportation	YES	
Other road transportation	YES if in SEAP	This sector covers the road transportation on roads in the territory of the local authority not under its competence, for example highways.
Urban rail transportation	YES	This sector covers the urban rail transportation in the territory of the local authority, such as tram, metro and local trains.
Other rail transportation	YES if in SEAP	This sector covers the long-distance, intercity, regional and cargo rail transportation that occurs in the territory of the local authority. Other rail transportation does not only serve the territory of the local authority, but a larger area.
Aviation	NO	The energy consumption of airport and harbour buildings, equipment and facilities will be included as part of the buildings and facilities above, however excluding mobile combustion.
Shipping/fluvial transport	NO	
Local ferries	YES if in SEAP	Local ferries are the ferries that serve as urban public transportation in the territory of the local authority. These are not likely to be relevant for most of the Signatories.
Off-road transport (e.g. agricultural and construction machinery)	YES if in SEAP	

3 SECTOR	INCLUDED?	NOTE
Other emission sources (not related to energy consumption)		
Fugitive emissions from production, transformation and distribution of fuels	NO	
Process emissions of industrial plants involved in EU ETS	NO	
Process emissions of industrial plants not involved in EU ETS	NO	
Use of products and fluorinated gases (refrigeration, air conditioning, etc.)	NO	
Agriculture (e.g. enteric fermentation, manure management, rice cultivation, fertilizer application, open burning of agricultural waste)	NO	
Land use, land use change and forestry	NO	This refers to carbon stock changes in for example urban forests.
Wastewater treatment	YES if in SEAP	This refers to emissions not related to energy, such as to CH_4 and N_2O emissions from wastewater treatment. Energy consumption and related emissions from wastewater facilities is included in the category 'buildings, equipment/ facilities'.
Solid waste treatment	YES if in SEAP	This refers to emissions not related to energy, such as CH_4 from landfills. Energy consumption and related emissions from waste treatment facilities are included in the category 'buildings, equipment/facilities'.

Settori da includere

SECTOR	INCLUDED?	NOTE
Energy production		
Fuel consumption for electricity production	YES if in SEAP	In general, only in the case of plants which are <20 MW_{FUEL}, and are not part of EU ETS. See Section 3.4 for more details.
Fuel consumption for heat/ cold production	YES	Only if heat/cold is supplied as a commodity to final end-users within the territory. See Section 3.5 for more details.

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Settori da includere

Esempio: la scelta di Barcellona (ES)

Font: Diputació de Barcelona.

Industria Primario

Trasporto Residenziale

Acqua e Rifiuti

Terziario

Tutte le emissioni relative al territorio nella giurisdizione

Emissioni da ridurre con il SEAP e da includere nel BEI

Emissioni dirette Dell'autorita' locale

Le emissioni CO_2 che debbono essere ridotte del 20% o piu' attraverso il SEAP

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La compilazione dei dati online: OBBLIGATORIA!

I dati da riportare vanno inseriti nella pagina « Emission inventory » del formulario « SEAP template »; e' divisa in quattro tabelle:

- Table A: Final energy consumption data
- Table B: CO2 emissions
- Table C: Local electricity production
- Table D: local heat/cold production

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Dati di Consumo energetico

I consumi energetici debbono essere relativi al territorio del comune, le medie pro capite nazionali non servono!

Raccolta dati puo' richiedere tempo e risorse.

Possibili fonti di dati

Bollette (ad es. Per l gli edifici dell'autorita locale stessa)
Operatori di mercato (fornitori di energia, operatori di rete, …); puo' essere utile agire per tramite di enti sovraordinati, strutture di supporto.
Ministeri, autorita' regolatrici e agenzie (energia, statistica, ambiente)
Indagini statistiche presso i consumatori
Stime basate su dati parziali e proxy (per mezzo di esperti di statistica)

Raccomandazione: prestare attenzione a documentare la fonti dei dati e assicurare la coerenza nel tempo delle diverse serie storiche.

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Come compilare?

E per ciascun vettore energetico in MWh:

In tabella A: consumi di energia

Per ciascuna categoria:

Buildings, equipment/ facilities and industries

Transport

A. Final energy consumption

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

Category	FINAL ENERGY CONSUMPTION [MWh]															
			Fossil fuels								Renewable energies					Total
	Electricity	Heat cold	Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES																
Municipal buildings, equipment/facilities	9793	43415	34162		3382									350		9110
Tertiary (non municipal) buildings, equipment/facilities	16519															1651
Residential buildings	408189	278785	418968		989788											2095
Municipal public lighting	1096															1096
Industries (excluding industries involved in the EU Emission trading scheme - ETS)	119443		31361													1508
Subtotal	555040	322200	484491	0	993170	0	0	0	0	0	0	0	0	350	0	2355
TRANSPORT																
Municipal fleet						1693	4274									
Public transport	15781		8985			25150	393									
Private and commercial transport			160			37077	439190									
Subtotal	15781	0	9145	0	0	63920	443847	0	0	0	0	0	0	0	0	5326
Total	570821	322200	493636	0	993170	63920	443847	0	0	0	0	0	0	350	0	2887

Dati dettagliati per settore sono fortemente raccomandabili

Sub-totali per categoria e per vettore sono necessari

Come il totale globale

Municipal purchases of certified green electricity (if any) [MWh]:

Save

Si Salva tabella per tabella

B. CO2-Emissions

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

Stessi vettori energetici

Category	CO2 emissions [t]/ CO2 equivalent emissions [t]															
			Fossil fuels								Renewable energies					
	Electricity	Heat cold	Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	Total
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES																
Municipal buildings, equipments/facilities	879	7052	6764		896											1559
Tertiary (non municipal) buildings, equipments/facilities	1483															1483
Residential buildings	36648	45281	82956		262294											4271
Municipal public lighting	98															98
Industries (excluding industries involved in the EU Emission trading scheme - ETS)	10724		6209													1693
Subtotal	49832	52333	95929	0	263190	0	0	0	0	0	0	0	0	0	0	4612
TRANSPORT																
Municipal fleet						449	1133									1581
Public transport	1417		1779			6665	104									9965
Private and commercial transport			32			9825	116383									1262
Subtotal	1417	0	1811	0	0	16939	117620	0	0	0	0	0	0	0	0	1377
OTHER																
Waste management																
Water management																
Please specify																
Subtotal																
Total	51249	52333	97740	0	263190	16939	117620	0	0	0	0	0	0	0	0	5990
Corresponding CO2-emission factors in [t/MWh]	0.08978	0.1624	0.198	0	0.265	0.265	0.265	0	0	0						

CO2 emission factor for electricity not produced locally [t/MWh]

0.05

Save

In tabella B: Emissioni CO_2 tCO_2

Stessi Settori

+ altro (non energetici, Rifiuti, perdite metano…)

… e calcolare le emissioni: CO2 = energia * Fattore di Emissione

…i corrispondenti fattori di emissione…

Come calcolare le emissioni di CO_2

E' solo una moltiplicazione!

Emissioni = **dati di Attivita'** **x** **Fattori di emissione**

quantity of natural gas consumed (in MWh)

Value (in t CO2 / MWh)

Occorre reperire i dati relativi ai consumi del vostro territorio

Molti Fattori di Emissione possoni essere trovati nelle linee guida

Covenant of Mayors
Committed to local sustainable energy

Fattori di emissione

B. CO2-Emissions

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

Category	CO2 emissions [t]/ CO2 equivalent emissions [t]															
			Fossil fuels								Renewable energies					Total
	Electricity	Heat cold	Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES																
Municipal buildings, equipments/facilities	1799	0	0	0	1658.6	394.8	0	0	7.68	0	0	0	1.64	0	0	3861.
Tertiary (non municipal) buildings, equipments/facilities																
Residential buildings	34909	0	205.8	0	0	0	0	0	16462.5	0	0	0	25.84	0	0	5160
Municipal public lighting	148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	148
Industries (excluding industries involved in the EU Emission trading scheme - ETS)	19162	0	18937.5	0	0	0	0	0	0	0	0	0	0	0	0	3809
Subtotal	56018	0	19143.3	0	1658.6	394.8	0	0	16470.1	0	0	0	27.48	0	0	9371
TRANSPORT																
Municipal fleet	0	0	0	0	0	19.9	49.8	0	0	0	0	0	0	0	0	69.7
Public transport	569.16	0	0	0	0	7360	23003	0	0	0	0	0	0	0	0	3093
Private and commercial transport	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	569.16	0	0	0	0	7379.9	23052.8	0	0	0	0	0	0	0	0	3100
OTHER																
Waste management																
Water management																
Please specify																
Subtotal																
Total	56587.16	0	19143.3	0	1658.6	7774.7	23052.8	0	16470.1	0	0	0	27.48	0	0	1247
Corresponding CO2-emission factors in [t/MWh]	0.683	0	0.247	0	0.311	0.276	0.268	0	0.439	0	0	0	0.006	0	0	

CO2 emission factor for electricity not produced locally [t/MWh]

0.683

Save

Calcolato!

