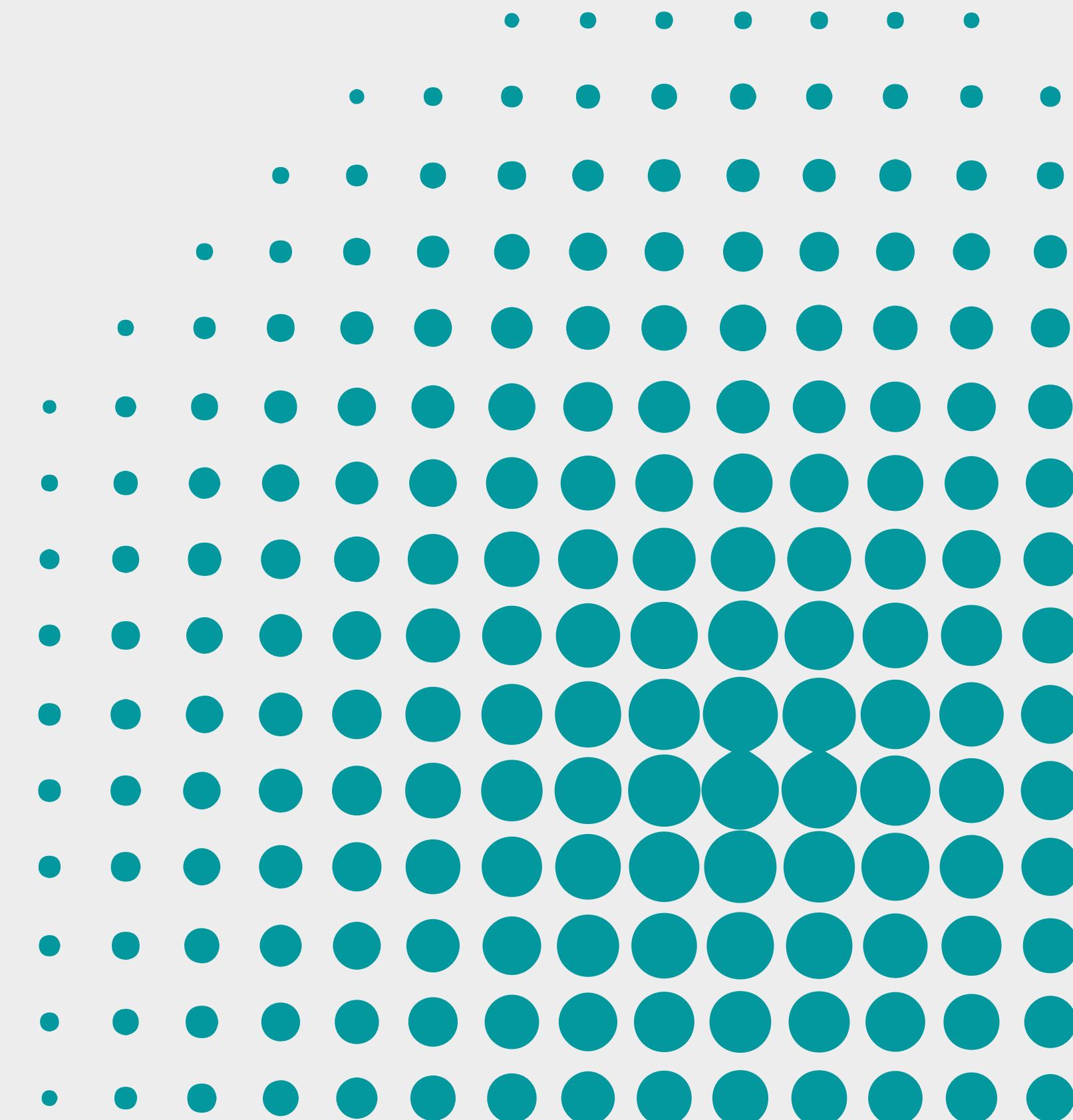


Projecting the Sustainability of Renewable Energy Sources

CLIENT:
Ministry of Energy, Tourism and Digital Agenda, MINETAD.

