

Genneia



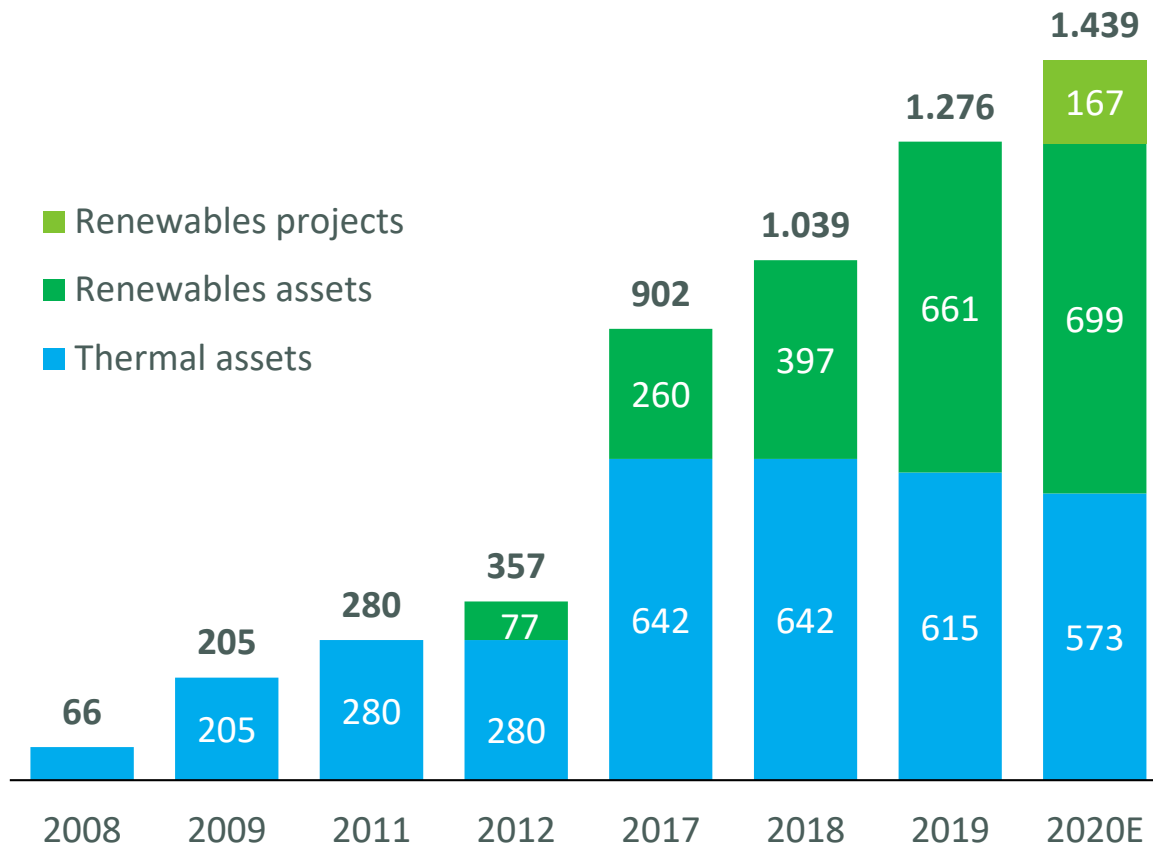
Lesson's learned in the introduction of Asset Performance Diagnosis (APD). The Genneia Case.



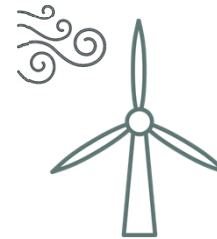
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Genneia at a glance

Installed capacity (MW)

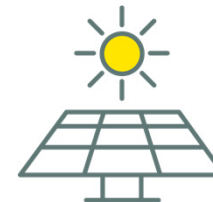


Assets



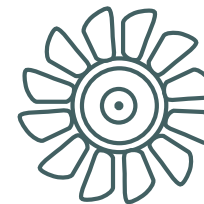
617 MW

3 OEM's
198 WTG's



82 MW

280K FV panels
11 inverters



573 MW

19 gas turbines

Plants

7

(Patagonia,
Pampa)

