

# **Demand Assessment (Existing & Modelled)**

SAMPLE (DEMAND MODELLING, GET OFF GAS) DAILY

999 MAINS GAS ST, BALLARAT VIC 3350

NMI: SAMPLE

2024-02-23

# Report: Demand Assessment (Existing & Modelled)

## How to Understand this Report

### Understanding Your Smart Meter Data

This report summarizes data from the Revenue Smart Meter used by your electricity retailer to calculate your bill.

This Smart Meter data shows electricity usage (and if applicable, Solar Export) as it has actually been recorded and does not involve any manipulation of the data to model hypothetical scenarios. As such it can be used as a baseline when considering:

- How Demand would increase or decrease if Appliances change (eg. replace Hot Water Service using an Electric Element with an Electric Heat Pump)
- How Renewable Energy (eg. Solar Power & a Battery) and Energy Efficiency measures might reduce energy bills and greenhouse gas emissions

Your Revenue Smart Meter records Mains Import on a Single Meter Register which appears on your electricity bill as: E1.

### Understanding Modelled Demand Scenarios

This Report compares your Existing Demand for Electricity on the Main/Solar Circuits \*ONLY\* (as recorded in "NEM" Data from your Revenue Smart Meter on Import Register (E1)) with Scenarios that add Additional Modelled Demand. The same collection of Tables & Charts appear in turn for each Demand Scenario, under the following headings:

- Existing Current
- Existing Current + (Modelled) Hot Water (Heat Pump)
- Existing Current + (Modelled) Heating+Cooling
- Existing Current + (Modelled) EV Charging
- Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) Heating+Cooling
- Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) EV Charging
- Existing Current + (Modelled) Heating+Cooling + (Modelled) EV Charging
- Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) Heating+Cooling + (Modelled) EV Charging

### Understanding Energy [kWh] and Power [kW]

This report refers to Energy measured in KiloWatt Hours (or "kWh"). This is the same unit of measure used on electricity bills.

A KiloWatt Hour ("kWh") is the amount of Energy converted (consumed or generated) over a Period of 1 Hour at a Rate of 1 KiloWatt ("kW"). This Rate in KiloWatts ("kW") is referred to as "Power". The more Powerful ("kW") a device is, the faster it converts Energy ("kWh").

So a 4.8 kW Electric Element in a hot water service that ran for 2 Hours would consume 4.8 KiloWatts x 2 Hours = 9.6 KiloWatt Hours ("kWh"). And a Solar Power System generating 2.0 kW for 4 Hours would yield 2 KiloWatts x 4 Hours = 8 KiloWatt Hours ("kWh"). And a fully-charged Battery with a useable capacity of 10.0 KiloWatt Hours ("kWh") could be discharged at a Rate of 4.0 KiloWatts ("kW") for 10.0 KiloWatt Hours ("kWh") / 4.0 KiloWatts = 2.5 Hours.

# Information Used to Prepare This Report

## Site Information:

- **Street Address:** 999 MAINS GAS ST, BALLARAT VIC 3350
- **Mains Connection Details:**
  - **NMI:** SAMPLE
  - **Main Meter:** SAMPLE
  - **Main Meter Register:** E1
  - **Number of Phases:** 1

## Pre-Existing Solar PV System:

- Not Applicable

## Data Sources:

- **Data Source:** NEM Format Data from your Revenue Smart Meter
- **Data Series from this Source:** E1
- **Data File Name:** SAMPLE\_POWERCOR\_VECFORMAT.csv

## Data Quality:

A Full Year of Actual Revenue Smart Meter Data is available; No Estimations have been made to fill out a Full Model Year.

