Dwelling Energy Insights

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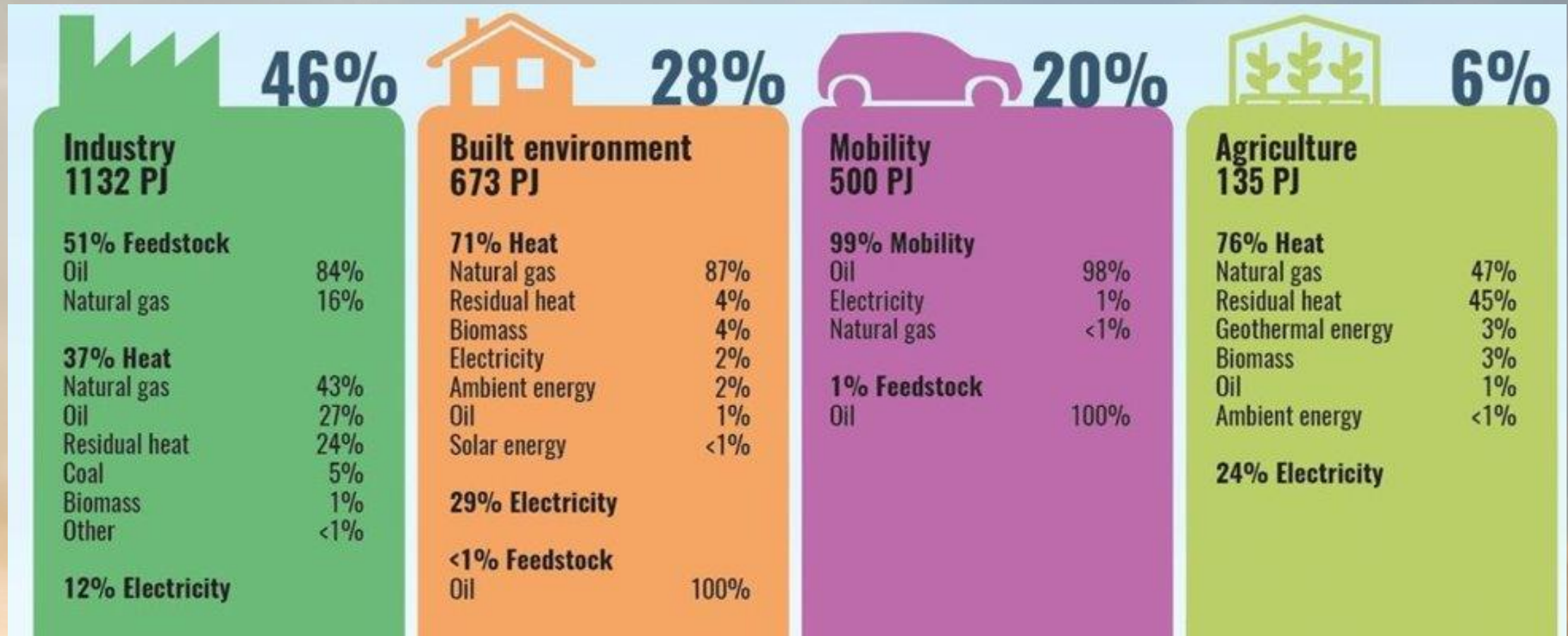
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Project information: National energy usage

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	Consumptie kWh	Consumptie kWh	Consumptie kWh	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