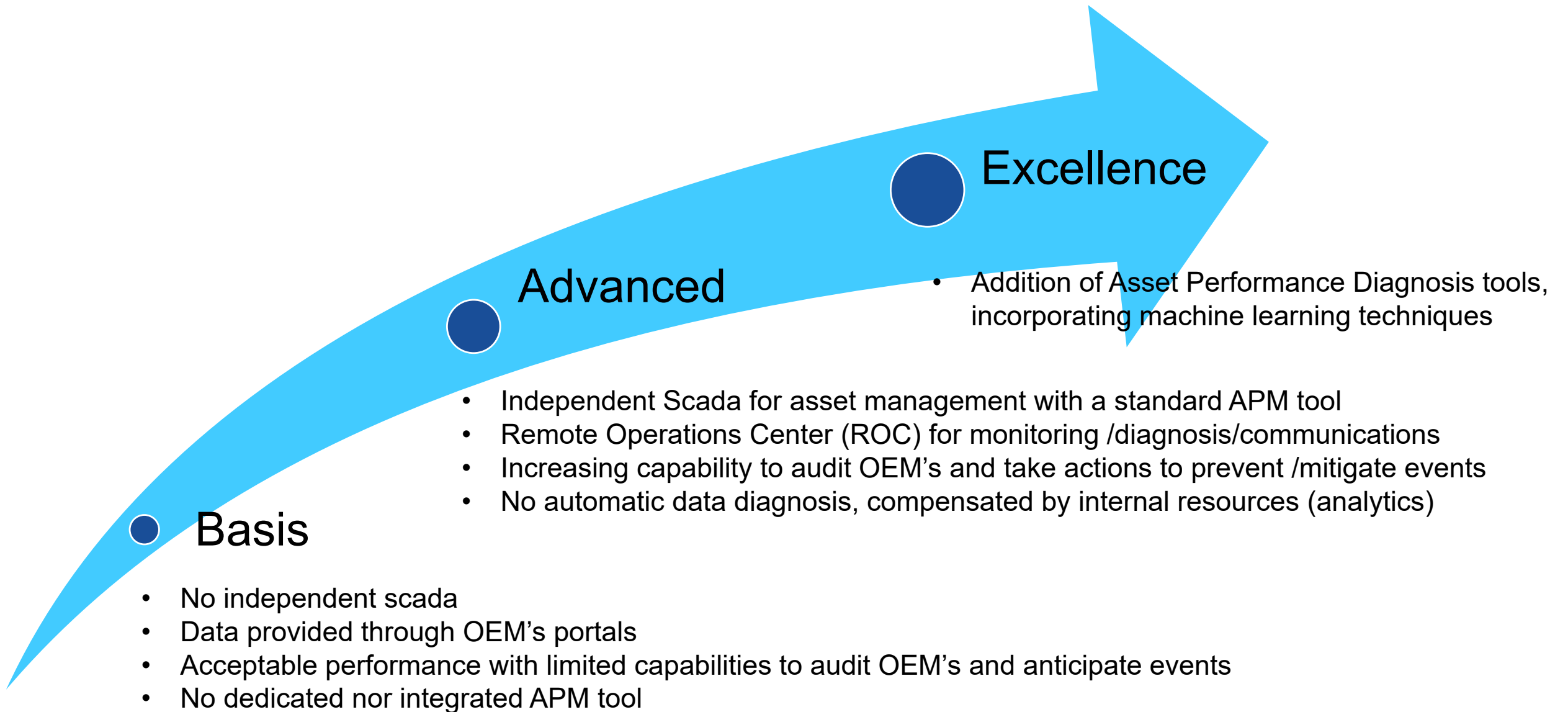
1

(Cuyo)

4

(Pampa, North
West)

