Energy & Location

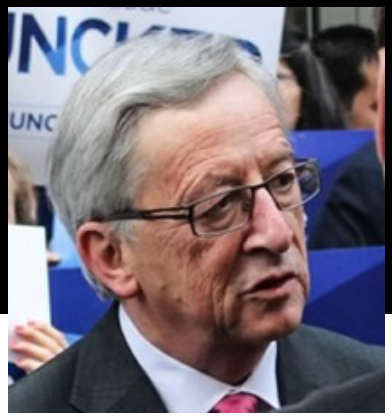
AMFM Workshop
24 September 2014

Piergiorgio
Cipriano

SINERGIS

Geographic Information is NOT only for environmental policies

INSPIRE is NOT only for Environment



2.

Come seconda priorità, voglio riformare e riorganizzare la politica energetica europea in **una nuova Unione energetica europea**. Dobbiamo mettere in comune le nostre risorse, collegare le nostre infrastrutture ed unire il nostro potere negoziale nei confronti dei paesi terzi. Abbiamo bisogno di diversificare le nostre fonti di energia e ridurre la dipendenza energetica di molti dei nostri Stati membri.

Voglio mantenere il nostro mercato energetico europeo aperto ai paesi confinanti. Tuttavia, **se il prezzo per l'energia dall'Est diventasse troppo alto, sia in termini commerciali che politici, l'Europa dovrebbe essere in grado passare molto rapidamente ad altri canali di approvvigionamento**. Dobbiamo essere in grado di invertire i flussi di energia quando necessario. Abbiamo bisogno di rafforzare la quota delle energie rinnovabili nel nostro continente. Qu non è solo una questione di politica responsabile in materia di cambiamento climatico, ma è allo stesso tempo un impe di politica industriale se si vuole ancora avere energia a prezzi accessibili a nostra disposizione nel medio termine. **Voglio quindi che l'Unione energetica europea diventi il numero uno al mondo nel settore delle energie rinnoval**

LE MIE PRIORITÀ

I MIEI CINQUE PUNTI SULL'IMMIGRAZIONE

I MIEI OBIETTIVI SULLA POLITICA ESTERA

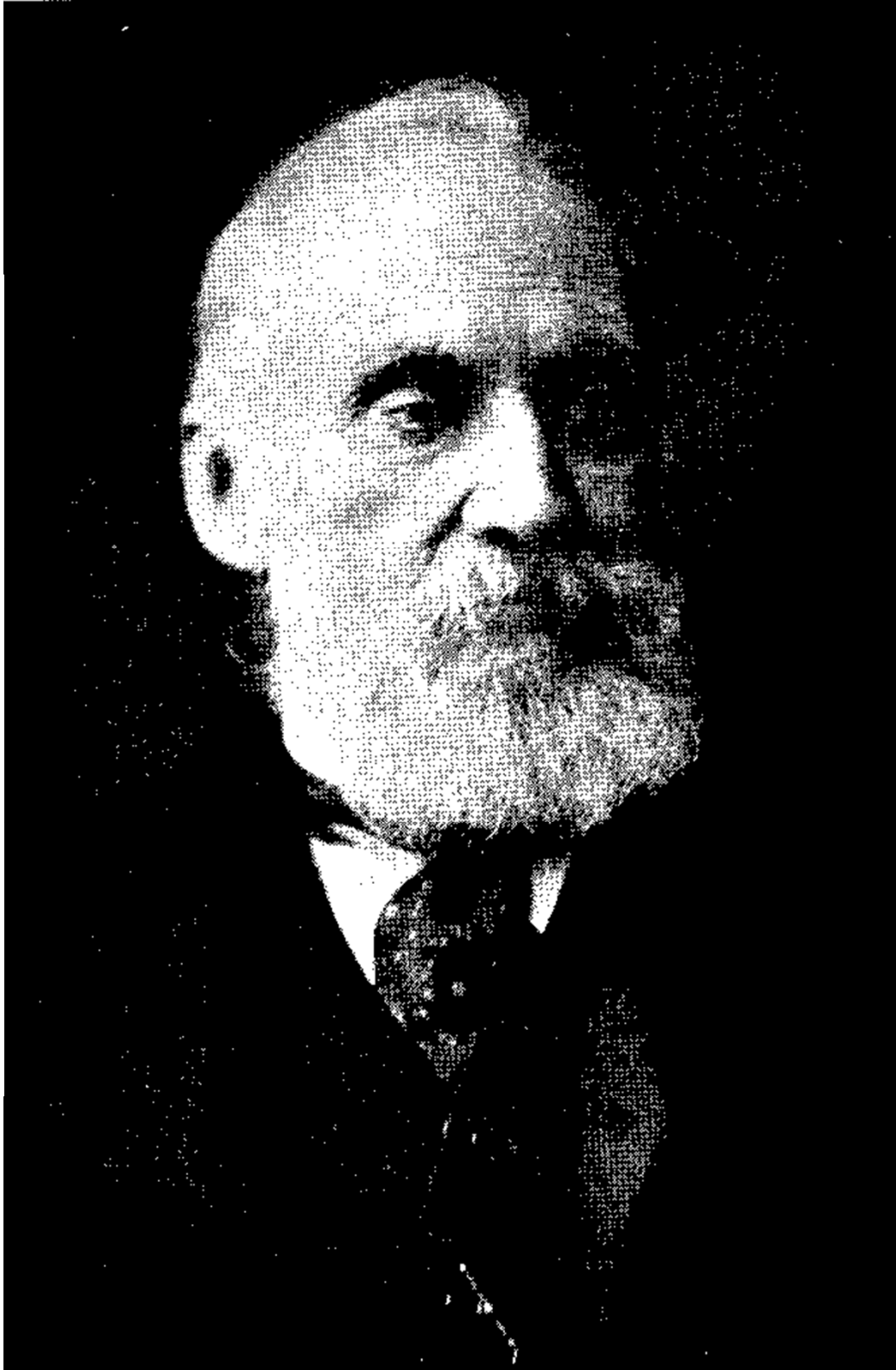
CREATING DIGITAL JOBS

GIVE ME YOUR OPINION

3.

Terzo, sotto la mia presidenza, la Commissione negozierà **un accordo commerciale ragionevole ed equilibrato co Stati Uniti**. È anacronostico che, nel 21esimo secolo, Europei ed Americani ancora impongano dazi doganali sui rispettivi prodotti. Questi dazi dovrebbero essere rapidamente e completamente aboliti. Credo anche che possiamo fare un notevole passo avanti nel riconoscere reciprocamente le rispettive norme sui prodotti oppure lavorare verso la definizione di standard transatlantici. Tuttavia, **come Presidente della Commissione, sarò anche molto chiaro sul fatto che non sacrificherò**

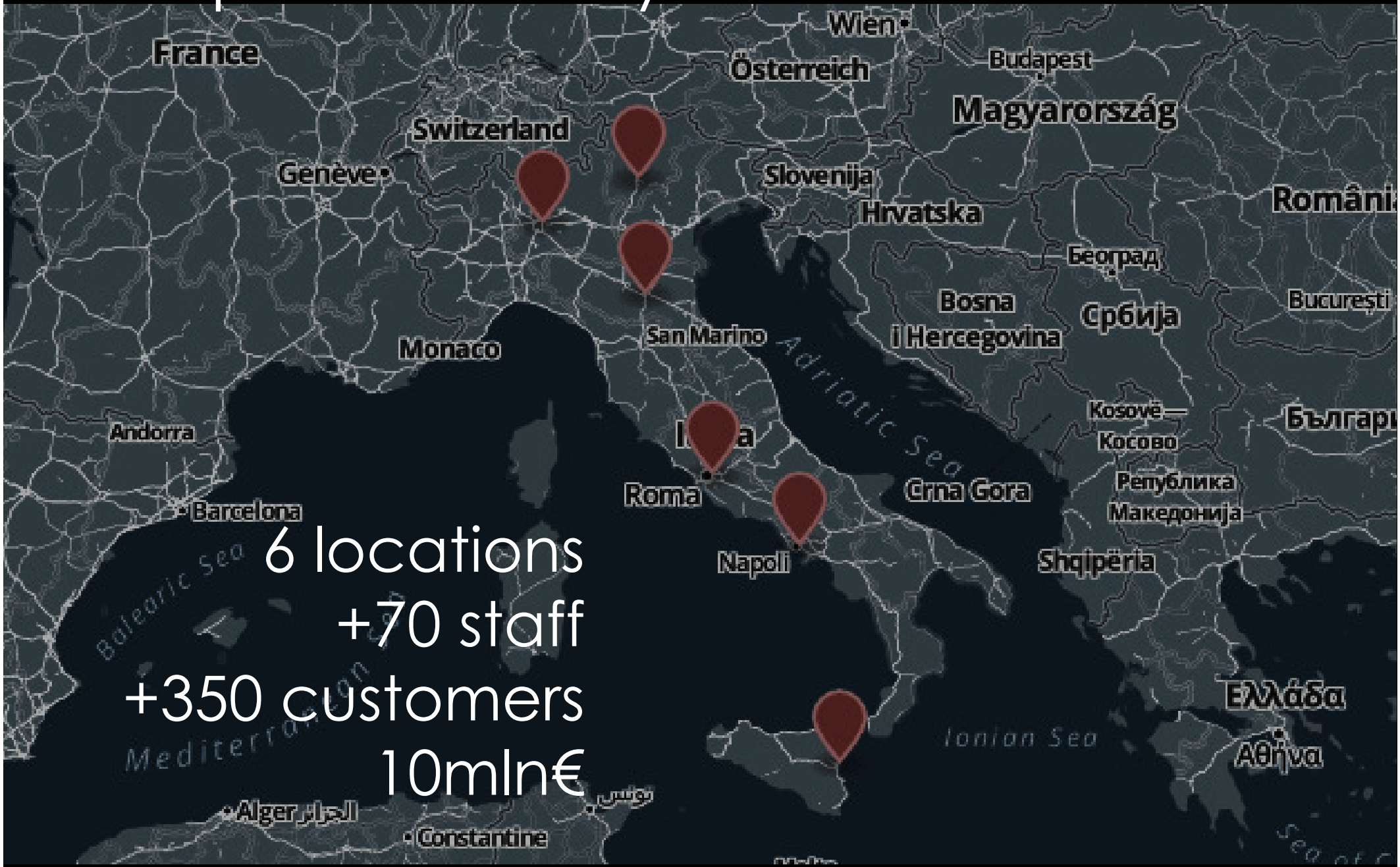
http://juncker.epp.eu/node/153



If You Can't Measure It, You Can't Improve It

(William Thomson, Lord Kelvin)

Sinergis is one of the major Geo-ICT companies in Italy …



6 locations
+70 staff
+350 customers
10mln€

… part of Dedagroup ICT Network …

ISIG

52north exploring horizons

SAPIENZA Università di Roma

TEHNOLOĢIJU ATTĪSTĪBAS FORUMS

CCSS

ZÁPADOČESKÁ UNIVERZITA V PLZNI

GraphiTech

ISPRA Istituto Superiore per la Protezione e la Ricerca Ambientale

Ordnance Survey®

tracasa

GEOFOTO

irCELine

Vmm VLAAMSE MILIEUMAATSCHAPPIJ

GeoZS

Epsilon ITALIA

Epsilon GROUP

Gobierno de Navarra

LANDMÆLINGAR ÍSLANDS

dgTerritório

imati

L'ATELIER

cenia

GEO

GISt

C3L

ESADE Business School

disy

PLANETEK

meteogrid

HEP ESCO d.o.o.

Informatica Trentina SpA

M.O.S.S.

