

The background of the slide is a light gray architectural drawing of a house. The drawing shows a 3D perspective of the house with its roof, walls, and windows. A white pen is positioned vertically on the left side of the drawing, pointing towards the bottom. The drawing includes various lines and dimensions, suggesting a technical or planning context.

Dal sottosuolo al soprassuolo: esempio di INSPIRE Buildings nel Comune di Reggio-Emilia

... e qualche conclusione sul concetto di
specifiche di contenuto

Calogero mi ha dato 15 minuti per parlare di tre cose:

- Baccalà alla livornese
- Esempio concreto di dati smart/armonizzati relativi al soprassuolo (→ edifici, Reggio-Emilia)
- Esempio concreto di integrazione tra geodati su Edifici e smart meters

Calogero non sa che questa è la slide #2 di 53 !!

Specifiche di contenuto per il **Baccalà alla livornese**

- Attributi obbligatori (con **cardinalità** e **UoM**):
 - **2 etti** di baccalà bagnato (a persona)
 - **10 cucchiaini** d'olio extravergine di oliva
 - **½ kg.** di pomodori
 - farina bianca
 - 2 spicchi d'aglio
 - 1 ciuffo di prezzemolo
 - sale q.b.
 - pepe macinato q.b.

Specifiche di contenuto ...

CLASSE: Tratto di linea della rete di telecomunicazione e cablaggi (TR_COM - 070701)

	NC	SINFI
<i>Popolamento della classe</i>	P	P

Definizione

Tratto di rete appartenenti alle linee di comunicazione telefonica, alle linee per la trasmissione dei dati (cablaggi, fibre ottiche, ...), alle TV via cavo, ...

<i>Attributi</i>				NC	SINFI
<i>Attributi della classe</i>				NC	SINFI
07070101	TR_COM_COD	codice fiscale/partita iva del gestore	String(16)	P	P
07070102	TR_COM_NOM	denominazione del gestore [0..1]	String(50)	P	P

<i>Componenti spaziali della classe</i>				NC	SINFI
070701101	TR_COM_TRA	Tracciato	GU_CP SimpleCurve3D - Composite Simple Curve 3D	P	P
Si compone di uno o più tratti che collegano due pozzetti.					
07070110	TR_COM_PSU	posizione dell'elemento rispetto alla superficie	Enum (Posizione rispetto alla	P	P

... e ora come 'codifico' i miei
ingredienti ??

Specifiche di encoding e presentazione

Baccalà alla livornese

- Encoding (1): GML? GeoJSON? SHP? ... dump?
 - < Mettete in una casseruola quattro cucchiari di olio con le cipolle, un cucchiaino di prezzemolo, metà aglio, il sedano ed il basilico tritati, un pizzico di sale e di pepe />
 - < Fate appassire, poi unite i pomodori pelati e fate cuocere a fuoco medio per 25 minuti circa, quindi passate nel passaverdura e raccogliete il contenuto in una terrina />

Specifiche di encoding e presentazione

Baccalà alla livornese

- Encoding (2):
 - < Spellate e diliscate lo stoccafisso già ammollato, quindi tagliatelo a quadretti o a strisce />
 - < Versate in un tegame di terracotta tre cucchiaini di olio d'oliva, fatelo scaldare, aggiungete l'aglio ed il prezzemolo rimasti, quindi unite i pezzi di stoccafisso e fateli dorare da ambo i lati />
 - < Salate leggermente, abbassate il fuoco, unite il passato di pomodori precedentemente preparato, coprite il recipiente e fate cuocere a fuoco lento per circa due ore />

Specifiche di encoding e presentazione

Baccalà alla livornese

- Encoding (3):
 - < Sbucciate la patata, tagliatela a spicchi e unitela al resto mezz'ora prima del termine della cottura />
 - < Quando lo stoccafisso sarà ormai pronto, unite mezzo bicchiere di Vin Santo, alzate la fiamma, fatelo evaporare del tutto e servite subito la preparazione nello stesso recipiente di cottura />

Nome	Altezza	Costruito	Profondit a
Pippo	10		0.35
Pippo	20	Si	0.35
Pluto	20	Si	1.44
Paperino	20	No	3.14

<Attributi>

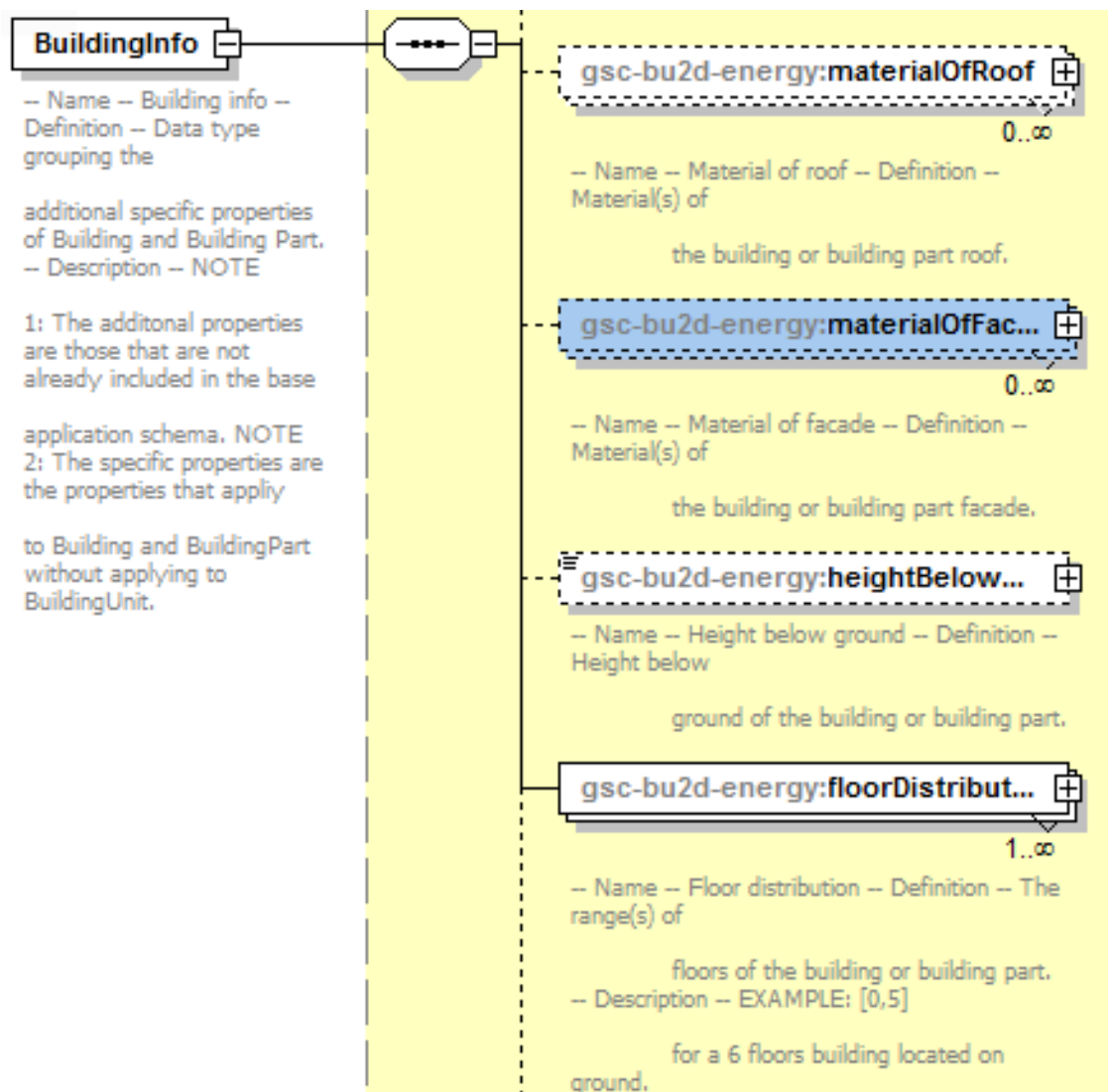
<Nome>pippo</Nome>

<Costruito>Si</Costruito>

<Altezza>20</Altezza>

<Profondita>0.35</Profondita>

</Attributi>



```
<element name="connectionToWater" type="boolean" minOccurs="0" maxOccurs="1">
  <annotation>
    <documentation>-- Name -- Connection to water -- Definition -- An indication
      if the building or building part or building unit is connected or not to the
      public water network.</documentation>
    </annotation>
  </element>
  <element name="connectionToThermal" type="boolean" minOccurs="0" maxOccurs="1"/>
  <element name="connectionToSewage" type="boolean" minOccurs="0" maxOccurs="1">
    <annotation>
      <documentation>-- Name -- Connection to sewage -- Definition -- An indication
        if the building or building part or building unit is connected or not to the
        public sewage network.</documentation>
    </annotation>
  </element>
  <element name="connectionToGas" type="boolean" minOccurs="0" maxOccurs="1">
    <annotation>
      <documentation>-- Name -- Connection to gas -- Definition -- An indication if
        the building or building part or building unit is connected or not to the
        public gas network.</documentation>
    </annotation>
  </element>
  <element name="connectionToElectricity" type="boolean" minOccurs="0" maxOccurs="1">
    <annotation>
```

Dati = il piatto finito

```
<bu-base:status xlink:href="http://inspire.ec.europa.eu/codelist/HeightStatusValue/estimated"/>
<bu-base:value uom="meter">8.0</bu-base:value>
</bu-base:HeightAboveGround>
</bu-base:heightAboveGround>
<bu-base:inspireId>
  <base:Identifier>
    <base:localId>6910</base:localId>
    <base:namespace>http://www.municipio.re.it</base:namespace>
  </base:Identifier>
</bu-base:inspireId>
<bu-base:currentUse>
  <bu-base:CurrentUse>
    <bu-base:currentUse xlink:href="http://inspire.ec.europa.eu/codelist/CurrentUseValue/individualResidence">individualResidence</bu-base:currentUse>
    <bu-base:percentage>100</bu-base:percentage>
  </bu-base:CurrentUse>
</bu-base:currentUse>
<bu-base:numberOfDwellings>1</bu-base:numberOfDwellings>
<bu-base:numberOfFloorsAboveGround>2</bu-base:numberOfFloorsAboveGround>
<bu-core2d:geometry2D>
  <bu-base:BuildingGeometry2D>
    <bu-base:geometry>
      <gml:Polygon gml:id="_2cb12b17-5bkd-7b57-720e-8fe04av0c931" srsName="EPSG:3044">
        <gml:exterior>
          <gml:LinearRing>
```

... e ora come 'rappresento' i miei
il mio piatto ??

Specifiche di encoding e presentazione

Baccalà alla livornese

- Presentazione: SLD ?



Stile = l'impiattamento

```

<NamedLayer>
  <se:Name>GSC:BU.Buildings</se:Name>
  <UserStyle>
    <se:Name>BU.energyPerformance</se:Name>
    <sld:IsDefault>1</sld:IsDefault>
    <se:FeatureTypeStyle>
      <se:Rule>
        <se:Name>A</se:Name>
        <se:Description>
          <se:Title>class A (less than 30kWh*mq/year)</se:Title>
        </se:Description>
        <ogc:Filter xmlns:ogc="http://www.opengis.net/ogc">
          <ogc:And>
            <ogc:PropertyIsLessThanOrEqualTo>
              <ogc:PropertyName>estimatedEnergyNeed</ogc:PropertyName>
              <ogc:Literal>30</ogc:Literal>
            </ogc:PropertyIsLessThanOrEqualTo>
          </ogc:And>
        </ogc:Filter>
        <se:PolygonSymbolizer>
          <se:Fill>
            <se:SvgParameter name="fill">#d7191c</se:SvgParameter>
          </se:Fill>
          <se:Stroke>
            <se:SvgParameter name="stroke">#000000</se:SvgParameter>
          </se:Stroke>
        </se:PolygonSymbolizer>
      </se:Rule>
    </se:FeatureTypeStyle>
  </UserStyle>
</NamedLayer>
  
```







FERRARA Overview

CityGML Energy ADE

```
<gml:LinearRing>
  <gml:posList srsDimension="3">1707550.962 4967330.7701441 8.75201 1707550.962 4967330.7701441 17.50402 1707546.14 4967318.05414409
17.50402 1707546.14 4967318.05414409 8.75201 1707550.962 4967330.7701441 8.75201</gml:posList>
</gml:LinearRing>
</gml:exterior>
</gml:Polygon>
</gml:surfaceMember>
</gml:MultiSurface>
</bldg:lod2MultiSurface>
</bldg:WallSurface>
</bldg:boundedBy>
<energy:refurbishmentClass>norefurbishment</energy:refurbishmentClass>
<energy:usageZones>
  <energy:UsageZone>
    <energy:usageZoneClass>residential</energy:usageZoneClass>
    <energy:usedArea uom="meter">224.63144708486715</energy:usedArea>
    <energy:usedFloorNumbers>0</energy:usedFloorNumbers>
    <energy:usedFloorNumbers>1</energy:usedFloorNumbers>
  </energy:UsageZone>
</energy:usageZones>
</bldg:Building>
</core:cityObjectMember>
<core:cityObjectMember>
  <bldg:Building gml:id="ferrara-17340">
    <bldg:yearOfConstruction>1899</bldg:yearOfConstruction>
    <bldg:lod2Solid>
```

