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Interoperability

Solutions for

E-Government

**Energy & Location webinar
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Interoperability of SECAP (Sustainable Energy and Climate Action Plan) data

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ELISE Energy & Location Applications

Use case "CoM" - Interoperability of SECAP (Sustainable Energy and Climate Action Plan) data

- This use case aims to show the benefits of harmonising and improving the usability of the data contained in the Sustainable Energy Action Plans produced by the Local Authorities signatories of the Covenant of Mayors, to better support the coordination of energy policies at local level.
- The methodologies developed in the use case is being tested with the 70+ SECAPs produced by Local Authorities of the Autonomous Province of Trento and will support APRIE in its role of coordinator of the energy policies at provincial level.

Use case "CoM" - Interoperability of SECAP (Sustainable Energy and Climate Action Plan) data

Methodology:

- Analysis of source data model, tables extracted from CoM database and from complete DB structure (data restricted to municipalities coordinated by Province of Trento).
- Analysis of the INSPIRE reference target data model (Area Management/Restriction/Regulation Zones and Reporting Units).
- Extension of the INSPIRE AM data model, containing feature types and attributes needed to map all the information present in the SECAP
- Transformation of a sample data (Province of Trento) according to the INSPIRE AM extended target data model
- Publication of the sample transformed data as WFS direct access download service and WMS



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SECAP_DB_from-csv.xlsx - Excel

File Home Insert Page Layout Formulas Data Review View Developer Tell me what you want to do...