Data cleaning process

- Deleting rows with blank spaces.
- Deleting outliers.
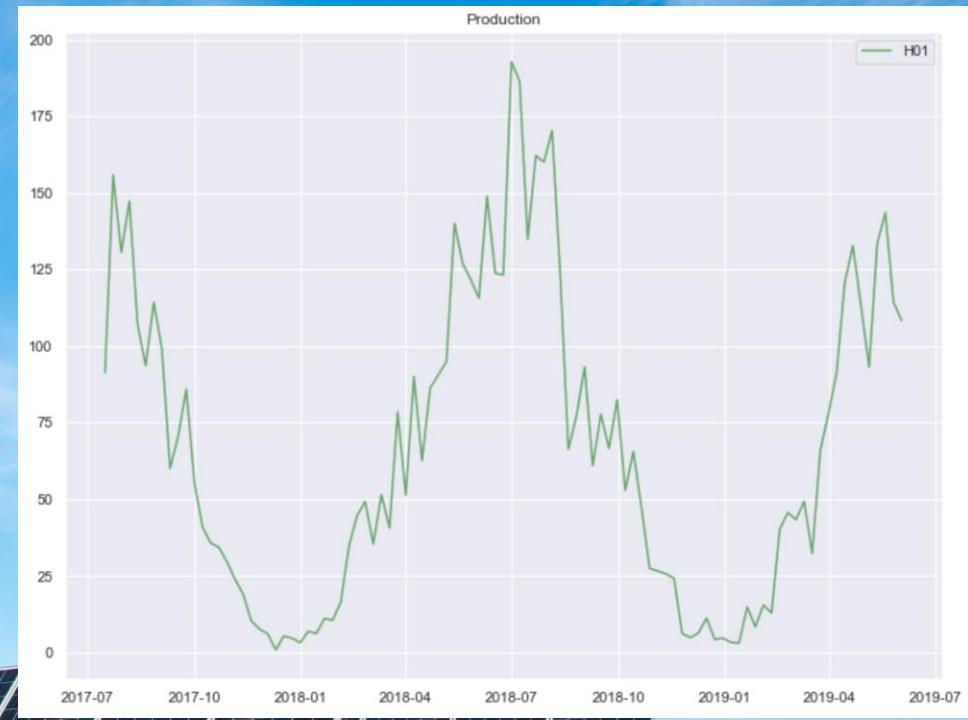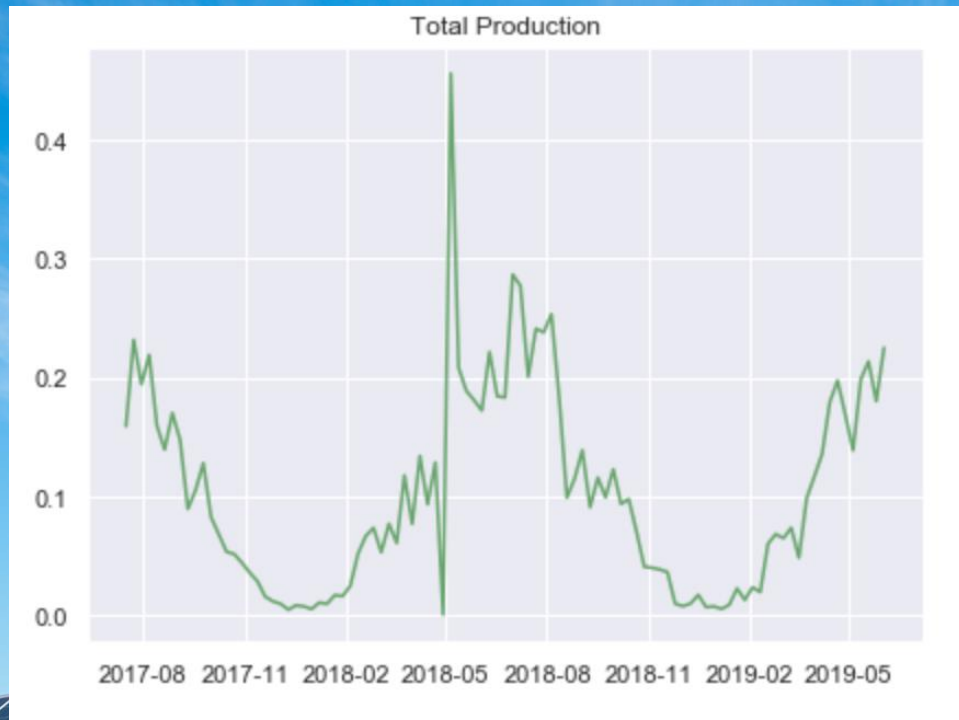
Cleaned Data: Production