Dalle tabelle della Guida

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Calcolo del fattore di emissione locale per l'elettricità

$$FEE = \frac{(CTE - PLE - AEV) \times FENEE + CO2PLE + CO2AEV}{CTE}$$

Ove

FEE = fattore di emissione locale per l'elettricità [t/MWh_e]

CTE = Consumo totale di elettricità nel territorio dell'autorità locale (come nella Tabella A del modulo PAES) [MWh_e]

PLE = Produzione locale di elettricità (come nella Tabella C del modulo) [MWh_e]

AEV = Acquisti di elettricità verde da parte dell'autorità locale (come nella Tabella A) [MWh_e]

FENEE = Fattore di emissione nazionale o europeo per l'elettricità [t/MWh_e]

CO2PLE = emissioni di CO_2 dovute alla produzione locale di elettricità (come nella Tabella C del modulo) [t]

CO2AEV = emissioni di CO_2 dovute alla produzione di elettricità verde certificata acquistata dall'autorità locale [t]

Questa formula (p. 63) consente di premiare l'aumento della produzione locale di energia rinnovabile o i miglioramenti di efficienza nella generazione locale di energia, mantenendo l'obiettivo principale sull'energia finale (lato della domanda).

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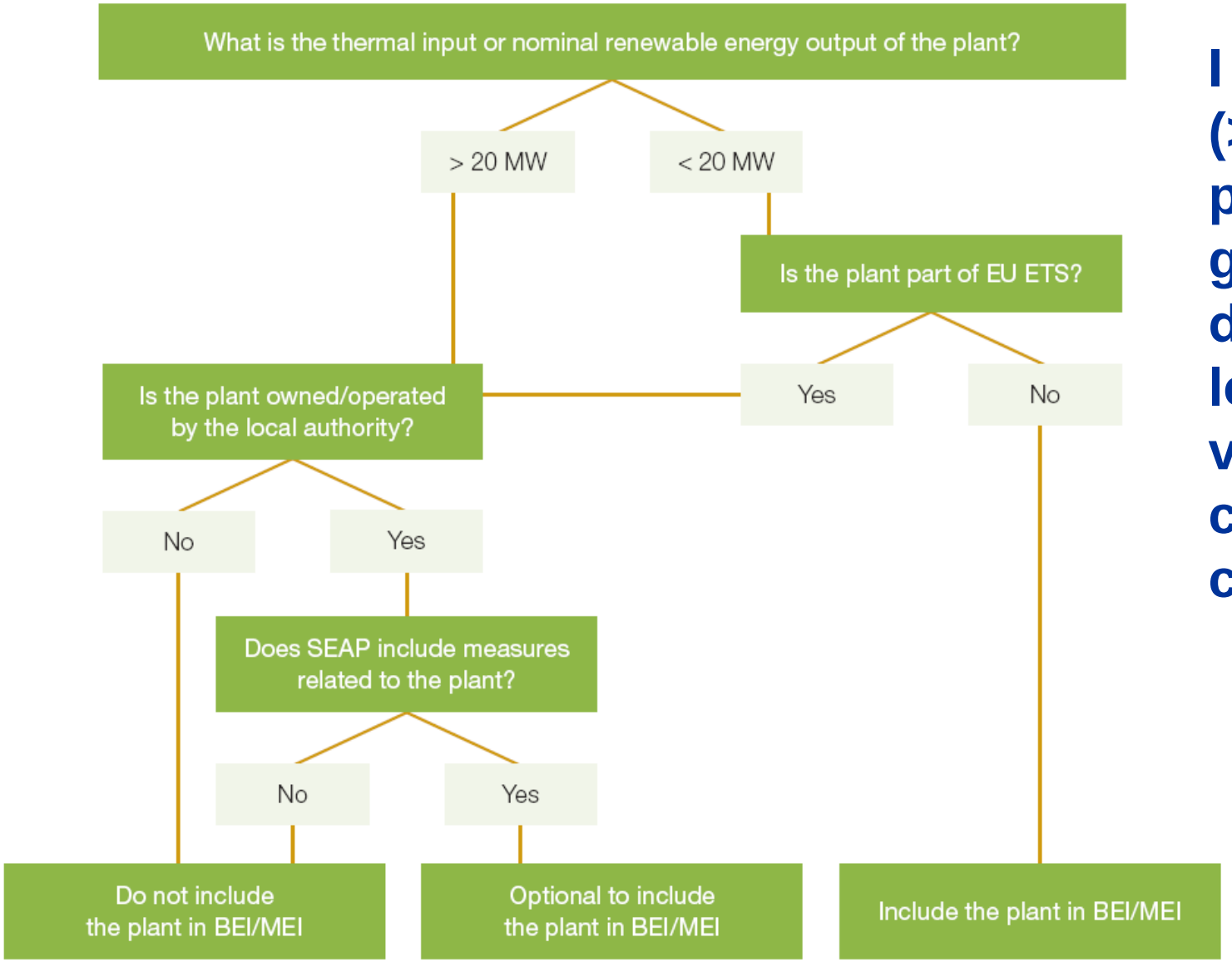
Produzione di elettricita'



I grandi impianti (> 20 MW) non posseduti o gestiti dall'autorita' locale non vengono considerati come « locali »

Albero decisionale p. 64

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Committed to local sustainable energy

6. Usa la formula per calcolare il fattore locale di emissione per elettricita'.

transport																
Subtotal	1417	0	1811	0	0	16939	117620	0	0	0	0	0	0	0	0	1377
OTHER																
Waste management																
Water management																
Please specify																
Subtotal																
Total	51249	52333	97740	0	263190	16939	117620	0	0	0	0	0	0	0	0	5990
CO2-emission factors i [t/MWh]	0.08978	0.1624	0.198	0	0.265	0.265	0.265	0	0	0	0	0	0	0	0	

CO2 emission factor for electricity not produced locally [t/MWh]

0.05

Save

3. Indicare cosa consumano

4. Indicare il fattore di emissione e calcolare le emissioni di CO2

C. Local electricity production and corresponding CO2 emissions

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

2. Indicare la produzione

Locally generated electricity (excluding ETS plants, and all plants/units < 20 MW)	Locally generated electricity [MWh]	Energy carrier input [MWh]											CO2 emissions [t] CO2-eq emissions [t]	Corresponding CO2-emission factors for electricity production [t/MWh]
		Fossil fuels					Steam	Waste	Plant oil	Other biomass	Other renewable	Other		
		Natural gas	Liquid gas	Heating oil	Lignite	Coal								
Wind power													0	0
Hydroelectric power	156684												0	0
Photovoltaic	62												0	0
Combined Heat and Power	36133	448500											37474	0.198
Please specify													0	0
Total	192879	448500	0	0	0	0	0	0	0	0	0	0	37474	

Save

1. Elenco dei principali impianti (anche raggruppati)

5. Calcolare i

Sulla guida c'e' una formula analoga per il calore/freddo Analoga a quella dell' elettricita'

B. CO2-Emissions

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

Category	CO2 emissions [t]/ CO2 equivalent emissions [t]															
			Fossil fuels								Renewable energies					Total
	Electricity	Heat cold	Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES																
Municipal buildings, equipments/facilities	879	7052	6764		896											1559
Tertiary (non municipal) buildings, equipments/facilities	1483															1483
Residential buildings	36648	45281	82956		262294											42717
Municipal public lighting	98															98
Industries (excluding industries involved in the EU Emission trading scheme - ETS)	10724		6209													16933
Subtotal	49832	52333	95929	0	263190	0	0	0	0	0	0	0	0	0	0	46128
TRANSPORT																
Municipal fleet						449	1133									1581
Public transport	1417		1779			6665	104									9965
Private and commercial transport			32			9825	116383									12624
Subtotal	1417	0	1811	0	0	16939	117620	0	0	0	0	0	0	0	0	13778
OTHER																
Waste management																
Water management																
Please specify																
Subtotal																
Total	51249	52333	97740	0	263190	16939	117620	0	0	0	0	0	0	0	0	59907
Corresponding CO2-emission factors in [t/MWh]	0.08978	0.1624	0.198	0	0.265	0.265	0.265	0	0	0	0	0	0	0	0	

transport																
Subtotal	1417	0	1811	0	0	16939	117620	0	0	0	0	0	0	0	0	1377
OTHER																
Waste management																
Water management																
Please specify																
Subtotal																
Total	51249	52333	97740	0	263190	16939	117620	0	0	0	0	0	0	0	0	5990
Corresponding CO2-emission factors in [t/MWh]	978	0.1624	0 98	0	0.265	0.265	0.265	0	0	0	0	0	0	0	0	

