

Dwelling Energy Insights

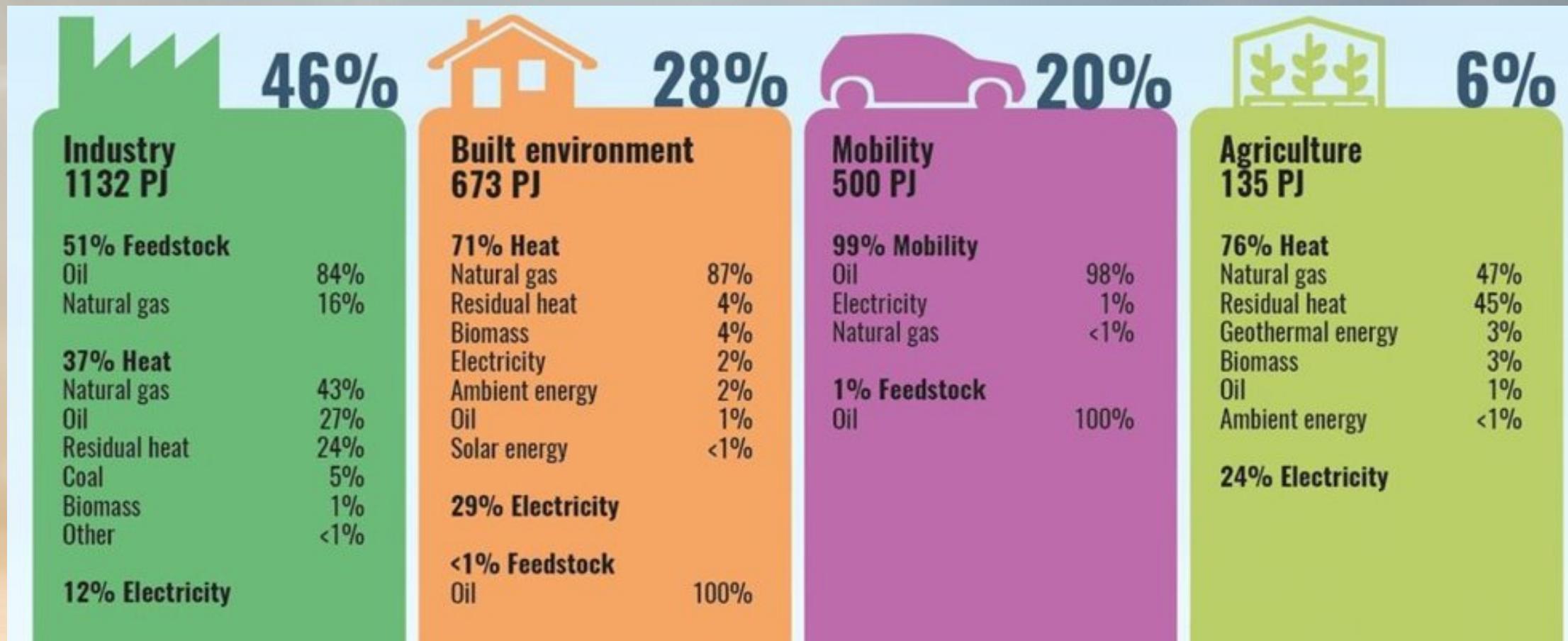
Team members: Merel Kreszner, Olivier van Luijk, Rajeev Kalloe,
Santiago Puertas Puchol, Emilio Caba Batuecas & Teo Čurčić

Project Owner: Dr. ir. T.B. Salcedo Rahola

Table of Contents

- Project information
- Performed steps so far
 - First visualizations using the original data
 - Data cleaning process
 - Data Analysis
 - Implementing models
- Looking forward

Project information: National energy usage



Project information: Dataset

ID-nummer	1	2	3	4	5
concept	E	E	WP	WP	WP
PV-aantal	17	14	9	11	12
personen	4	2	4	1	4
Datum-tijd tot	Consumptie kWh				
11-07-2017 00:15	0.038	0.039	0.044	0.024	
11-07-2017 00:30	0.018	0.027	0.034	0.024	
11-07-2017 00:45	0.028	0.014	0.026	0.018	
11-07-2017 01:00	0.026	0.014	0.474	0.021	
11-07-2017 01:15	0.018	0.014	0.084	0.117	
11-07-2017 01:30	0.25	0.023	0.266	0.233	
11-07-2017 01:45	0.109	0.038	0.284	0.26	
11-07-2017 02:00	0.018	0.028	0.23	0.269	
11-07-2017 02:15	0.033	0.014	0.031	0.289	
11-07-2017 02:30	0.02	0.036	0.038	0.31	
11-07-2017 02:45	0.018	0.186	0.032	0.335	
11-07-2017 03:00	0.035	0.022	0.022	0.365	