Trentino Network

CEIT CENTRAL EUROPEAN INSTITUTE OF TECHNOLOGY

indeco soft

INSTITUTO GEOGRÁFICO PORTUGUÊS

SET DISTRIBUZIONE

GEOSYS

SUNSHINE

www.sunshineproject.eu

smart urban services based on open standards to support energy efficiency of buildings

Ferrara, Zagreb, Lamia, Trento, Cles, Paola

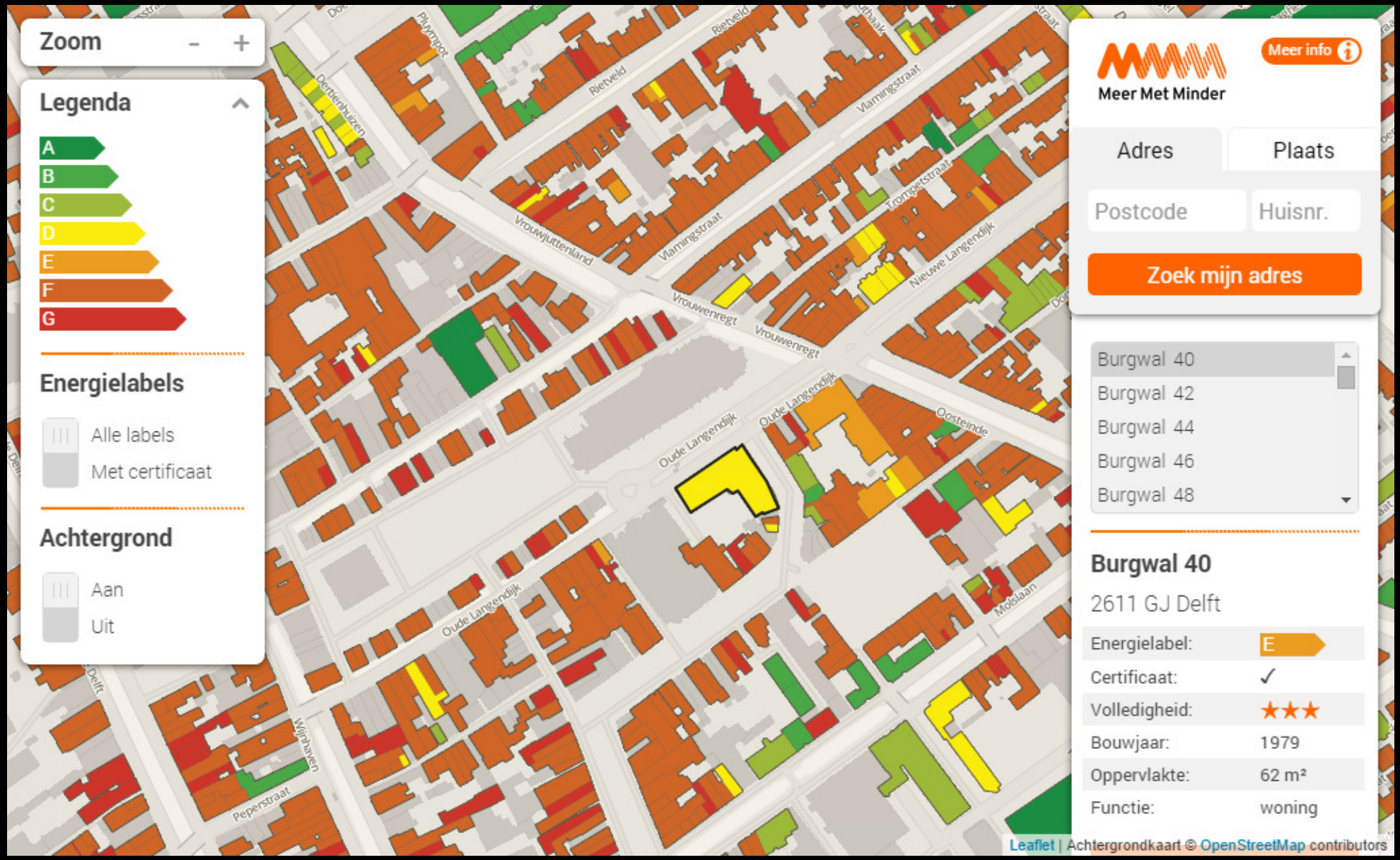
GeoSmartCity

www.geosmartcity.eu

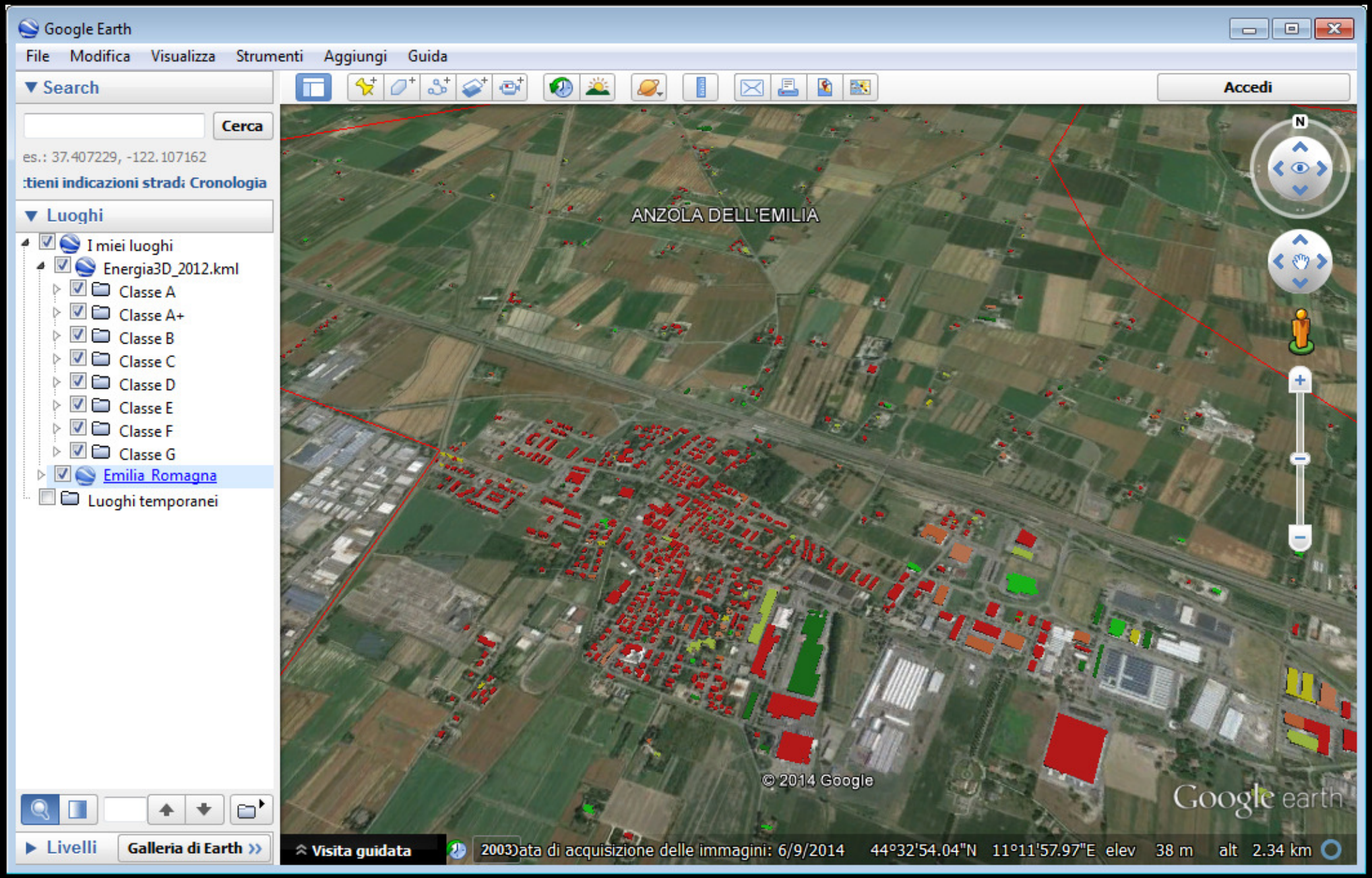
open data hub for data distribution on "green energy"

Reggio Emilia, Girona, Oeiras, Maroussi, Turku

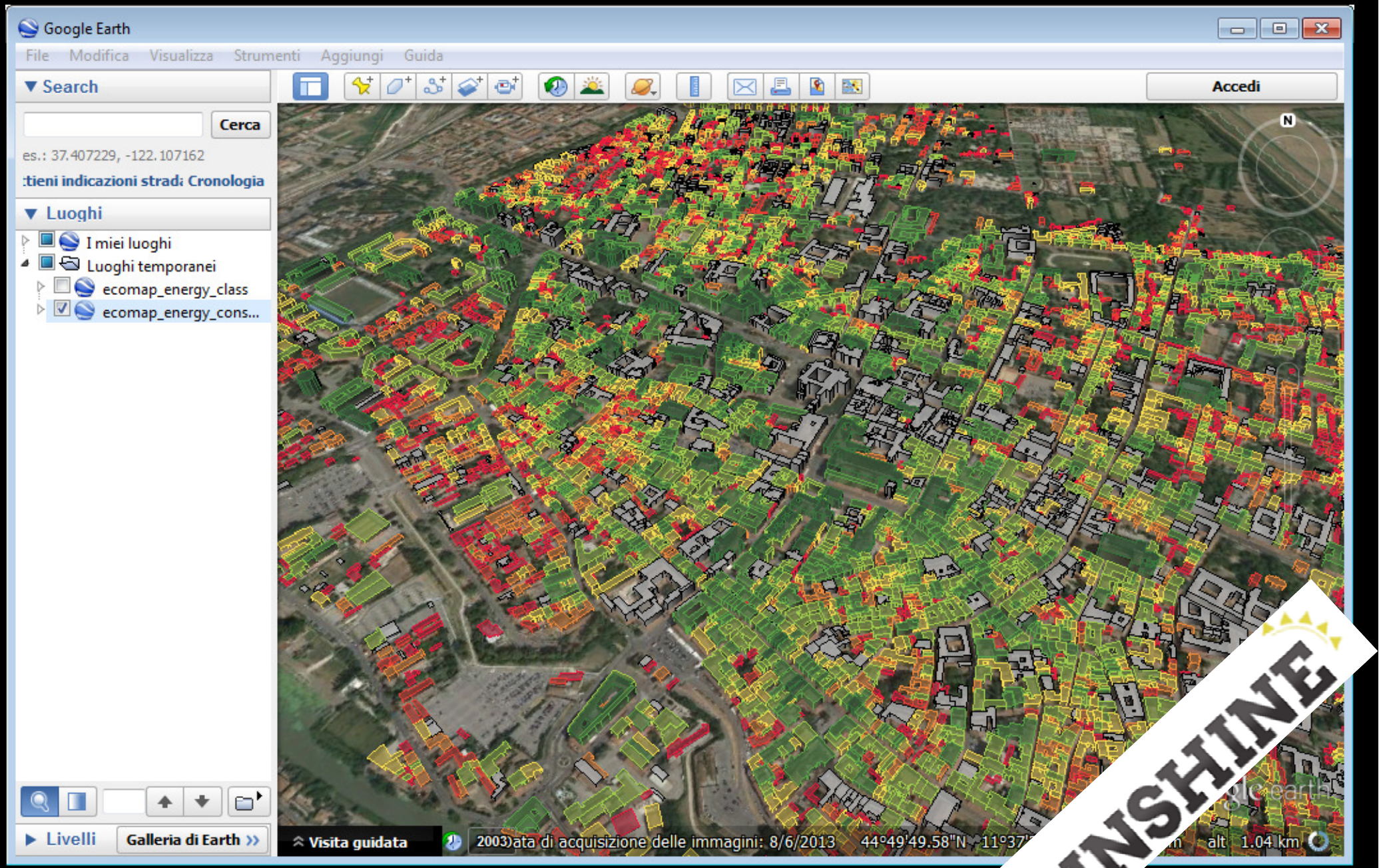
One goal is to improve this kind of maps:



http://energielabelatlas.nl/#zuid-holland/delft/17/52.0122/4.3612



http://www.chefuturo.it/2013/12/saggini-ecco-come-risparmiare-in-bolletta-grazie-allopen-data/