6. Usare la formula per calcolare il fattore locale di emissione per il calore.

3. Indicarne i consumi

4. Indicarne il fattore di emissione e le emissioni di CO2

2. Indicarne la produzione

D. Local heat/cold production (district heating/cooling, CHPs...) and corresponding CO2 emissions

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

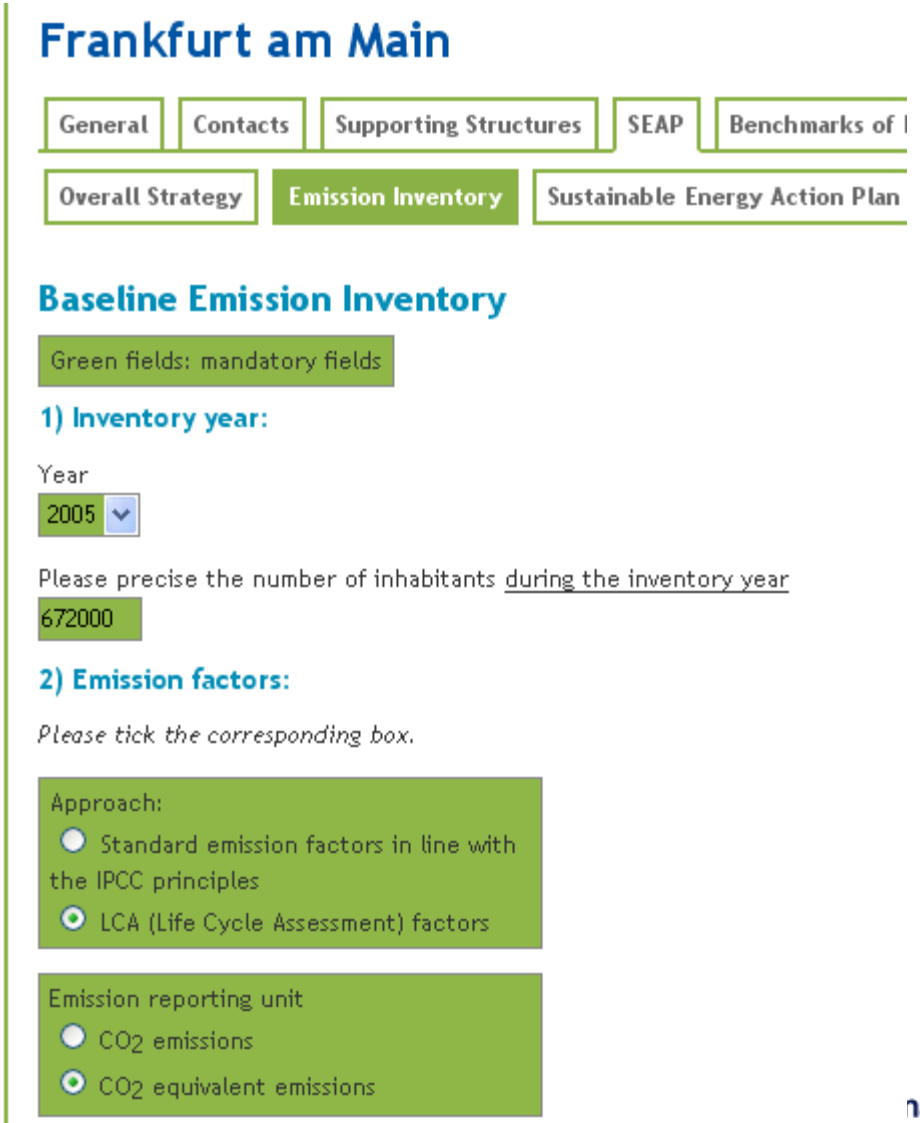
Locally generated heat/cold	Locally generated heat/cold [MWh]	Energy carrier input [MWh]										CO2 emissions [t] / CO2eq emissions [t]	Corresponding CO2-emission factors for heat/cold production in [t/MWh]
		Fossil fuels					Waste	Plant oil	Other biomass	Other renewable	Other		
		Natural gas	Liquid gas	Heating oil	Lignite	Coal							
Combined Heat and Power												0	0
District Heating plant(s)	379000	259236		3790			99298		16676			52333	0.1624
Please specify												0	0
Total	379000	259236	0	3790	0	0	99298	0	16676	0	0	52333	

1. Elencare principali impianti, raggruppandoli se necessario

5. Calcolare i totali

LCA vs IPCC:

- **Choice: the guidelines is suggesting that when a signatory choose LCA then the proper consequent choice for the reporting unit is tCO2eq.**



BUT…

Nürnberg

General | Contacts | Supporting Structures | SEAP | Benchmarl

Overall Strategy | Emission Inventory | Sustainable Energy Action

Baseline Emission Inventory

Green fields: mandatory fields

1) Inventory year:

Year

1990

Please precise the number of inhabitants during the inventory year

493692

2) Emission factors:

Please tick the corresponding box.

Approach:

- ○ Standard emission factors in line with the IPCC principles
- ◉ LCA (Life Cycle Assessment) factors

Emission reporting unit

- ◉ CO_2 emissions
- ○ CO_2 equivalent emissions

Stuttgart

General | Contacts | Supporting Structures | SEAP | Benchma

Overall Strategy | Emission Inventory | Sustainable Energy Acti

Baseline Emission Inventory

Green fields: mandatory fields

1) Inventory year:

Year

1990

Please precise the number of inhabitants during the inventory year

598698

2) Emission factors:

Please tick the corresponding box.

Approach:

- ○ Standard emission factors in line with the IPCC principles
- ◉ LCA (Life Cycle Assessment) factors

Emission reporting unit

- ◉ CO_2 emissions
- ○ CO_2 equivalent emissions

Esempio 1

A. Final energy consumption

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

Category	FINAL ENERGY CONSUMPTION [MWh]															
	Electricity	Heat cold	Fossil fuels								Renewable energies					Total
			Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES																
Municipal buildings, equipment/facilities	67000	56000	144000	0	6000	0	0	0	0	0	0	0	400	10	0	273410
Tertiary (non municipal) buildings, equipment/facilities	1916000	1110000	759000	0	733000	0	0	0	0	124000	0	0	0	0	0	4642000
Residential buildings	836000	357000	3055000	0	506000	0	0	0	48000	0	0	0	0	0	0	4802000
Municipal public lighting	30000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30000
Industries (excluding industries involved in the EU Emission trading scheme - ETS)	2563000	119000	1635000	0	47000	0	0	0	0	0	0	0	0	0	0	7346000
Subtotal	5412000	1642000	5593000	0	1292000	0	0	0	48000	124000	0	0	400	10	0	17093410
TRANSPORT																
Municipal fleet	0	0	0	0	0	5000	5000	0	0	0	0	0	0	0	0	10000
Public transport	450000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	450000
Private and commercial transport	0	0	0	0	0	1500000	1500000	0	0	0	0	0	0	0	0	3000000
Subtotal	450000	0	0	0	0	1505000	1505000	0	0	0	0	0	0	0	0	3460000
Total	5862000	1642000	5593000	0	1292000	1505000	1505000	0	48000	124000	0	0	400	10	0	20553410

Municipal purchases of certified green electricity (if any) [MWh]:

67000

CO2 emission factor for certified green electricity purchases (for LCA approach):

0.1

Covenant of Mayors
Committed to local sustainable energy

B. CO2-Emissions

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

Category	CO2 emissions [t]/ CO2 equivalent emissions [t]															
			Fossil fuels								Renewable energies					Total
	Electricity	Heat cold	Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES																
Municipal buildings, equipments/facilities	47000	20000	36000	0	2000	0	0	0	0	0	0	0	0	0	0	105000
Tertiary (non municipal) buildings, equipments/facilities	1350000	290000	190000	0	235000	0	0	0	0	19000	0	0	0	0	0	2122000
Residential buildings	605000	70000	770000	0	162000	0	0	0	20000	0	0	0	0	0	0	1628000
Municipal public lighting	22000															22000
Industries (excluding industries involved in the EU Emission trading scheme - ETS)	1855000	540000	412000	0	15000	0	0	0	0	0	0	0	0	0	0	2907000
Subtotal	3879000	920000	1408000	0	414000	0	0	0	20000	19000	0	0	0	0	0	6784000
TRANSPORT																
Municipal fleet						1500	1500									3000
Public transport	315000															315000
Private and commercial transport						550000	550000									1100000
Subtotal	315000	0	0	0	0	551500	551500	0	0	0	0	0	0	0	0	1418000
OTHER																
Waste management																
Water management																
Please specify																
Subtotal																
Total	4194000	920000	1408000	0	414000	551500	551500	0	20000	19000	0	0	0	0	0	8202000
Corresponding CO2-emission factors in [t/MWh]	0.725	0.26	0.25	0	0.3	0.3	0.3	0	0	0	0	0	0	0	0	