First visualizations: Production/Consumption

Total Production

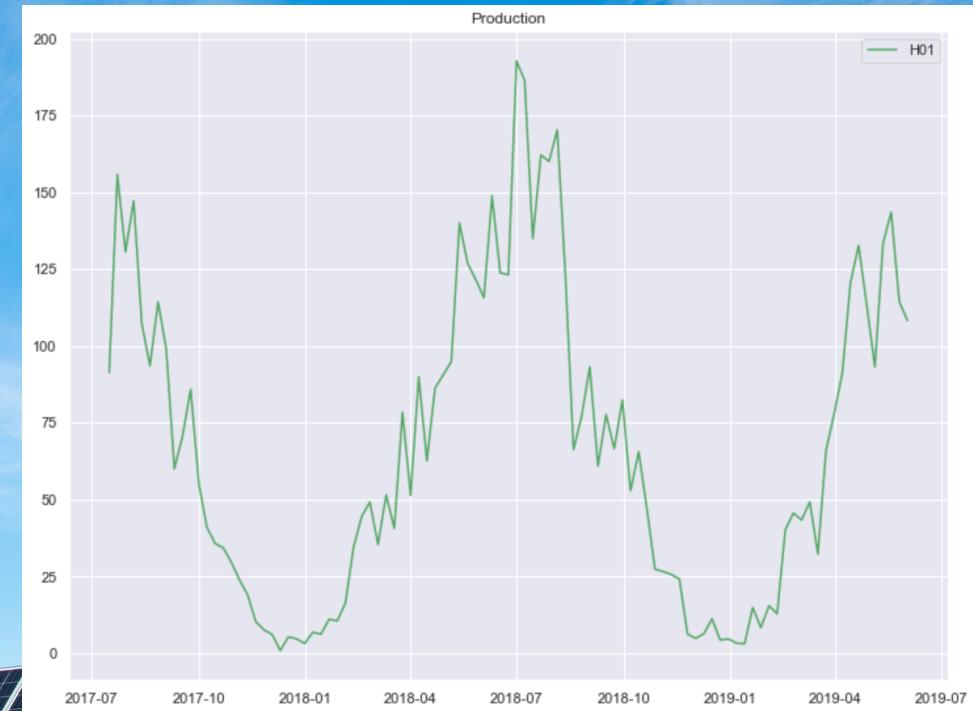
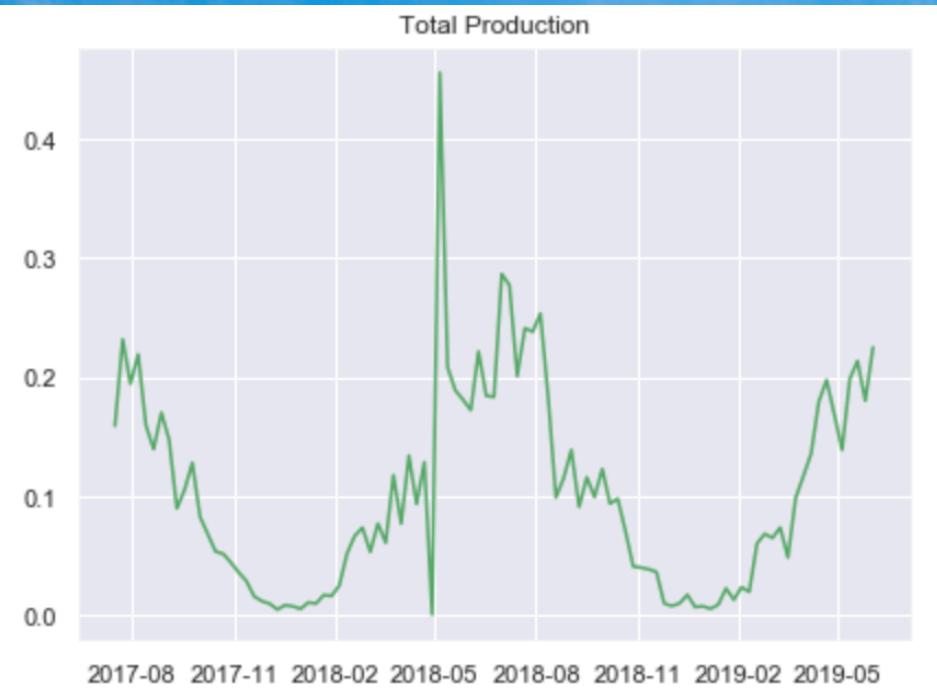


