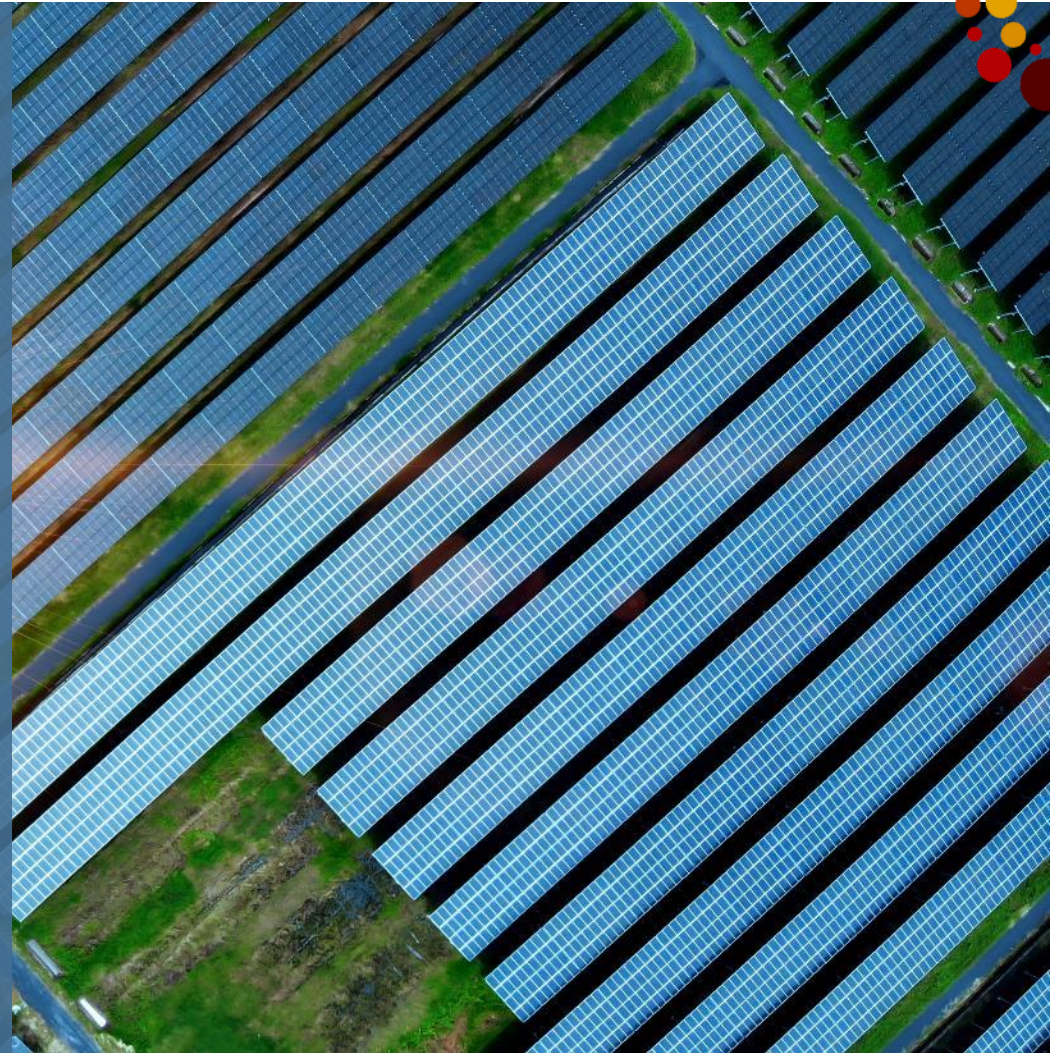


Large Scale Solar 2024

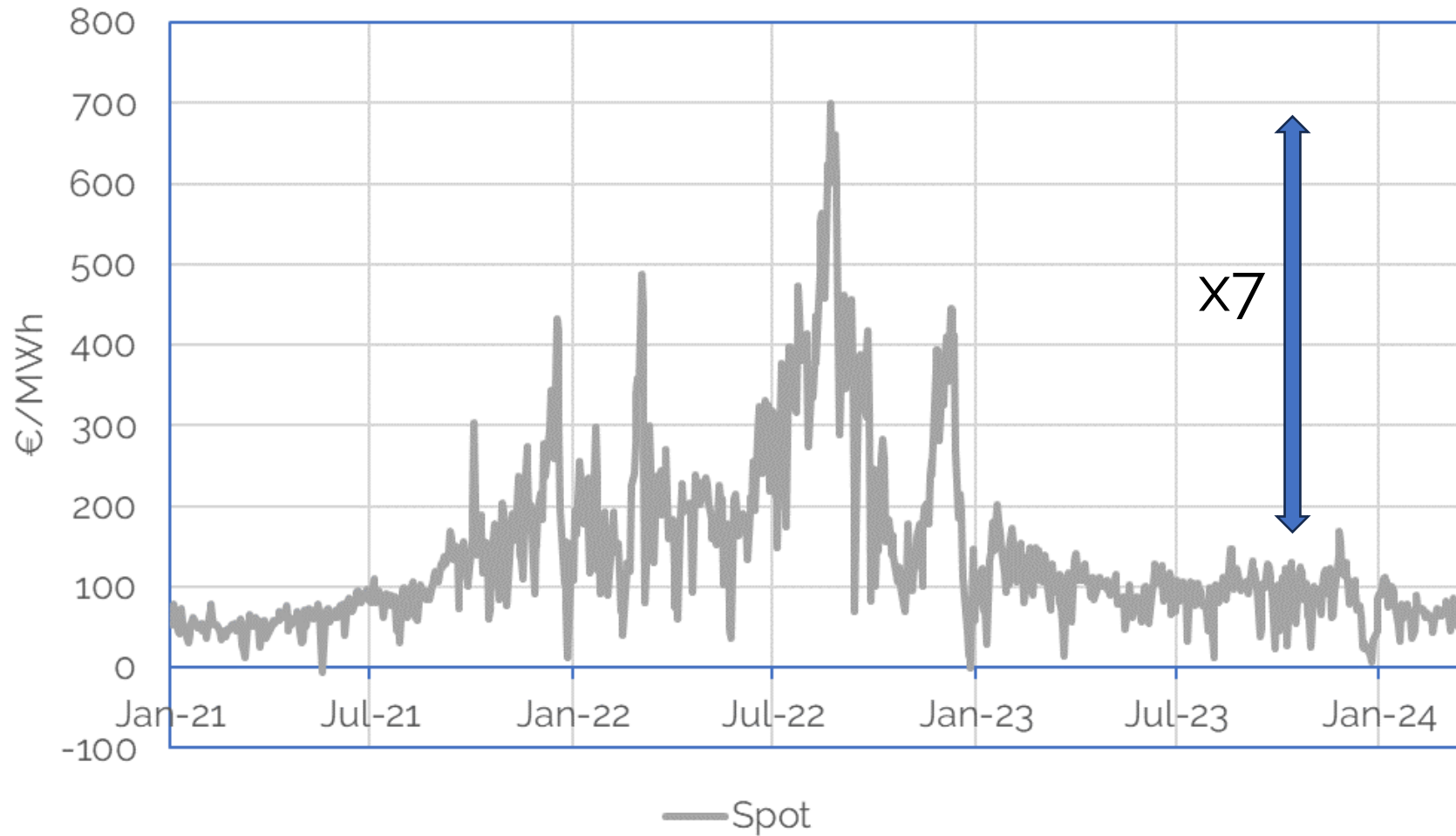
From Developer to IPP: Risk Management is Key!

Ewout Eijkelenboom
KYOS Energy Analytics

27 March 2024



Prices are volatile...



Source: DE Prices, EEX

...also far out on the curve!



Source: DE Prices, EEX

KYOS Energy Analytics

- International client base across Europe, plus Americas and Japan
- 35+ people, headquarter Haarlem, The Netherlands
- More than 100 corporate clients for its software services



KYOS, our analytics, your advantage



Software models for energy

Various models for valuation, optimization and risk management, coupled with advanced forecasting and price simulation tools that will provide you the best basis to take decisions.

All models are developed by the KYOS quant team.



Software models for multi-exposure commodities

The Commodity Portfolio & Risk Management software combines physical commodity management with financial risk reporting and price analytics.



Consultancy

We offer a wide range of top analytical services to companies in the energy and commodity markets.

We are specialists in valuation, optimization and risk management.

Our expert services range e.g. from a one-off deal valuation to a complete solution for the risk management of a portfolio of assets and contracts.



Price data models

Live or End-of-day market price forward curves are essential for trading, structuring and risk management.

In addition, we offer a fundamental model for long-term (>30 year) power prices.