Google Earth
File Modifica Visualizza Strumenti Aggiungi Guida
Search
Cerca
es.: 37.407229, -122.107162
:tieni indicazioni strad: Cronologia
Luoghi
I miei luoghi
Luoghi temporanei
ecomap_energy_class
ecomap_energy_cons...
Livelli
Galleria di Earth
Accedi
Visita guidata
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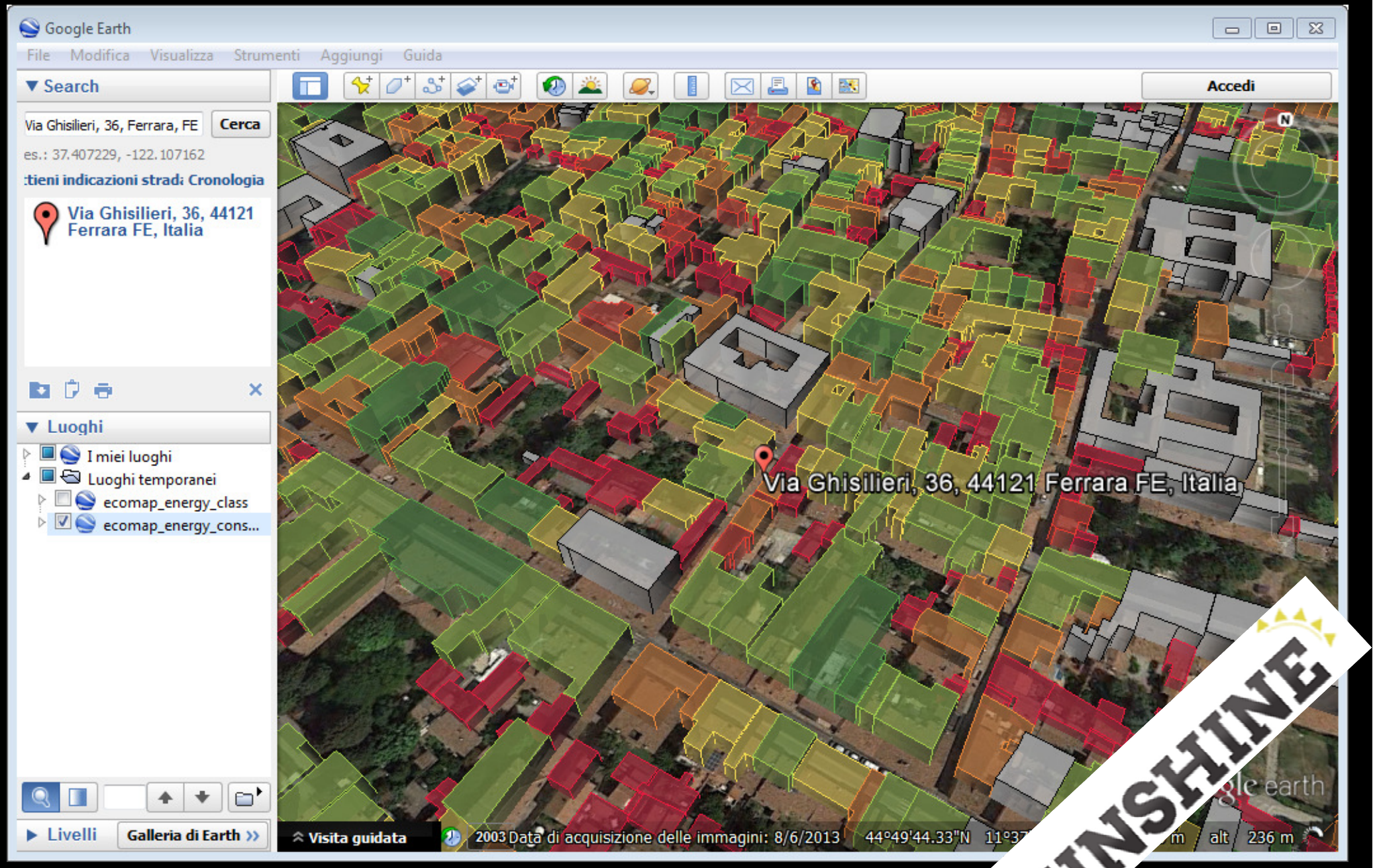
44°49'49.58"N
alt 1.04 km
SUNSHINE


Google Earth
File Modifica Visualizza Strumenti Aggiungi Guida
Search
Via Ghisilieri, 36, Ferrara, FE
Cerca
es.: 37.407229, -122.107162
:tieni indicazioni strad: Cronologia
Via Ghisilieri, 36, 44121 Ferrara FE, Italia
Luoghi
I miei luoghi
Luoghi temporanei
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Livelli
Galleria di Earth
Accedi
Via Ghisilieri, 36, 44121 Ferrara FE, Italia
Visita guidata
2003 Data di acquisizione delle immagini: 8/6/2013
44°49'44.33"N
alt 236 m
SUNSHINE

SUNSHINE

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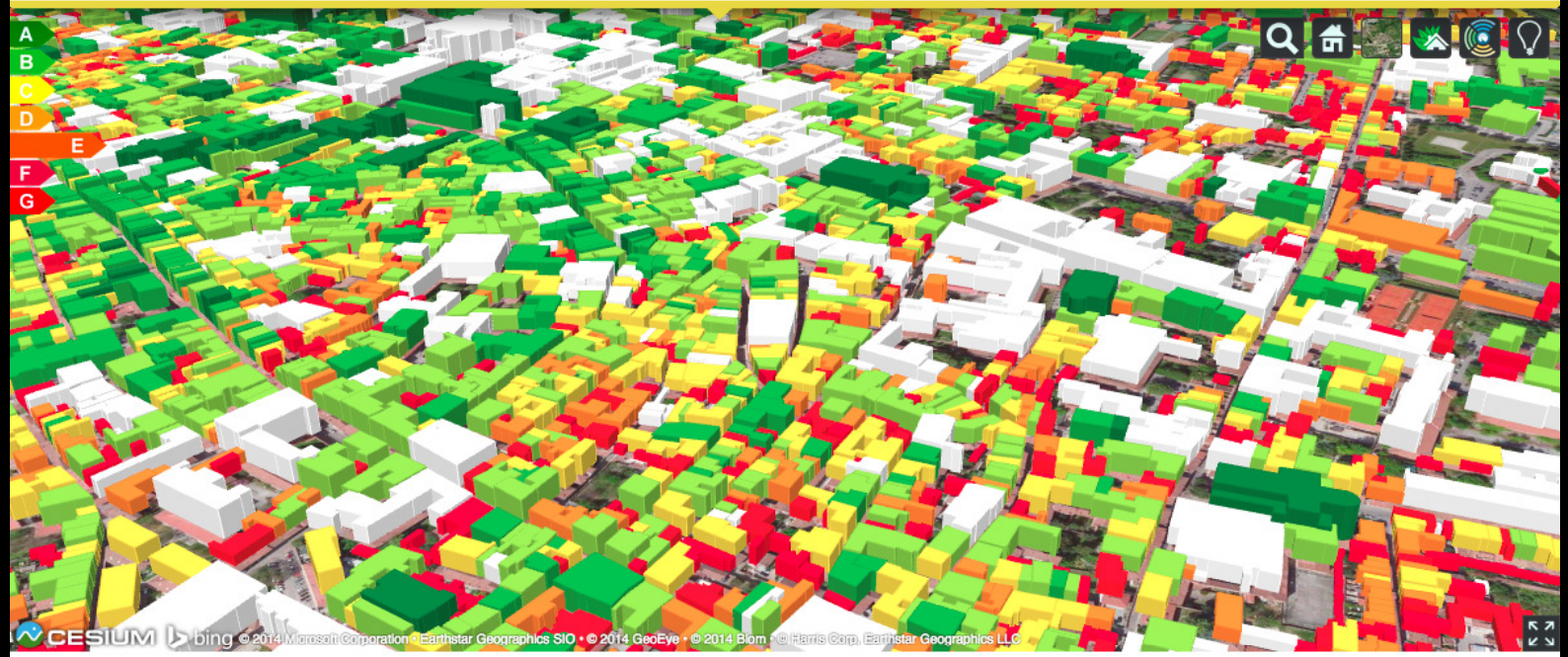

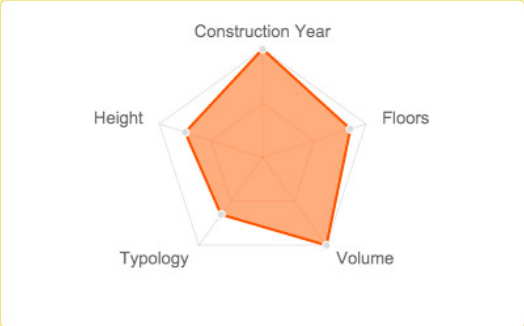

Building Overview

UUID: 6944ddeb-cce9-425c-8852-65bba050f81d
Construction Year:
Climatic Zone:
Volume:
Typology:
Bounding Box:
Bounding Estimated Energy Class:

Project Funding

SUNSHINE is supported by the Competitiveness and Innovation Framework Programme (CIP) 2007 - 2013
Call Identifier: CIP-ICT-PSP-2012-6

Project Coordinator

Raffaele de Amicis
Fondazione GraphiTech
via Alla Cascata, 56/C
38123, Trento, Italy
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coordinator@sunshineproject.eu

Social Networks

You can stay connected and updat
project developments even throu
network.

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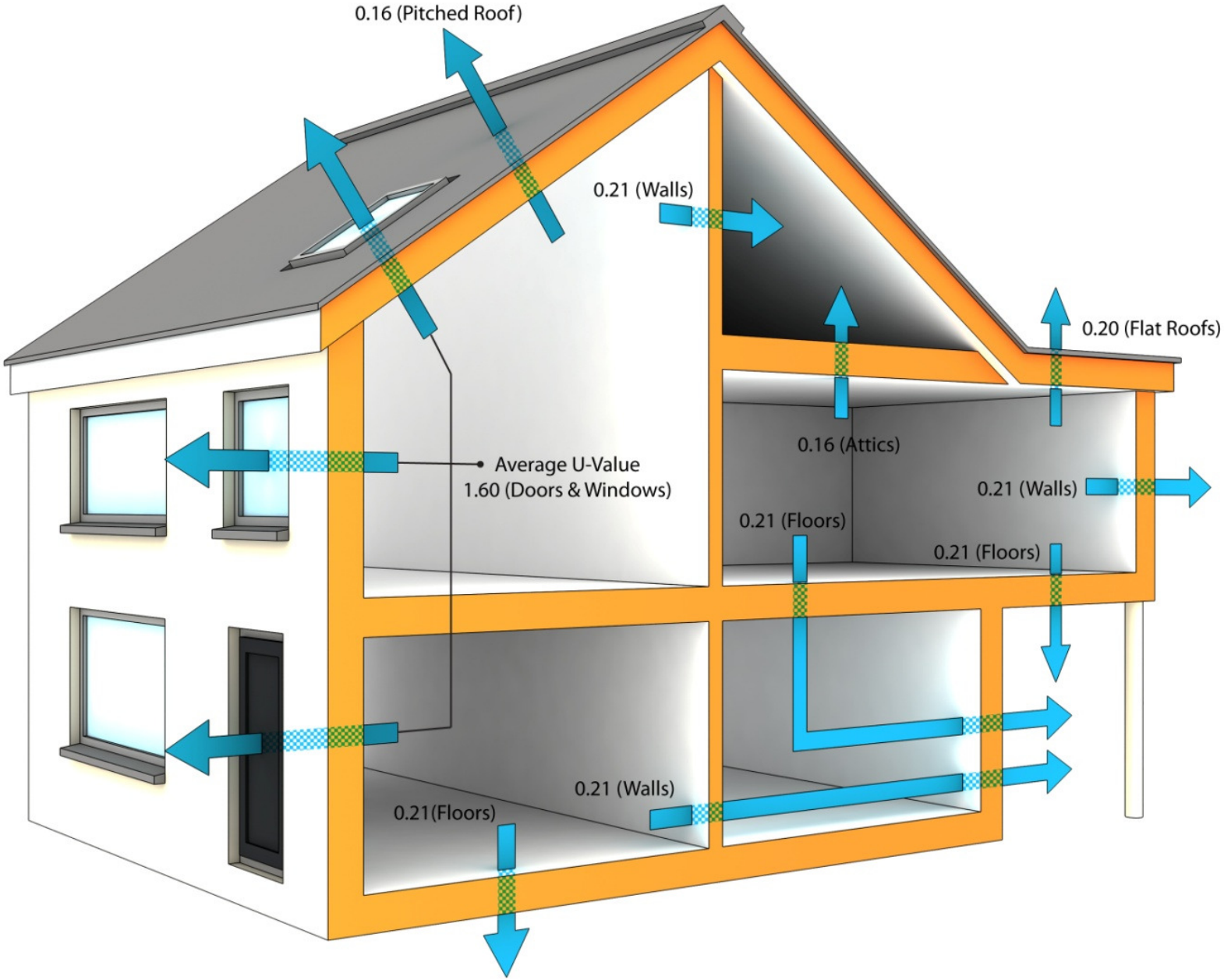
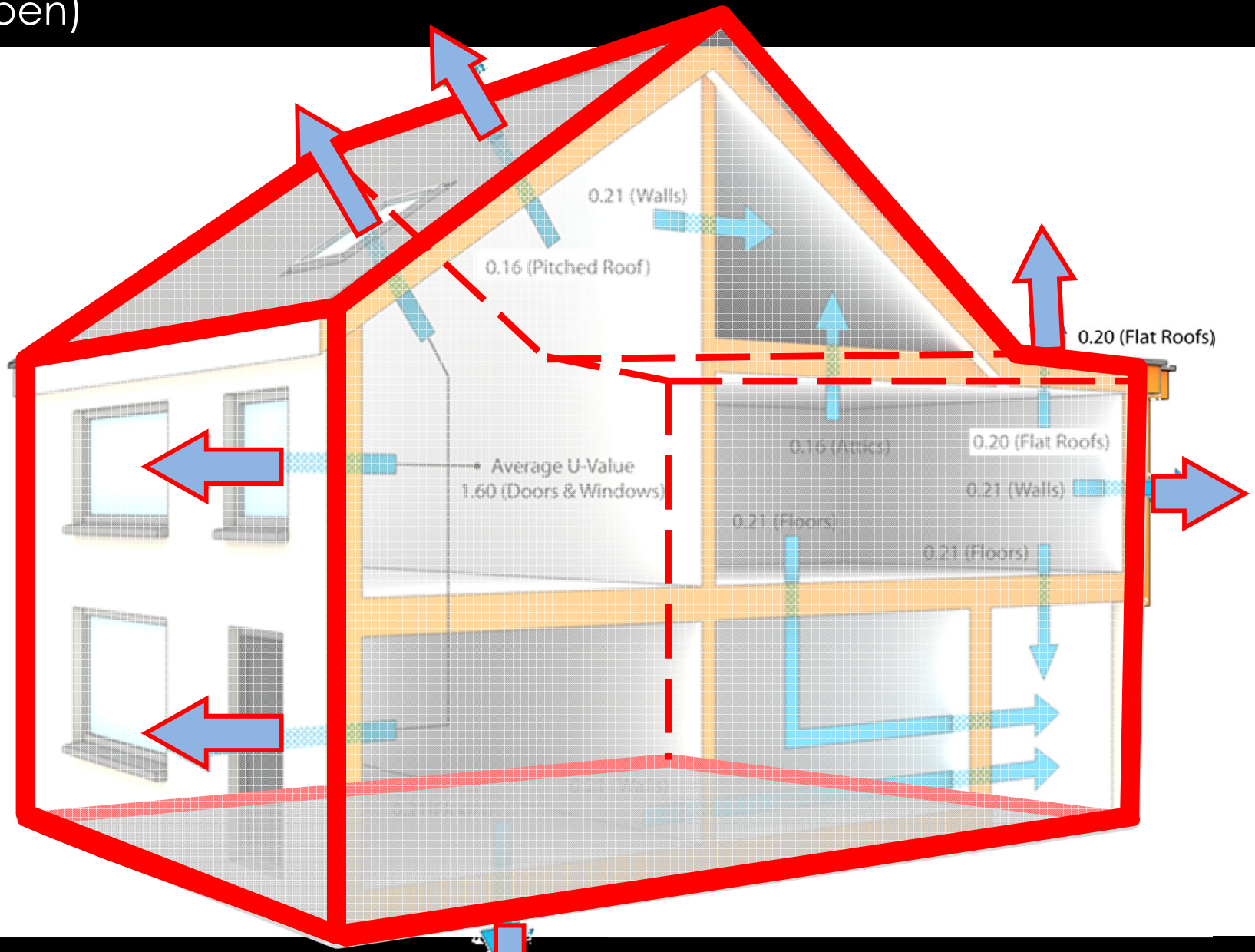