Clipboard Font Alignment Number Styles Cells

Strèda Roma 12

id	name	organisation_type	organisation_code	country_code	nuts_level3	longitude	latitude	street	city	zip_code	website_address	
2	13700 Isera	2 Signatory		it	ITH20	11.00839996	45.88710022	Via Ravagni 8	Isera TN	38060	http://www.comune.isera.tn.it	
3	14172 Rovereto	2 Signatory		it		11.03987026	45.8906517					
4	15082 Vermiglio	2 Signatory		it		10.69433022	46.29891968	PIAZZA GIOVANNI XXIII ⁹	Vermiglio	38029	http://www.comunevermiglio.it	
5	15211 Mezzocorona	2 Signatory		it		11.11987019	46.2143898					
6	15691 Fivavè	2 Signatory		it		10.84235001	46.00374985	Piazza S. Sebastiano, 24	Fivavè	38075	http://www.comunefivave.it	
7	15712 Caderzone Terme	2 Signatory		it		10.75860977	46.13127899	R. Elena 45	CADERZONE TERME	38080	http://caderzone.net	
8	15870 Transacqua	2 Signatory		it		11.83290958	46.17126846	Piazza Municipio n.12	Transacqua	38054	http://www.transacqua.com/	
9	15979 Daiano	2 Signatory		it		11.44637012	46.30033875	Piazza Alcide Degasperis n. 1	Daiano (Tn)	38030	http://www.comune.daiano.tn.it	
10	15982 Bocenago	2 Signatory		it			46	Via A. Ferrazza n. 54	Bocenago	38080	http://www.comune.bocenago.tn.it	
11	15997 Canazei	2 Signatory		it		11.77184963	46.47570038	Strèda Roma 12	Canazei	38032	http://www.comune.canazei.tn.it	
12	15999 Cavalese	2 Signatory		it		11.46057034	46.29119873	San Sebastiano	via San Sebastiano, 7	38033	http://www.comunecavalese.it	
13	16000 Mazzin	2 Signatory		it		11.69941044	46.45608995	Streda Dolomites 41	Mazzin	38030	http://www.comune.mazzin.tn.it	
14	16001 Carzano	2 Signatory		it		11.49359035	46.07012939	PIAZZA MUNICIPIO	CARZANO	38050	http://www.comune.carzano.tn.it	
15	16007 Campitello di Fassa	2 Signatory		it		11.74125957	46.47649002	Streda Dolomites 44	Campitello di Fassa	38031	http://www.comune.campitello.it	
16	16010 Pozza di Fassa	2 Signatory		it		11.68330002	46.25299835	p.za de comun	Pozza di Fassa	38036	http://www.comunepozzadifassa.it	
17	16026 Varena	2 Signatory		it		11.45790958	46.30530993	MERCATOSTREET 16	MERCATOSTREET 16	38030	http://www.comune.varena.tn.it	
18	16030 Telve di Sopra	2 Signatory		it			11	Via San Giovanni Bosco, 10	Telve di Sopra	38050	http://www.comunetelvedisopra.it	
19	16034 Scurelle	2 Signatory		it		11.51051998	46.06475853	piazza Don Clemente Benetti, 2	Scurelle (TN)	38050	http://www.comune.scurelle.tn.it	
20	16047 Soraga	2 Signatory		it			11	46 Stradon de Fascia 22	Soraga	38030	http://www.comune.soraga.tn.it	
21	16049 Ronchi Valsugana	2 Signatory		it		11.43420982	46.06721878	Via Marchi, n. 6	Ronchi Valsugana (Tn)	38050	http://www.comune.ronchi.tn.it	
22	16053 Carano	2 Signatory		it		11.44075966	46.29214096	via Giovannelli A. nr.38	via Giovannelli A. nr.38	38033	http://www.comune.carano.tn.it	
23	16057 Maiè	2 Signatory		it		10.91289997	46.35223007	Piazza Regina Elena, 17	Maiè	38027	http://www.comunemaiè.it	
24	16061 Telve	2 Signatory		it		11.47924042	46.07130814	PIAZZA VECCHIA 18	TELVE	38050	http://www.comune.telve.tn.it	
25	16063 Spiazzo	2 Signatory		it		9.412130356	45.72502899	VIA SAN VIGILIO N. 2	SPIAZZO	I-38080	http://www.comunespiazzo.it/	
26	16064 Vigo di Fassa	2 Signatory		it		11.68395996	46.41135025	strada Rezia, 12	Vigo di Fassa (TN)	38039	http://www.comunedivigo.net	
27	16074 Luserna - Lusérn	2 Signatory		it		11.3241396	45.92179871	Piazza Marconi 2 - Platz 2	Luserna Lusérn TN	38040	http://www.lusern.it	
28	16079 Zambana	2 Signatory		it	100000		100000	Piazza SS. Filippo e Giacomo, 5	Piazza SS. Filippo e Giacomo	38010	http://www.comune.zambana.tn.it	
29	16080 Torcegno	2 Signatory		it		11.27200031	46.43000031	Piazza Maggiore, 5	Piazza Maggiore, 5	38050	http://www.comune.torcegno.tn.it	
30	16081 Roncegno Terme	2 Signatory		it		11.41032982	46.04917145	Piazza A. de Giovanni, 1	Roncegno Terme	38050	http://www.comune.roncegnoterme.it	
31	16082 Fai della Paganel	2 Signatory		it		11.48999977	46.10409927	Via Villa		21	38010	http://www.comune.faidellapaganel.it
32	16084 Molveno	2 Signatory		it		10.96514988	46.14173126	Piazza Marconi, n.1	Molveno		38018	http://www.comune.molveno.tn.it
33	16085 Cavedago	2 Signatory		it		11.02834988	46.18362045	piazza s. lorenzo		1	38010	http://www.cavedago.com
34	16087 Lavarone	2 Signatory		it		11.26910019	45.93978882	frazione Gionghi, 107	Lavarone		38046	http://www.comune.lavarone.tn.it
35	16088 Grigno	2 Signatory		it		11.63391972	46.01649094	PIAZZA DANTE, 15	GRIGNO		38055	http://www.comunegrigno.it/
36	16092 Moena	2 Signatory		it		11.39999962	46.22999954	Piaz de Sotegrava, 20	Moena		38035	http://www.comune.moena.tn.it
37	16093 Spormaggiore	2 Signatory		it		11.0490303	46.21854019	Piazza di Fiera n. 1	SPORMAGGIORE		38010	http://www.comune.spormaggiore.it
38	16094 Andalo	2 Signatory		it		11.00240993	46.16413879	Piazza Centrale 1	Piazza Centrale 1		38010	http://comune.andalo.tn.it
39	16223 Aldeno	2 Signatory		it		11.09138012	45.98067093	Piazza C. Battisti n. 5	Piazza C. Battisti n. 5		38060	http://www.comune.aldeno.tn.it
40	16363 Nomi	2 Signatory		it		10.07155037	45.92890993	Piazza M. Springa 3	NOMI		38060	http://www.comune.nomi.tn.it
41	16368 Dimaro	2 Signatory		it			10	46 Piazza Giovanni Serra, 10	Dimaro-Tn		38025	http://www.comune.dimaro.tn.it
42	16798 Canal san Bovo	2 Signatory		it		11.73174	46.15615082	via Roma 58	Canal san Bovo		38050	http://www.canalsanbovo.net
43	16843 Avio	2 Signatory		it		10.9412899	45.73561096	Piazza Vittorio Emanuele III, 1	Avio		38063	http://www.comune.avio.tn.it/