KYOS Energy Analytics

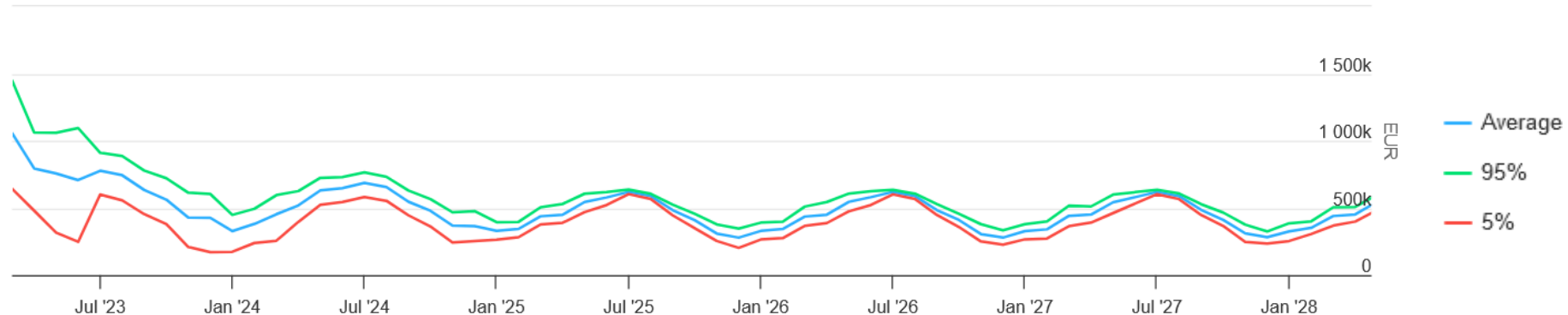
- Some useful (free) publications



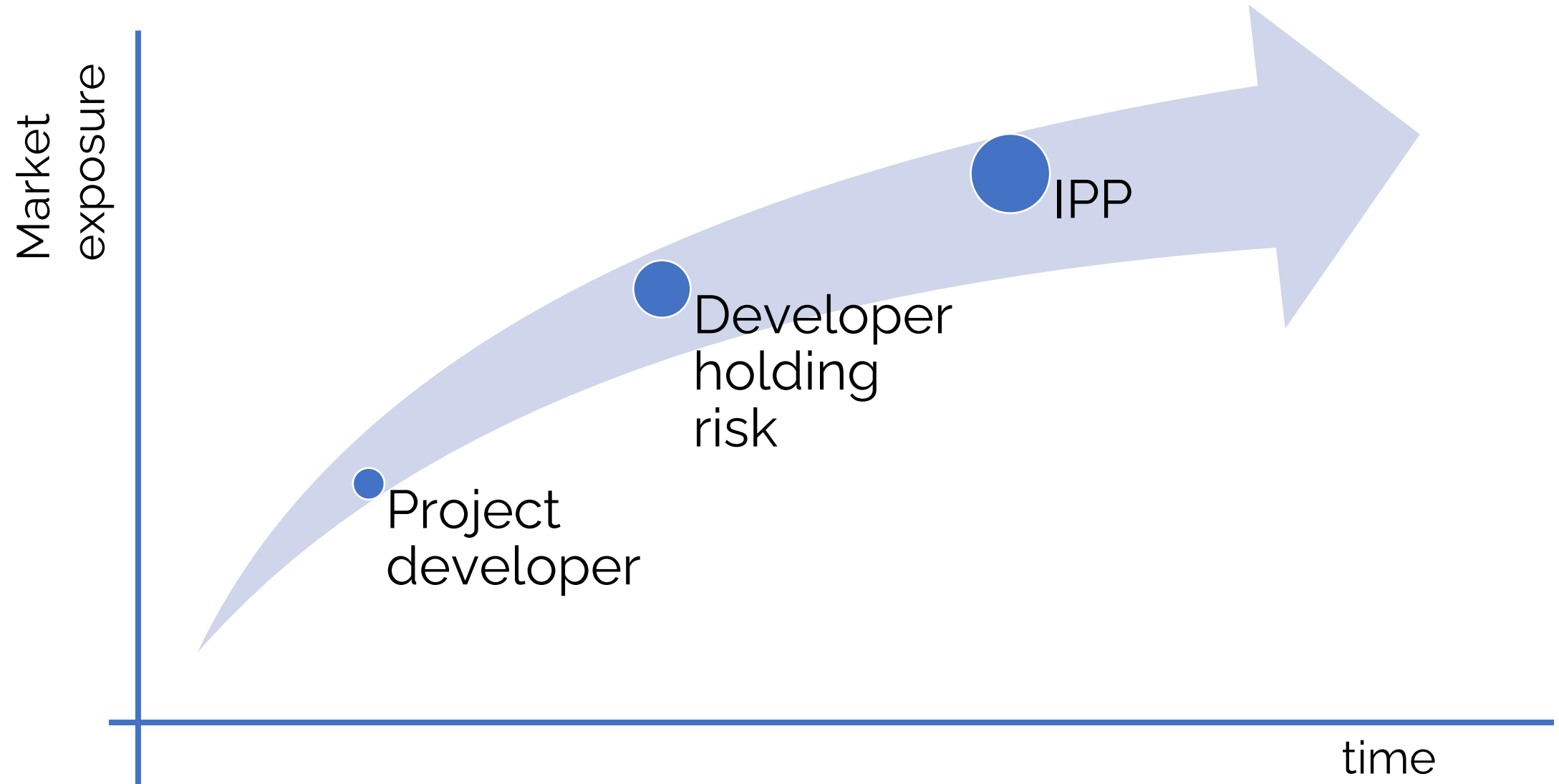
See: <https://www.kyos.com/knowledge-center/>

How can risk management help?