0.16 (Pitched Roof)
0.21 (Walls)
0.20 (Flat Roofs)
0.16 (Attics)
Average U-Value
1.60 (Doors & Windows)
0.21 (Walls)
0.21 (Floors)
0.21 (Floors)
0.21 (Walls)
0.21(Floors)

UValues and **other properties** (e.g. age of construction) from Energy Certificates registers (free/open)

3D from high res. Lidar (1-2K€/sq.km)



Energy consumption from SIATEL (free)

Footprint from Cadastre or high quality topo db (open)

Clicca per ordinare

RegioneLombardia

EXPO MILANO 2015 NUTRIRE IL PIANETA ENERGIA PER LA VITA

Home Accedi Iscriviti

OpenData Lombardia

CENED - Certificazione ENergetica degli EDifici

Elenco pratiche Attestati di Prestazione Energetica (APE) per la certificazione energetica degli edifici sul suolo della Regione

Trova in questo Dataset

Gestisci | Più viste | Filtra | Visualizza | Esporta | Discussione | Incorpora | Informazioni

	DATA_CHIUSURA_F	INDIRIZZO	PROVINCIA	COMUNE	SEZIONE	FOGLIO	PARTICELL	SUBALTERNO	NOME_CERTIFICA		EDIFICIO_PUBB	DESTINAZION	ANNO_C
1	05-FEB-13	VIA DELLA TRAVERSA	COMO	Lomazzo	COM	8	7129	1	Stefano	Pedersini	NO	E.8	2011
2	13-FEB-13	VIA DELLA SILA, 37	MILANO	Milano		275	632	701	Flavio Maria	Mazzone	O	E.1(1)	prima
3	21-FEB-13	VIA ROMA, 31	COMO	Luisago		3	752	3	Giancarlo	Cattaneo	NO	E.1(1)	prima
4	17-APR-13	VIA SAN BARTOLOMEO, 9	VARESE	Carnago	RO	2	438	8	Marco	Agudio	NO	E.1(1)	1961-
5	05-APR-13	VIA ALESSANDRO MANZONI, 10	MILANO	San Zenone al Lambro		5	37	2	Bruno	Ripamonti	NO	E.1(1)	1961-
6	10-APR-13	VIA CAMILLO CAVOUR, 1	BERGAMO	Carvico		5	1737	701	Livio	Mazzola	NO	E.1(1)	1961-
7	01-OTT-13	VIA CARERA, 19	BRESCIA	Rovato		35	1041	508	Giorgio	Bani	NO	E.1(1)	1999
8	18-MAG-13	VIA SAN MARCO, 36	BERGAMO	Clusone		8	199	707	MAURO	GIUDICI	NO	E.1(1)	1961-
9	21-MAG-13	VIA EUROPA UNITA, SNC	COMO	Faloppio	GAG	6	3692	7	Fabio	Borgianni	NO	E.1(1)	2012
10	29-MAG-13	VIA GUGLIELMO MARCONI, 31	BERGAMO	Mornico al Serio		8	1993	704	SIMONE	CASSINELLI	NO	E.1(1)	1977-
11	01-GIU-13	VICOLO CRESPI	MILANO	Cuggiono		12	709	6	Emanuele	Bianchi	NO	E.1(1)	2009
12	04-GIU-13	VIA FRATELLI DANDOLO, 3	MILANO	Abbiategrasso		31	475	2	Silvia	Pisano	NO	E.1(1)	2012
13	27-GIU-13	VIA GUGLIELMO MARCONI, 6	CREMONA	San Bassano		9	184	502	Alberto	Ventura	NO	E.1(1)	1977-
14	05-APR-13	VIA BRESCIA, SNC	BRESCIA	Idro		18	5881	1	Roberto	Vincenzi	NO	E.1(1)	1993-
15	04-APR-13	VIA DEL LAVORO, 13	MANTOVA	Canneto sull'Oglio		24	210	1	Costantino	Gozzi	NO	E.1(1)	1977-
16	05-APR-13	VIA LAMBRO, 2	MONZA E BRIANZA	Seveso		31	102	1	Giovanni	Larghi	NO	E.1(1)	prima
17	16-MAG-13	VIA SAN NICOLA, 88	BRESCIA	Botticino	NCT	26	119	8	Davide	Mingotti	NO	E.1(1)	1930-
18	18-APR-13	VIA GIOVANNI PASCOLI, 3	COMO	Ponte Lambro	LEZ	3	1016	1	Gentilio	Croci	NO	E.1(1)	1961-

Menu

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dati.lombardia.it/Energia/CENED-Certificazione-ENergetica-degli-EDifici/rsg3-xhvk

https://www.dati.lombardia.it/Energia/CENED-Certificazione-ENergetica-degli-EDifici/rsg3-xhvk

---------- Messaggio inoltrato ----------
Da: < @regione.emilia-romagna.it>
Date: 07 maggio 2014 17:06
Oggetto: Re: Disponibilità dati SACE
A: "De Luigi, Fabio" <f.deluigi@comune.fe.it>
Cc: < @regione.emilia-romagna.it>, "Direzione Generale Attività Produttive, Commercio e Turismo Turismo D28 Dir.Attività" <attprod@postacert.regione.emilia-romagna.it>

Buongiorno dott. De Luigi,
come le anticipavo, purtroppo al momento non siamo in condizioni di poter divulgare le informazioni che richiede.
Come le dicevo, sugli APE potremmo trasmetterle dei dati aggregati su base comunale.

A disposizione per qualsiasi chiarimento o approfondimento.

Cordiali saluti

Servizio Energia ed Economia Verde
Regione Emilia-Romagna

Viale Aldo Moro, 44
40127 Bologna (BO)
Mob.
Fax. 051 5276568

e-mail: @regione.emilia-romagna.it
PEC: energia@postacert.regione.emilia-romagna.it
http://energia.regione.emilia-romagna.it/

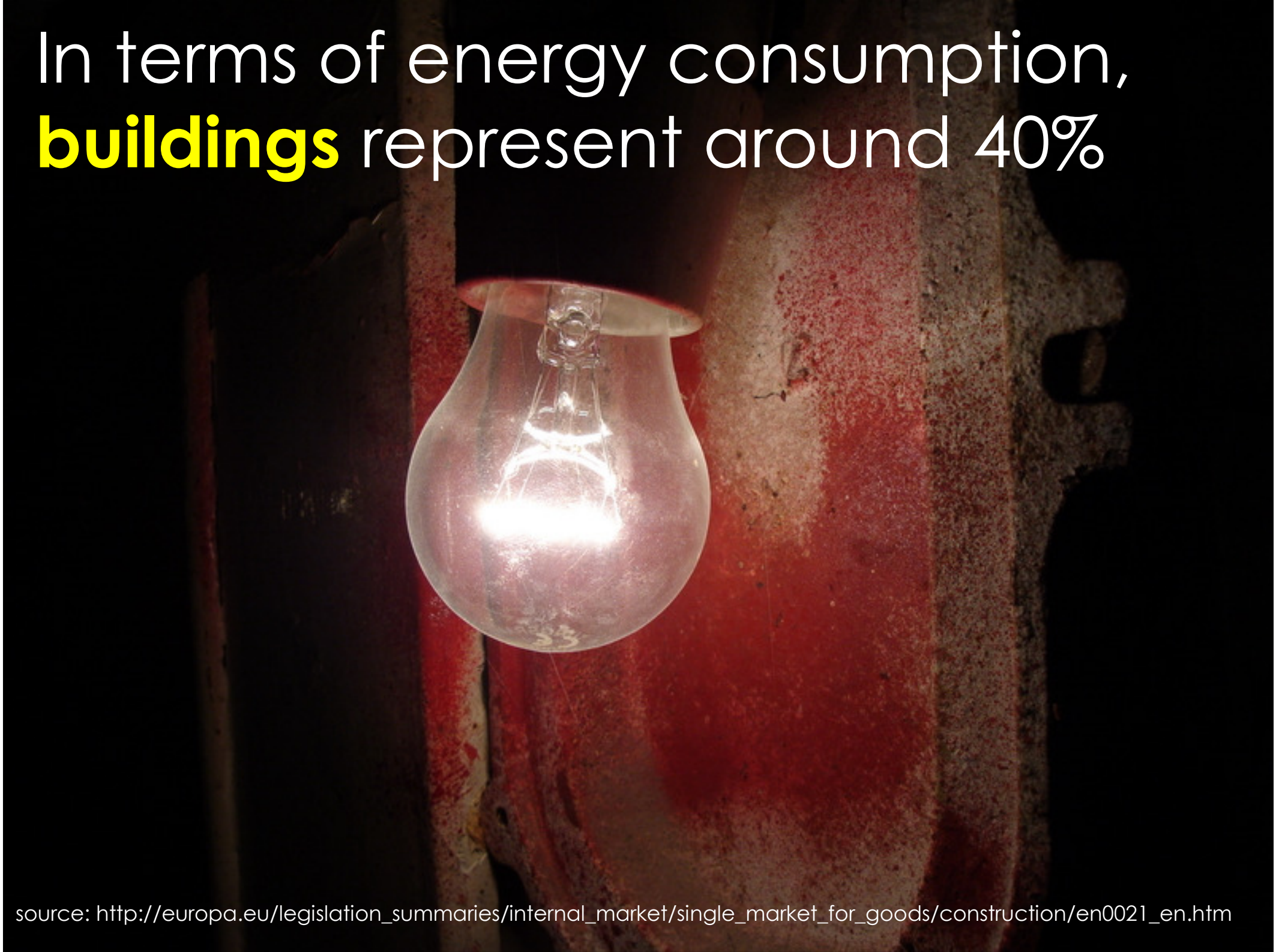
ACCESS DENIED

SUNSHINE

"Stakeholders consistently reported that they spend more time on data formatting and cleaning than they do on conducting analysis.
The lack of standard data formats, terms and definitions is a significant ongoing barrier to realizing the full utility of empirical information about building energy performance."