organisations action_plans emission_inventory energy_consumption & energy_emissions mitigation_acti ...



CoM DB structure

Main tables extracted from CoM DB

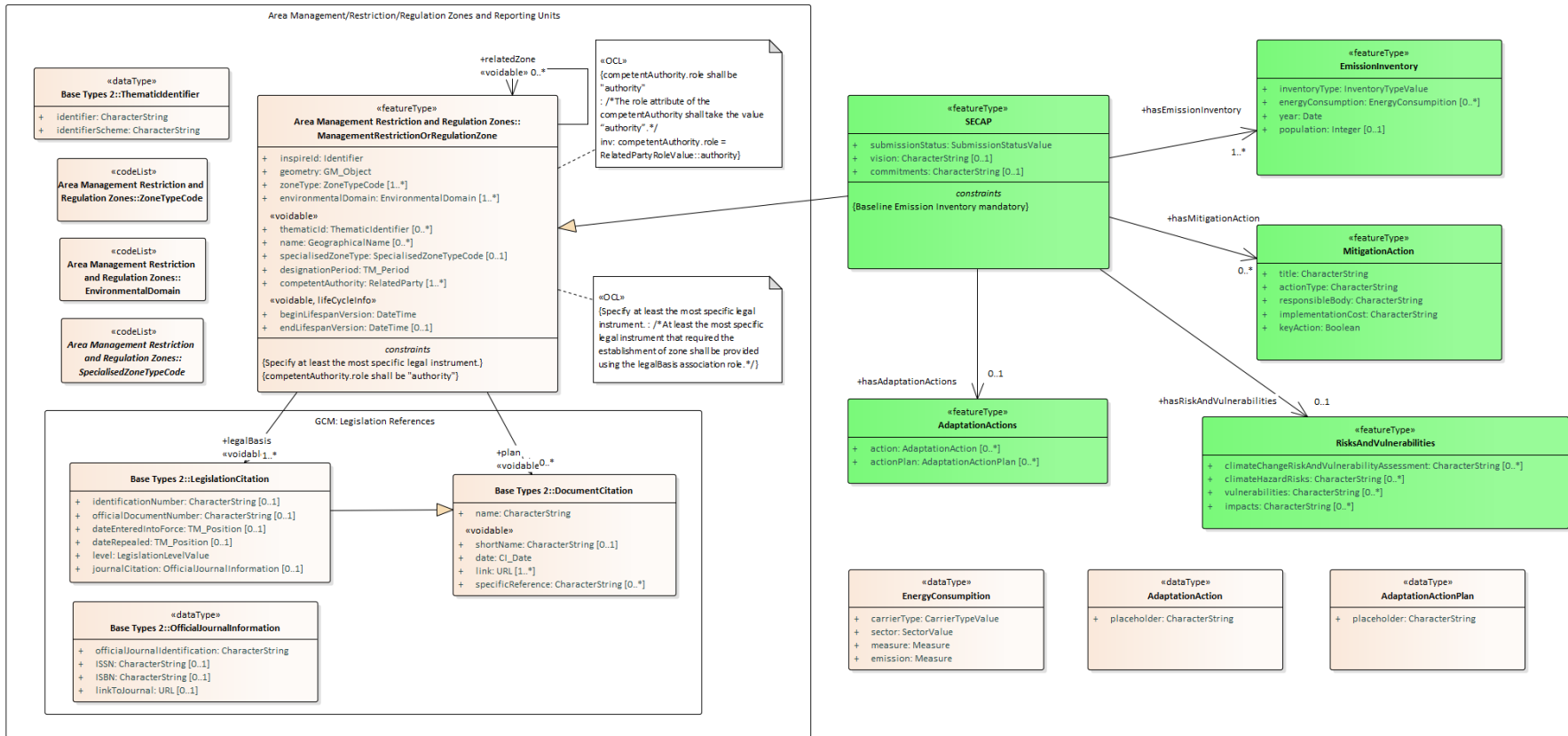




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INSPIRE AM extended target data model – AM-SECAP (draft) – UML conceptual schema