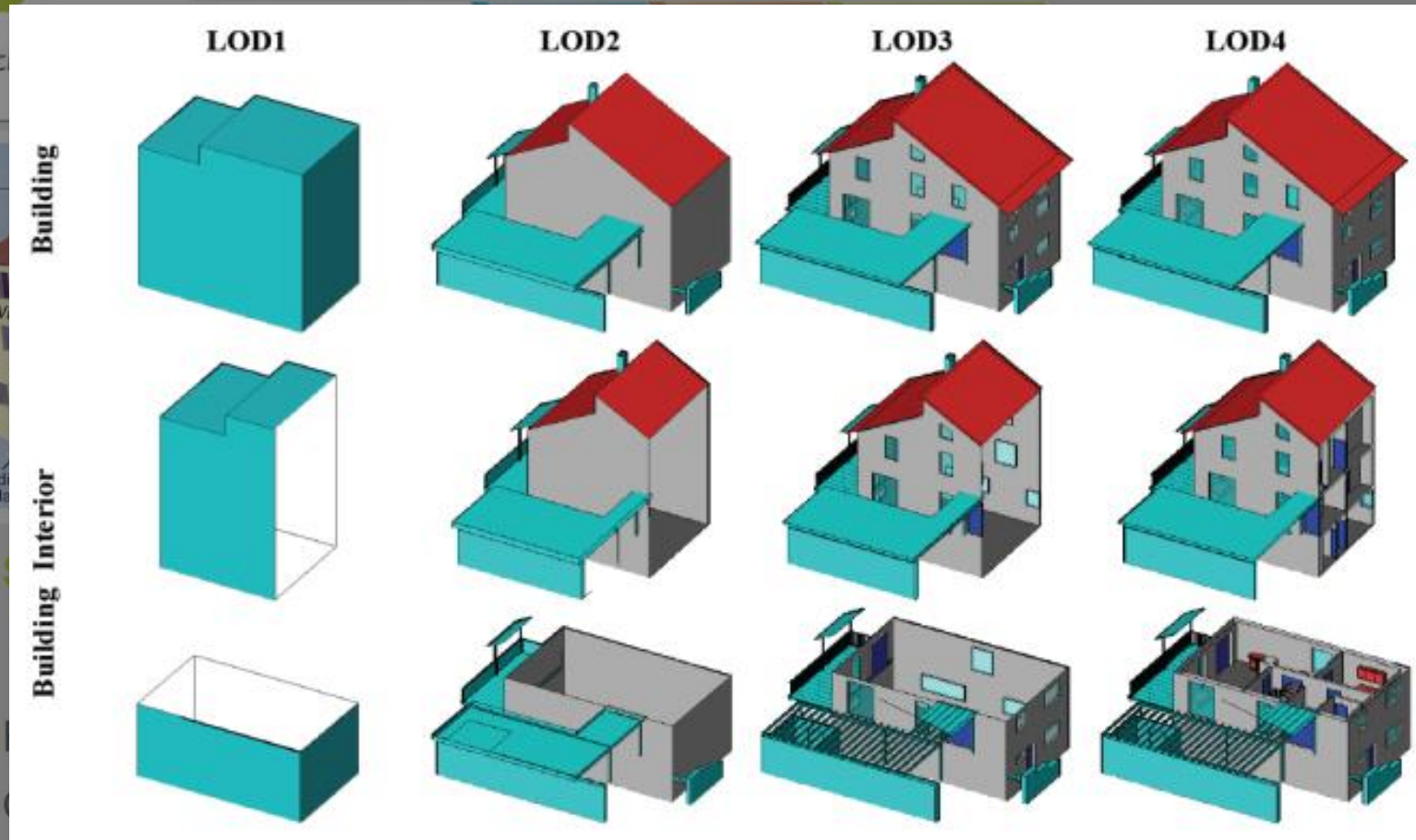
Schema = una delle possibili ricette



CityGML Building



Spatio-semantic coherence



21.01.2014

C. Nagel: CityGML - Urban Information Modelling

21



- Building/BuildingPart

- connectionToElectricity/Gas/Water/Sewage (boolean)

- heatingSource

- values: biogas, electricity, liquidFuels, naturalGas, solidFuels, straw, warmWaterOrStream

- heatingSystem

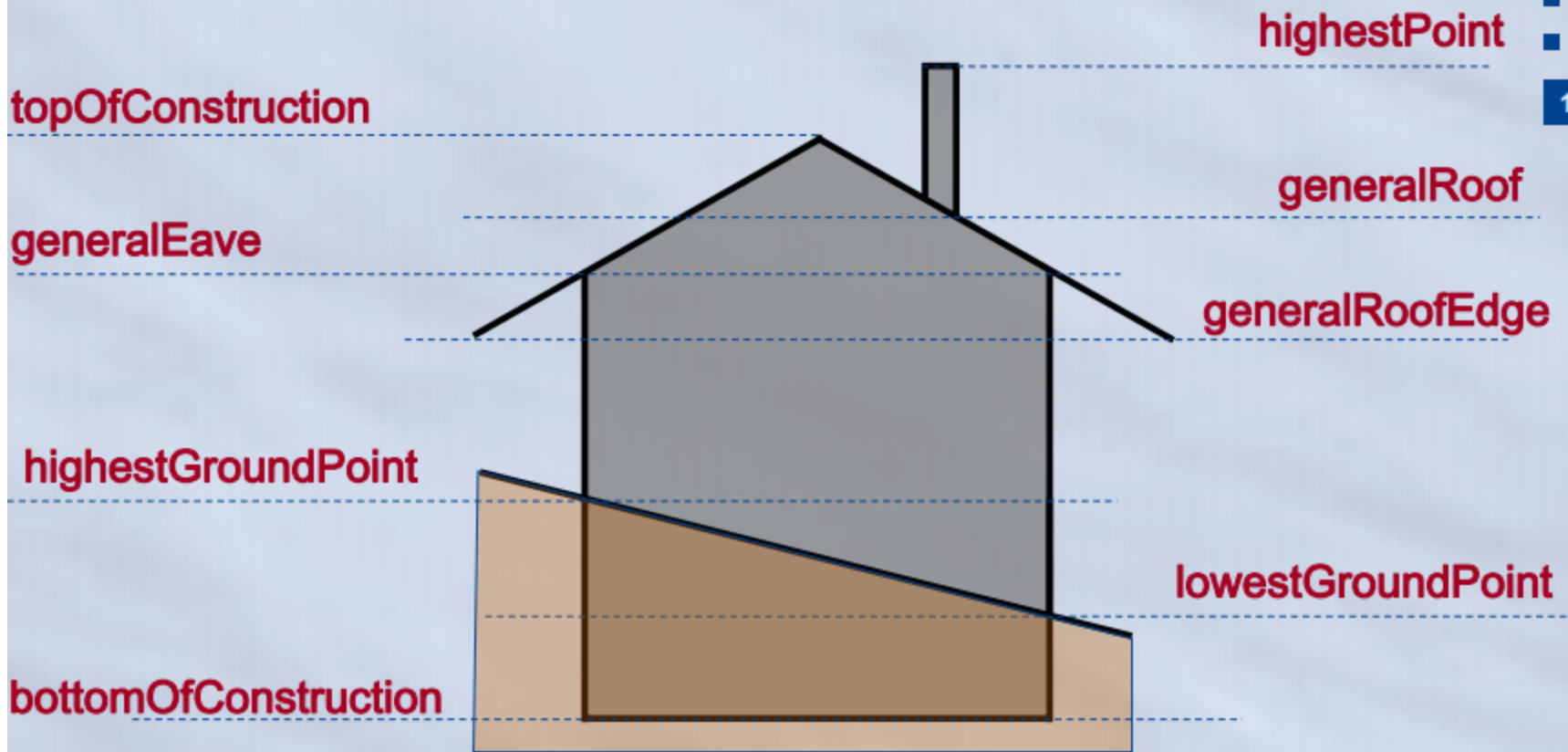
- values: centralHeating, districtHeating, electricRaditors, heatPump, portableGasHeating, solarHeating, stove

- energyPerformance

- values: A, B, C, D, E, F, G
 - dateOfAssessment
 - assessmentMethod



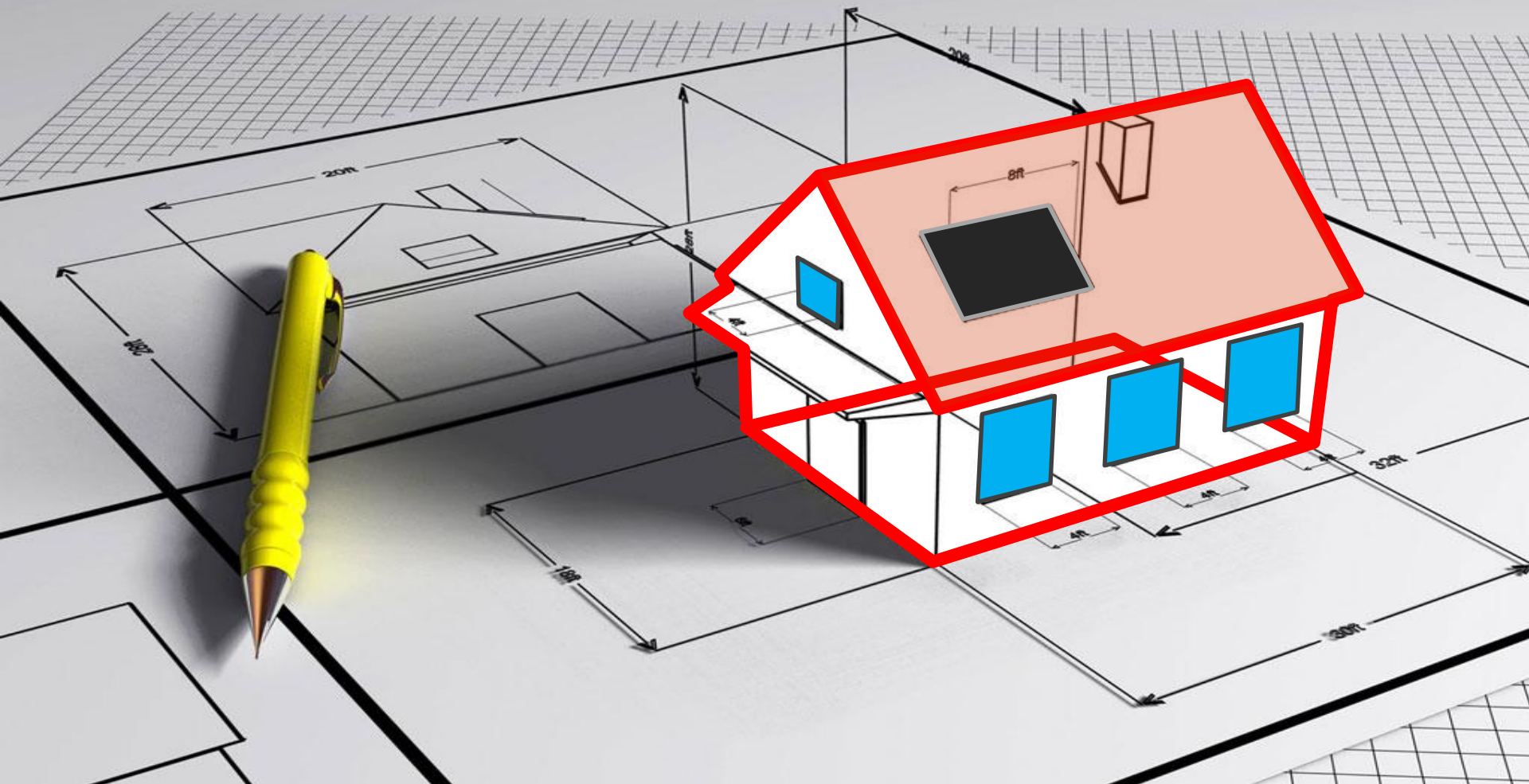
- Building/BuildingPart (cont')
 - materialOfRoof/ Facade /Structure
 - values: adobe, asbestos, ceramicTiles, composite, concrete, glass, limestone, ...
 - FloorDescription
 - areaOfOpenings (doors, windows, open space) on the facade of the building, related to this given floor
 - floorArea
- Wall-/Roof Surfaces
 - materialOfRoof/Facade
 - Values: asbestos, ceramicTile, clayTile, composition, concreteTile, corrugatedSheet, glass, hotMoppedAsphalt, ...



... e dove trovo tutte queste
informazioni ??

Altre info (epoca di costruzione, materiali, ...) da registri Attestati Prestazione Energetica

volumi **3D** e installazioni da rilievi lidar HR, sensori, GSE



Consumi energia e connessione alle reti da Agenzia Entrate (SIATEL) e utilities

Footprint, unità immobiliari, usi, ... da catasto, db topo, anagrafi edilizie

```
<bu-base:status xlink:href="http://inspire.ec.europa.eu/codelist/HeightStatusValue/estimated"/>
<bu-base:value uom="meter">8.0</bu-base:value>
</bu-base:HeightAboveGround>
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<bu-base:inspireId>
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    <base:localId>6910</base:localId>
    <base:namespace>http://www.municipio.re.it</base:namespace>
  </base:Identifier>
</bu-base:inspireId>
<bu-base:currentUse>
  <bu-base:CurrentUse>
    <bu-base:currentUse xlink:href="http://inspire.ec.europa.eu/codelist/CurrentUseValue/individualResidence">individualResidence</bu-base:currentUse>
    <bu-base:percentage>100</bu-base:percentage>
  </bu-base:CurrentUse>
</bu-base:currentUse>
<bu-base:numberOfDwellings>1</bu-base:numberOfDwellings>
<bu-base:numberOfFloorsAboveGround>2</bu-base:numberOfFloorsAboveGround>
<bu-core2d:geometry2D>
  <bu-base:BuildingGeometry2D>
    <bu-base:geometry>
      <gml:Polygon gml:id="_2cb12b17-5bkd-7b57-720e-8fe04av0c931" srsName="EPSG:3044">
        <gml:exterior>
          <gml:LinearRing>
```

*Questa è una porzione
di baccalà ... reggiano*

... e questa è la ricetta che Reggio vuole cucinare

The screenshot displays the GeoSmartCity energy label atlas interface. On the left, there is a sidebar with a zoom control and three sections: 'Legenda' (Legend) with color-coded energy labels A through G; 'Energietabels' (Energy labels) with options for 'Alle labels' and 'Met certificaat'; and 'Achtergrond' (Background) with options for 'Aan' and 'Uit'. The main area is a map of Delft, Netherlands, with buildings color-coded according to their energy label. A search panel on the right, titled 'Meer Met Minder', includes a search bar with 'Adres' and 'Plaats' tabs, a 'Postcode' field, a 'Huisnr.' field, and a 'Zoek mijn adres' button. Below the search bar is a dropdown menu showing a list of addresses: Burgwal 40, Burgwal 42, Burgwal 44, Burgwal 46, and Burgwal 48. The selected address, 'Burgwal 40', is highlighted. Below the dropdown, the details for 'Burgwal 40' are shown: '2611 GJ Delft', 'Energietabel: E', 'Certificaat: ✓', 'Volledigheid: ★★★', 'Bouwjaar: 1979', 'Oppervlakte: 62 m²', and 'Functie: woning'. The bottom of the map shows the Leaflet logo and the text 'Achtergrondkaart © OpenStreetMap contributors'.