## Mains Electricity Prices:

- **Electricity Retailer:** Origin
- **Tariff Plan:** Origin Basic
- **Supply Charge [\$ per Day]:** \$ 1.30
- **Mains Import (General) [\$ per kWh]:** \$ 0.33
- **Mains Import (Controlled Load) [\$ per kWh]:** \$ 0.26
- **Solar Export [\$ per kWh]:** \$ 0.05
- **Retailer Discount [% for Per kWh Portion]:** 0 %

## Acceptable Budget & Payback Period:

- **Budget:** \$ 15,000
- **Payback Period (Simple):** 10 Years

# Modelled Demand Scenarios

## (Main/Solar Meter Registers Only)

# Understanding Modelled Demand Scenarios

## How to Interpret the Following Section ...

### How Modelled Demand would Change Energy Balance on the Main/Solar Circuits Only

The following section considers only the Main/Solar Circuits attached to your Revenue Smart Meter. This is because a Mains Grid Operator or "DNSP" who own the Poles, Wires and Meters (eg. Powercor in Western Victoria) will only allow Solar and Battery Systems to be connected to those Main Circuits and not the any Dedicated Circuits for Controlled Loads (such as Hot Water, Slab Heating or Climate Saver Air-Conditioners). This site has only one Mains Import Register.

Import on the Main/Solar Circuits is recorded in "NEM" Data from your Revenue Smart Meter on Import Register E1.

Each Demand Scenario is the Sum Total of your Actual Existing Demand for Electricity on the Main/Solar Circuits on Import Register E1 plus Modelled Demand (in All Possible Combinations) as follows:

- Existing Current
- Existing Current + (Modelled) Hot Water (Heat Pump)
- Existing Current + (Modelled) Heating+Cooling
- Existing Current + (Modelled) EV Charging
- Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) Heating+Cooling
- Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) EV Charging
- Existing Current + (Modelled) Heating+Cooling + (Modelled) EV Charging
- Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) Heating+Cooling + (Modelled) EV Charging

The following Table & Chart are shown for Each Scenario:

- Demand Sources Breakdown
- Import
- Energy Balance

### On the "Demand Breakdown" Table & Chart:

The value shown for "Demand (Existing) [Total]" is the Existing Demand without the Additional of any Modelled Demand. The Sources of Modelled Demand (HW\_HP,HVAC,EV) are shown as separate values. And the Total Demand on the Main/Solar Circuits for that Scenario is the Sum of "Demand (Existing) [Total]" and the Modelled Demand for that Scenario.

### On the "Energy Balance" Table & Chart:

For each Modelled Scenario, the value shown for the "Demand [Total]" is the Sum Total of the Existing Demand for Electricity on the Main/Solar Circuits Only plus the Additional Modelled Demand. In other words, the Amount [kWh] that **would** be imported **if** the Demand was the Sum Total of your Actual Demand on the Main/Solar Circuits plus the Additional Modelled Demand .

### On the "Energy Balance" and Import Table & Chart:

For each Modelled Scenario, the value shown for the "Import (E1)" Register is the Sum Total of your Existing Import from the Mains Grid on the Main/Solar Circuits plus the Additional Modelled Demand. . In other words, the Amount [kWh] that **would** be imported **if** the Demand was the Sum Total of your Actual Demand for Electricity on the Main/Solar Circuits plus the Additional Modelled Demand.