CO2 emission factor for electricity not produced locally [t/MWh]

0.725

Esempio 2

A. Final energy consumption

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

Category	FINAL ENERGY CONSUMPTION [MWh]															
	Electricity	Heat cold	Fossil fuels								Renewable energies					Total
			Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES																
Municipal buildings, equipment/facilities																
Tertiary (non municipal) buildings, equipment/facilities																
Residential buildings																
Municipal public lighting																
Industries (excluding industries involved in the EU Emission trading scheme - ETS)																
Subtotal	2570117	1175035	2803482		4175788				378832				54000	58		11157312
TRANSPORT																
Municipal fleet																
Public transport	108481															108481
Private and commercial transport						800380	2401139									3201519
Subtotal	108481					800380	2401139									3310000
Total	2678598	1175035	2803482		4175788	800380	2401139		378832				54000	58		14467312

Municipal purchases of certified green electricity (if any) [MWh]:

0

CO2 emission factor for certified green electricity purchases (for LCA approach):

0

Nürnberg (CO2) – Emissions data

B. CO2-Emissions

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

Category	CO2 emissions [t]/ CO2 equivalent emissions [t]															
	Electricity	Heat cold	Fossil fuels								Renewable energies					Total
			Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES																
Municipal buildings, equipments/facilities																
Tertiary (non municipal) buildings, equipments/facilities																
Residential buildings																
Municipal public lighting																
Industries (excluding industries involved in the EU Emission trading scheme - ETS)																
Subtotal	1552351	262870	644801		1315373				137516							3912911
TRANSPORT																
Municipal fleet																
Public transport	65522					17818										83340
Private and commercial transport						249871	749615									999486
Subtotal	65522					267689	749615									1082826
OTHER																
Waste management																230759
Water management																16285
Please specify																
Subtotal																247044
Total	1617873	262870	644801		1315373	267689	749615		137516							5242781
Corresponding CO2-emission factors in [t/MWh]	0.604	0.224	0.23		0.315	0.334	0.312		0.363							

CO2 emission factor for electricity not produced locally [t/MWh]

0.604

Esempio 3

A. Final energy consumption

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

Category	FINAL ENERGY CONSUMPTION [MWh]															
	Electricity	Heat cold	Fossil fuels								Renewable energies					Total
			Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES																
Municipal buildings, equipment/facilities	0.52364	0.28821	0.35098		0.07607				0.01195							1.25085
Tertiary (non municipal) buildings, equipment/facilities	1.79423	0.62254	0.3743	0.00389	1.02936			0.23562	0.00842					0.0013	0.00056	3.81777
Residential buildings	5.01405	0.90565	4.01205	0.02901	1.80754				0.01852				0.0003	0.00111	0.0007	12.02456
Municipal public lighting	0.18689	0														0.18689
Industries (excluding industries involved in the EU Emission trading scheme - ETS)	8.90816	0.89652	3.7336	0.06474	2.31557			0.04437	0.45022							16.41319
Subtotal	16.42697	2.71292	8.47093	0.09764	5.22854	0	0	0.27999	0.48911	0	0	0	0.0003	0.00241	0.00126	33.69326
TRANSPORT																
Municipal fleet						8e-05										
Public transport	0.56618					0.18813										0.75431
Private and commercial transport						2.16224	4.87137									7.0336
Subtotal	0.56618	0	0	0	0	2.35045	4.87137	0	0	0	0	0	0	0	0	7.78791
Total	16.99315	2.71292	8.47093	0.09764	5.22854	2.35045	4.87137	0.27999	0.48911	0	0	0	0.0003	0.00241	0.00126	41.48117

Municipal purchases of certified green electricity (if any) [MWh]:

CO2 emission factor for certified green electricity purchases (for LCA approach):

Stuttgart (CO2) – Emission data

B. CO2-Emissions

Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

Category	CO2 emissions [t]/ CO2 equivalent emissions [t]															
			Fossil fuels								Renewable energies					Total
	Electricity	Heat cold	Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES																
Municipal buildings, equipments/facilities	0.11973	0.06792	0.06831		0.0203				0.00311							0.27937
Tertiary (non municipal) buildings, equipments/facilities	0.41024	0.146	0.07285	0.0008	0.27469				0.00219					2e-05	0.00013	0.90326
Residential buildings	1.14642	0.21344	0.78087	0.00598	0.48235			0.00427	0.00482					2e-05	0.00016	2.63834
Municipal public lighting	0.04273	0.21129	0.72667													0.04273
Industries (excluding industries involved in the EU Emission trading scheme - ETS)	2.03678			0.01335	0.61792			0.0008	0.11726							3.72407
Subtotal	3.7559	0.63865	1.6487	0.02013	1.39526	0	0	0.00507	0.12738	0	0	0	0	4e-05	0.00029	7.58777
TRANSPORT																
Municipal fleet						2e-05										2e-05
Public transport	0.12945					0.04571										0.17517
Private and commercial transport						0.52542	1.169913									1.69455
Subtotal	0.12945	0	0	0	0	0.57115	1.169913	0	0	0	0	0	0	0	0	1.86974
OTHER																
Waste management																
Water management																
Please specify																
Subtotal																
Total	3.88535	0.63865	1.6487	0.02013	1.39526	0.57115	1.169913	0.00507	0.12738	0	0	0	0	4e-05	0.00029	9.45751
Corresponding CO2-emission factors in [t/MWh]	0.64833	0.30778	0.22772	0.2412	0.32023	0.2916	0.3024	0.0239	0.43804	0.25	0.0358	0.08661	0.01476	0.0252	0.16381	

CO2 emission factor for electricity not produced locally [t/MWh]

0.6681

FASE DI PIANIFICAZIONE

Stabilire la visione e gli obiettivi

✓ Dove vogliamo arrivare?

Elaborare il SEAP - come arrivare all'obiettivo?

✓ Misure a breve e medio termine

✓ Strategie a lungo termine

PIANIFICATE NEI SETTORI-CHIAVE:

- Settori di competenza comunale
- Edilizia, impianti/strutture (settore residenziale, terziario)
- Impiantistica, attrezzature, stumentazioni
- Trasporto

MA ANCHE:

- *Produzione locale di energia pulita*
- *Pianificazione territoriale*
- *Forniture pubbliche*
- *Coinvolgimento di cittadini e stakeholders*

Strategia anche nel formulario in inglese

General | Contacts | Supporting Structures | SEAP | Benchmarks of Excellence | Account

Overall Strategy | Emission Inventory | Sustainable Energy Action Plan | SEAP Submission | Archive

Overall Strategy

Instructions close the lock

Green fields: mandatory fields

1) Overall CO2 emission reduction target

(%) by **2020**

23

Please tick the corresponding box

- (•) Absolute reduction
- ( ) Per capita reduction

2) Long-term vision of your local authority (please include priority areas of action, main trends and challenges)

Starting from the analysis of the data and results achieved thank to the filling-in of the Baseline Emission Inventory (BEI) and according to strategical development axes of the Municipality of Genoa (Administration governance programme 2007-2012, PUC (Municipal Urban Plan) and the 10

3) Organisational and financial aspects

Coordination and organisational structures created/assigned

The Municipality of Genoa in order to strengthen its energy policy created a specific Energy Office with a task of management and coordination, became a shareholder of the Regional Energy Agency of Liguria Region (ARE) and has strengthened its collaboration with ARE and the

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FASE DI PIANIFICAZIONE

PER OGNI MISURA/AZIONE a breve-medio termine E' FONDAMENTALE:

- ✓ Identificare la persona/il dipartimento responsabile
- ✓ Indicare la tempistica
- ✓ Indicare il costo previsto e prevedere il reperimento dei fondi necessari
- ✓ Stimare il risparmio energetico associato
- ✓ Stimare la diminuzione di emissioni di CO_2 associata
- ✓ Ove applicabile, stimare il quantitativo di energia rinnovabile prodotta

Azioni per i settori individuati dalla strategia

Il totale delle riduzioni di settore e il totale delle riduzioni per ogni azione/misura Deve essere compatibile Con la possibilita' di raggiungere l'obiettivo!!