Production in KWh per season

House 1 Production and Consumption

Production/Consumption in 2018
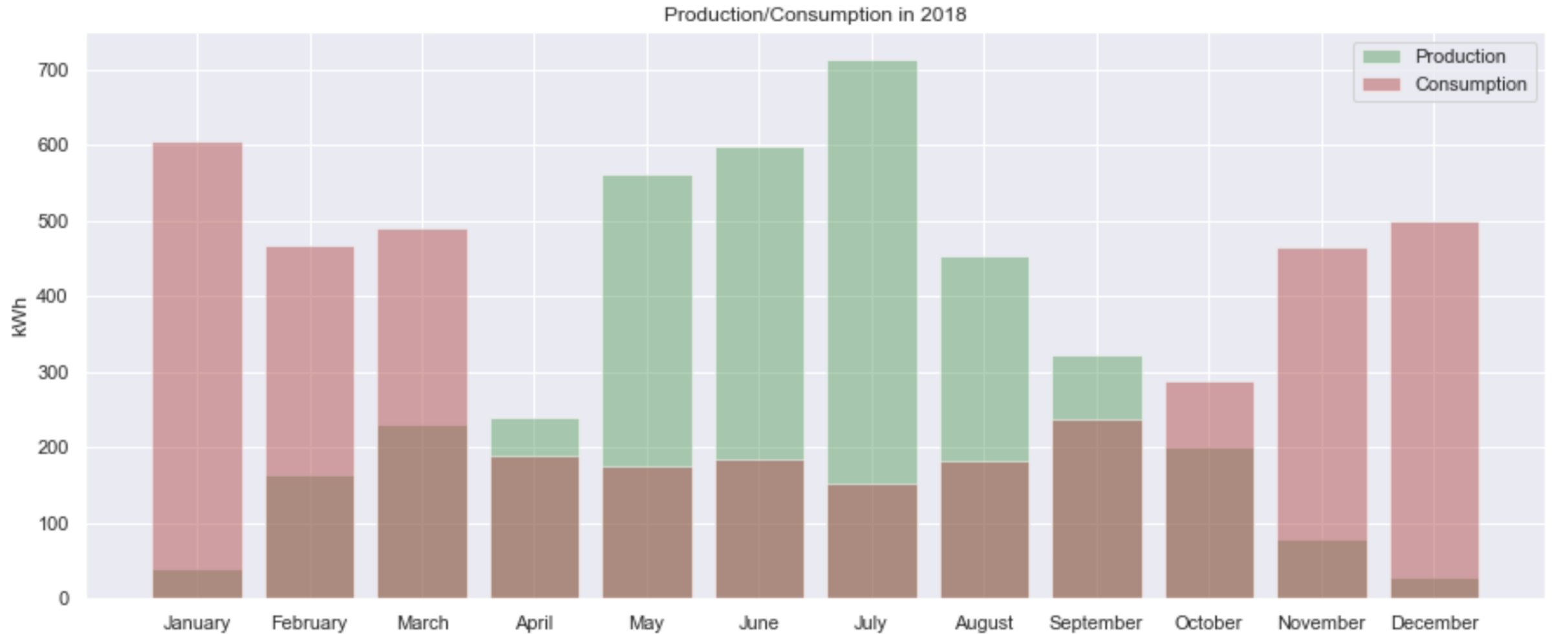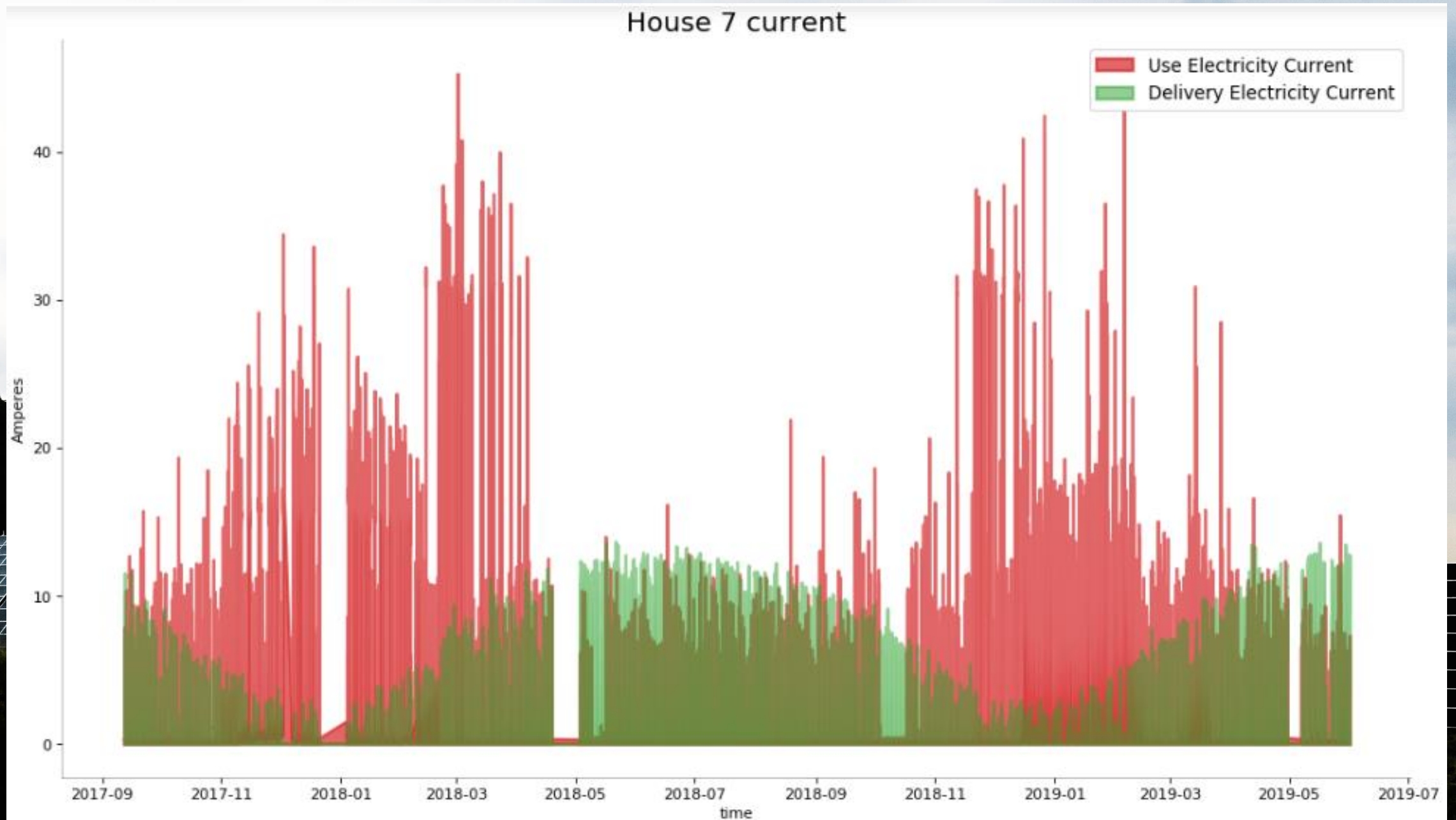
Data Analysis