Total Consumption

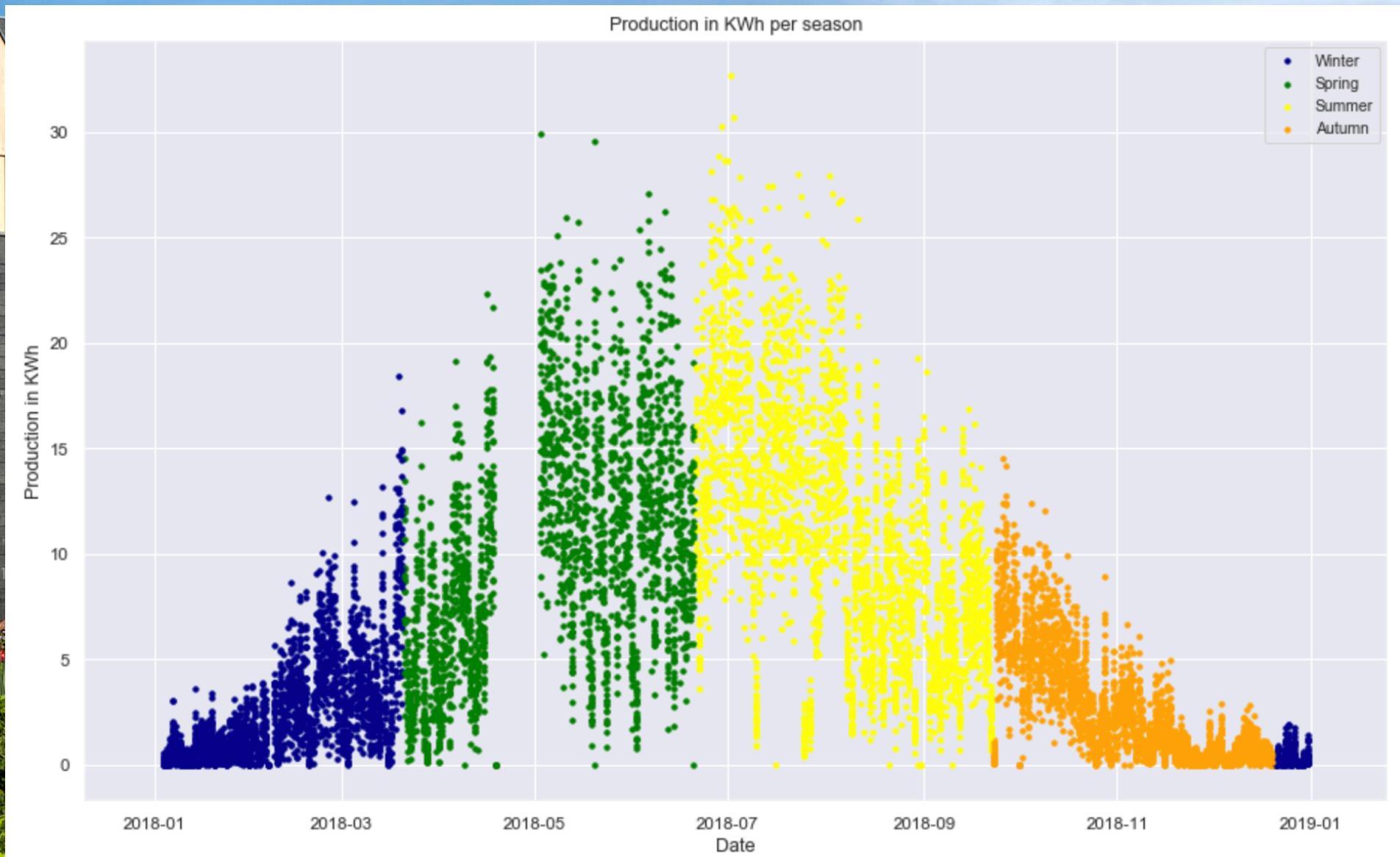


Data cleaning process