source: http://energy.gov/sites/prod/files/2013/12/f5/bedes_scoping_080113.pdf

In terms of energy consumption, **buildings** represent around 40%

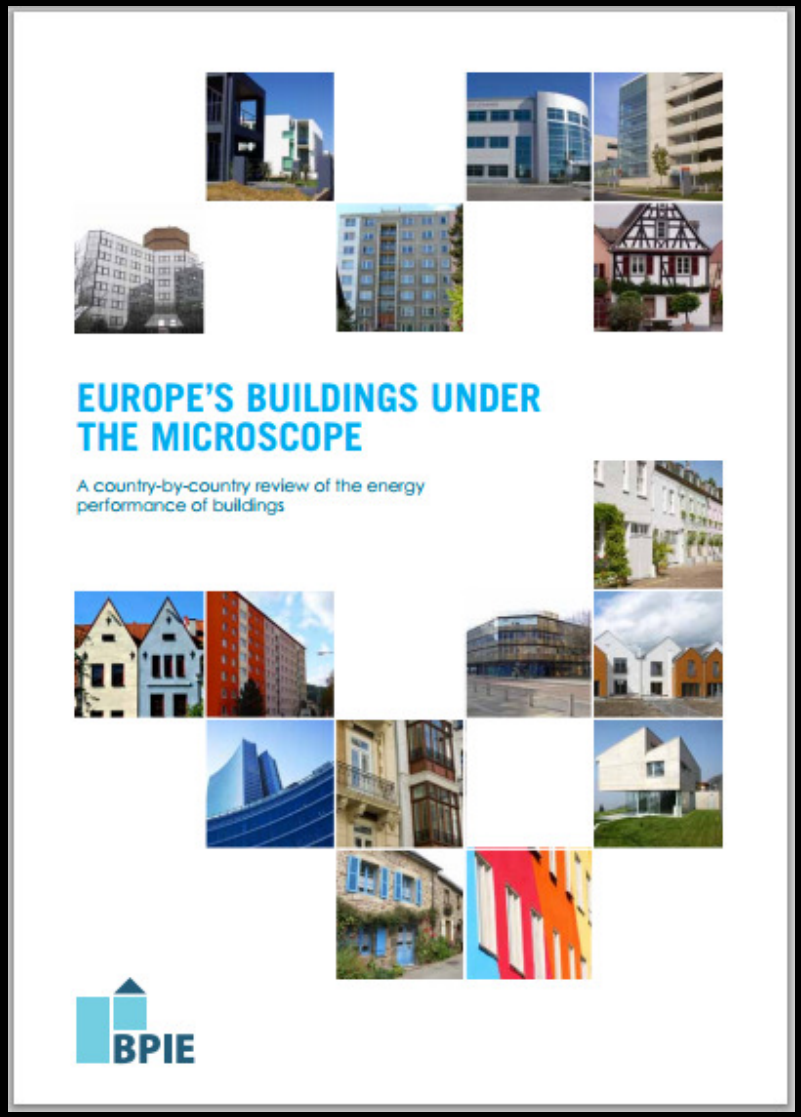


source: http://europa.eu/legislation_summaries/internal_market/single_market_for_goods/construction/en0021_en.htm

In 2009, the European **households** were responsible for 68% of the total final energy use in buildings.

Energy in households is mainly consumed by heating (**70%**), cooling, hot water, cooking and appliances.

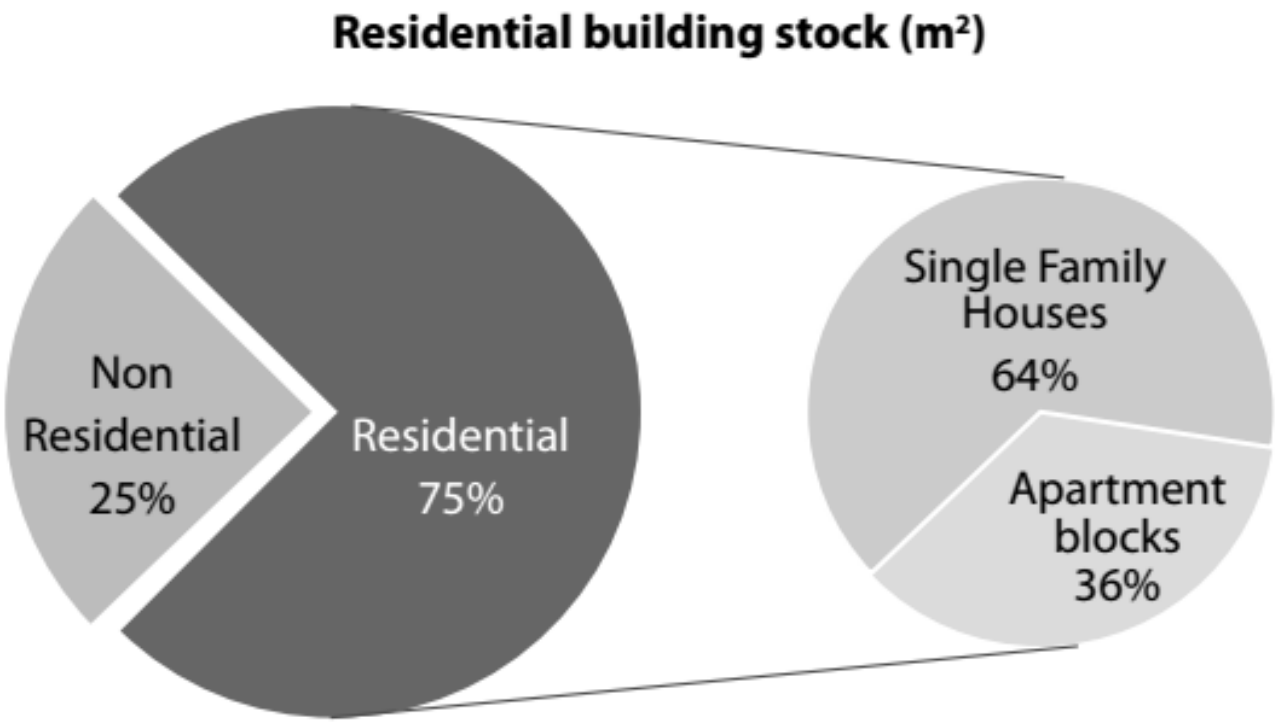
Gas is the most common fuel.



source: http://www.europeanclimate.org/documents/LR_%20CbC_study.pdf

Indeed, the EU gross floor space could be concentrated in a land area equivalent to that of Belgium (30,528 sq.km), and …
… 75% of the floor space is **residential**.

Source: BPIE survey



source: http://www.europeanclimate.org/documents/LR_%20CbC_study.pdf

CityGML Building Energy ADE

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SIG3D

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Workshops
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- Workshop Stuttgart 2014

Tools

Workshop Stuttgart 2014

The Minutes of the Workshop are now available Minutes Workshop ADE Energy - Stuttgart 2014.

Contents [hide]

Joint SIG 3D and OGC Workshop - CityGML ADE for building energy calculation (Energy ADE) [edit]

SIG3D OGC Making location count. Hochschule für Technik Stuttgart

SUNSHINE

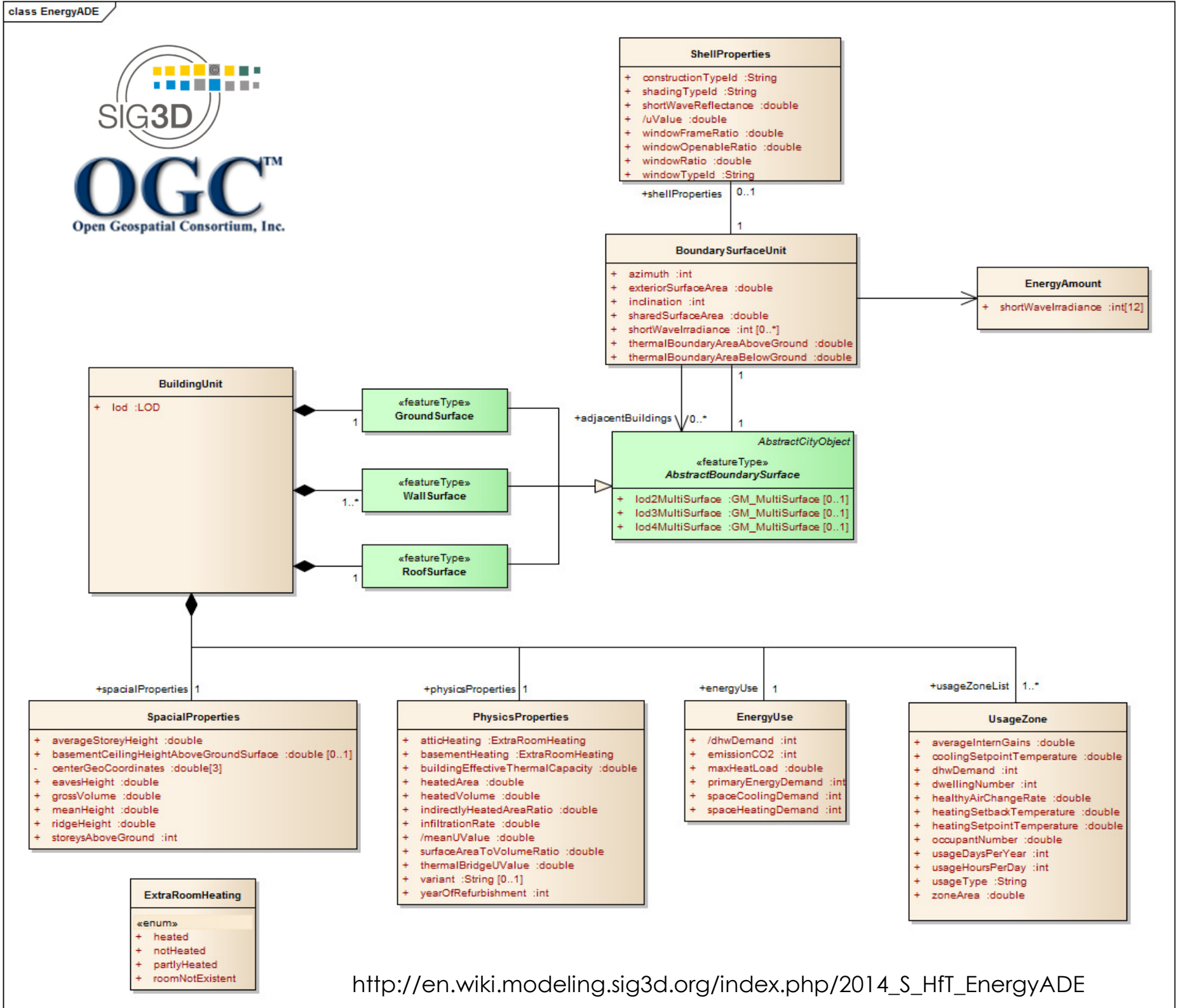
Minutes of the meeting [edit]

```
Minutes Workshop ADE Energy - Stuttgart 2014
```