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

... bene, ma ora posso collegare i
geodati di edifici a sensori smart ??

certamente sì, tramite protocolli standard

... OGC WFS / GML / KML

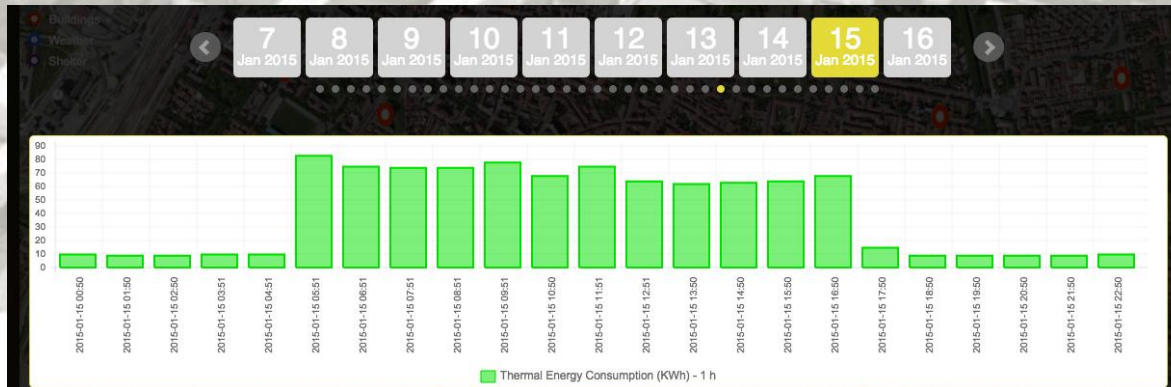
... OGC SOS / SensorML

... U.S. DoE GreenButton

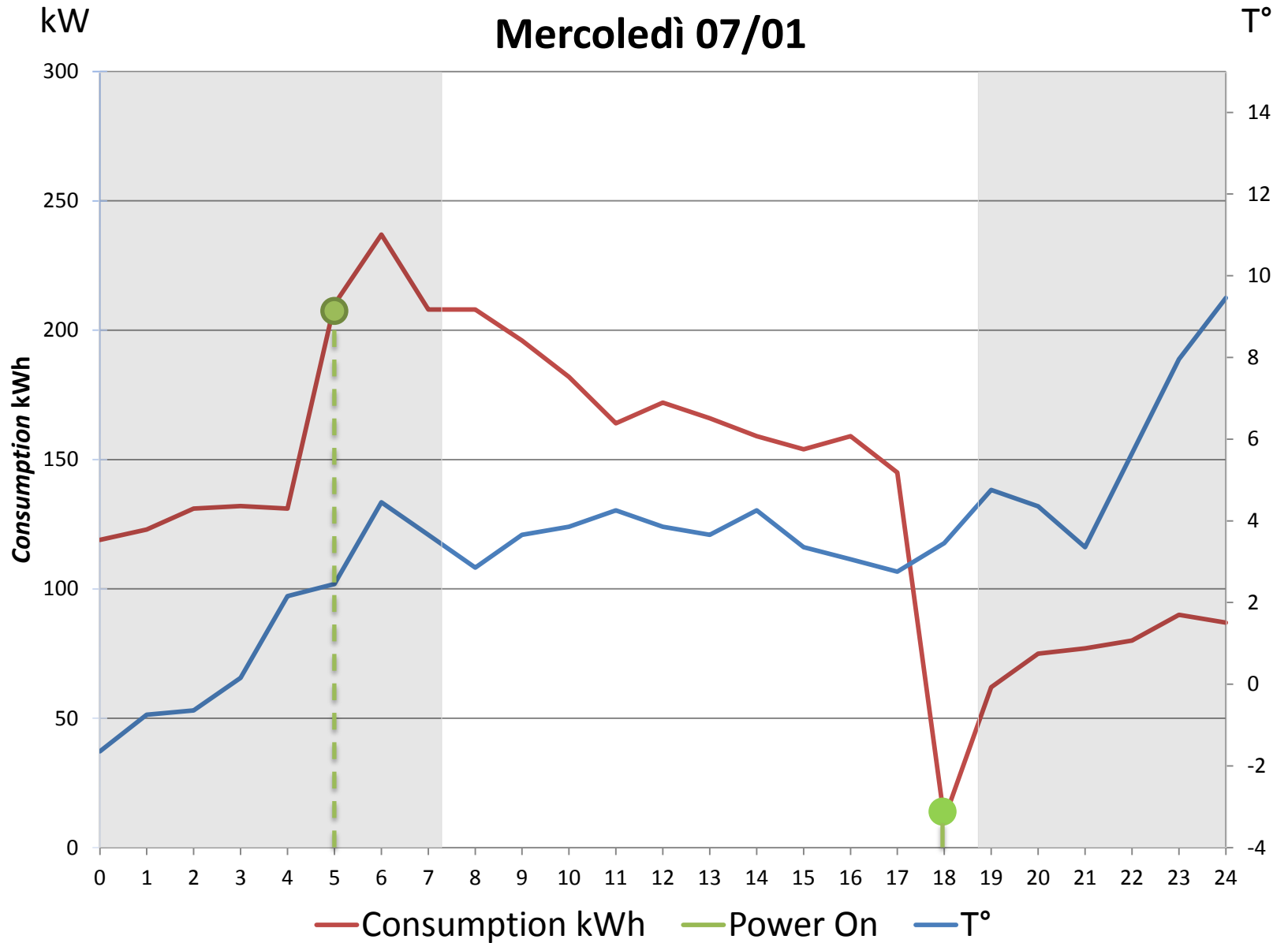
<30 Kwthm
31-80 Kwthm
81-120 Kwthm
111-150 Kwthm
181-220 Kwthm
221-270 Kwthm
>270 Kwthm