Asset management in utilities: the maturity curve



The complexity of identifying and analyzing data



50 MW FV plant : generates 80.000 tags per day!

Searching for your buddy into a football stadium

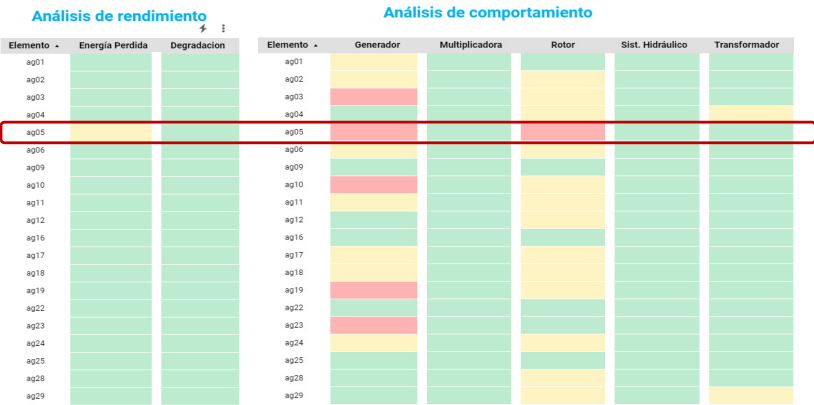
Advanced analysis (Case study)

Madryn Wind farm (220MW)- WTG#5

Detection of a pitch system problem: loss of energy caused by internal WTG regulation and by downtime for required system repair

APD detects the problem and provide recommendations

Plant status: generator and rotor in ALARM. Several SCADA ALARM related to pitch system and recomendations

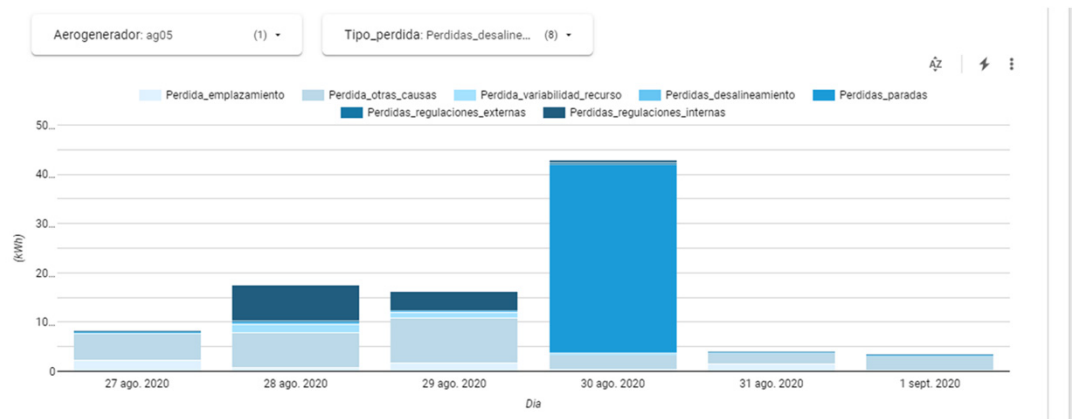
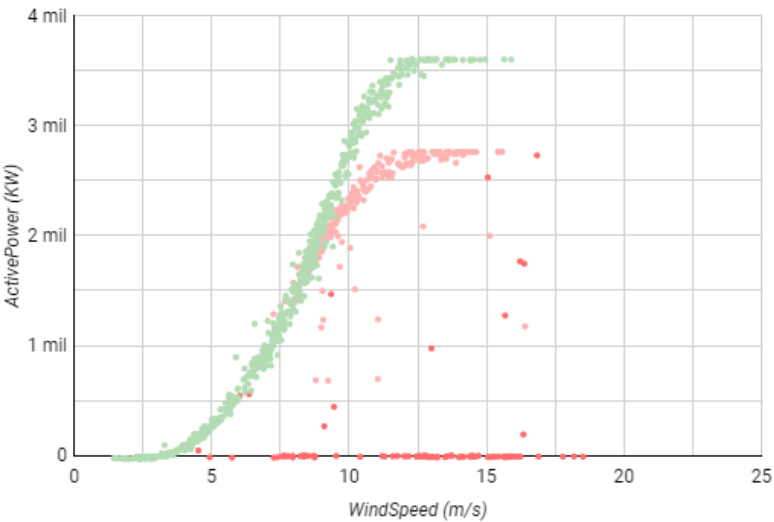
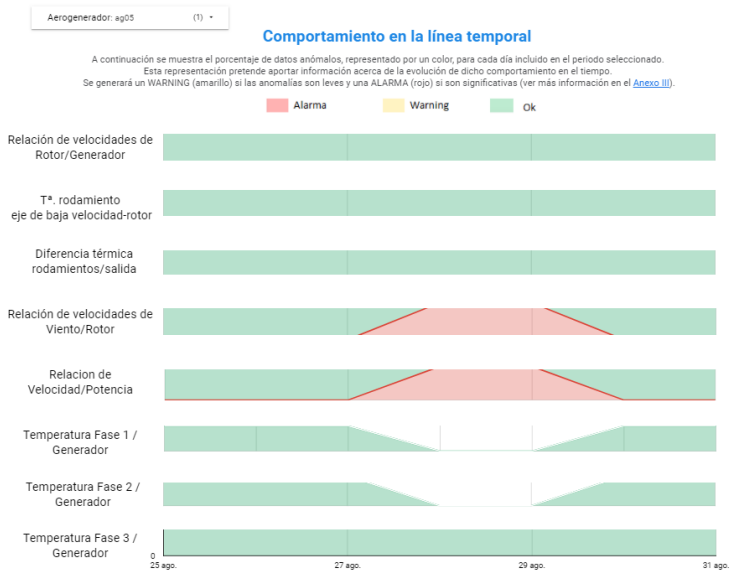