class AM-SECAP



Example of SECAP data harmonisation

hale studio 3.5.0 - COM-CSV_to_AM-SECAP - C:\Users\Fabio\ownCloud\DG\OV\ELISE\08_Pilots\Energy Pilot\3_Deliverables\In Progress\Use_case_CoM\Data_harmonisation\COM-CSV_to_AM-SECAP.hale

File Transformation Edit Window Help

Schema Explorer

Source

type filter text

- > T action_plans ×109
- > T emission_inventory ×109
- > T energy_consumption_&_energy_emission ×229
- > T mitigation_actions ×253
- > T mitigation_commitments ×111
- > T organisations ×111

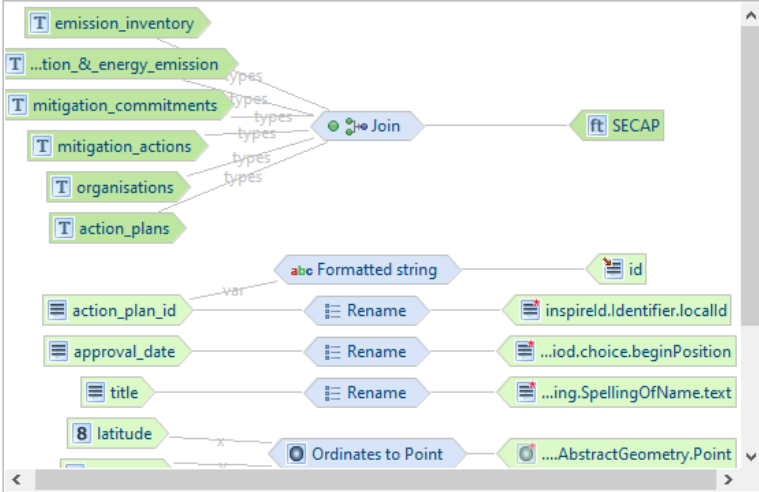
Target

type filter text

- > ft RisksAndVulnerabilities
- ▼ ft SECAP ×109
 - > location (0..1)
 - > beginLifespanVersion
 - > boundedBy (0..1)
 - > commitments (0..1)
 - > competentAuthority (1..n)
 - > description (0..1)
 - > descriptionReference (0..1)
 - > designationPeriod ×109
 - > endLifespanVersion (0..1)
 - > environmentalDomain (1..n) ×109
 - > geometry
 - > hasAdaptationActions (0..1)
 - > hasEmissionInventory (1..n)
 - > hasMitigationAction (0..n)
 - > hasRiskAndVulnerabilities (0..1)
 - > id (0..1) ×109

Alignment

<multiple types> Join ft SECAP ×109



hale project export

Report	Success:	true
	Summary:	Finished successfully
	Time:	Fri May 29 01:06:40 CEST 2020
	Duration:	691 milliseconds

Progress View

Task	Time
hale project export	01:06.39
hale project export	00:05.29
hale project export	00:01.50
Instance validation	00:01.43
Instance transformation	00:01.42
hale alignment import	00:01.00
Instance validation	23:56.46
Instance transformation	22:56.45