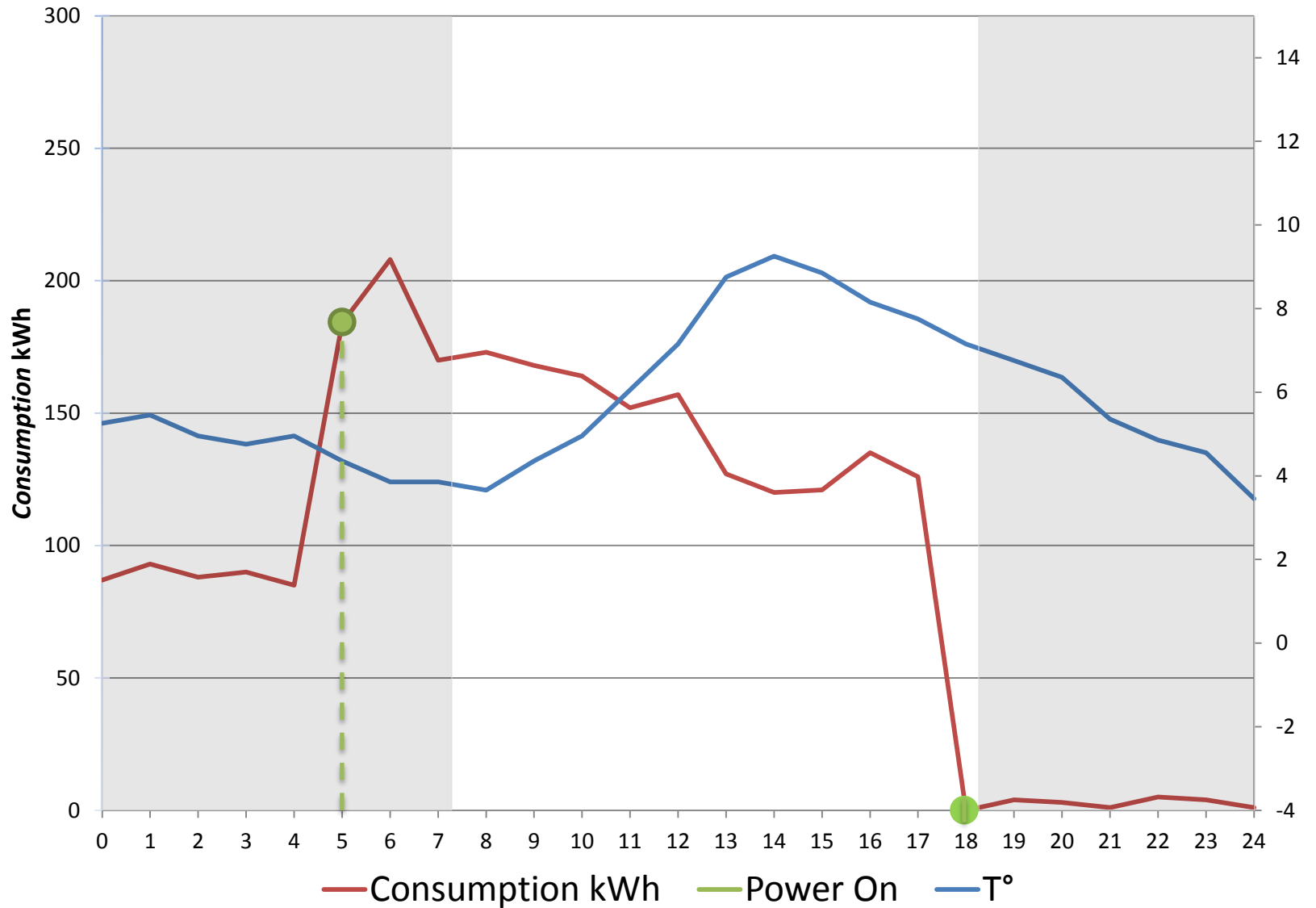
Scuola elementare Poledrelli



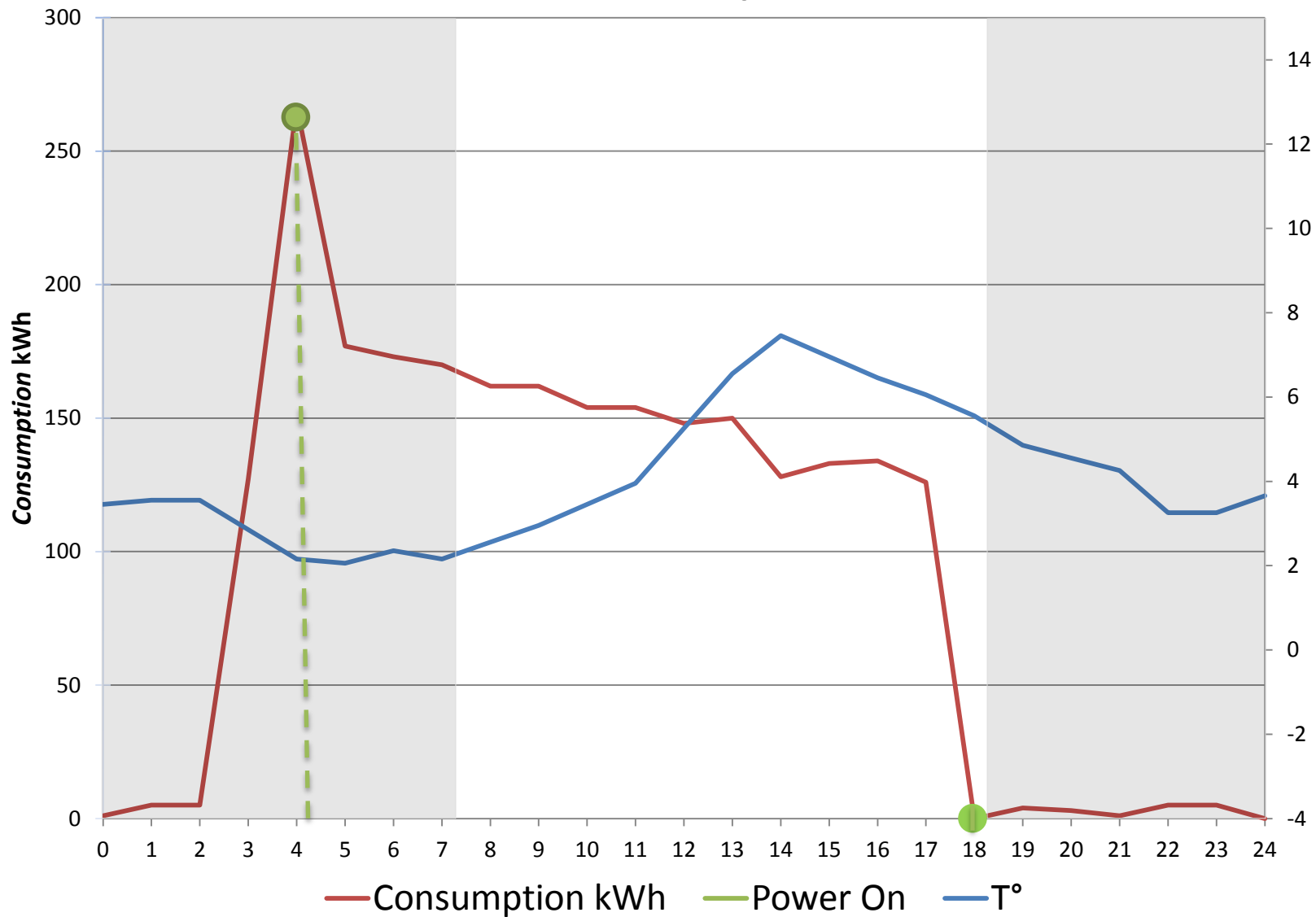
Mercoledì 07/01



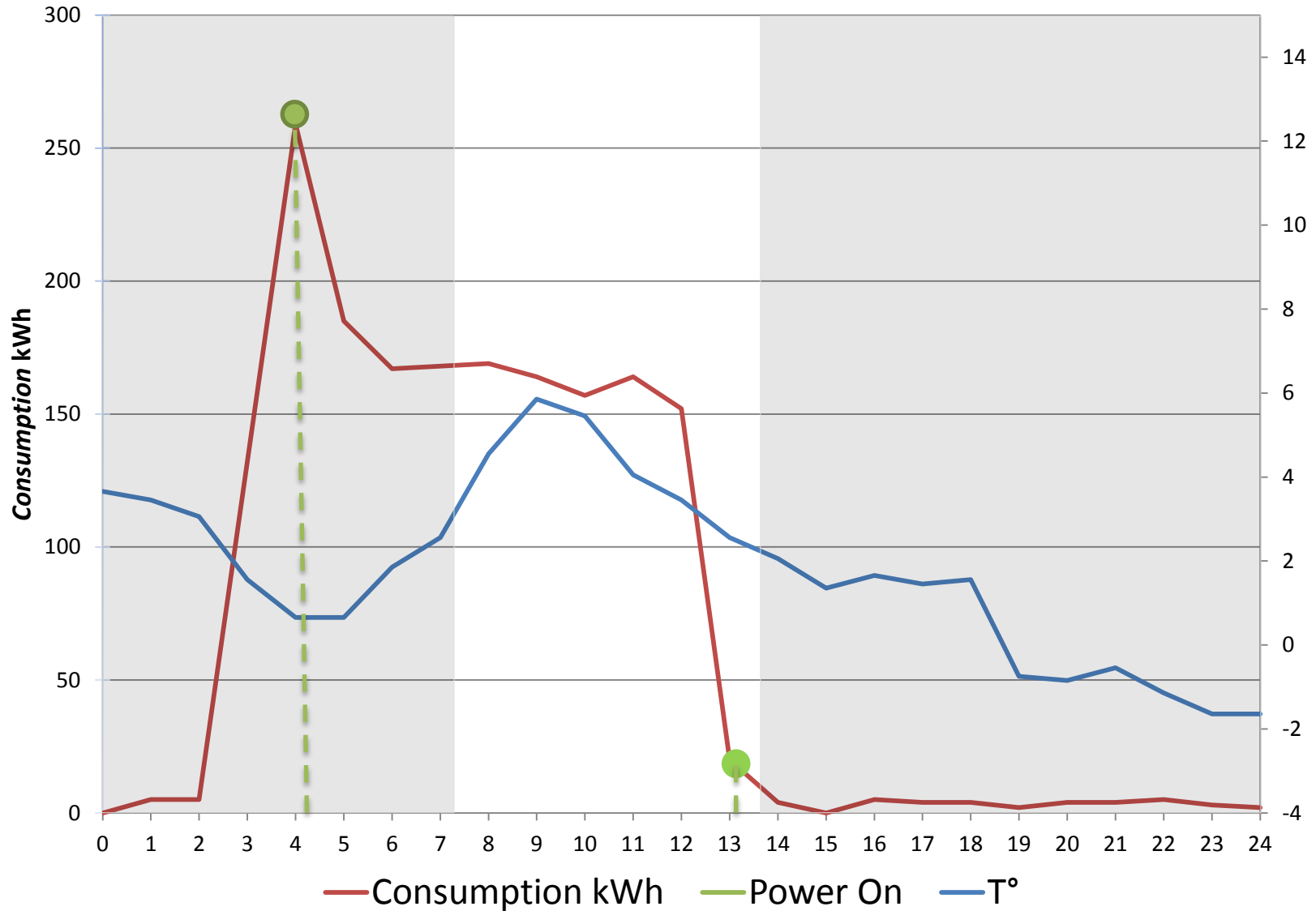
Giovedì 08/01



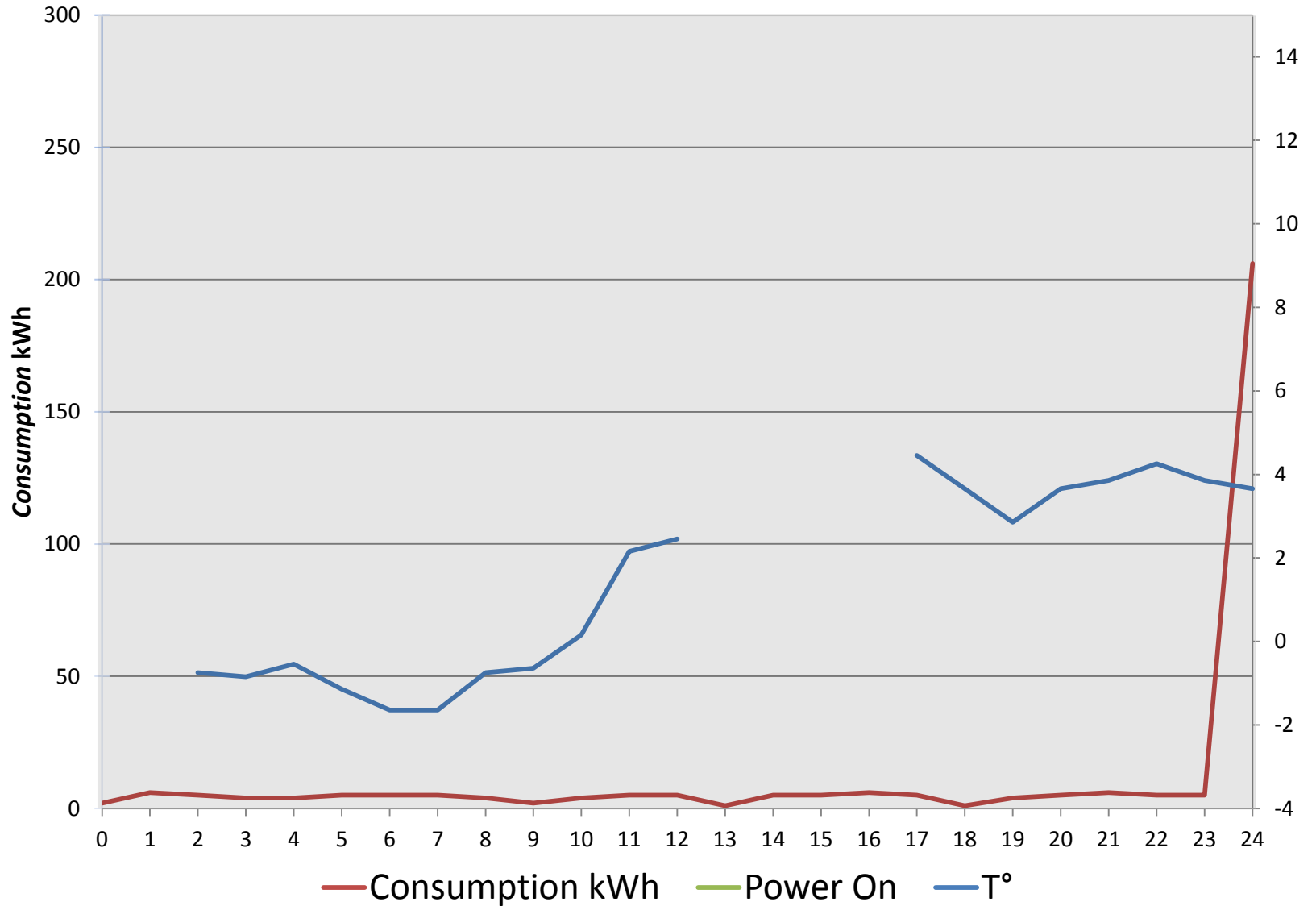
Venerdì 09/01



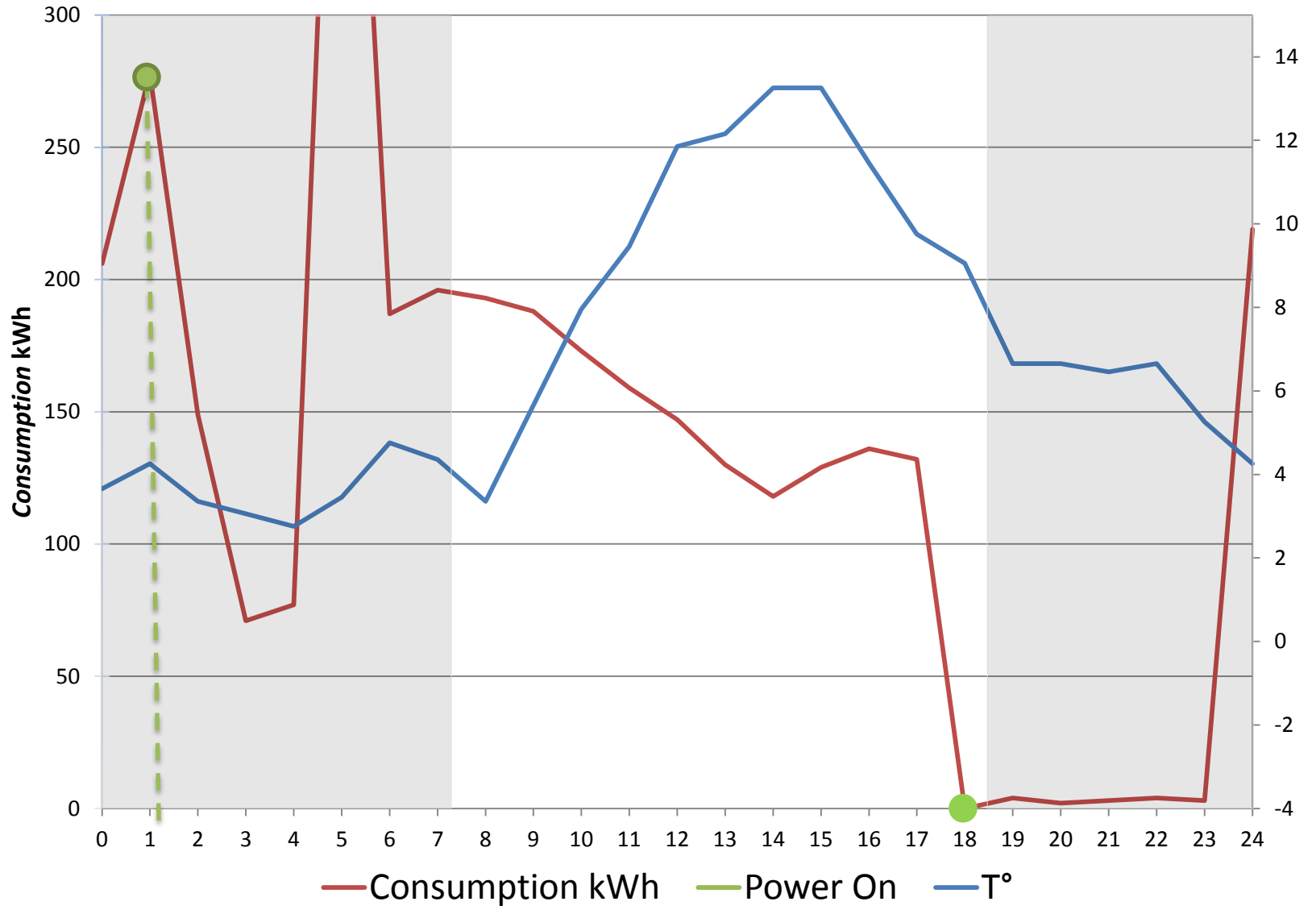
Sabato 10/01



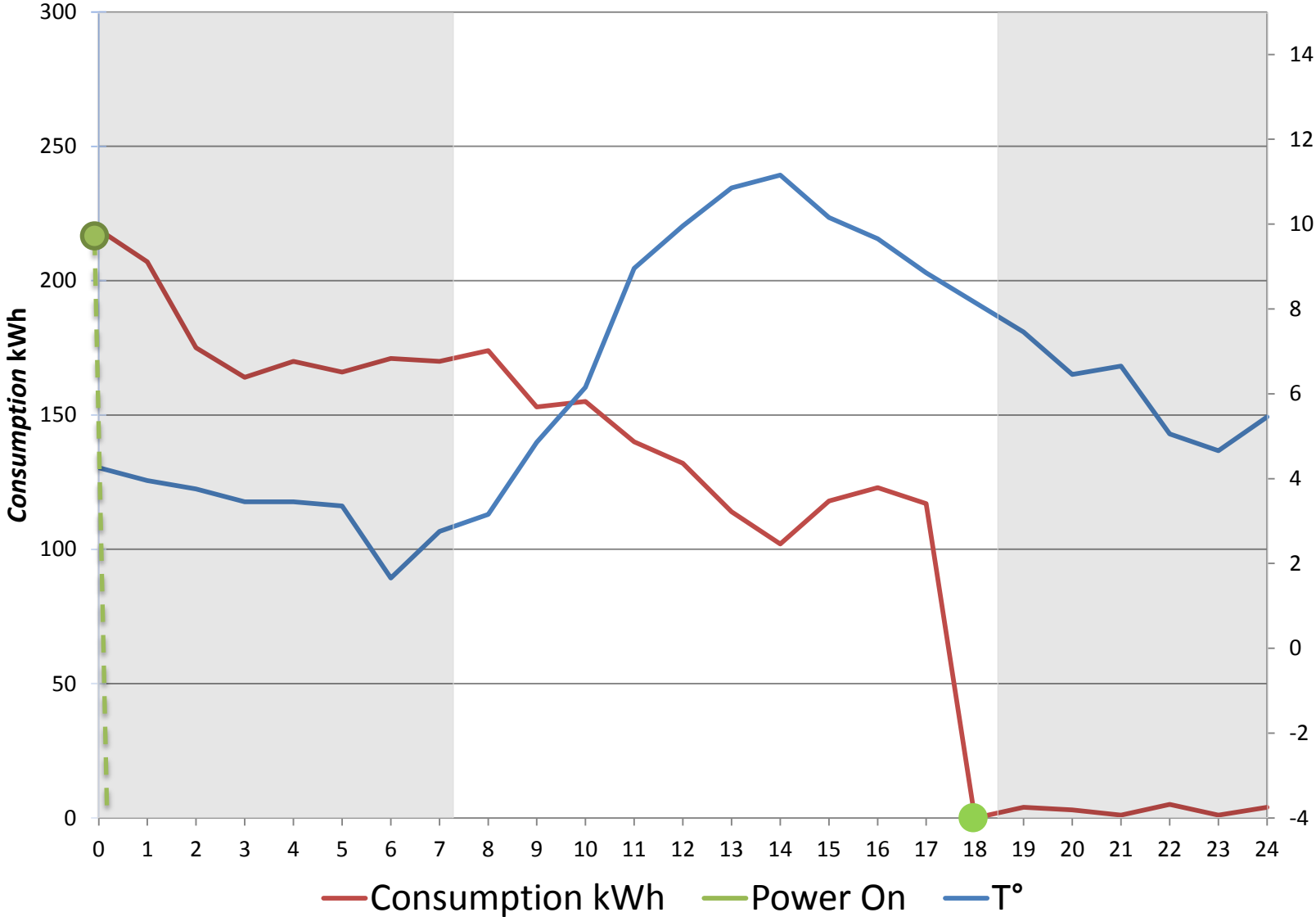
Domenica 11/01