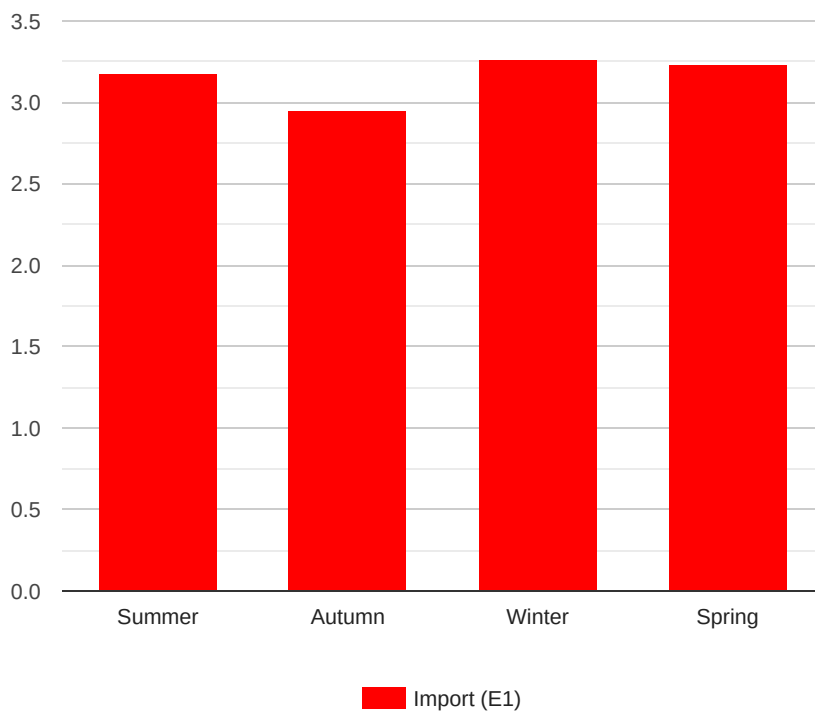
## **Demand Scenario:**

# **Existing Current**

**Demand Scenario: Existing Current**

# Demand (Existing) [kWh]

## Average per Day per Season



	<b>Import (E1)</b>
<b>Summer</b>	3.18
<b>Autumn</b>	2.95
<b>Winter</b>	3.27
<b>Spring</b>	3.24

## **Demand Scenario:**

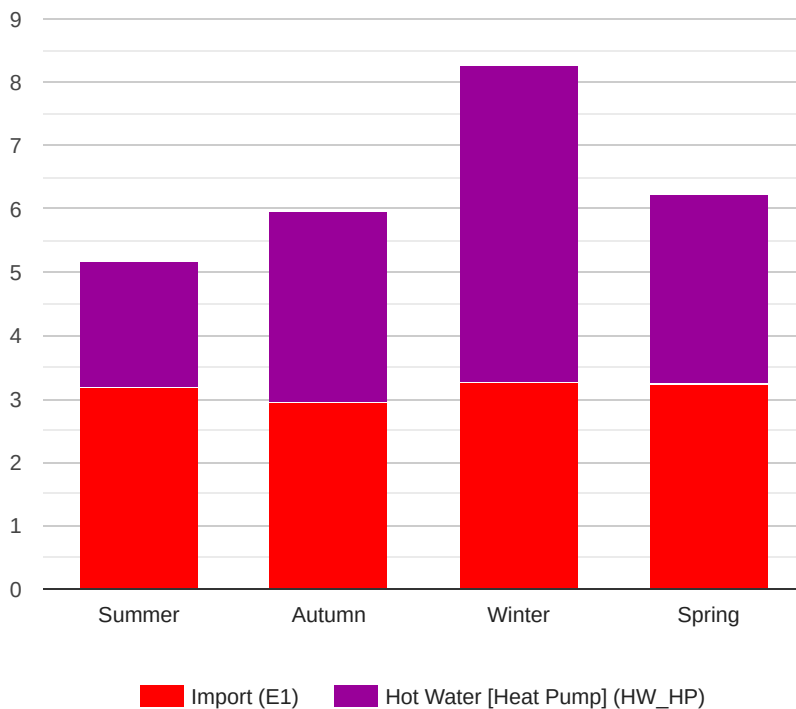
# **Existing Current + (Modelled) Hot Water (Heat Pump)**



**Demand Scenario: Existing Current + (Modelled) Hot Water (Heat Pump)**

# Demand (Existing & Modelled HW\_HP) [kWh]

## Average per Day per Season



	Import (E1)	Hot Water [Heat Pump] (HW_HP)
<b>Summer</b>	3.18	2.00
<b>Autumn</b>	2.95	3.00
<b>Winter</b>	3.27	5.00
<b>Spring</b>	3.24	3.00