Further partner's presentations relative to the workshop topic

- EIFER - Karlsruhe, germany: media:Spatial_Energy_Modelling_for_sustainable_city_development.pdf
- SINERGIS - Milano, Italia: media:CityGML_ADE_for_energy_performance_and_measures.pdf

http://en.wiki.energy.sig3d.org/index.php/Workshop_Stuttgart_2014



http://en.wiki.modeling.sig3d.org/index.php/2014_S_HfT_EnergyADE

Example of CityGML Energy ADE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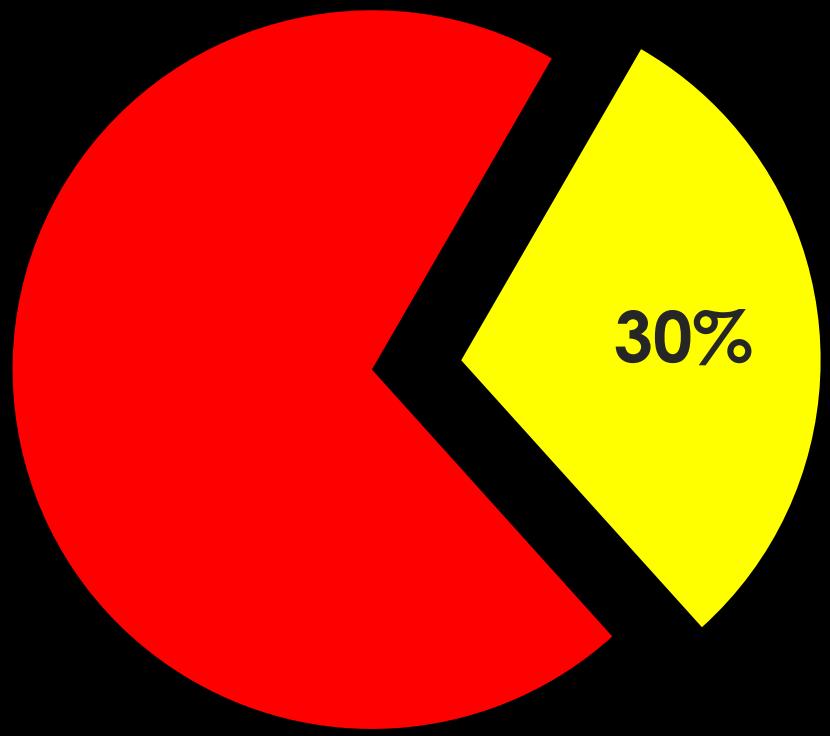
Have you ever had a look at the INSPIRE Implementing Rules on "**Buildings**" ?

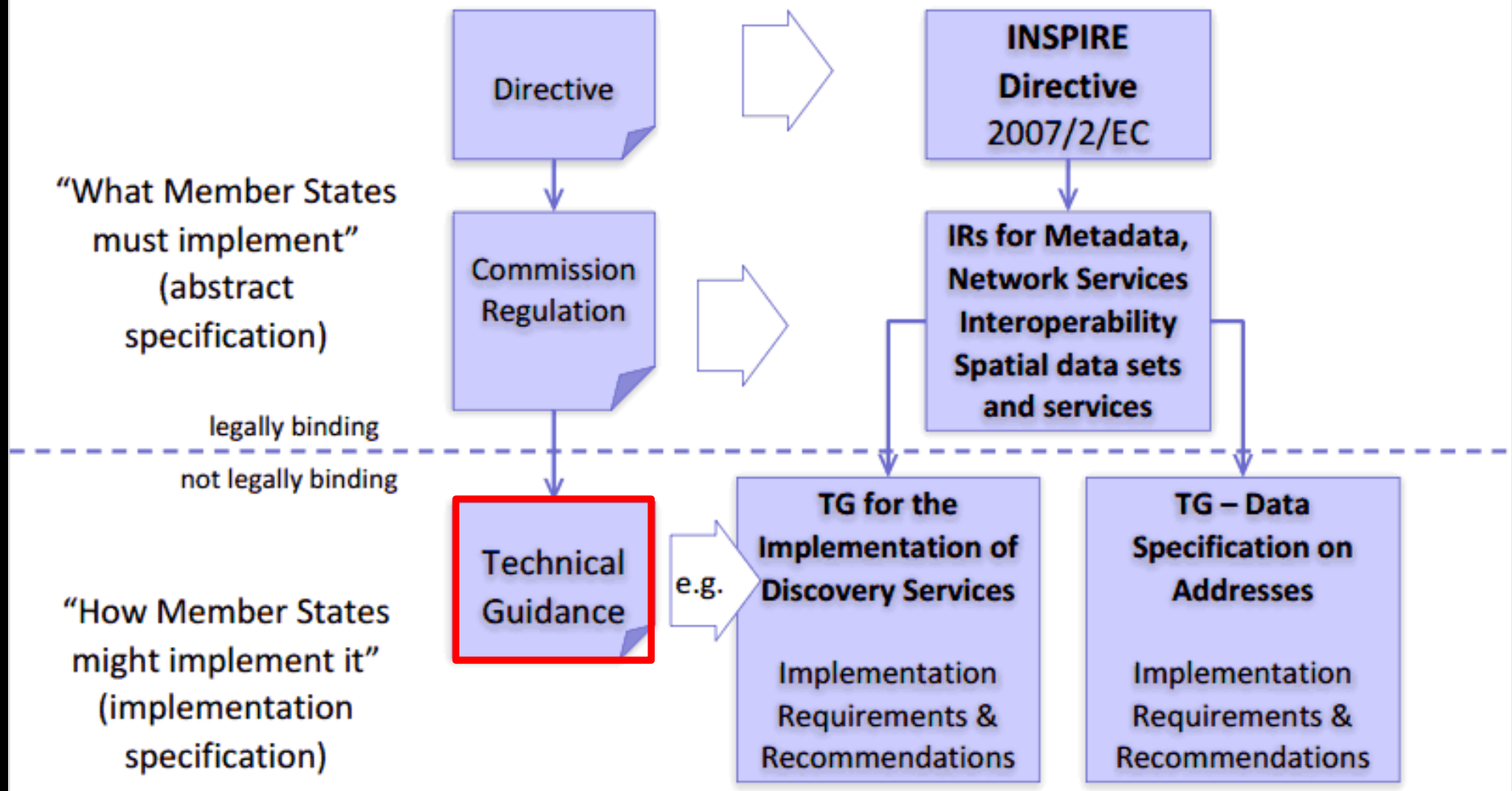


INSPIRE and "Energy"

INSPIRE Directive (2007) defines principles and implementing rules for the sharing of interoperable data and services among public organisations in EU

Implementing Rules

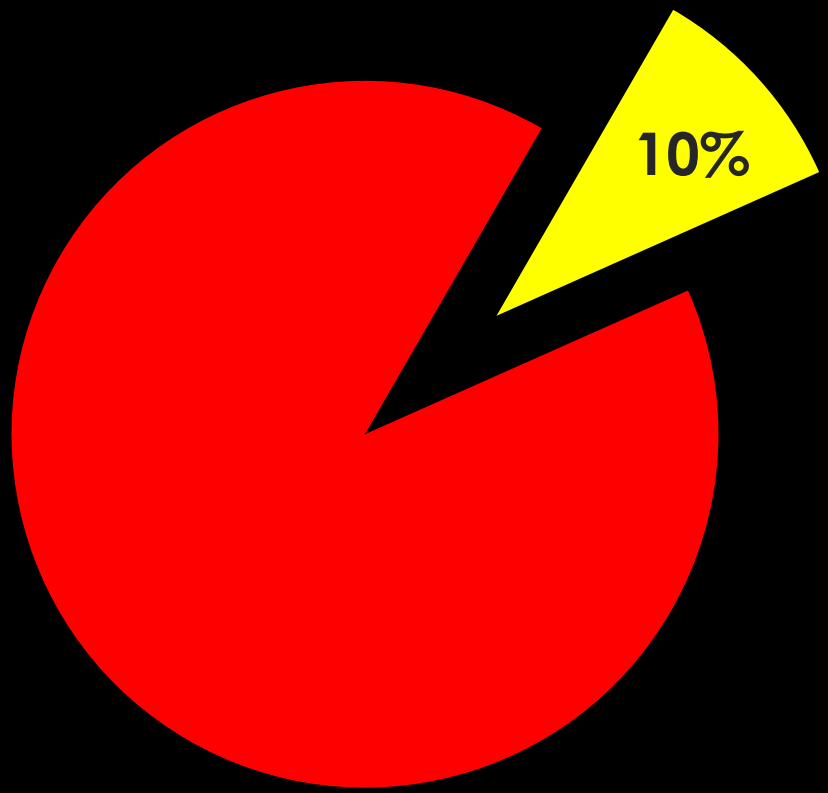
IRs vs. TG



Technical Guidelines

http://tinyurl.com/krh329m

Do you know that INSPIRE Technical Guidelines for "**Buildings**" already include some (optional) **Energy** properties?



INSPIRE and "Energy" in buildings

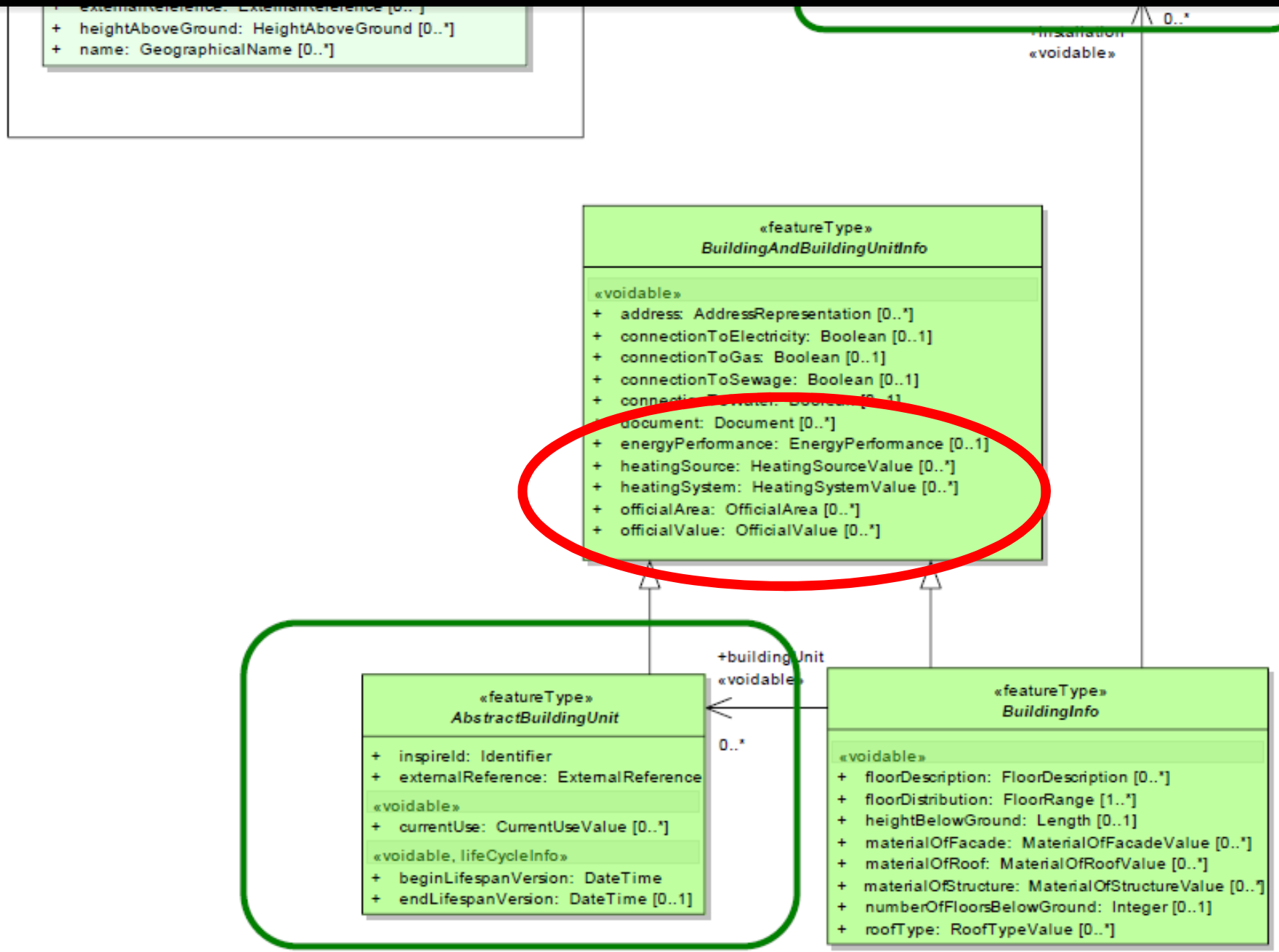
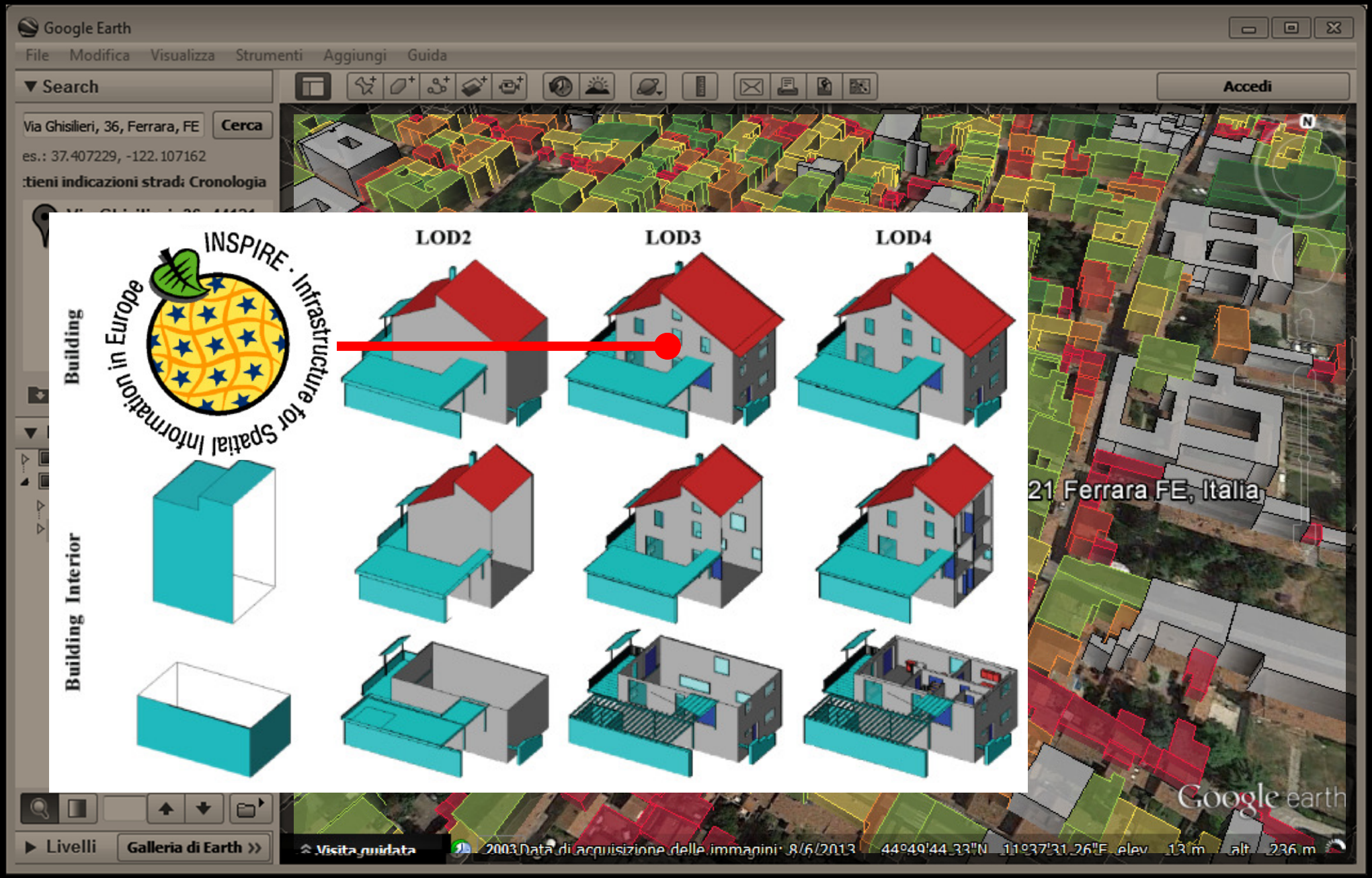