ag05	Sistema de Control	Chequeo del subsistema Sistema de Control por presentar la alarma 900: Pause pressed on keyboard en el SCADA de manera repetitiva	27 ago. 2020	8	<div></div>
ag05	Pitch	Chequeo del subsistema Pitch por presentar la alarma 5067: Pitch pos A meas. signal fault en el SCADA de manera repetitiva	26 ago. 2020	8	<div></div>
ag05	Pitch	Chequeo del subsistema Pitch por presentar la alarma 74: PitchA pos en el SCADA de manera repetitiva	28 ago. 2020	6	<div></div>
ag05	Global	Chequeo del aerogenerador por presentar una energía perdida entre el 15% y el 25%, siendo menores del 15% las pérdidas por paradas, regulaciones, recurso eólico y emplazamiento, y menores del 5% las pérdidas por desalineamiento de la góndola	28 ago. 2020	5	<div></div>
ag05	Pitch	Chequeo del subsistema Pitch por presentar la alarma 76: PitchC pos en el SCADA de manera repetitiva	29 ago. 2020	4	<div></div>
ag05	Pitch	Chequeo del subsistema Pitch por presentar la alarma 3674: PilotPressLow en el SCADA de manera repetitiva	28 ago. 2020	4	<div></div>
ag05	Pitch	Chequeo del subsistema Pitch por presentar la alarma 75: PitchB pos en el SCADA de manera repetitiva	29 ago. 2020	4	<div></div>

Advanced analysis (Case study)

Anormal relation between rotor and generation speed during 2 days

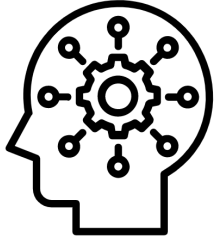
Power curve limitation to 2,7 MW and WTG Stop for 1 day for repair.



APD estimated the loss of Energy: 15MWh per day by limitations and 40MWh for system repain

Estimated loss in 4 days: 4.400 USD

Lessons learned: **you cannot optimize what you don't control!**



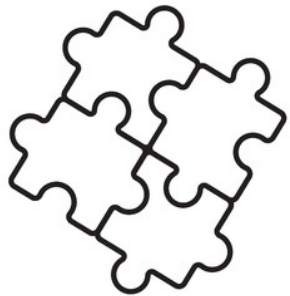
- The importance of adopting existing APM/D solutions according to your maturity curve / context: independent and technologically agnostic



- The loss of energy prevention and anticipation in the decision-making process are the best ROI of APM/D solutions



- Due to COVID19, operations are in the first line of defense. Having appropriate tools is not an option. Requires necessary adaptations (and mindset!).



- Once the APM/D is implemented and results are tangible, it's time to offer your service to others!