This Document presents a Summary of Data that might be useful for making a Purchasing Decision. But it is Not Sufficient by itself and needs to be interpreted by a Solar Industry Professional or Energy Assessor. Prepared by Central Highlands Energy Assessments (E: [enquiries@centralhighlandsenergyassessments.com.au](mailto:enquiries@centralhighlandsenergyassessments.com.au) W: [www.centralhighlandsenergyassessments.com.au](http://www.centralhighlandsenergyassessments.com.au))

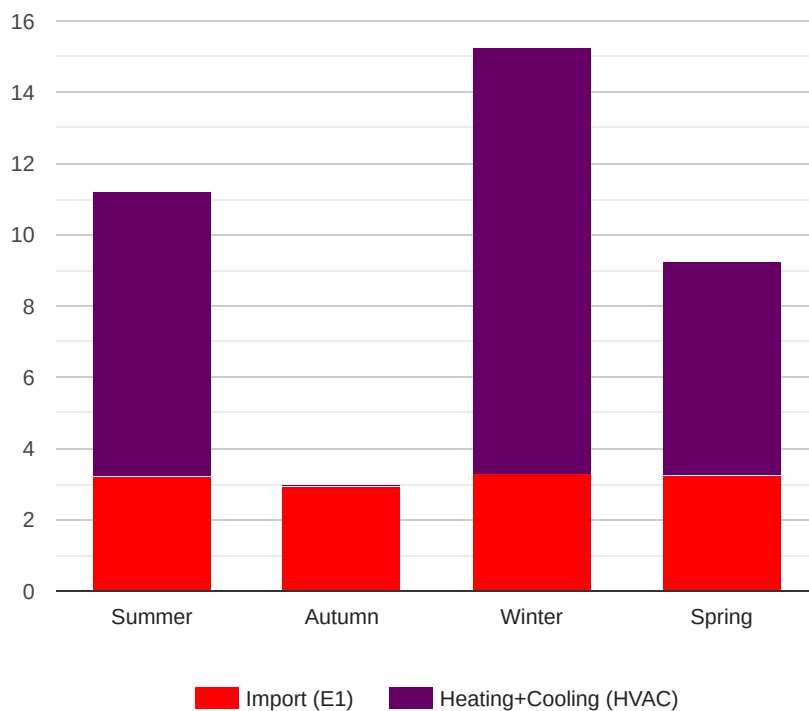
## **Demand Scenario:**

# **Existing Current + (Modelled) Heating+Cooling**

**Demand Scenario: Existing Current + (Modelled) Heating+Cooling**

# Demand (Existing & Modelled HVAC) [kWh]

Average per Day per Season



	Import (E1)	Heating+Cooling (HVAC)
<b>Summer</b>	3.18	8.00
<b>Autumn</b>	2.95	0.00
<b>Winter</b>	3.27	12.00
<b>Spring</b>	3.24	6.00