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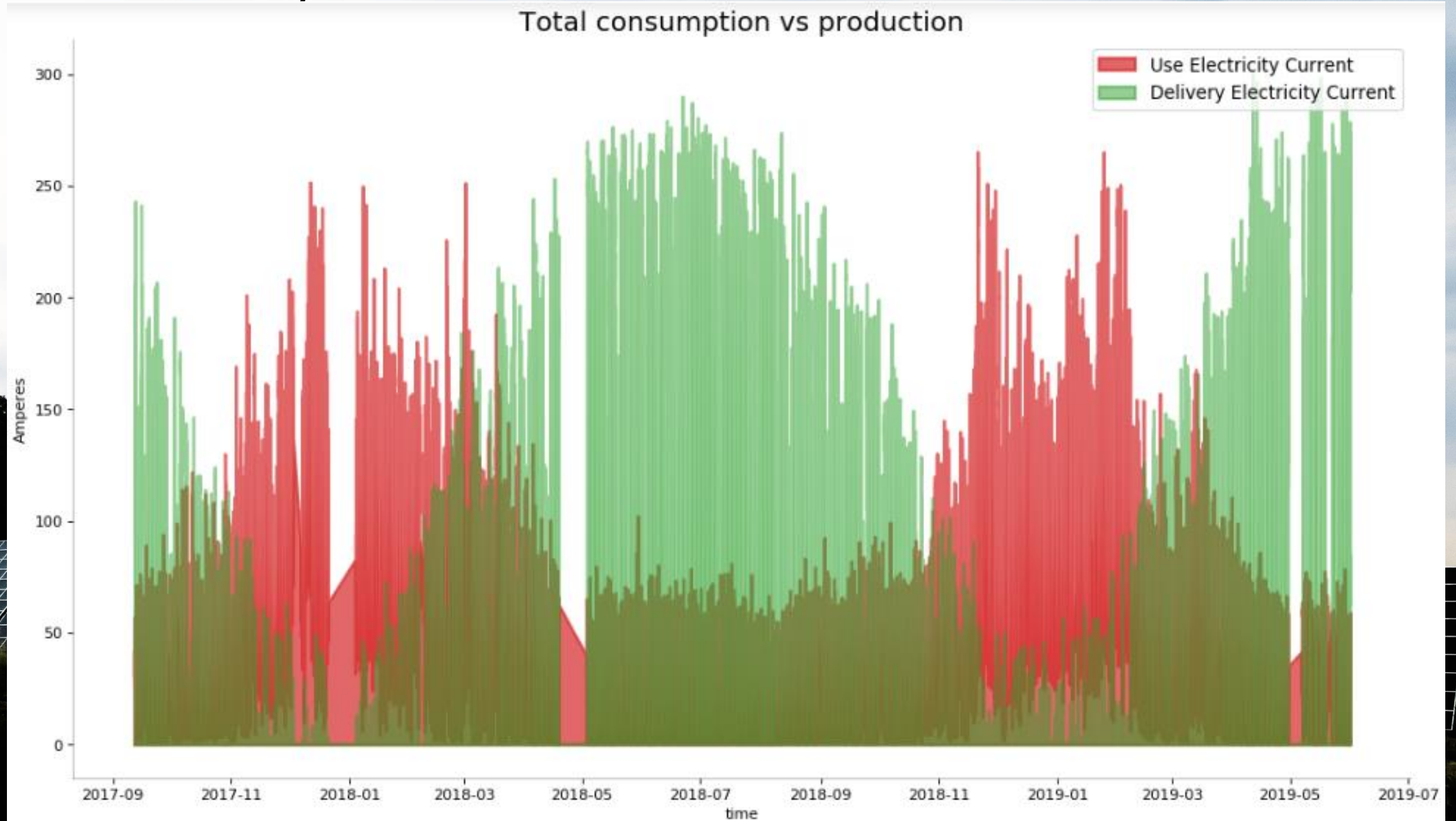- What is the maximum amount of Ampere that a household delivers?