Figure 37: Main feature types of Buildings Base Extended

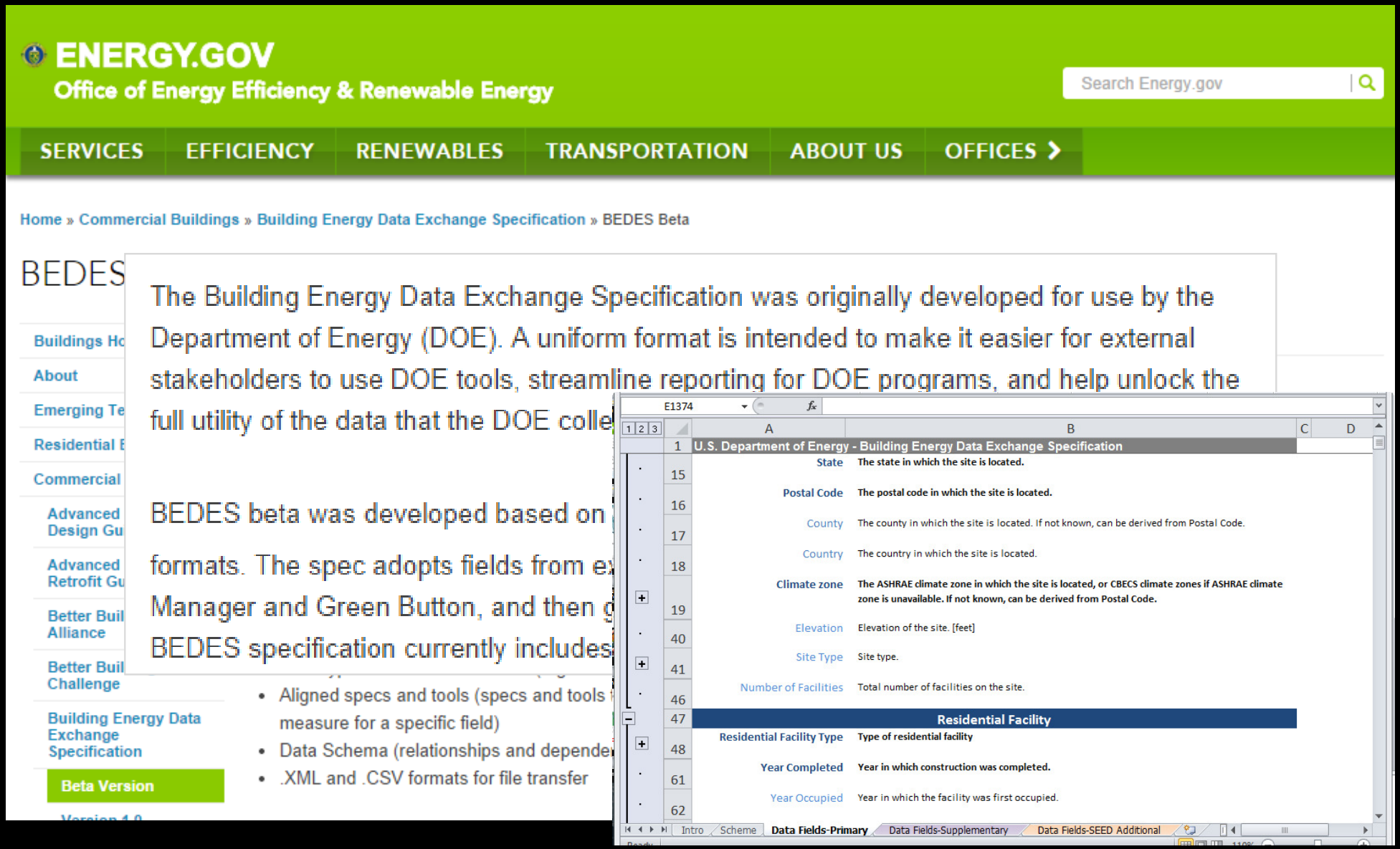
INSPIRE and "Energy" in buildings

INSPIRE		Reference: D2.8.III.2_v3.0	
TWG-BU	Data Specification on *Buildings*	2013-12-10	Page 295

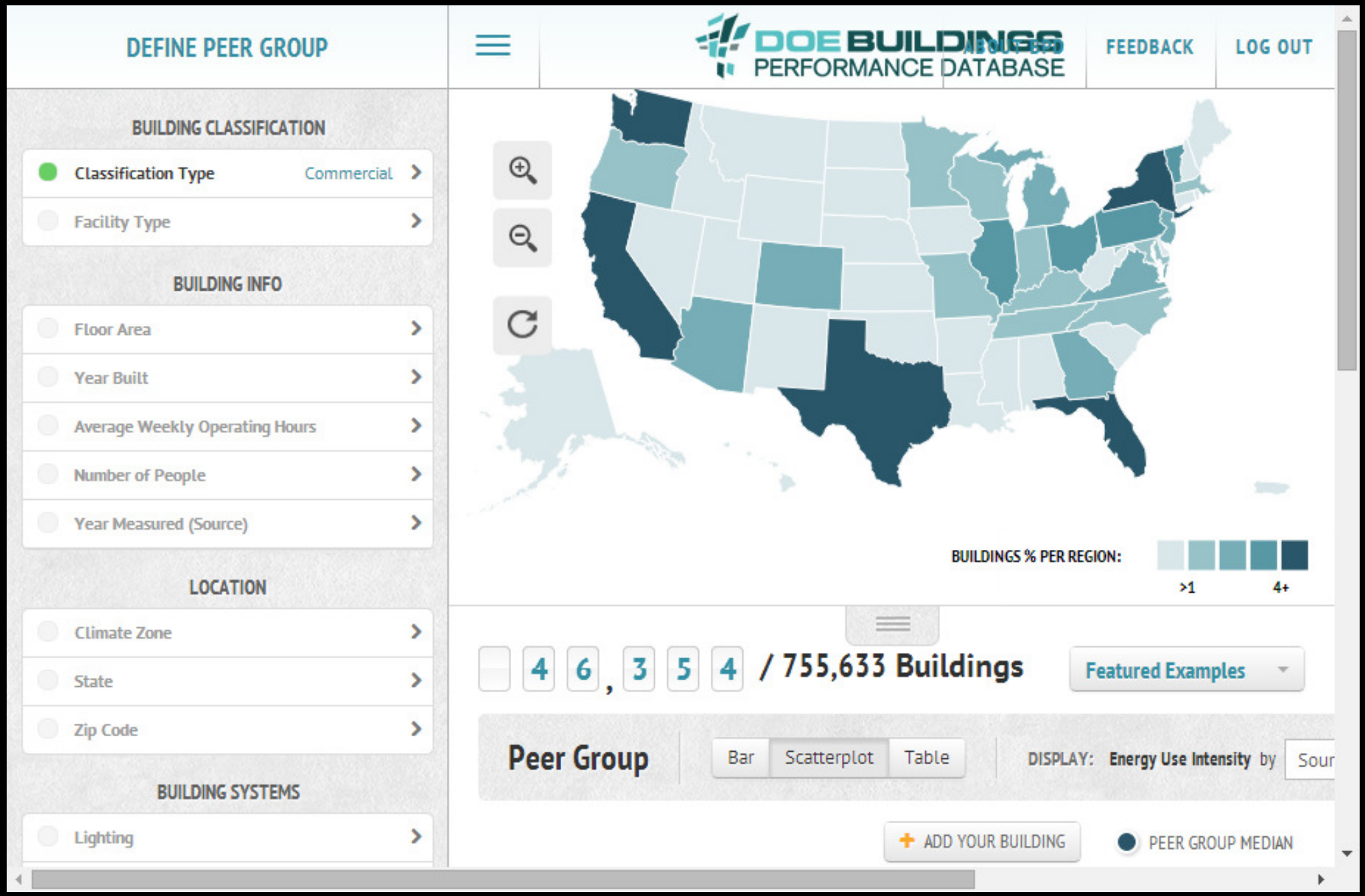
association to Address
association to Cadastral Parcel
address
document
numberOfFloorsBelowground
heightBelowGround
materialOfRoof
materialOfStructure
materialOfFacade
officialArea
officialValue
floorType
energyPerformance
heatingSystem
heatingSource
floorDescription
floorDistribution
connectionToWater
connectionToSewage
connectionToGas
connectionToElectricity
connectionToWater


Google Earth
File Modifica Visualizza Strumenti Aggiungi Guida
Search
Via Ghisilieri, 36, Ferrara, FE
Cerca
Accedi
INSPIRE - Infrastructure for Spatial Information in Europe
LOD2
LOD3
LOD4
Building
Building Interior
21 Ferrara FE, Italia
Google earth
Livelli
Galleria di Earth
Visita guidata