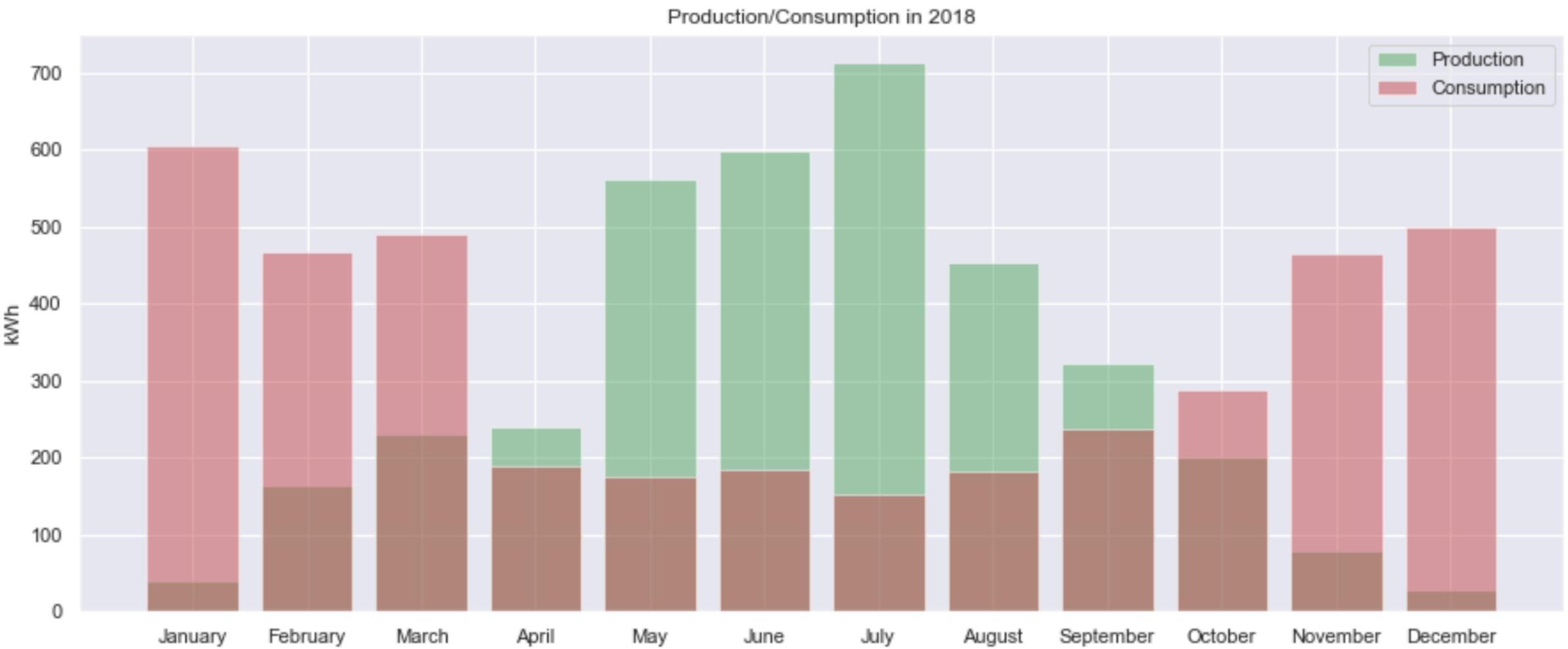
- Deleting rows with blank spaces.
- Deleting outliers.