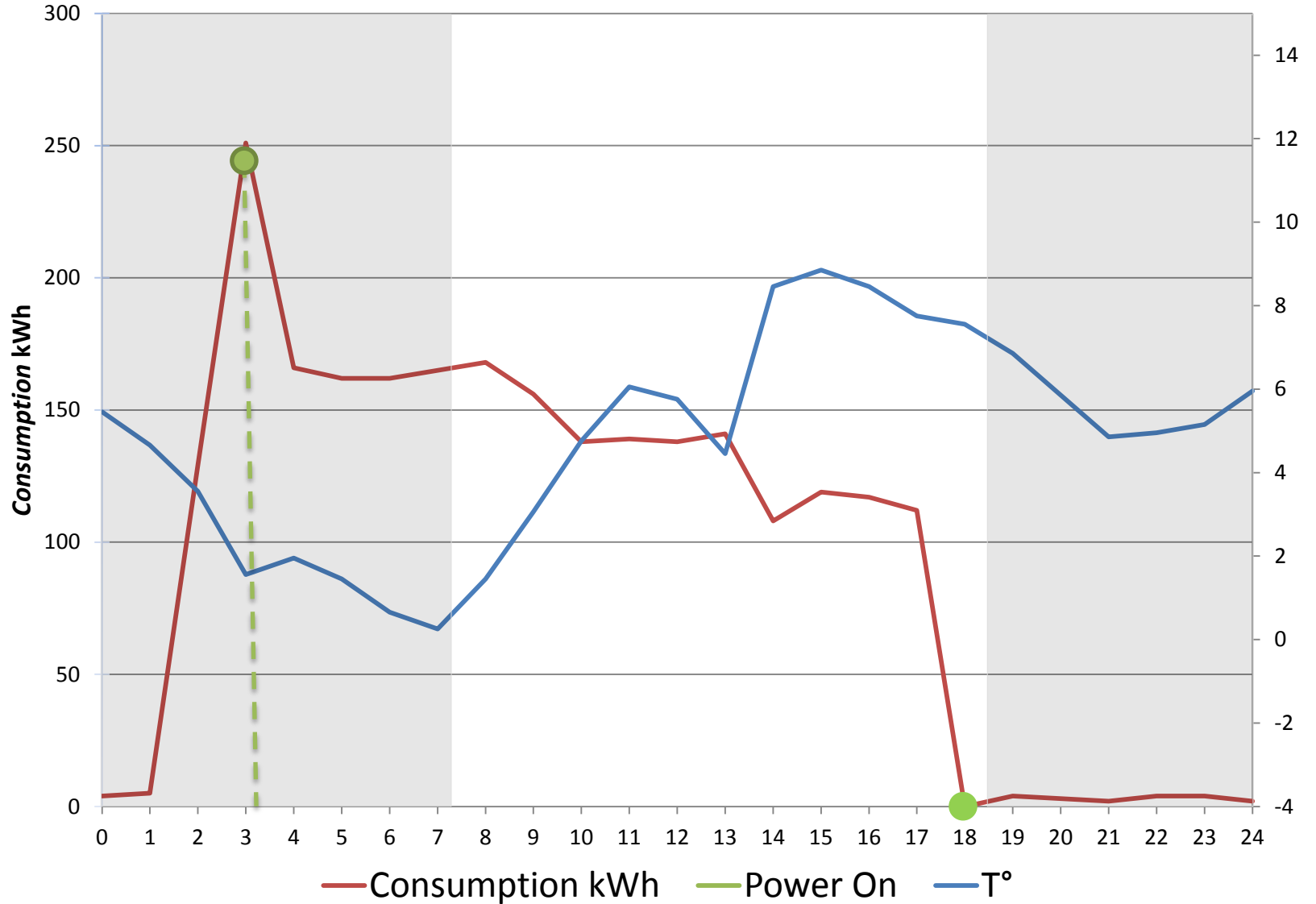
Lunedì 12/01



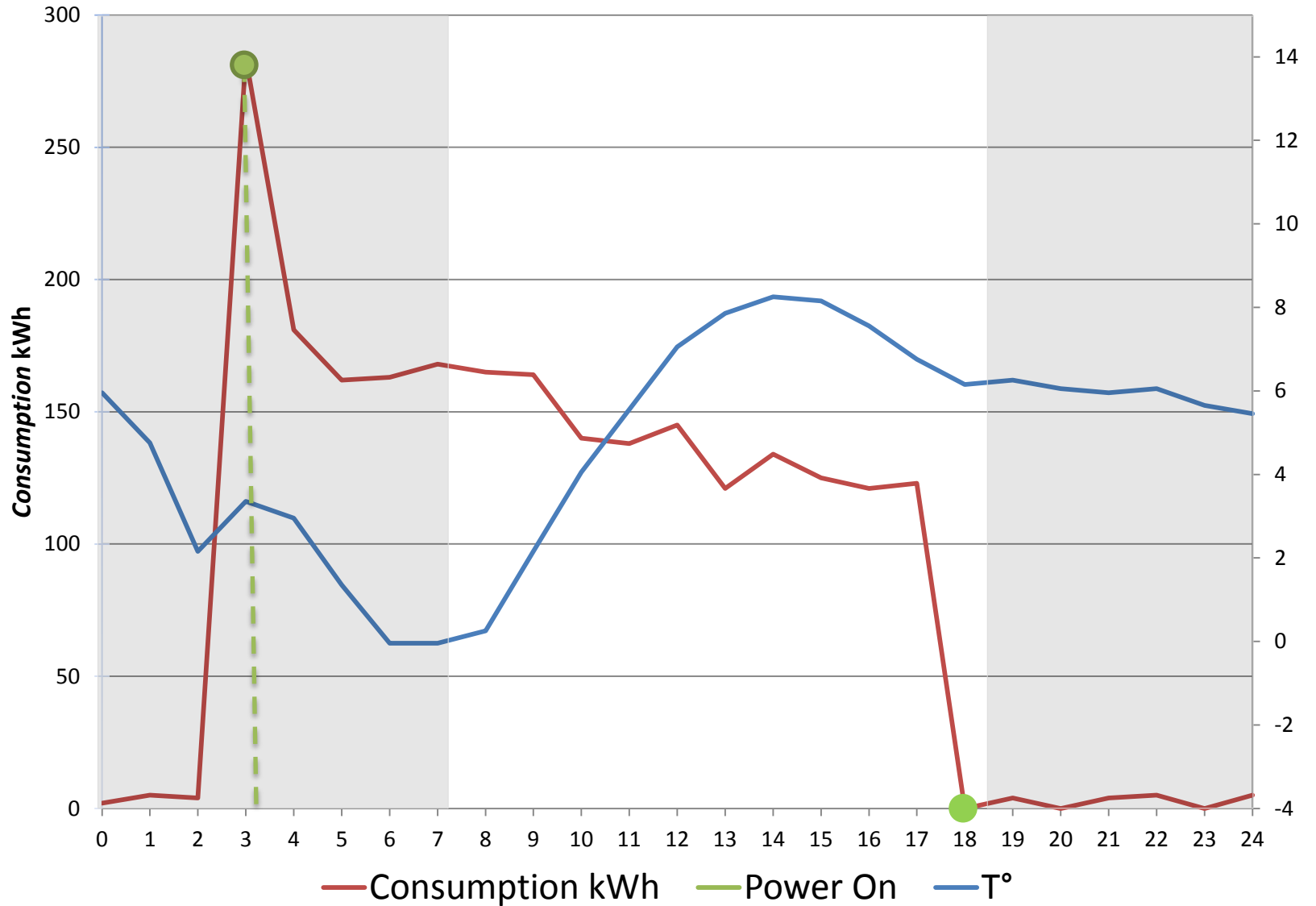
Martedì 13/01



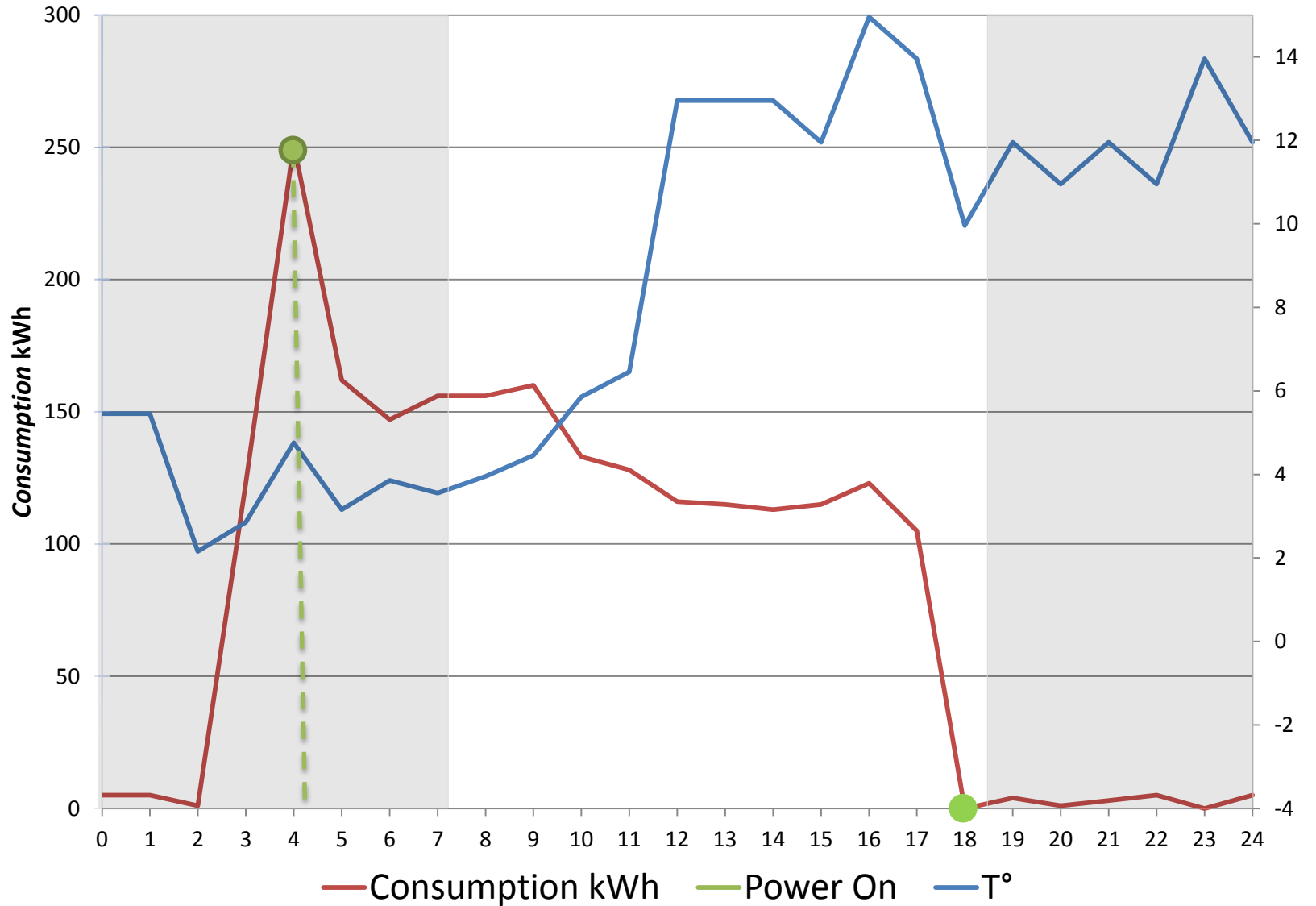
Mercoledì 14/01



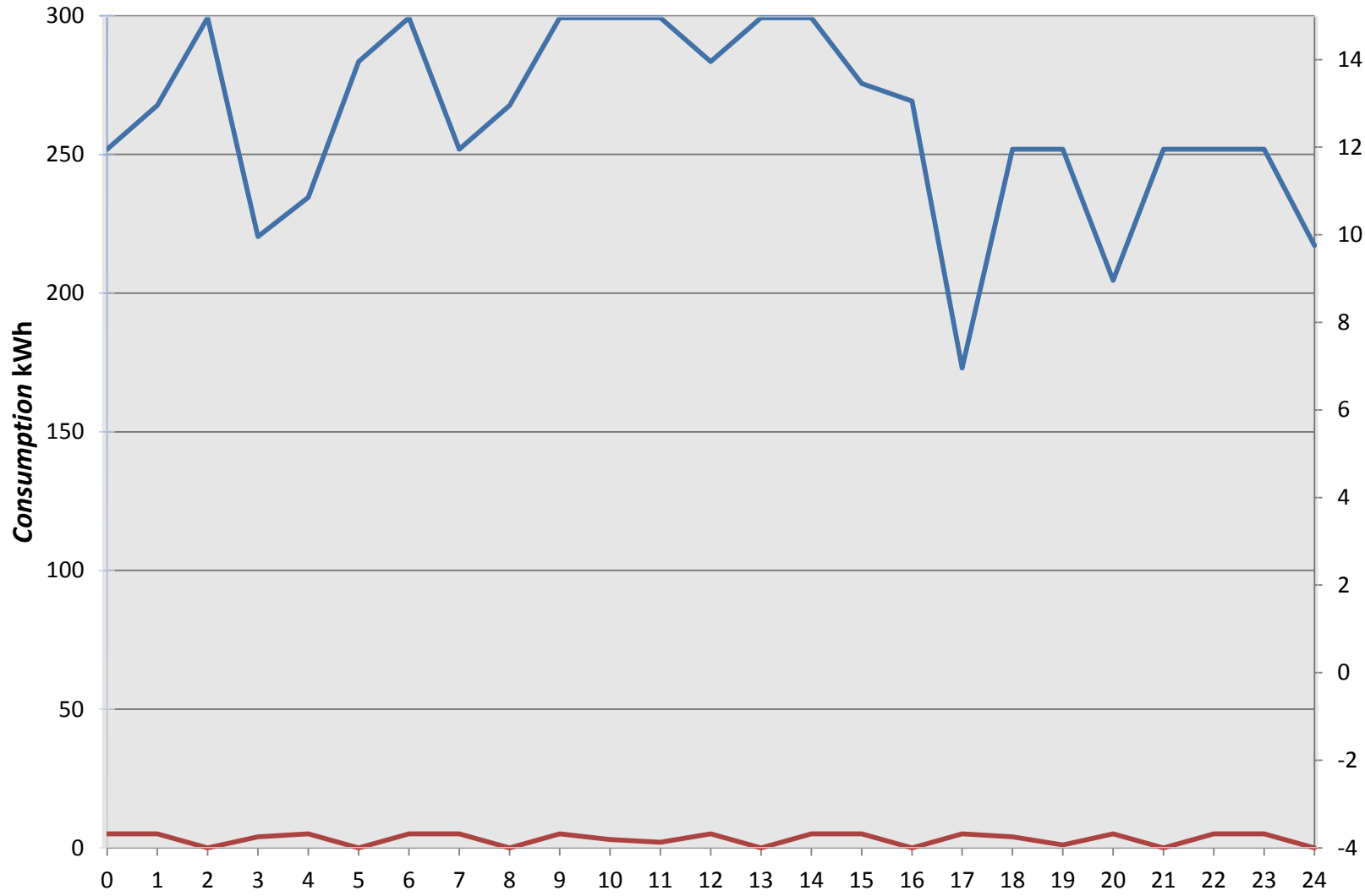
Giovedì 15/01



Venerdì 16/01

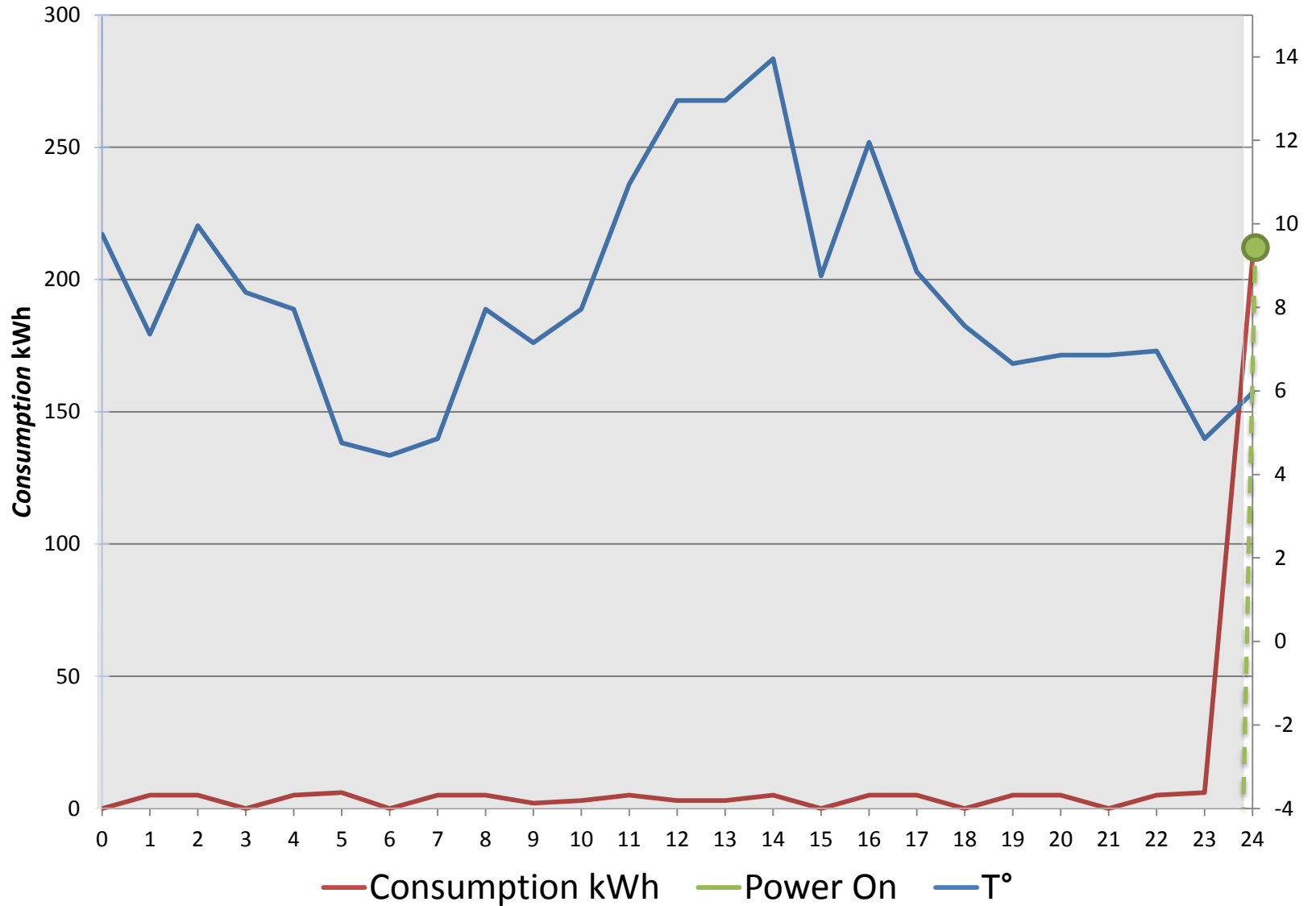


Sabato 17/01

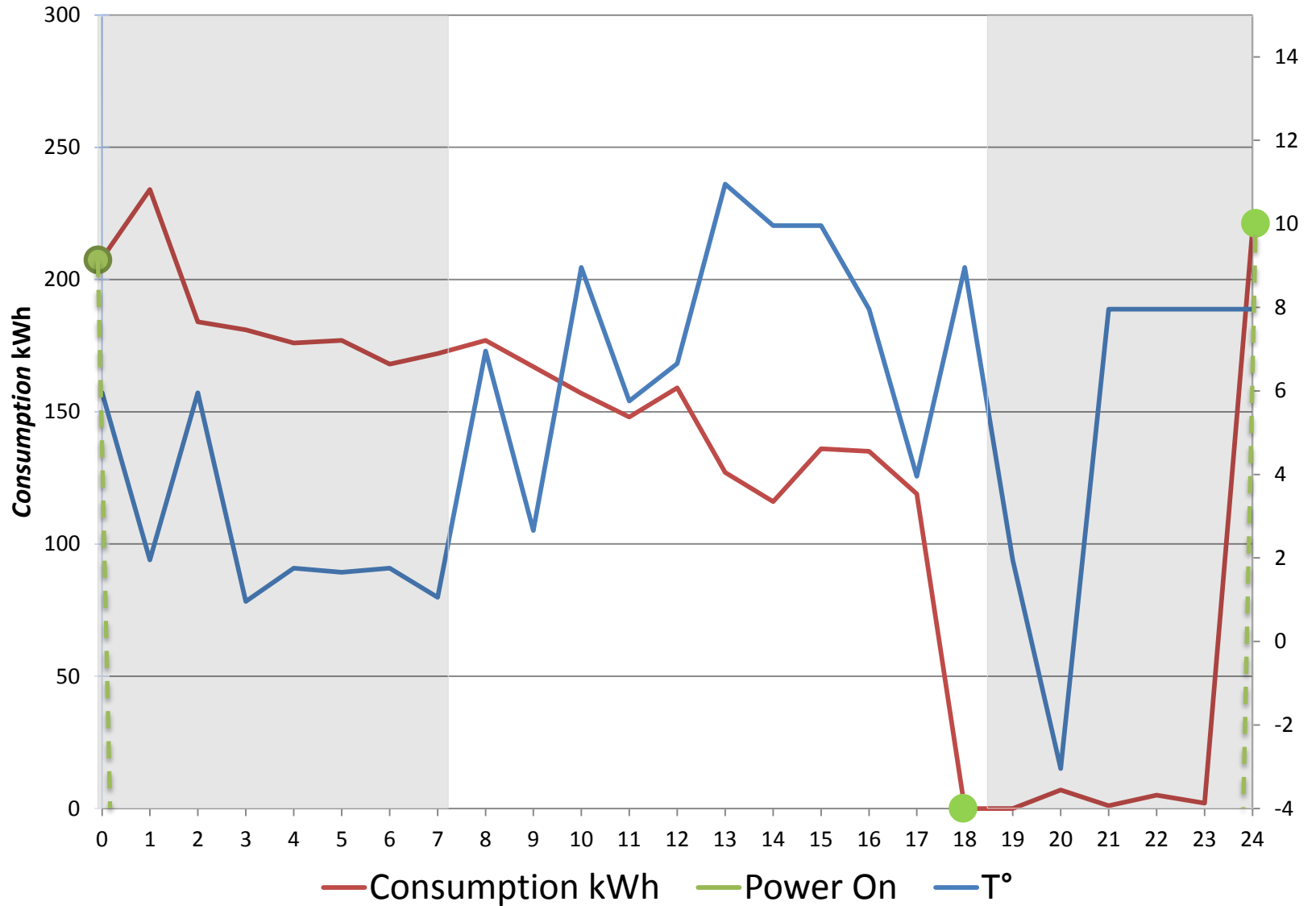


— Consumption kWh — Power On — T°