The Government of Spain (Gobierno de España).



About Us



MISSION STATEMENT

To effect change using the radical transformative VALUE, the heat of objective, problem oriented, well structured, articulated DATA creates.

VISION STATEMENT

Established in the early 2010s, Our vision is becoming Africas' Data Consulting Agency of choice by 2030, and GLOBAL leaders by 2040.

Meet the Team



Lydia K.
Data Architect

Puzzles,
Movies,



MacDonald D.
Data Engineer

Music,
Learning



Oludare A.
ML Engineer

Gaming,
Chess,
Guitar



Segun L.
Data Translator

Reading



Tosin A.
Data Scientist

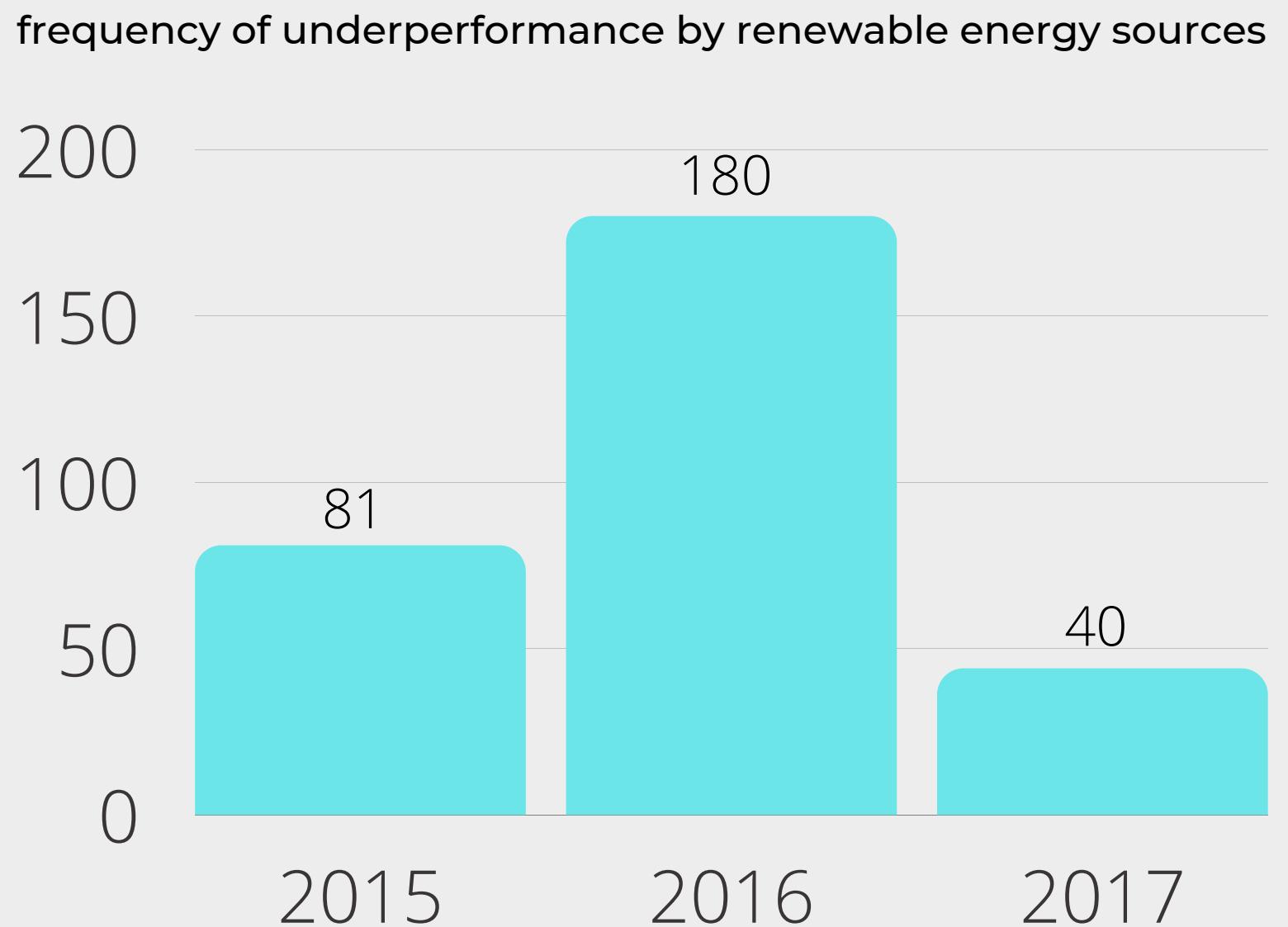
Movie buff,
versatile in
design

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Problem Statement