Data Analysis - Results

	max_prod_date	max_prod	max_cons_date	max_cons	max_prod_amperes_date	max_prod_amperes	max_cons_amperes_date	max_cons_amperes
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

House 7 current

Data Analysis - Results

Total consumption vs production

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

Looking forward

- Improving our models.

- Comparing all the models with each other.

- Look for consumption behaviour patterns.

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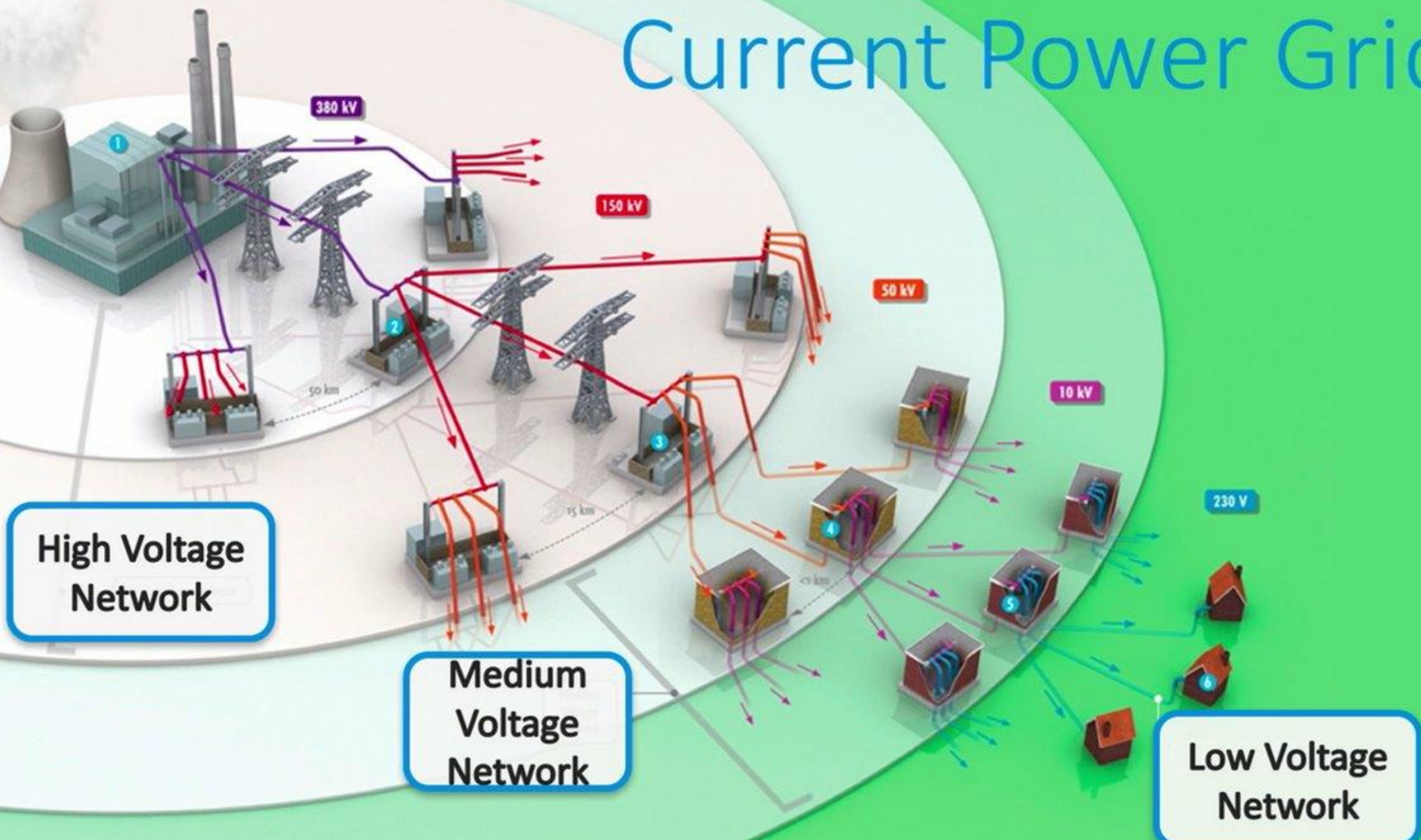
- Are there any questions or feedback based on this presentation?

Current Power Grid

High Voltage Network

Medium Voltage Network

Low Voltage Network

380 kV

150 kV

50 kV

10 kV

230 V

50 km

15 km

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Future Power Grid

Medium Voltage Network

Generation Units

High Voltage Network

Intelligent nodes

Local Storage

Low Voltage Network

380 kV

150 kV

50 kV

10 kV

230 V

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