Building Energy Data Exchange Specification

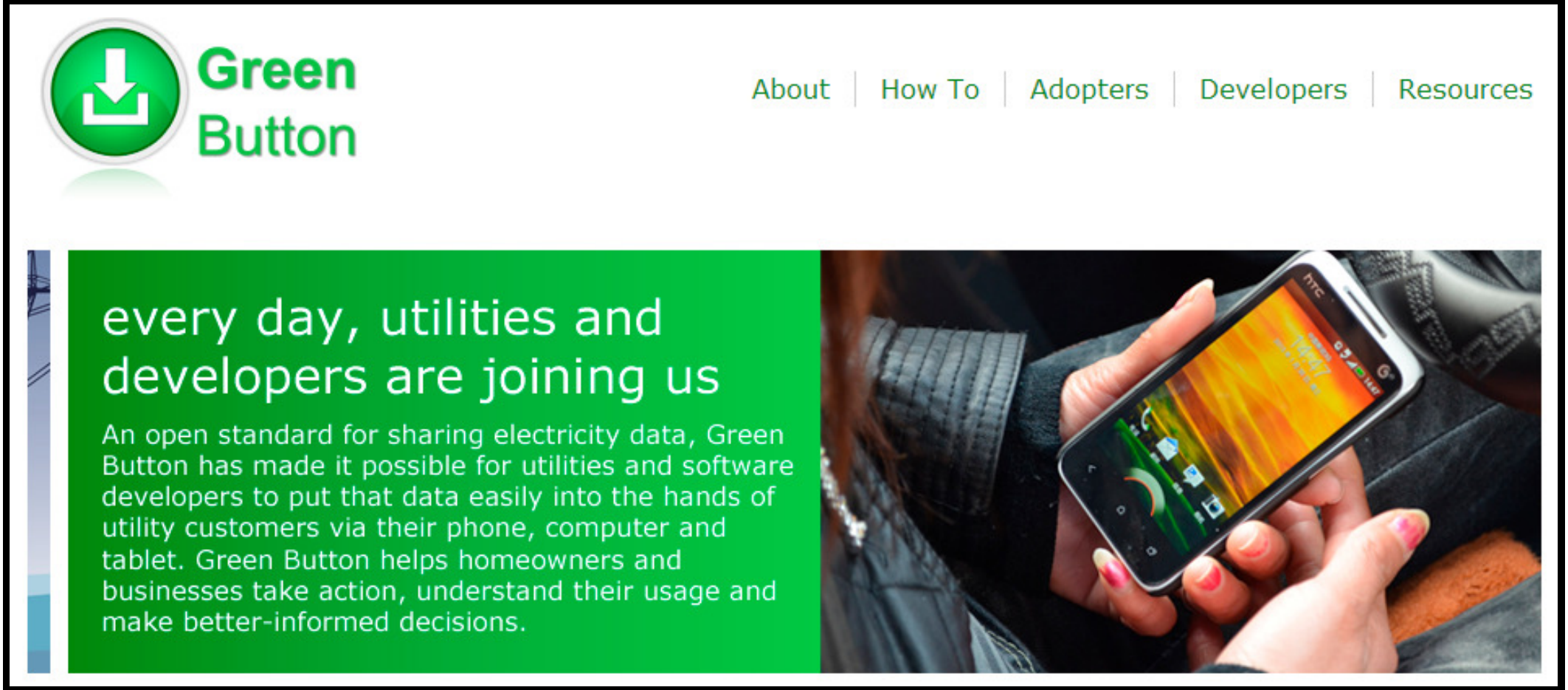


http://energy.gov/eere/buildings/bedes-beta-0



source: https://bpd.lbl.gov/

Green Button is an industry-led standard that responds to a White House request: provide customers with easy access to their energy usage data in a consumer-friendly and computer-friendly format.



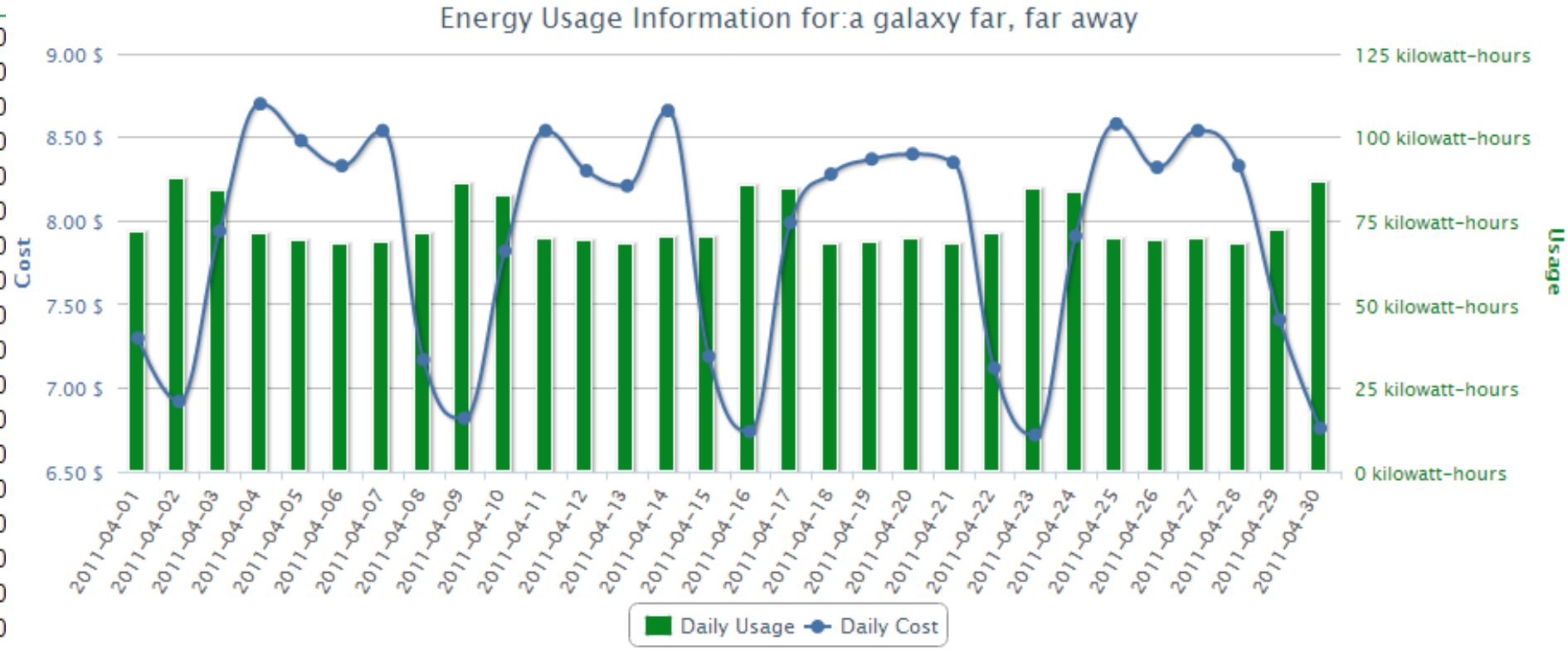
http://greenbuttondata.org/

Example of GreenButton data

Start date: 2011-04-01 00:00 for 30 days

Data for period starting: 2011-04-01 00:00 for 1 day

Energy consumption time period	Usage	Cost	Events occurred



2011-04-01 18:00 to 2011-04-01 19:00	3.326	1.00
2011-04-01 19:00 to 2011-04-01 20:00	4.881	1.46
2011-04-01 20:00 to 2011-04-01 21:00	4.884	0.59
2011-04-01 21:00 to 2011-04-01 22:00	4.357	0.39
2011-04-01 22:00 to 2011-04-01 23:00	4.744	0.28
2011-04-01 23:00 to 2011-04-02 00:00	4.642	0.14

http://greenbuttondata.org/

Conclusions

One of the primary challenges to expanding the building energy efficiency retrofit market is the lack of data on the actual energy performance, combined with the physical and operational characteristics, of commercial and residential buildings.

Recent technology, market and policy drivers (smart meters, energy performance disclosure laws [illegible] resulting in a rapid increase in the a[illegible]ing and energy data that has t[illegible] address these issues. But this data [illegible]cess, aggregate, share and utilize [illegible]g housed in many d[illegible]bases, and in different formats.

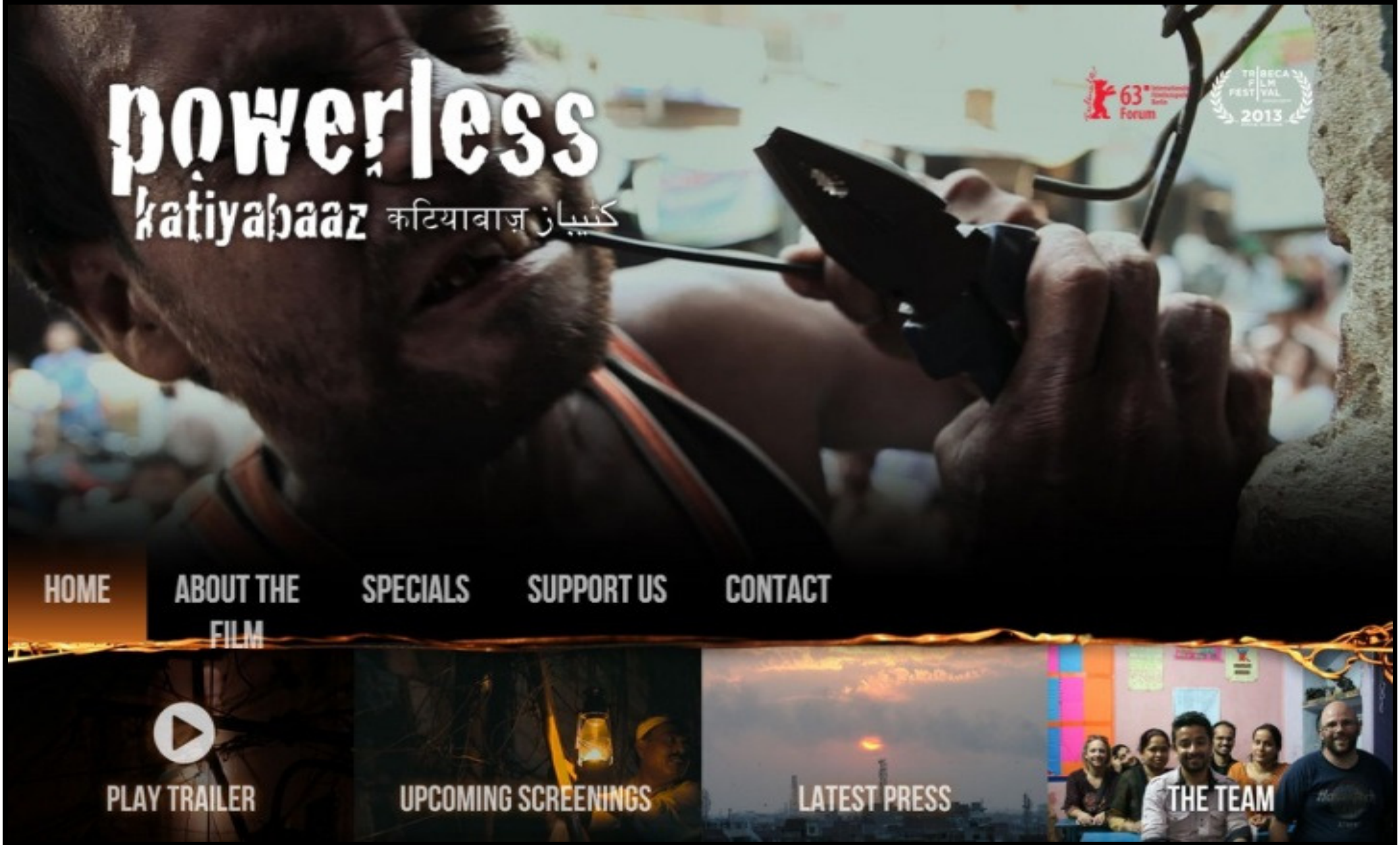
St[illegible]ders consistently reported that they spend more time on data formatting and cleaning than they do on conducting analysis. The lack of standard data formats, terms and definitions is a significant ongoing barrier to realizing the full utility of empirical information about building energy performance.

US. Department of Energy

http://energy.gov/sites/prod/files/2013/12/f5/bedes_scoping_080113.pdf

Summarising… we are already working to open harmonised data about energy, but we are conscious that the problems related to energy are much bigger than "open harmonised data".

And not only in India !



http://www.powerless-film.com/

Thank for your attention

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