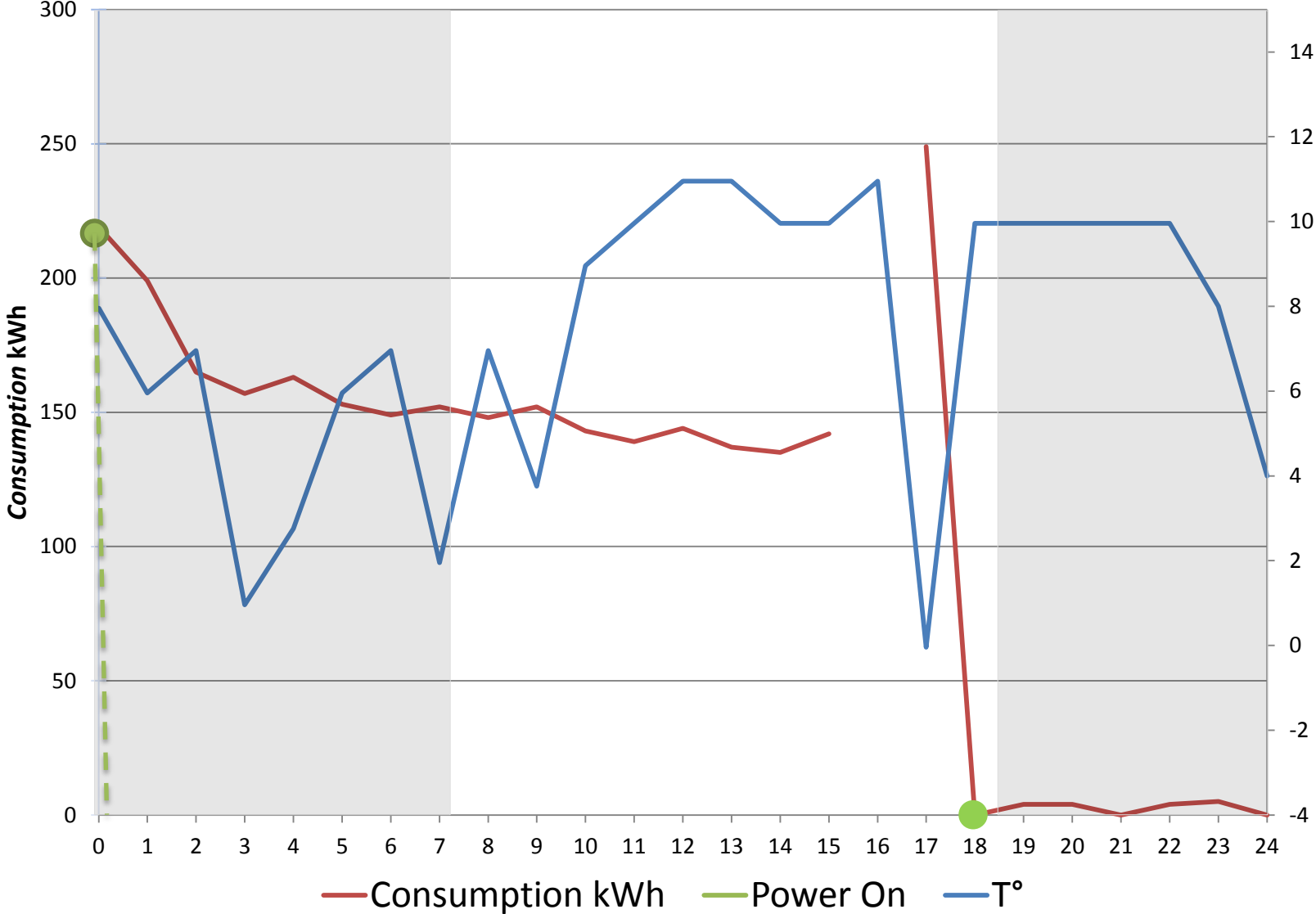
Domenica 18/01



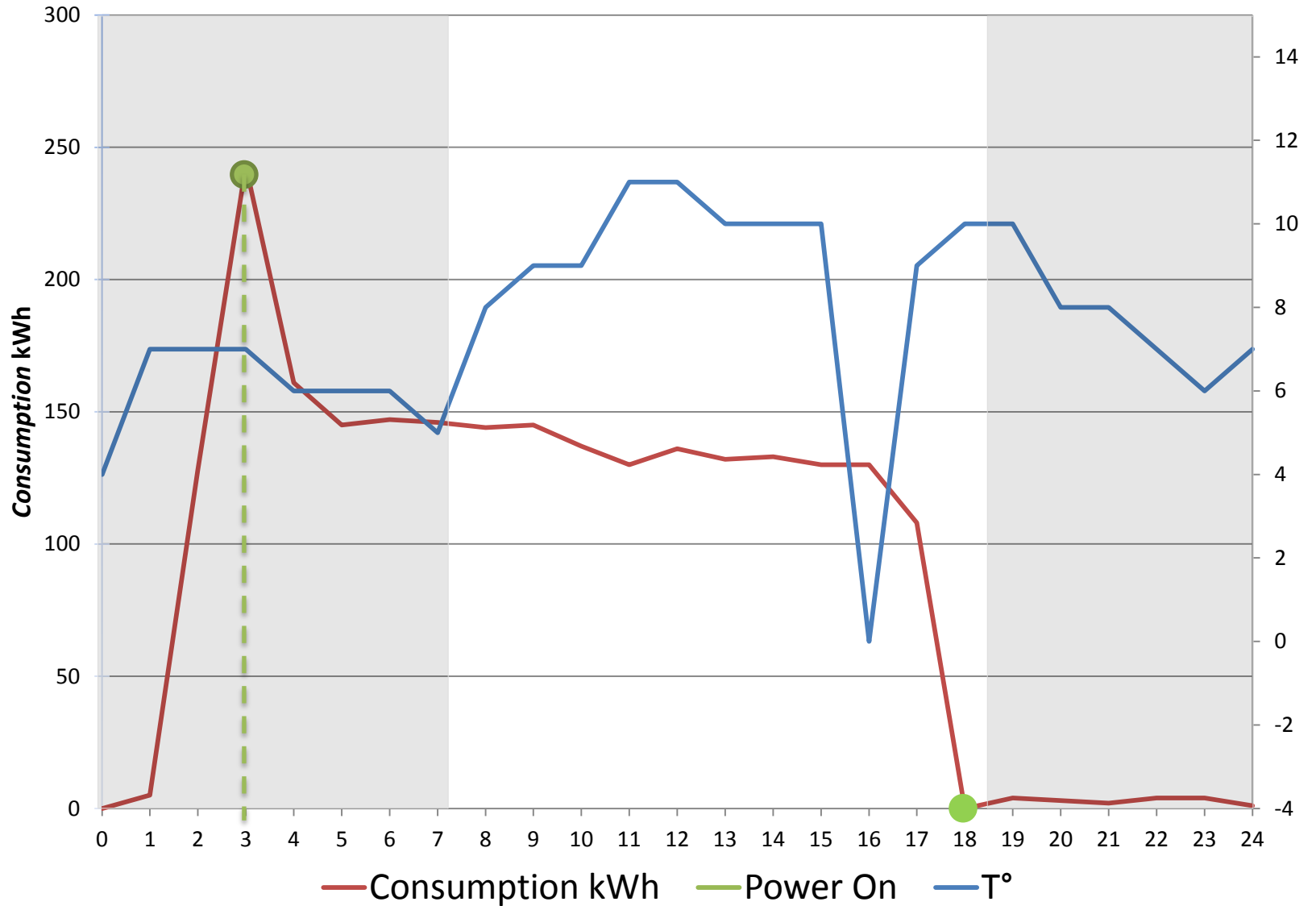
Lunedì 19/01



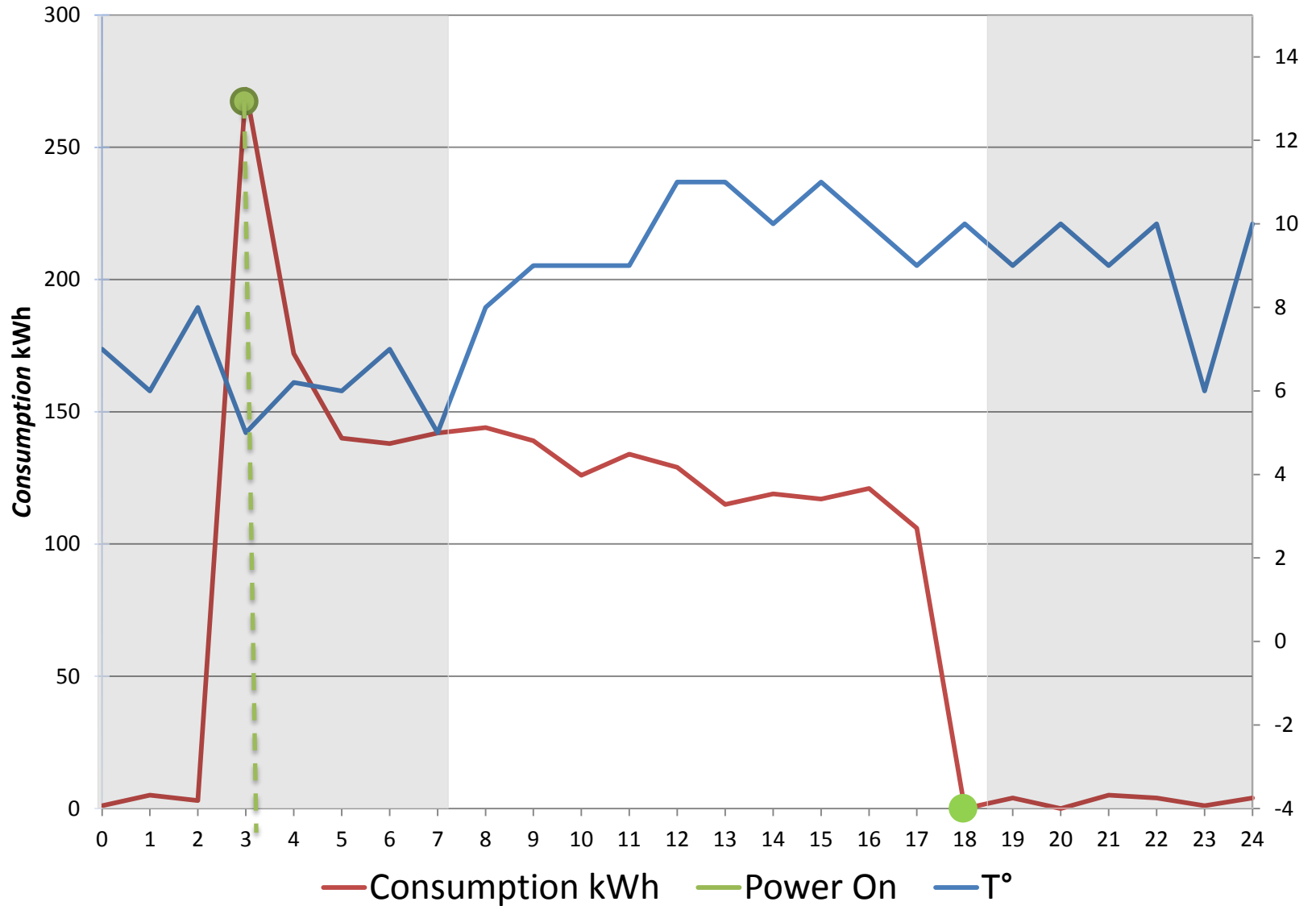
Martedì 20/01



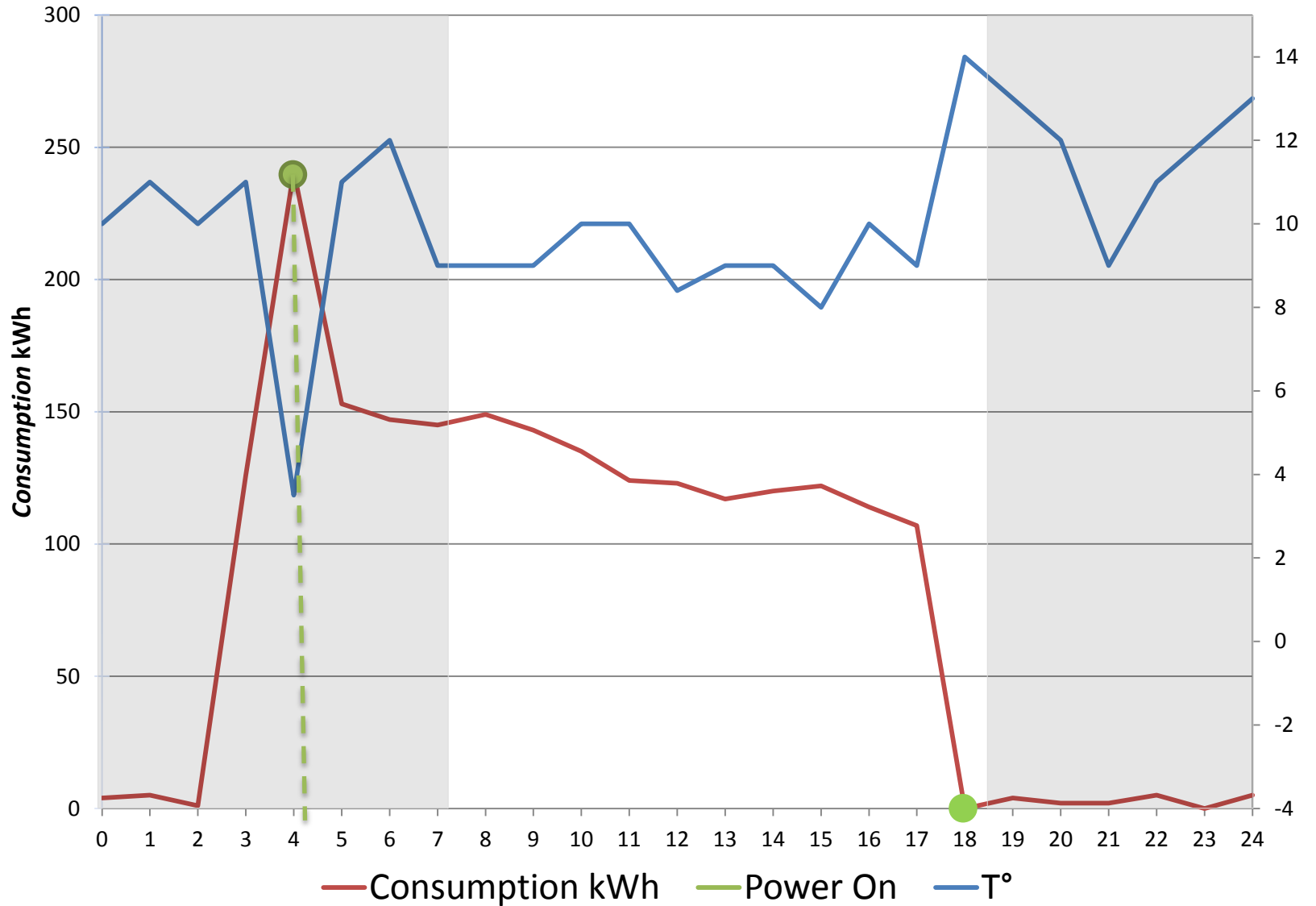
Mercoledì 21/01



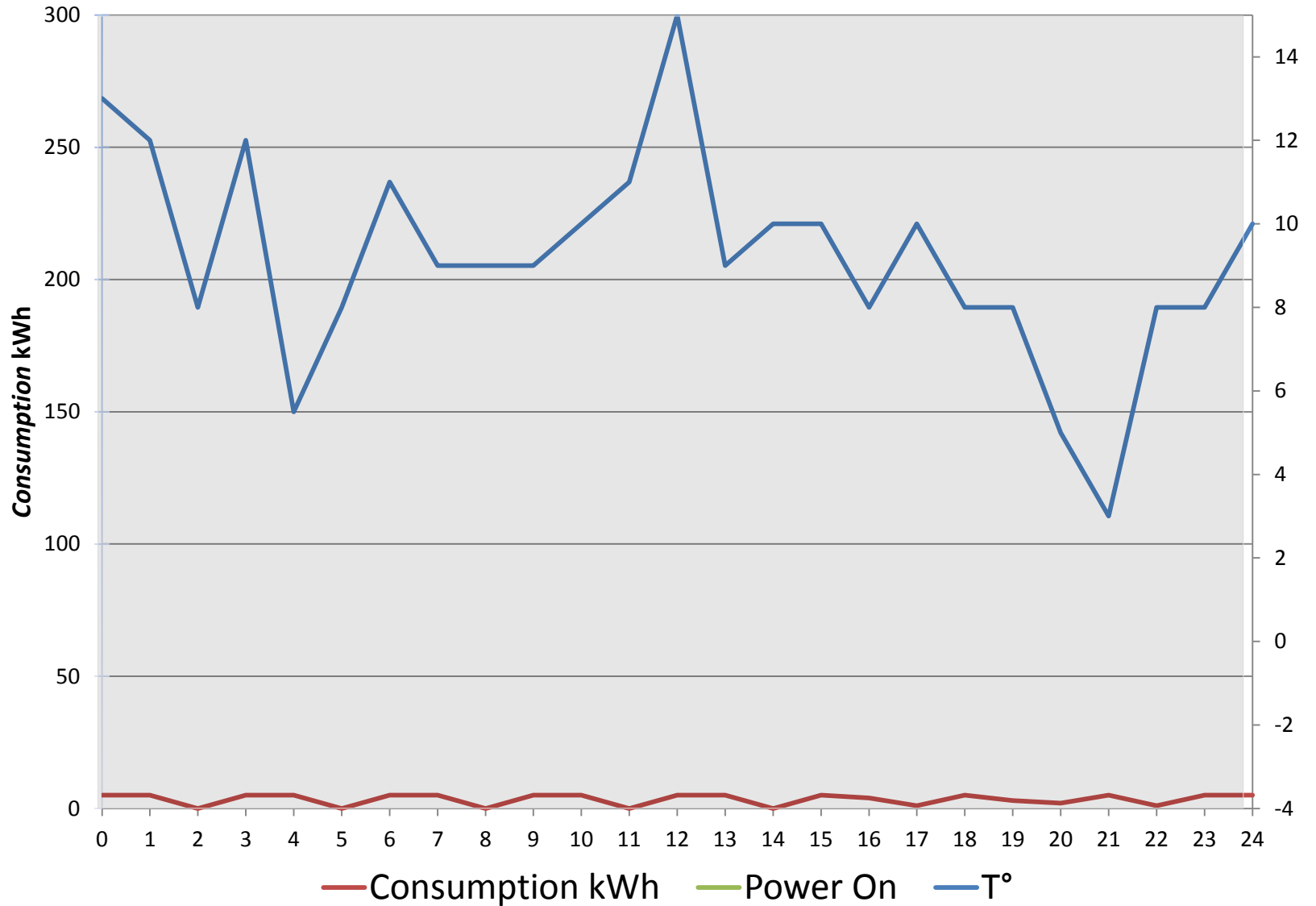
Giovedì 22/01



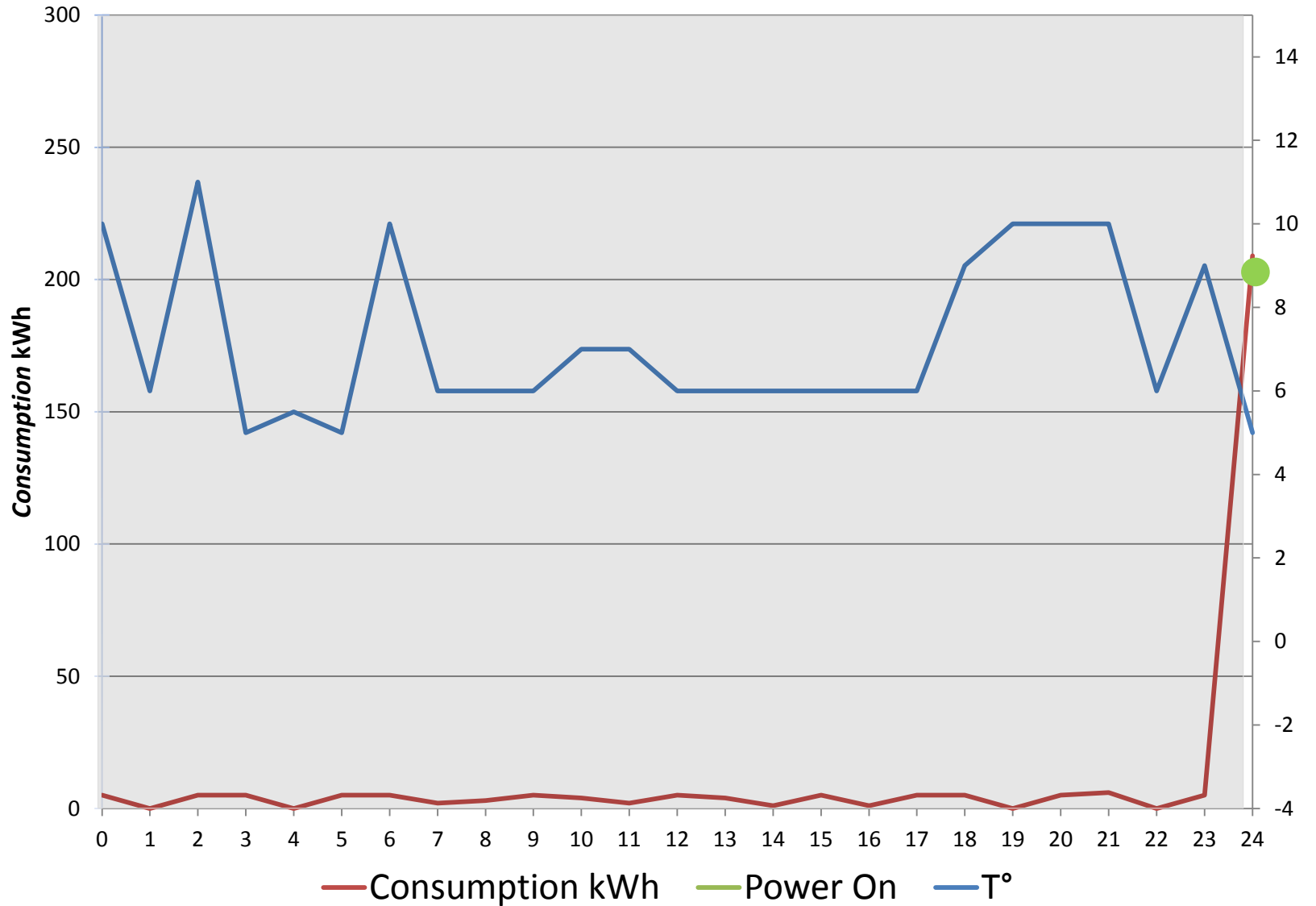
Venerdì 23/01



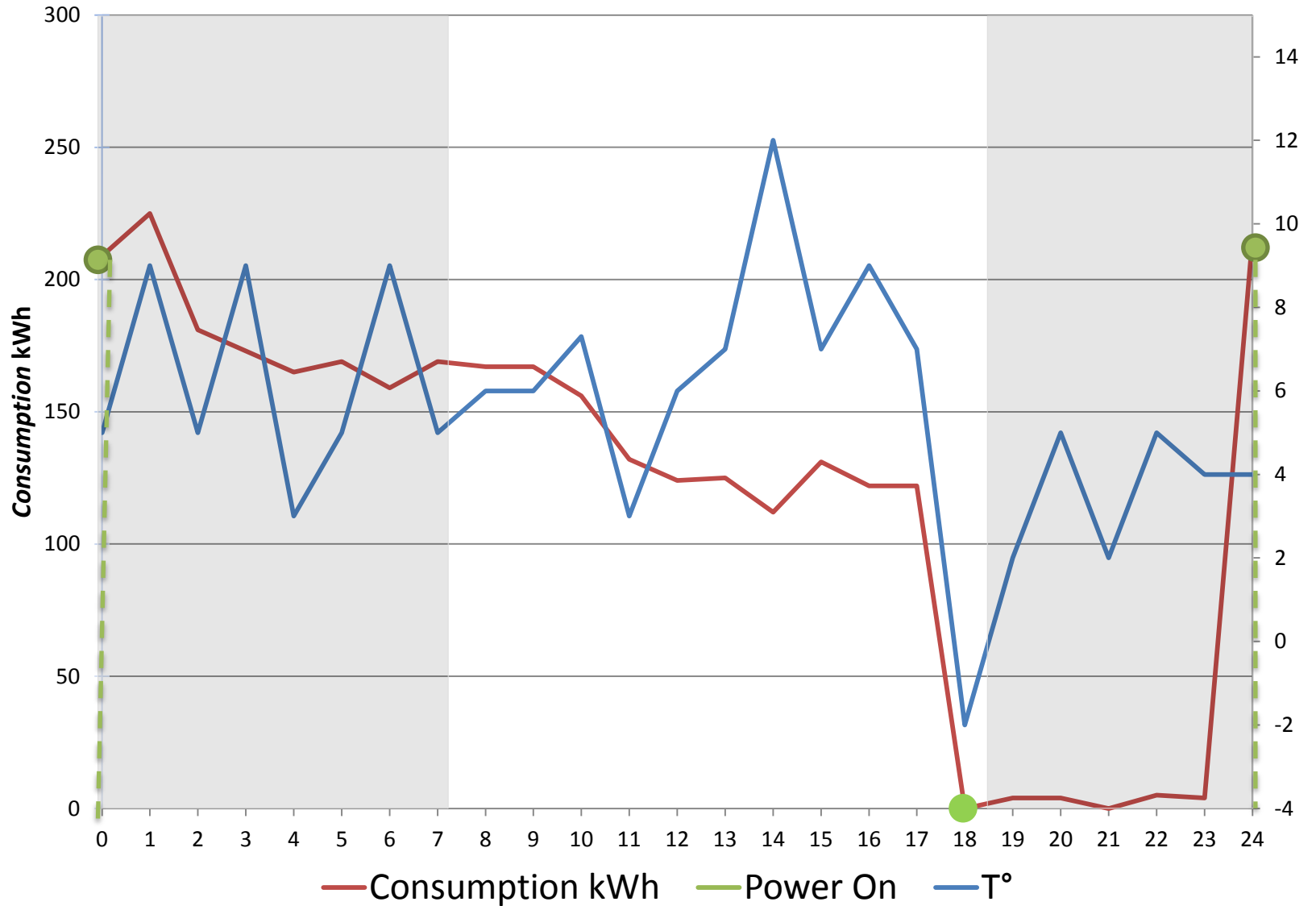