Cleaned Data: Production

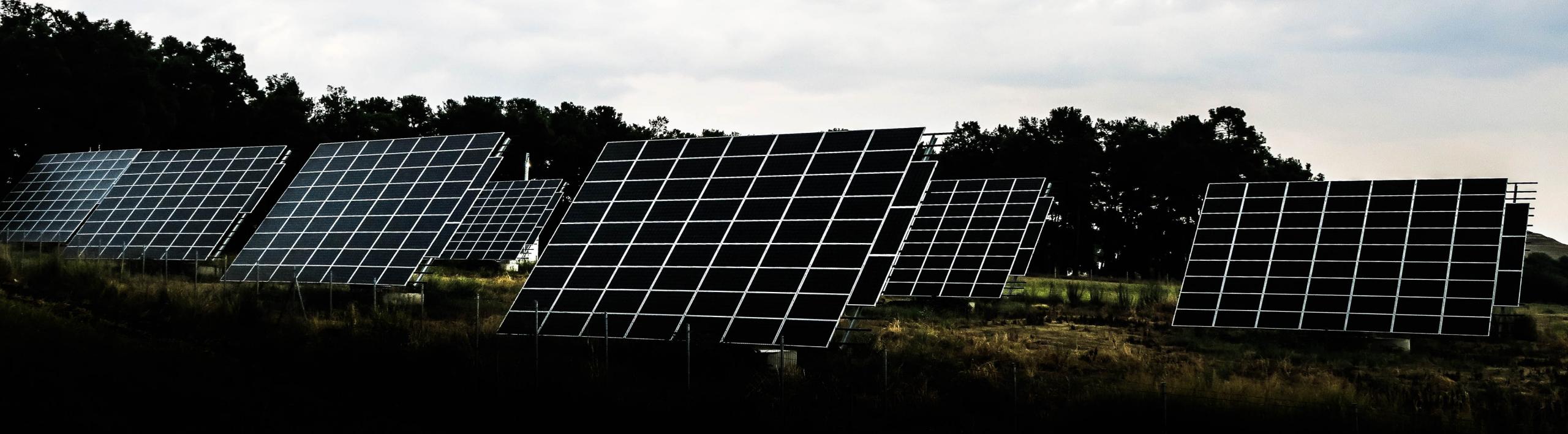


House 1 Production and Consumption



Data Analysis

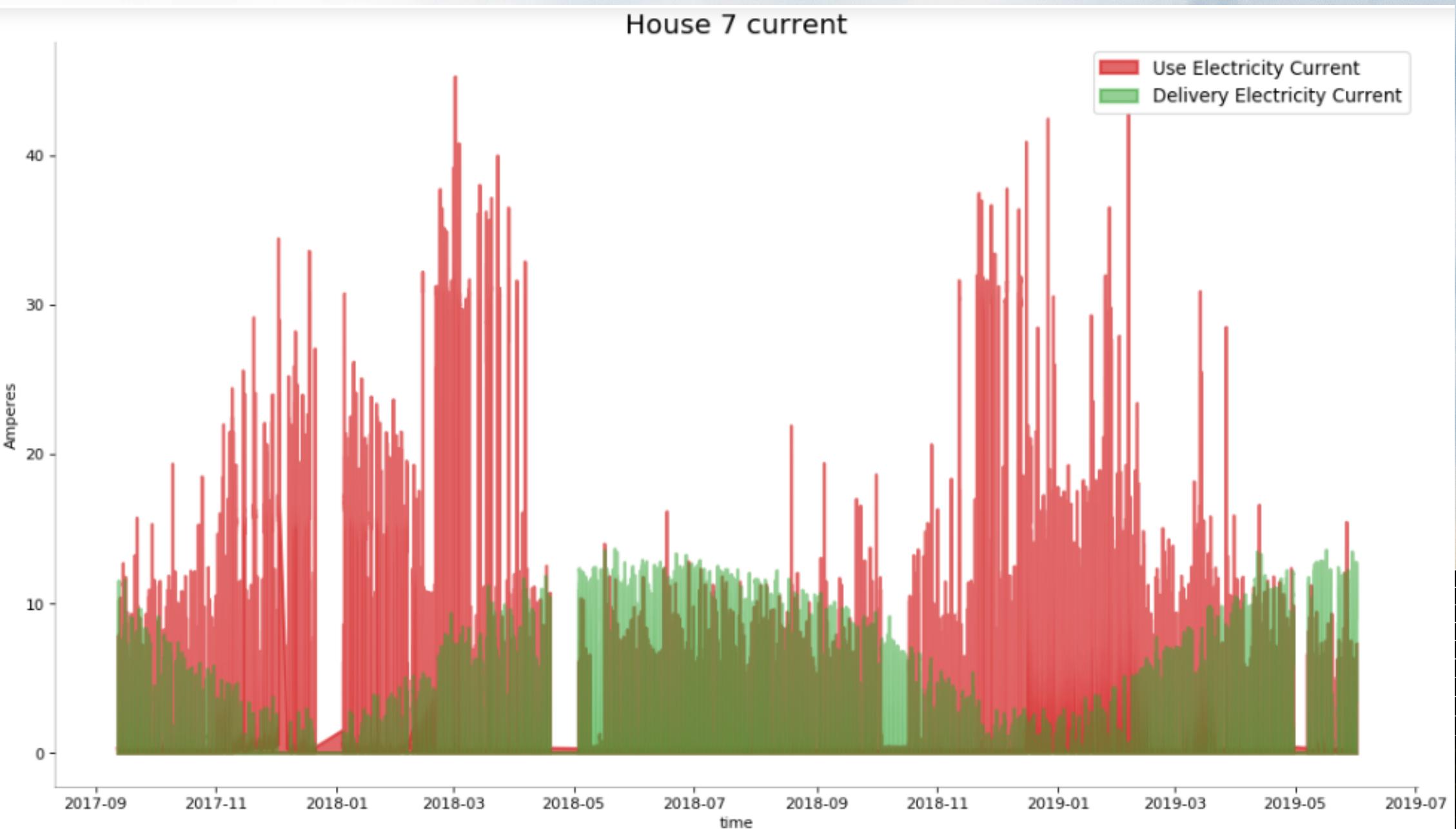
- What is the maximum usage/production per day per household?
- What is the maximum amount of Ampere that a household delivers?