263M of 1013M CST

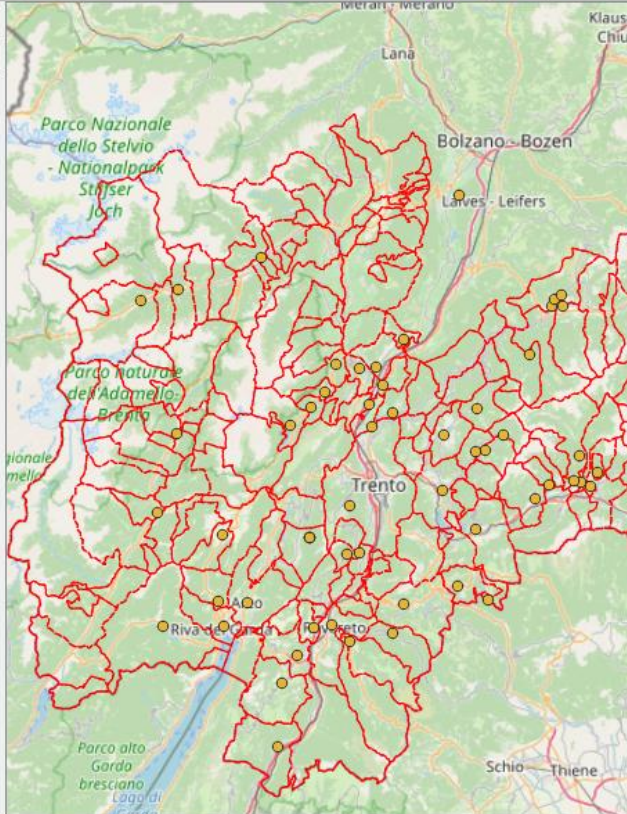
Example of SECAP data usability

SECAP_AM_Trento - QGIS

Progetto Modifica Visualizza Layer Impostazioni Plugins Vettore Raster Database Web Mesh Processing Guida

Layer

- SECAP Trento SECAP
- UA.UNITAAMMINISTRATIVE.COMUNI
- OpenStreetMap



Complex GML Info

```

Selected feature [1]
  am-secap:SECAP
    @gml:id 'AP_9067'
    am-secap:hasEmissionInventory
      am-secap:EmissionInventory
        @gml:id 'EI_92'
        am-secap:energyConsumption
          [0]
            am-secap:EnergyConsumption
              am-secap:carrierType
                @xlink:href '12'
                @xlink:title 'biofuel'
              am-secap:emission
                #text '0.0'
                @uom 't/MWh'
              am-secap:measure
                #text '5.0'
                @uom 'MWh'
              am-secap:sector
                @xlink:href '10'
                @xlink:title 'public_transport'
          [1]
            am-secap:EnergyConsumption
              am-secap:carrierType
                @xlink:href '12'
                @xlink:title 'biofuel'
              am-secap:emission
                #text '0.0'
                @uom 't/MWh'
  
```

Digitare per localizzare (Ctrl+K) Progetto salvato in: C:\Users\Fabio\ownCloud\ Coordinate 1163332,5831081 Scala 1:1058333

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Example of SECAP data usability

SECAP_AM_Trento - QGIS

Progetto Modifica Visualizza Layer Impostazioni Plugins Vettore Raster Database Web Mesh Processing Guida

Layer

- SECAP Trento SECAP
- UA.UNITAAMMINISTRATIVE.COMUNI
- OpenStreetMap

Complex GML Info

- Selected feature [1]
 - am-secap:SECAP
 - @gml:id 'AP_9067'
 - am-secap:hasEmissionInventory
 - am-secap:EmissionInventory
 - am-secap:hasMitigationAction
 - [0]
 - am-secap:MitigationAction
 - @gml:id 'MA_1909'
 - am-secap:actionType 'residential_buildings'
 - am-secap:implementationCost None
 - am-secap:keyAction 'false'
 - am-secap:responsibleBody 'Municipality of Bedollo, Technical Service'
 - am-secap:title 'RES2: Promoting the use of renewable sources in the residential sector'
 - [1]
 - am-secap:MitigationAction
 - @gml:id 'MA_1908'
 - am-secap:actionType 'municipal_buildings_equipment_facilities'
 - am-secap:implementationCost '480000'
 - am-secap:keyAction 'false'
 - am-secap:responsibleBody 'Municipality of Bedollo, Technical Service'
 - am-secap:title 'PUB1: Requalification of municipal buildings'
 - [2]
 - am-secap:MitigationAction
 - @gml:id 'MA_1905'
 - am-secap:actionType 'municipal_buildings_equipment_facilities'
 - am-secap:implementationCost None

Parco Nazionale dello Stelvio - Nationalpark Stiller Joch

Parco Naturale dell'Adamello - Brenta

Trento

Parco alto Garda bresciano Lago di Garda

Digitare per localizzare (Ctrl+K) Progetto salvato in: C:\Users\Fabio\ownCloud\ Coordinate 1163332,5831081



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