Energy generated by renewable energy sources in Spain must significantly increase to match and ultimately exceed output by non-renewable energy sources; measurable by observing load shortfall over time.



Deep Dive: Problem Statement

Renewable Energy

Wind, Hydro, Solar Photovoltaic,
renewable waste, etc.

Non-Renewable Energy

Combined cycle, Fuel/Gas, Coal,
Nuclear, Pumped Storage

Load Shortfall

Difference between Renewable
Energy & Non-Renewable Energy

Approach

Deep Dive: Data

Deep Dive: Response Variable

Deep Dive: Model



Deep dive: Data

Source

Ministry of Energy, Tourism
and Digital Agenda,
MINETAD.

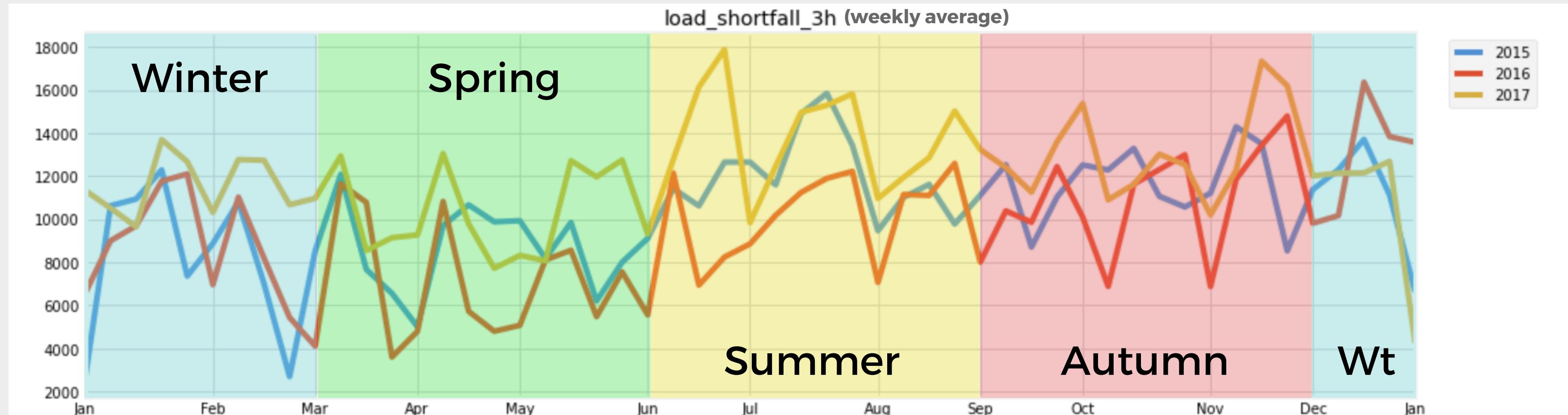
The Government of Spain.
(Gobierne de Espana)