Data Analysis - Results

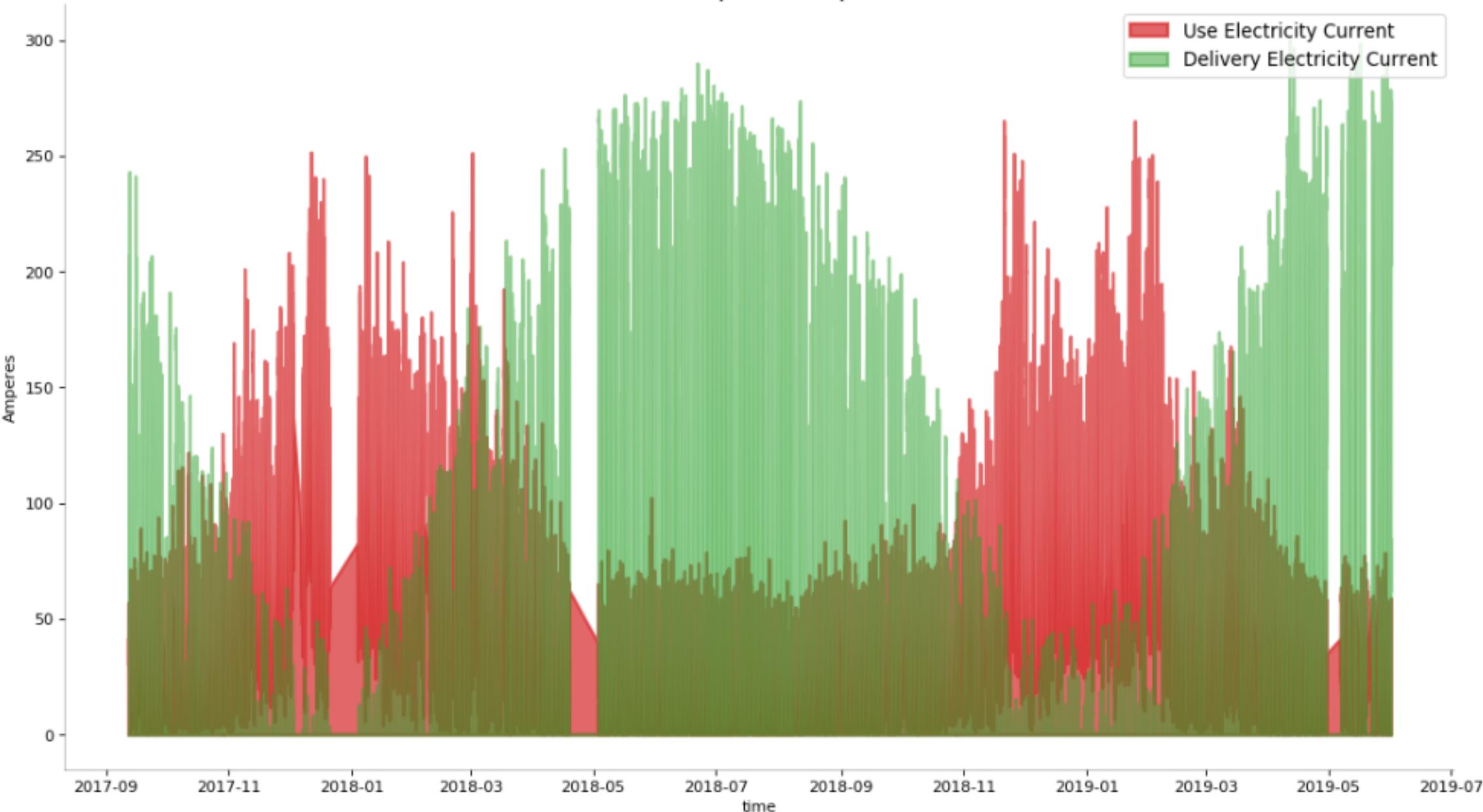
	max_prod_date	max_prod	max_cons_date	max_cons	max_prod_ampères_date	max_prod_ampères	max_cons_ampères_date	max_cons_ampères
H01	2018-07-02	32.651	2018-03-01	59.567	2018-07-02 13:45:00	15.843478	2017-12-11 18:00:00	36.243478
H02	2018-06-26	22.968	2017-12-31	61.718	2019-05-05 13:30:00	13.443478	2018-02-17 09:30:00	33.130435
H03	2018-07-05	15.145	2018-03-03	25.126	2019-05-12 13:15:00	8.800000	2017-10-03 18:15:00	24.086957
H04	2018-06-26	20.181	2017-12-29	21.525	2018-06-21 14:00:00	11.130435	2019-01-20 21:45:00	17.495652
H05	2018-06-13	19.169	2019-01-21	19.637	2018-06-21 14:00:00	12.139130	2018-10-20 18:15:00	23.286957
H06	2019-05-14	22.617	2018-01-13	40.147	2019-05-12 13:15:00	13.391304	2017-12-13 18:30:00	33.286957
H07	2018-06-26	24.840	2018-03-01	75.839	2018-05-21 13:45:00	13.686957	2018-03-01 19:45:00	45.321739
H08	2018-06-26	14.688	2017-12-31	66.913	2018-06-21 14:00:00	8.121739	2017-11-25 08:15:00	38.121739
H09	2018-07-03	26.461	2017-12-29	60.675	2017-10-12 12:30:00	17.286957	2018-02-24 17:30:00	37.165217
H10	2019-05-24	22.049	2018-12-15	93.523	2019-04-13 13:00:00	12.852174	2019-03-16 07:15:00	43.686957