Date of formal approval: 5 August 2010

Authority approving the plan: Municipal Council

Save

2) Key elements of your Sustainable Energy Action Plan

Legend of colours and symbols:

Green fields are compulsory | Grey fields are non editable | Add action | Delete action

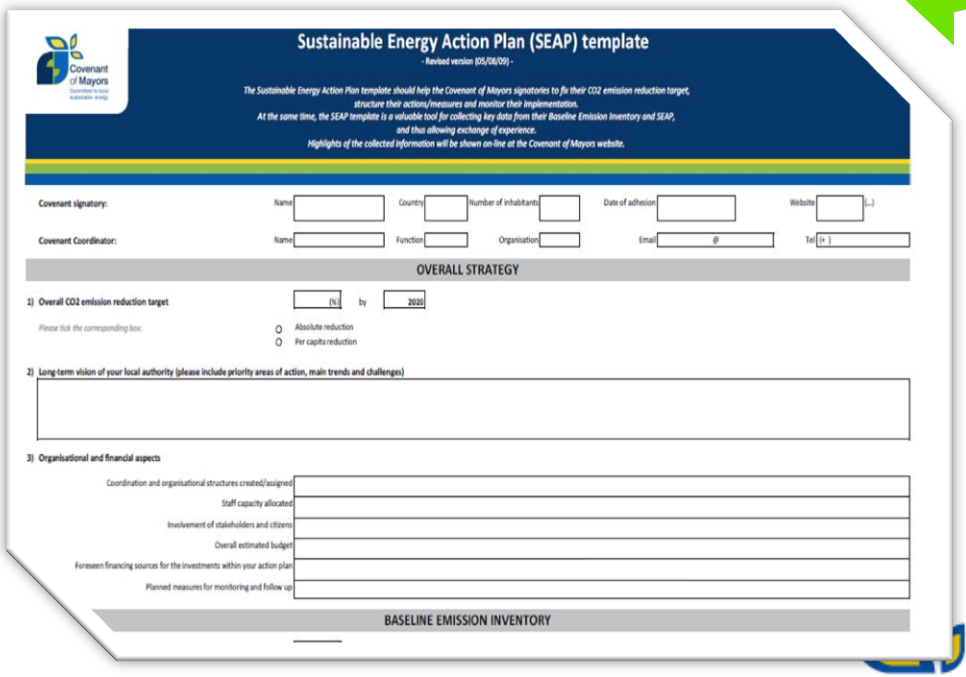
Please save the information after each sector, otherwise your data will be lost.

SECTORS & fields of action	KEY actions/measures per field of action	Responsible department, person or company (in case of involvement of 3rd parties)	Implementation [start time]	Implementation [end time]	Estimated costs per action/measure	Expected energy saving per measure [MWh/a]	Expected renewable energy production per measure [MWh/a]	Expected CO2 reduction per measure [t/a]	Energy saving target per sector [MWh] in 2020	Local renewable energy production target per sector [MWh] in 2020	CO2 reduction estimation per sector [t] in 2020
BUILDINGS, EQUIPMENT / FACILITIES & INDUSTRIES:								Save sector	649375	411	157896
Municipal buildings, equipment/facilities	EDI - S01 - Installation of thermal solar collectors on the roofs of sports centres	Municipality of Genoa	2010	2013	533000		411	104			
	EDI - S02 - Tenders /out-contracting for management of heating systems	Municipality of Genoa	2012	2013		27100		5474			
	EDI - S04 - Energy Audits on school buildings	Municipality of Genoa	2010	2013	0						
	EDI - S05 - Development of municipal energy data-base	Municipality of Genoa	2010	2015	10000						
	EDI - S06 - Retrofitting for heating systems (conversion from heating oil to natural gas)	Municipality of Genoa	2010	2013		45390		12664			
	EDI - S07 - Multi-service Technology Agreement for local health centres of Liguria Region	Liguria Region	2008	2018		47576		12760			
	EDI - S08 - Energy saving in school buildings	Municipality of Genoa	2010	2015		16539		4715			
	EDI - S09 - Energy management of the property owned by A.R.T.E. (local housing agency)	ARTE	2010	2013	370000	5718		1388			

FASE DI PIANIFICAZIONE

Approvazione del piano in consiglio ed invio di SEAP e SEAP template (formulario via web

SEAP TEMPLATE
helpdesk.eumayors.eu(area riservata)


Sustainable Energy Action Plan (SEAP) template
- Revised version (05/08/09) -
The Sustainable Energy Action Plan template should help the Covenant of Mayors signatories to fix their CO2 emission reduction target, structure their actions/measures and monitor their implementation.
At the same time, the SEAP template is a valuable tool for collecting key data from their Baseline Emission Inventory and SEAP, and thus allowing exchange of experience.
Highlights of the collected information will be shown on-line at the Covenant of Mayors website.
Covenant signatory:
Covenant Coordinator:
OVERALL STRATEGY
1) Overall CO2 emission reduction target
2) Long-term vision of your local authority (please include priority areas of action, main trends and challenges)
3) Organisational and financial aspects
Coordination and organisational structures created/assigned
Staff capacity allocated
Involvement of stakeholders and citizens
Overall estimated budget
Foreseen financing sources for the investments within your action plan
Planned measures for monitoring and follow up
BASELINE EMISSION INVENTORY

FEEDBACK

Il JRC analizzerà il SEAP ed invierà ai firmatari un report contenente commenti e suggerimenti.

Ai firmatari può essere richiesta revisione del SEAP in caso vengano riscontrati significativi punti di debolezza od omissioni.

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General | Contacts | Supporting Structures | SEAP | Benchmarks of Excellence | Account

Overall Strategy | Emission Inventory | Sustainable Energy Action Plan | SEAP Submission | Archive

Sustainable Energy Action Plan Submission

Your SEAP & SEAP template have been successfully submitted.

Covenant of Mayors Helpdesk now will proceed to a verification and validation of your data, and will provide feedback.

Before the verification starts, it will still be possible to correct mistakes or improve the data at any time by clicking on the "Save" buttons - you can find them in the previous sections!

During the verification process, your SEAP template will be locked. After verification, you will receive feedback, indicating if additional information or clarification is needed. If it is the case, you should proceed to the improvements required and resubmit the modified template via the "Resubmit" buttons that will appear once you have received feedback.

Once all major problems have been corrected, the template will be validated.

III Fase di IMPLEMENTAZIONE

- **Coordinare l'implementazione del piano.** Essere sicuri che ogni stakeholder sappia quale è il suo ruolo.
- Implementare le misure che sono sotto la responsabilità dell'autorità locale**.** ***Siate esemplari.***
- **Approccio "Gestione di Progetto":** controllo scadenze, controllo finanziario, pianificazione, *analisi delle deviazioni* e gestione del rischio
- **Mantenere gli stakeholders, il consiglio municipale, i politici, i cittadini informati**

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IV° Fase di MONITORAGGIO

- **Effettuare un monitoring regolare del piano**: stato di avanzamento delle azioni e valutazione del loro impatto.
- **Rapporti a Città**: Rapportare periodicamente alle autorità pubbliche e agli stakeholders circa l'avanzamento del piano. Comunicare i risultati.
- **Rapporti a EC:** Ogni secondo anno, sottomettere un rapporto di implementazione attraverso il CoMO website.
- **Revisione**: Periodicamente rivedere il piano in accordo all'esperienza ed i risulati ottenuti.

When to report?

Every year: ***Monitoring Inventory*** (recommended, but not mandatory). Allows analyses of the impact of the action, and ensures that the know how is maintained.

Every second year: ***Monitoring Report (***mandatory), about the implementation of the SEAP (specific guidance to be published).

Every four years: ***Monitoring Emissions Inventory*** attached to the implementation report (specific guidance to be published).