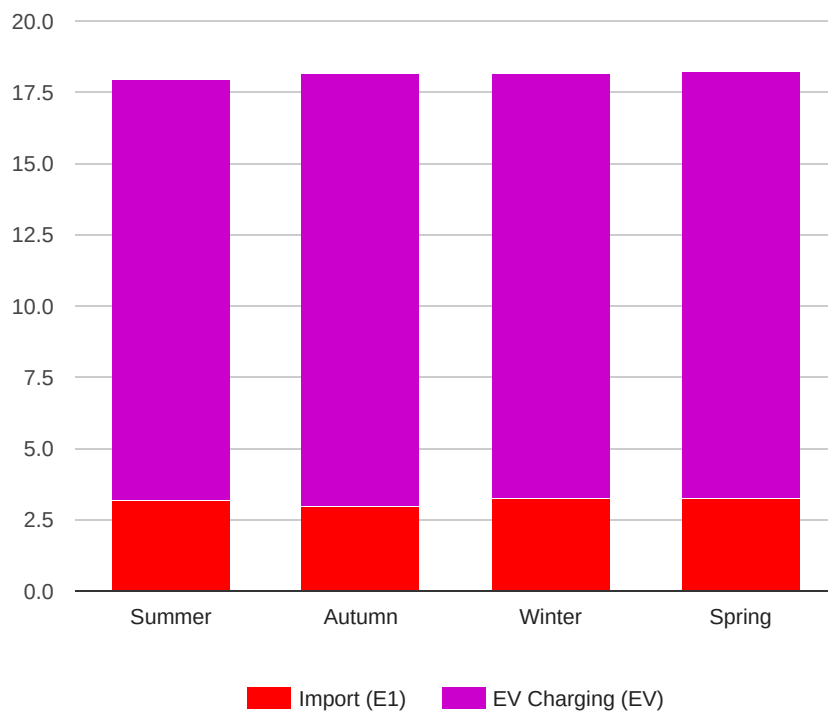
**Demand Scenario:**

**Existing Current + (Modelled) EV Charging**

**Demand Scenario: Existing Current + (Modelled) EV Charging**

# Demand (Existing & Modelled EV) [kWh]

## Average per Day per Season



	Import (E1)	EV Charging (EV)
<b>Summer</b>	3.18	14.78
<b>Autumn</b>	2.95	15.22
<b>Winter</b>	3.27	14.91
<b>Spring</b>	3.24	15.00

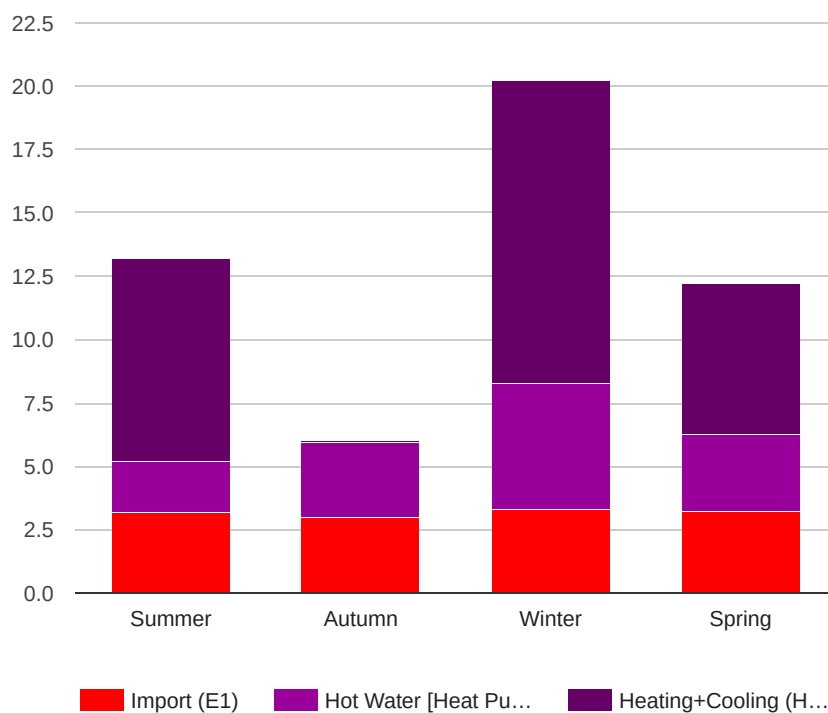
## **Demand Scenario:**

# **Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) Heating+Cooling**

**Demand Scenario: Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) Heating+Cooling**

## Demand (Existing & Modelled HW\_HP+HVAC) [kWh]

Average per Day per Season



	Import (E1)	Hot Water [Heat Pump] (HW_HP)	Heating+Cooling (HVAC)
<b>Summer</b>	3.18	2.00	8.00
<b>Autumn</b>	2.95	3.00	0.00
<b>Winter</b>	3.27	5.00	12.00
<b>Spring</b>	3.24	3.00	6.00