Data Analysis - Results



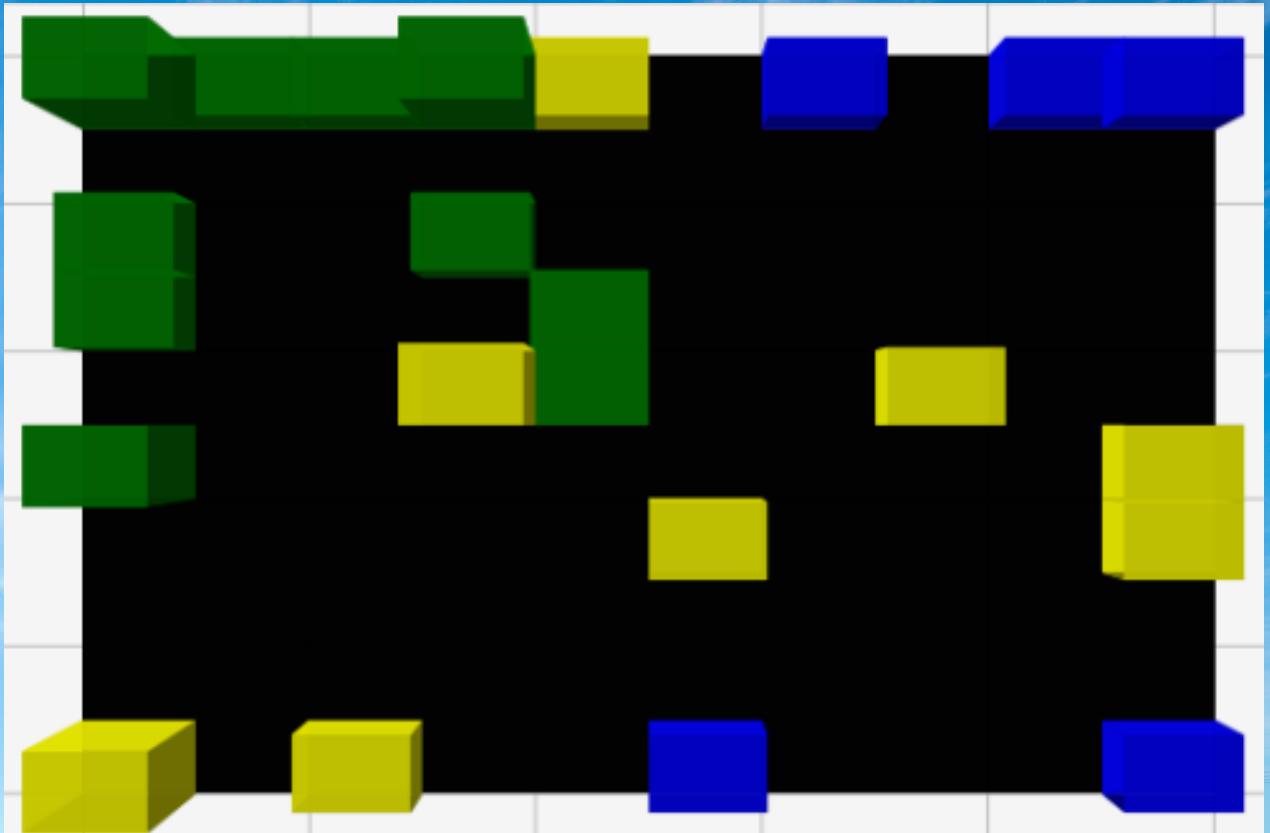
Data Analysis - Results

Total consumption vs production



What kind of groups can we produce based on the dwelling characteristics?