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JRC Work Plan

1. . METODOLOGIE: Ricerca completa sulle metodologie e strumenti esistenti
2. LINEE GUIDA: Linee Guida per lo sviluppo e monitoraggio di Piani Azioni Sostenibili PAES (SEAP)
3. ANALISI: Analisi tecnico-scientifica di alto livello dei SEAP e relativa relazione ai firmatari
4. MONITORAGGIO: Monitoraggio implementazione CoM
5. HELPDESK: Servizio Tecnico di helpdesk per rispondere a quesiti di natura tecnico - scientifica dei firmatari

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Criteri Valutazione

- **Rispetto e attuazione dei 10 elementi chiave**

- **Coerenza numerica nel BEI**
  (Stime Totali, coerenza tra consumi-produzione energia e CO2, ordine di grandezza rispetto alla popolazione, coerenza con le linee guida, …)

- **Coerenza nelle azioni del SEAP**
  (azioni rilevanti, coerenza con strategia generale, con gli obiettivi di riduzione, bilancio tra i settori chiave, etc)

- **Selezione di 3 misure/azioni** per on line catalogue

FEEDBACK A CITTA'

Possibili Revisioni:

Commenti e suggerimenti sulle varie parti del SEAP Template

In caso di forti mancanze le città possono ricevere la richiesta di rivedere il SEAP

Con il rispetto dei 10 elementi:

Accettazione Finale

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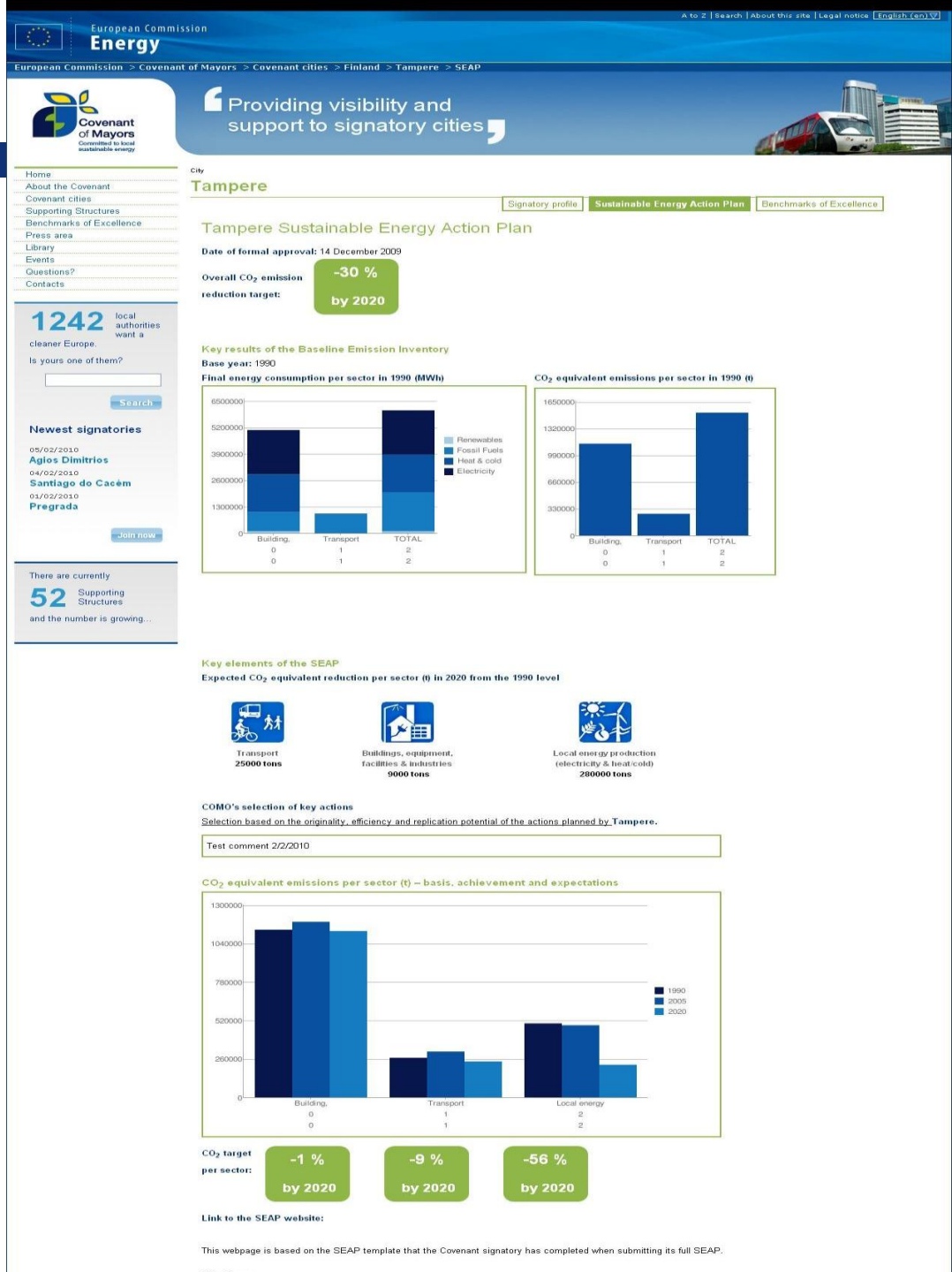
JRC
EUROPEAN COMMISSION

Milano 24 Novembre 2010

Dopo accettazione:

catalogo On-line

www.eumayors.eu



JRC Work Plan

WP1. METODOLOGIE: Ricerca completa sulle metodologie e tools esistenti

WP2. LINEE GUIDA: Linee Guida per lo sviluppo di Piani Azioni Sostenibili SEAPs

WP3. VALUTAZIONE: Valutazione ad alto livello dei SEAPs, feedback alle città Covenant e a DG ENER

WP4. MONITORAGGIO: Monitoraggio implementazione CoM

WP5. HELPDESK: Servizio Tecnico nel helpdesk

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UFFICIO COVENANT OF MAYORS www.eumayors.eu

JRC
SERVIZIO DI HELPDESK TECNICO

Per domande tecniche ci sono 3 opzioni:
FAQs at www.eumayors.eu/faq/index_en.htm
Electronic inquiry form at http://www.eumayors.eu/contacts/technical_inquiry_en.htm
Or direct phone contact with JRC:
Phone +39 0332 78 6206/9703

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Qualche esempio dai Piani di Azione Energia Sostenibile SEAP/PAES.....

Municipality as the ORGANISER the region its administer

Municipality : setting an EXAMPLE with its built environment

THE PARTNERSHIP

BUILDINGS AND PUBLIC AREAS

DEVELOPING AND DISTRIBUTING ENERGY

THE CITY ADMINISTRATION'S STANDARD-SETTING ACTION ON TRANSPORT AND MUNICIPAL TRAVEL

COMMUNICATION AND AWARENESS RAISING

Green areas

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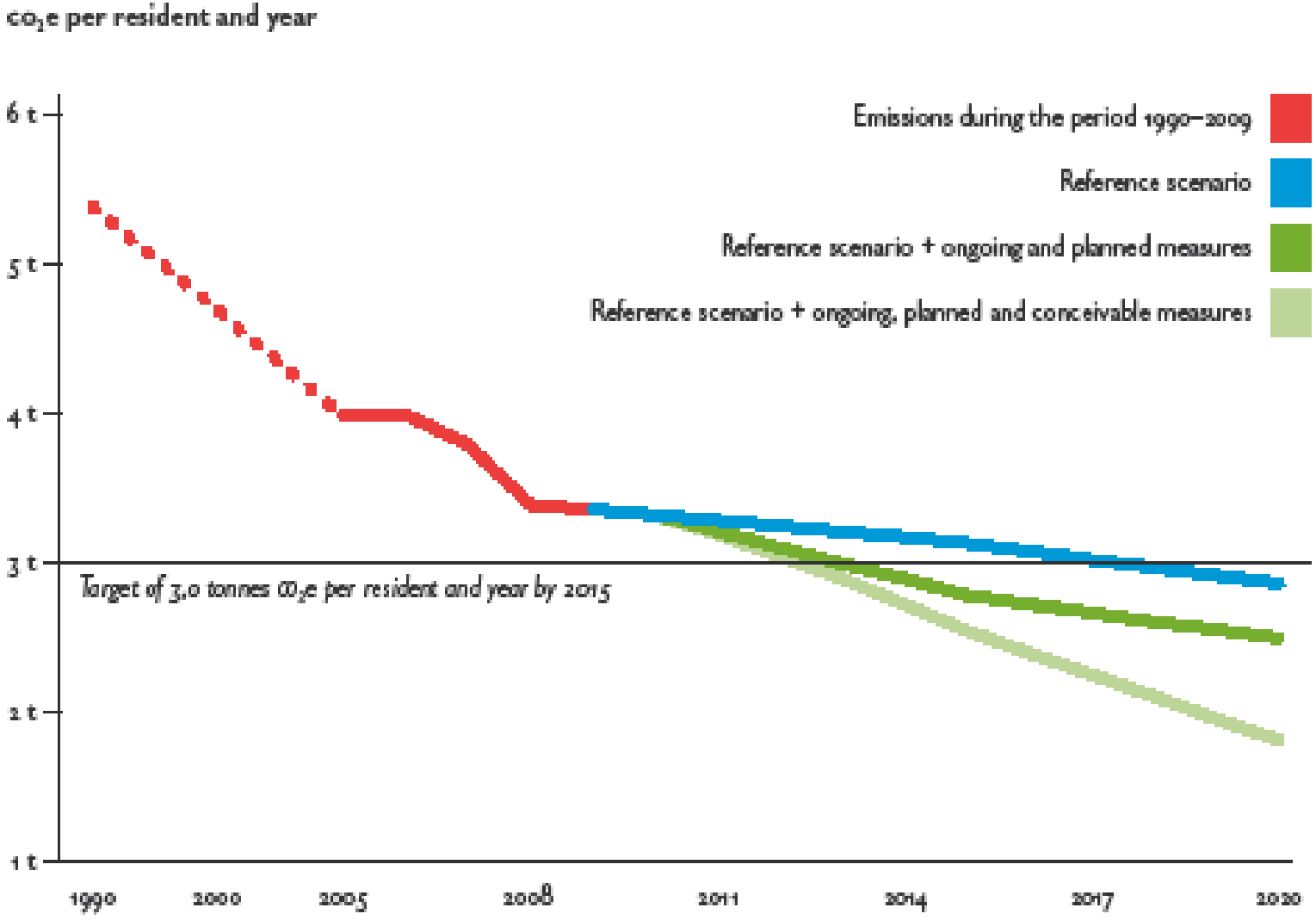
Stockholm ’s SEAP:

Long term strategy and different scenarious

Target of 3,0 t CO2 per resident:
44% CO2 per capita Reduction

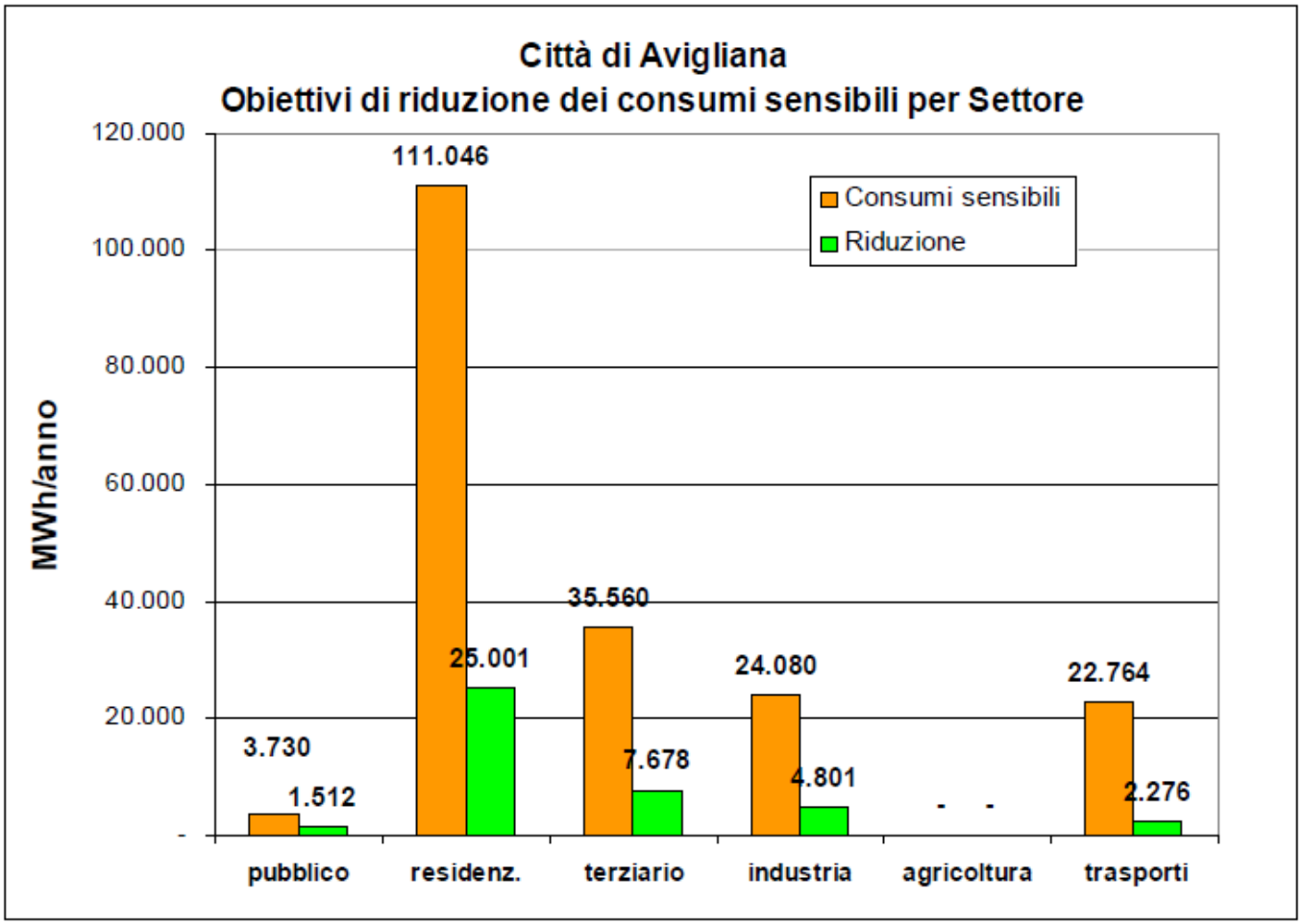
Target 2050: Fossil fuel free



Graph 1. Different scenarios for greenhouse gas emissions in the City of Stockholm per capita between the years 1990 and 2020. (The reason for the rapid decrease between 2007 and 2008 is a heavily reduced emission factor for electricity (–123,000 tonnes) which in the reference scenario is assumed to remain unchanged after 2008)

Avignana (IT) ’s SEAP:

2020 obiettivi Riduzione CO2 per diversi settori



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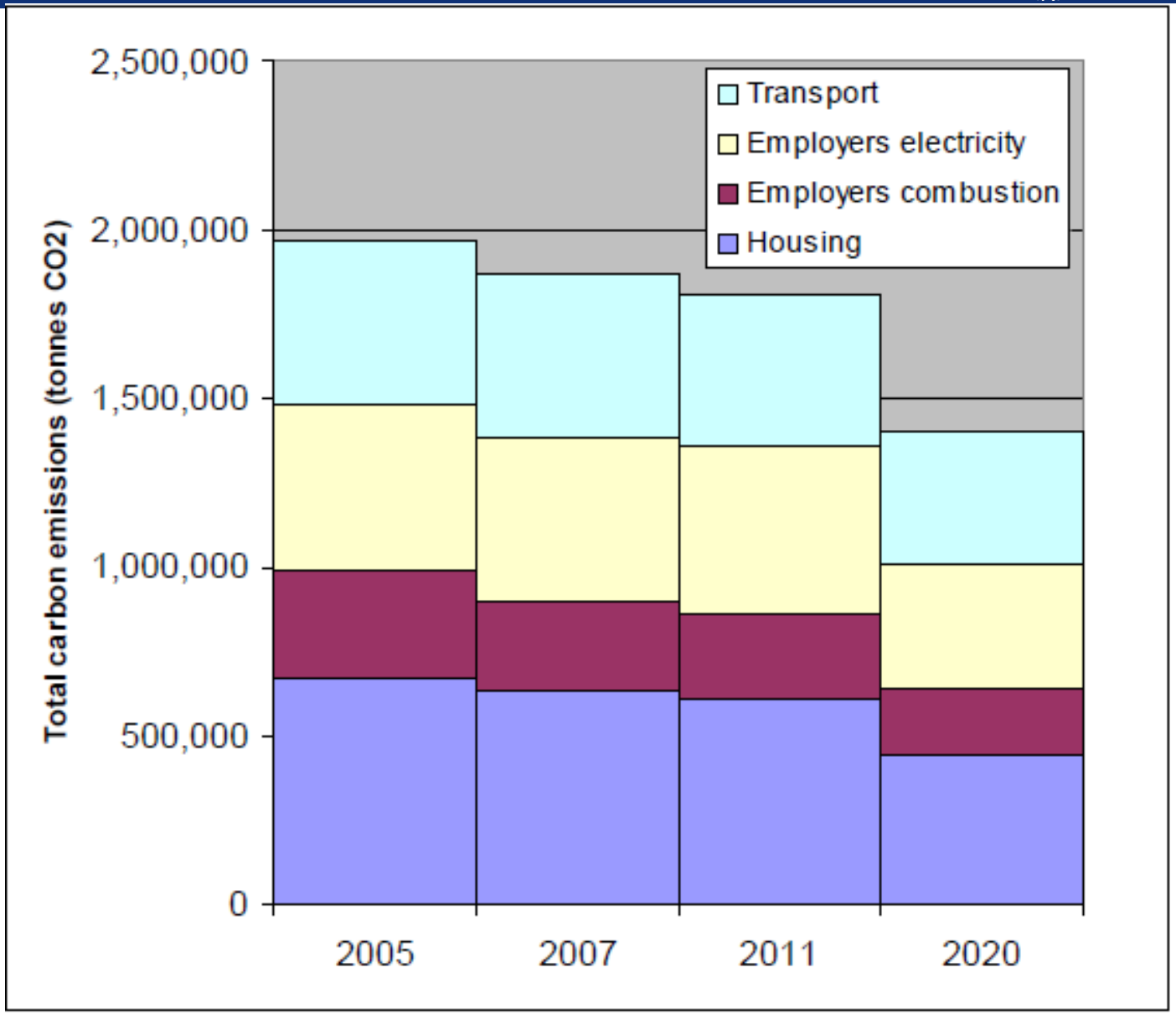
Sundeland's (UK) SEAP:

Past, present, and future CO2 emission estimate, showing impact of SEAP Actions

Target 2020:
29% CO2 Reduction

UK National Target:
34% CO2 Reduction



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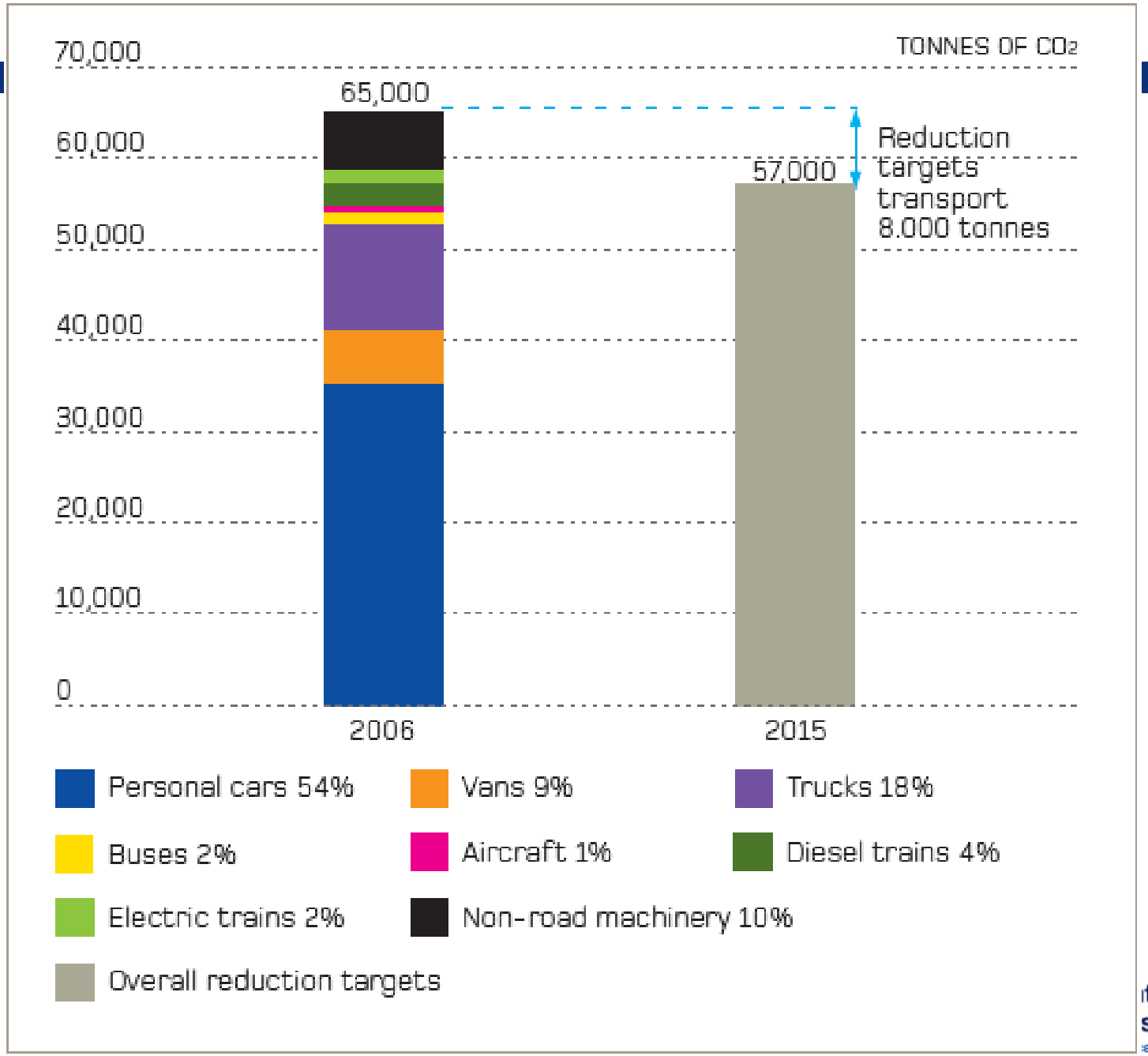
Albertslund's (DK) SEAP:

Transport

CO2 emission and reduction targets

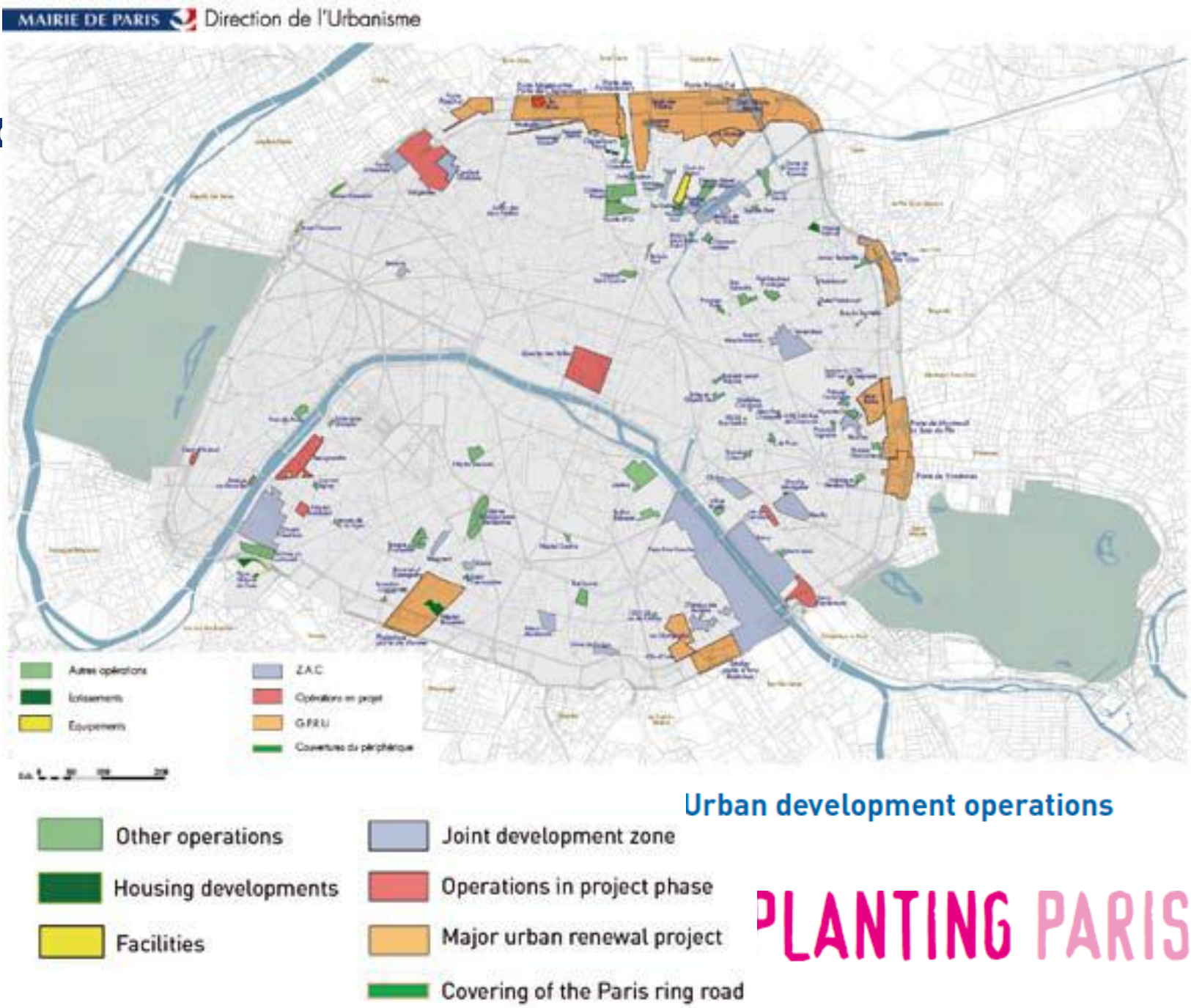


PARIS's SEAP:

Urban planning

Target 2020: 25% CO2 Reduction

30% for the Paris Adminstration



Joint Research Center - JRC

Grazie per la vostra attenzione

JRC EUROPEAN COMMISSION

ies Institute for Environment and Sustainability

Michele Canova
+39 0332 78 6206
michele.canova@jrc.ec.europa.eu

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