## **Demand Scenario:**

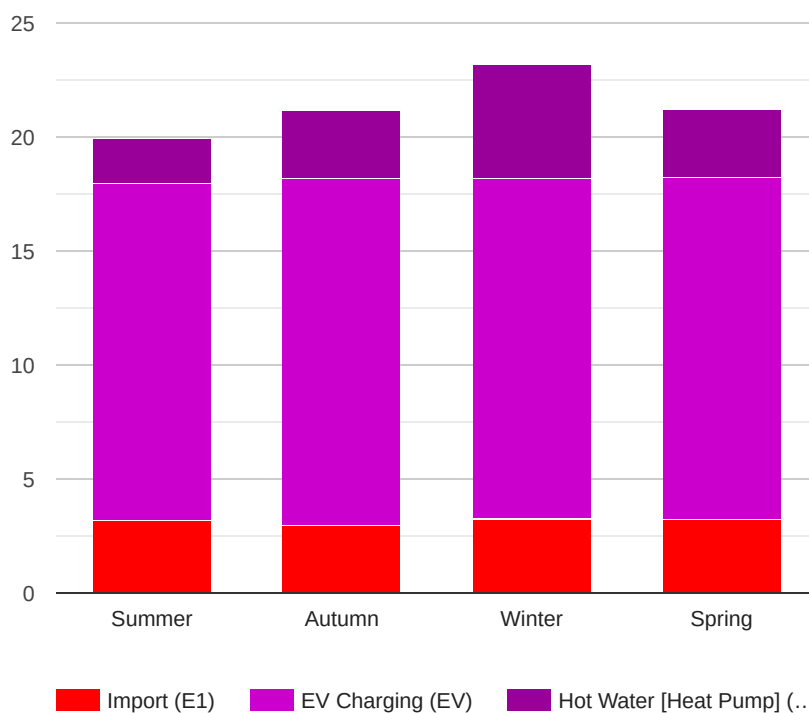
# **Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) EV Charging**



**Demand Scenario: Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) EV Charging**

## Demand (Existing & Modelled HW\_HP+EV) [kWh]

Average per Day per Season



	Import (E1)	EV Charging (EV)	Hot Water [Heat Pump] (HW_HP)
<b>Summer</b>	3.18	14.78	2.00
<b>Autumn</b>	2.95	15.22	3.00
<b>Winter</b>	3.27	14.91	5.00
<b>Spring</b>	3.24	15.00	3.00