Period: Jan 2015 to Dec 2017

Content

- Cities
 - Barcelona
 - Bilbao
 - Madrid
 - Sevilla
 - Valencia
- Features
 - Rainfall
 - Humidity
 - Wind
 - Cloud all
 - Snow
 - Weather
 - Temperature
 - Pressure

Deep dive: Response Variable

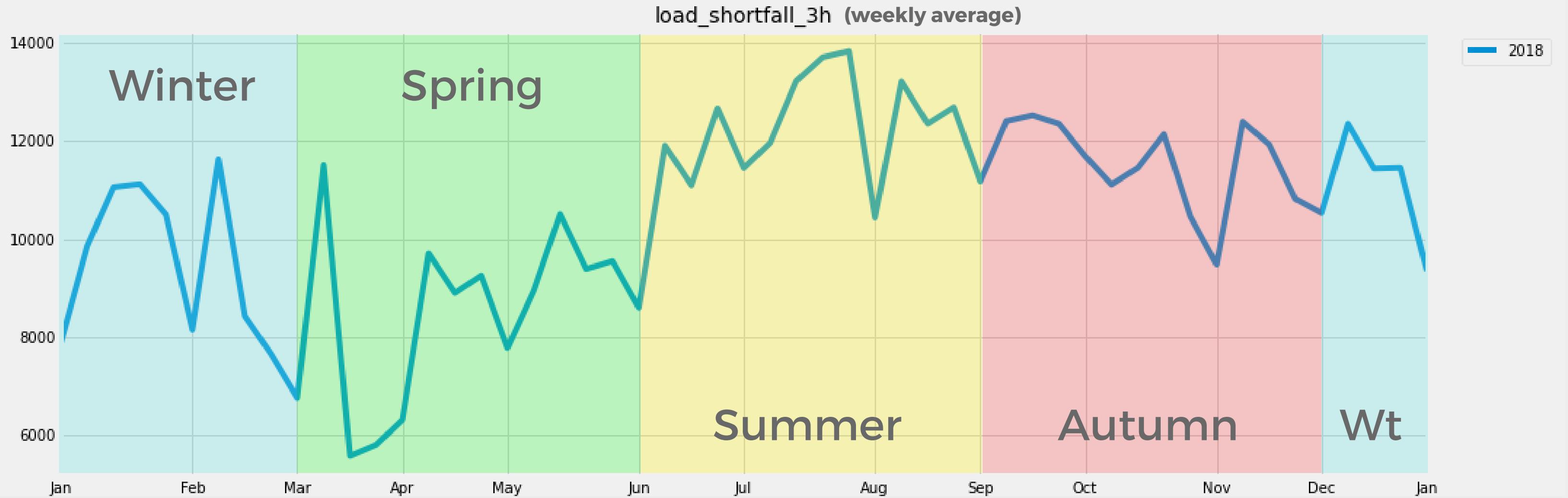


- Negative values recorded for individual observations
- Minimum load shortfall just above 2000
- Peak Season remains Summer

Deep dive: Model

MODEL	Train RMSE	Test RMSE	RSS	R-Squared
Ridge	4673	4624	37.4M	0.18
Least Squares	4602	4543	36.2M	0.21
LASSO	4680	4625	37.5M	0.18
Random Forest	1585	1594	4.5M	0.90

Findings



- No negative values recorded

- Minimum load shortfall > 4000

- Peak Season remains Summer



Our Solution

- We advise that there is no immediate need to expand its renewable energy resource infrastructure investments.
- Model deployed and hosted on AWS EC2 instance with a public IP address that will be provided to you.

Our Recommendation

- Forward thinking, investments in other means of renewable energy other than those relying on the provided weather data.