Sabato 24/01



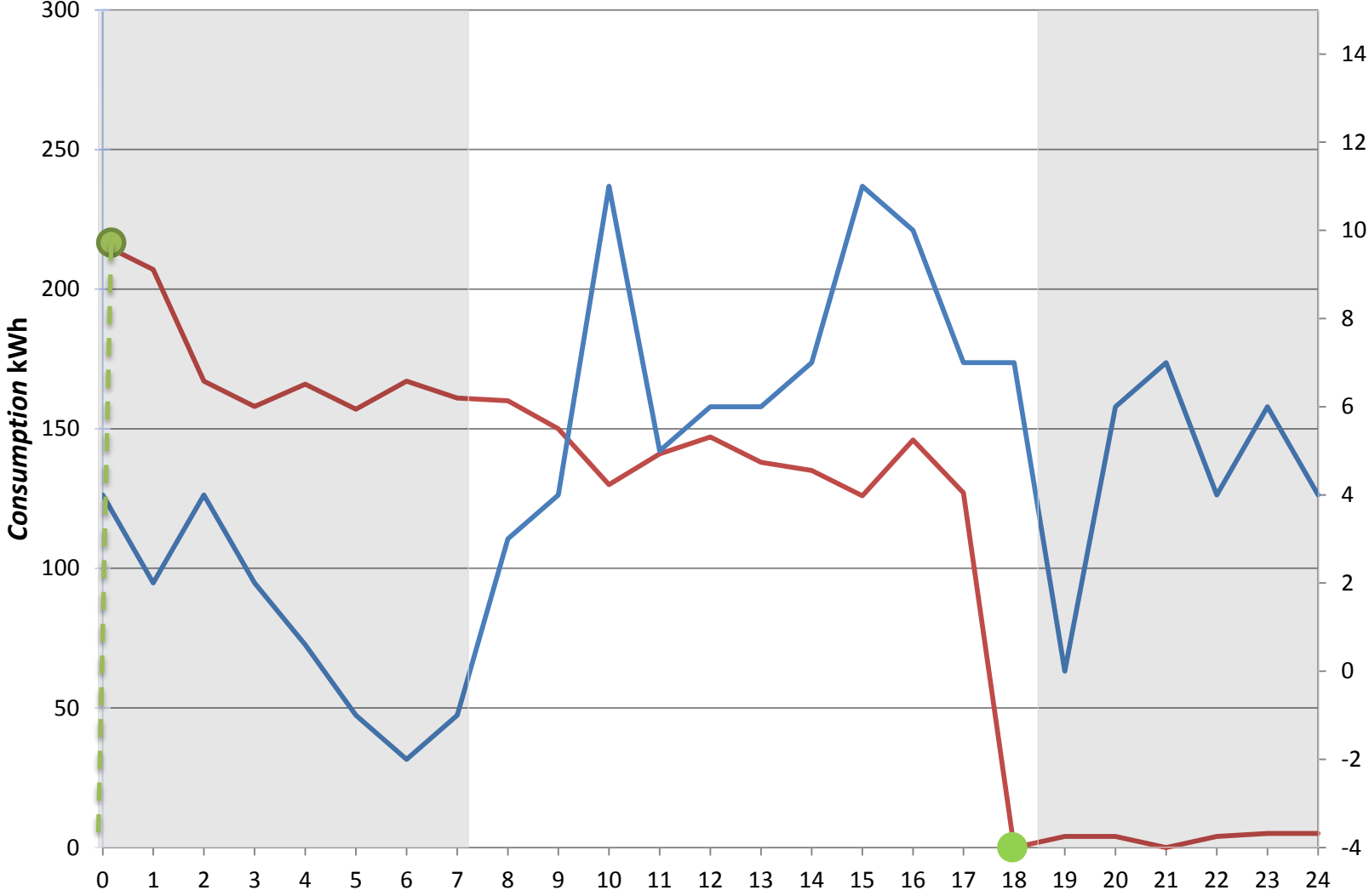
Domenica 25/01



Lunedì 26/01

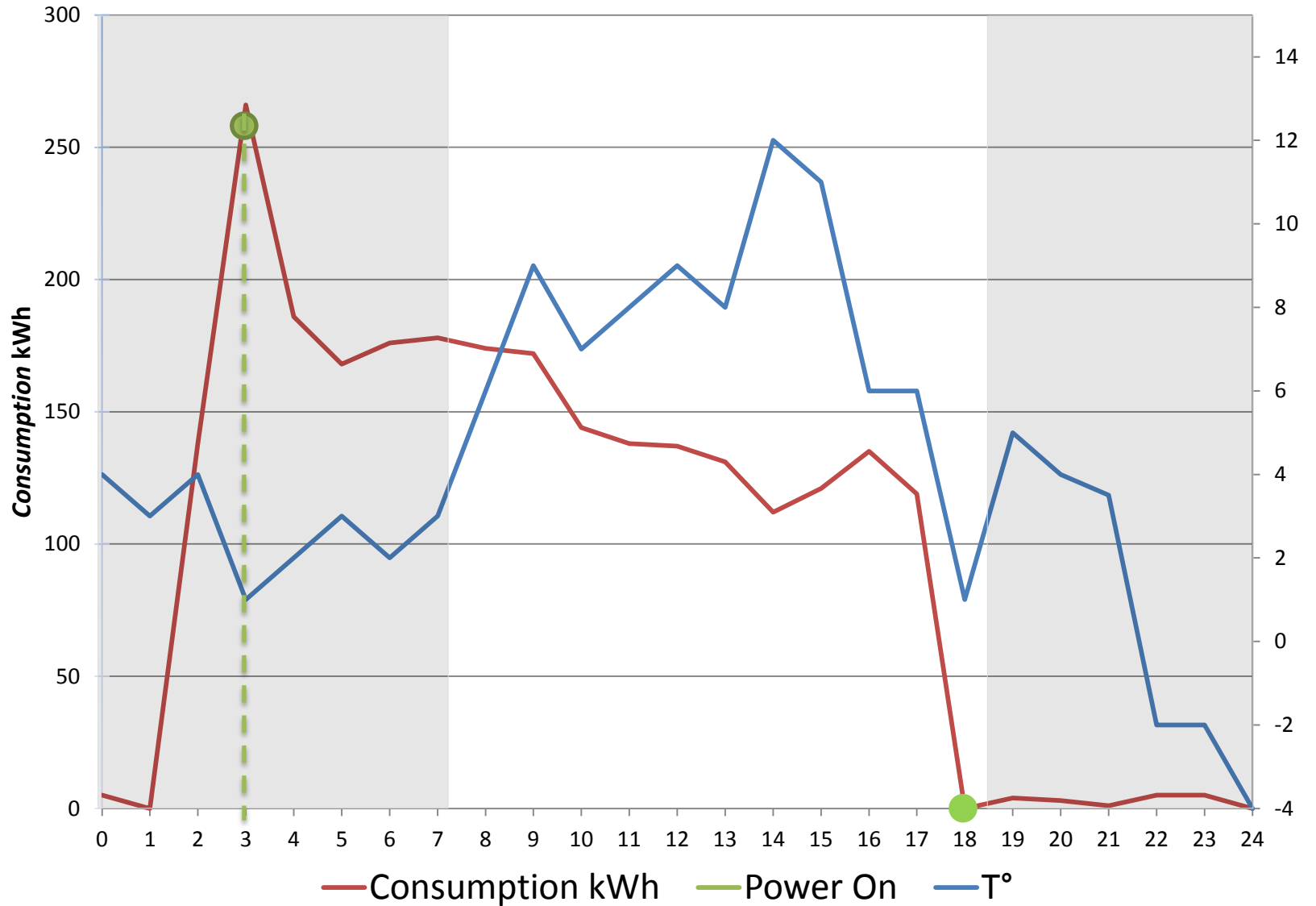


Martedì 27/01



— Consumption kWh — Power On — T°

Mercoledì 28/01



Conclusioni

- Oltre agli ingredienti (specifica di contenuto) occorre:
 - Prima di tutto ... sapere chi viene a cena (ci sono vegani ??):
 - casi d'uso reali
 - esempi di realizzazioni (best practice ... o meno)
 - Ricette (... come combino gli ingredienti ??):
 - < regole di codifica dei dati />
 - < regole di rappresentazione />
 - Strumenti di lavoro (... forno a microonde ??):
 - Tool e skill per mappare e armonizzare dati
 - Tool e servizi **interoperabili** per pubblicare i dati **armonizzati**



Grazie

piergiorgio.cipriano@sinergis.it