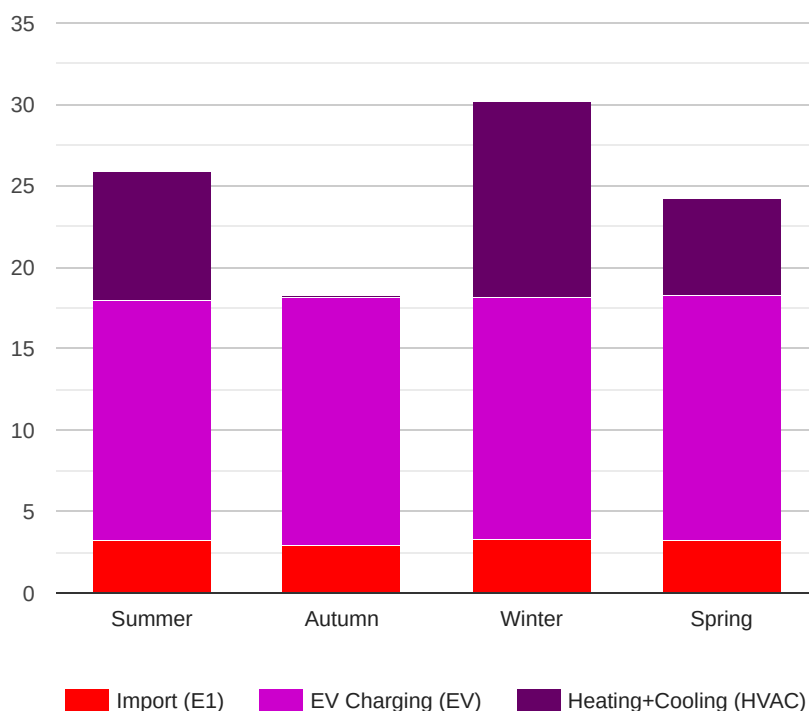
**Demand Scenario:**

**Existing Current + (Modelled) Heating+Cooling + (Modelled)  
EV Charging**

**Demand Scenario: Existing Current + (Modelled) Heating+Cooling + (Modelled) EV Charging**

## Demand (Existing & Modelled HVAC+EV) [kWh]

Average per Day per Season



	Import (E1)	EV Charging (EV)	Heating+Cooling (HVAC)
<b>Summer</b>	3.18	14.78	8.00
<b>Autumn</b>	2.95	15.22	0.00
<b>Winter</b>	3.27	14.91	12.00
<b>Spring</b>	3.24	15.00	6.00

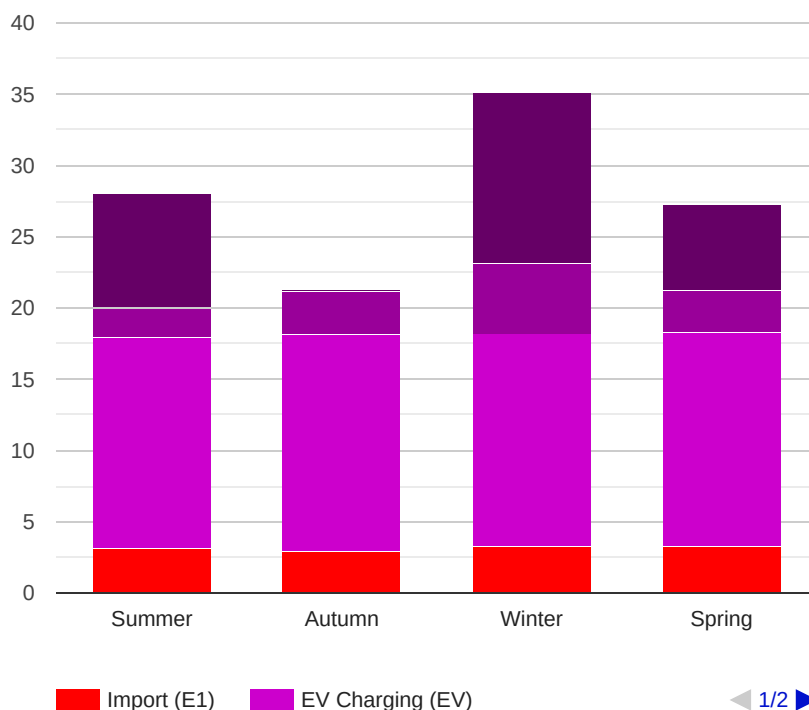
## **Demand Scenario:**

# **Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) Heating+Cooling + (Modelled) EV Charging**

**Demand Scenario: Existing Current + (Modelled) Hot Water (Heat Pump) + (Modelled) Heating+Cooling + (Modelled) EV Charging**

# Demand (Existing & Modelled HW\_HP+HVAC+EV) [kWh]

## Average per Day per Season



	Import (E1)	EV Charging (EV)	Hot Water [Heat Pump] (HW_HP)	Heating+Cooling (HVAC)
<b>Summer</b>	3.18	14.78	2.00	8.00
<b>Autumn</b>	2.95	15.22	3.00	0.00
<b>Winter</b>	3.27	14.91	5.00	12.00
<b>Spring</b>	3.24	15.00	3.00	6.00