Contact Us

Available to you on demand anywhere in the world.



www.firedata.com



contactus@firedata.net



Remote

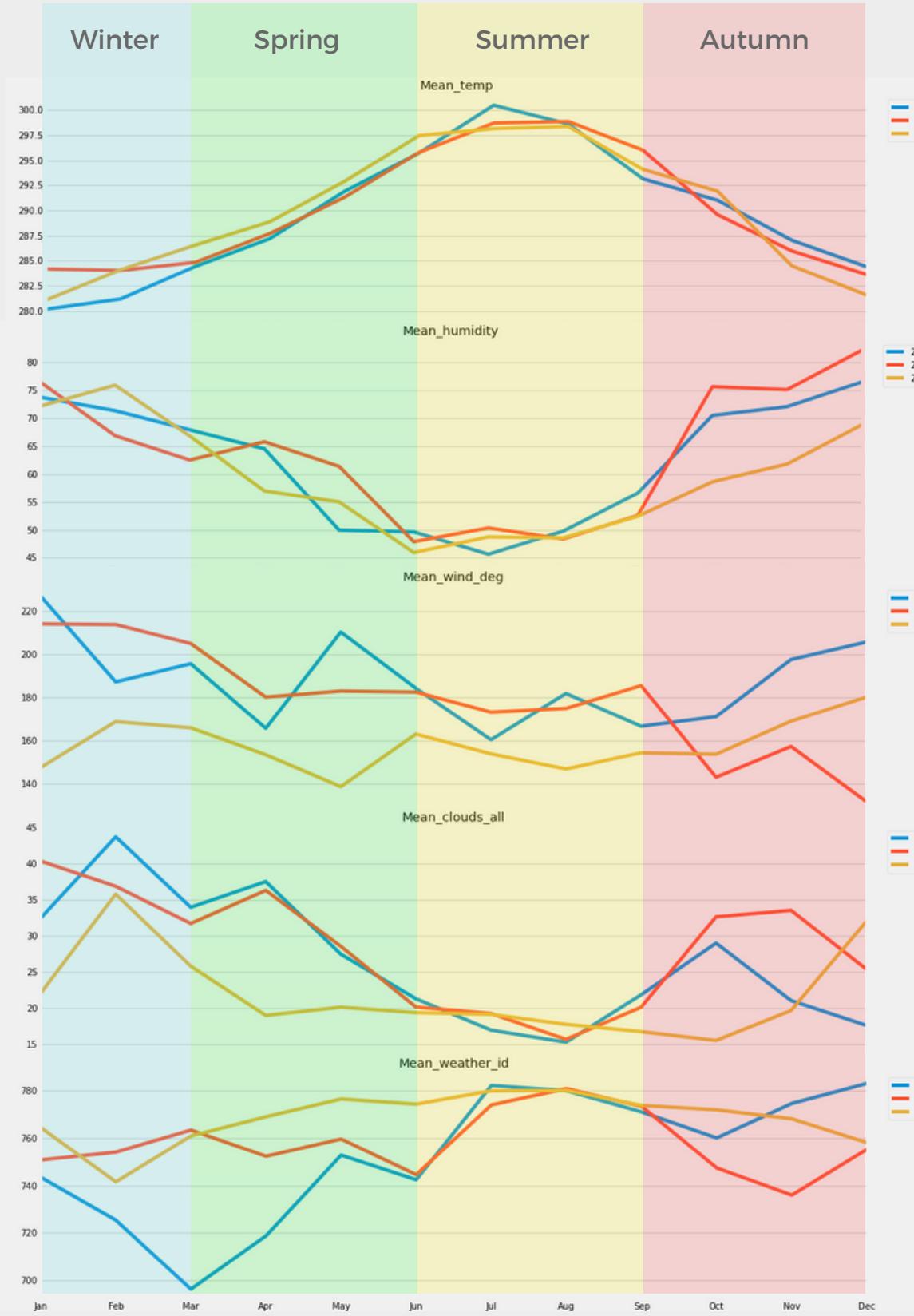


Thank You

Data Science & Analytics
Team



Appendix



- Time series of all independent variables.
- Maximum temperatures reached between July and August