Heating System Type								
11	17	15	3	4	23	19	22	25
								20
27			33					
24				31				
		6	13	26		7		
16	18					9		
				1			29	
8	21		2		32			28



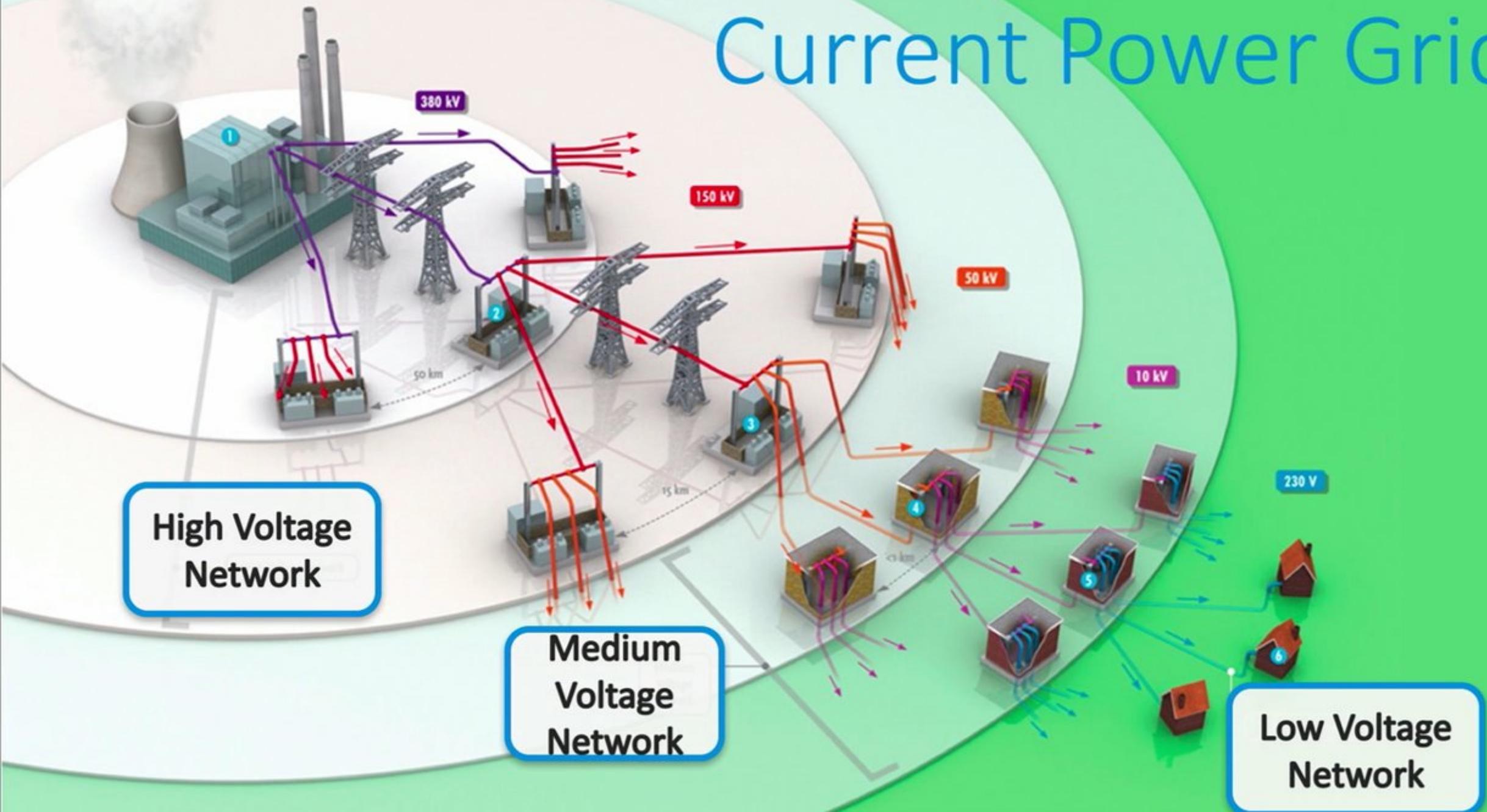
Looking forward

- Improving our models.
- Comparing all the models with each other.
- Look for consumption behaviour patterns.

Questions/Feedback

- Are there any questions or feedback based on this presentation?

Current Power Grid



Future Power Grid