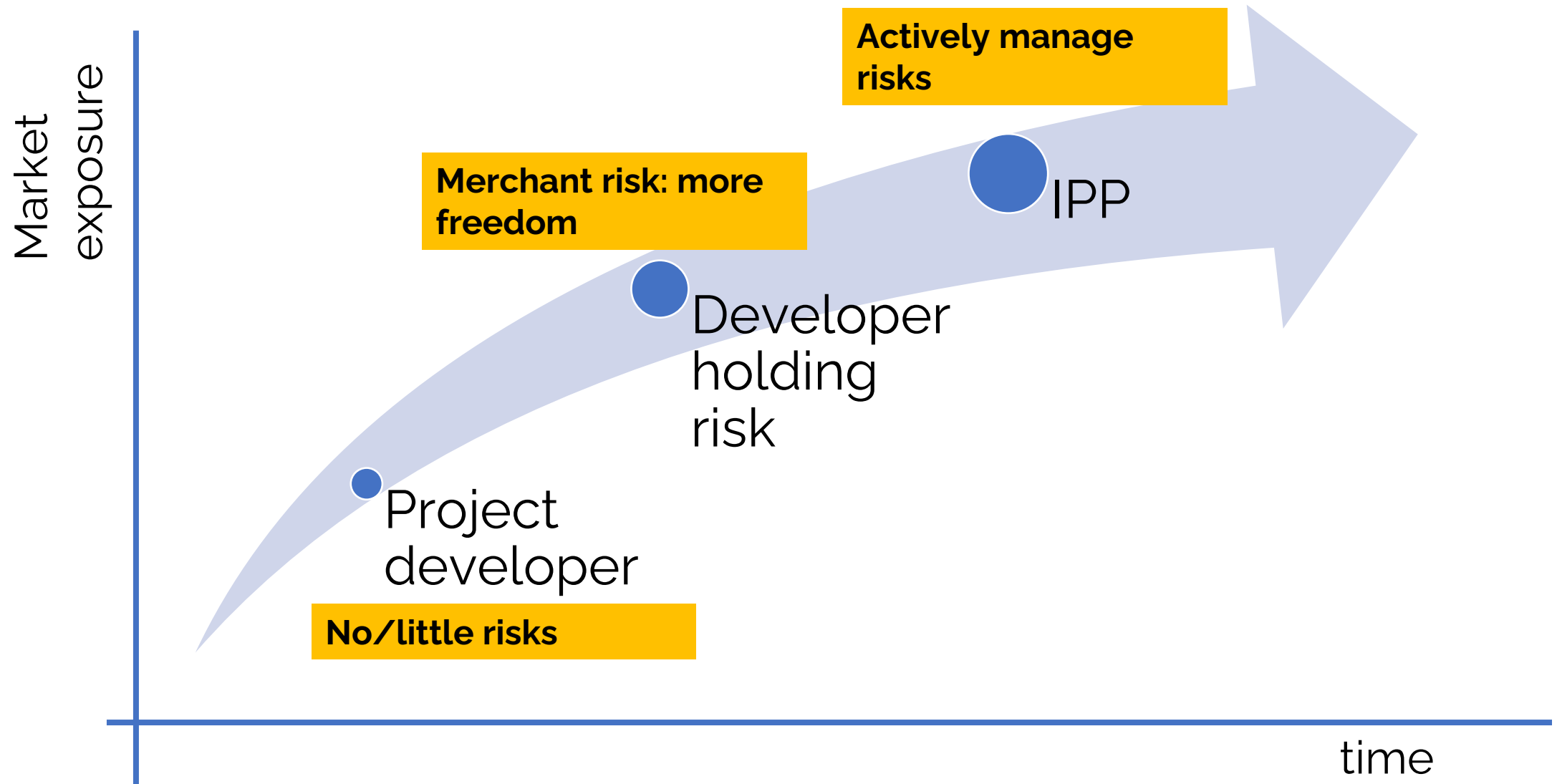
- Case: Client with PV and BESS assets
- Goal: refinancing to allow for further growth
- Solution:
 - Quantify expected revenue distribution
 - Worse case (e.g. p5) used to negotiate with banks



Trend in the market -> more risk

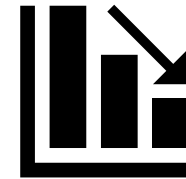
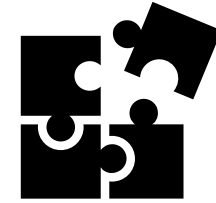


Trend in the market -> more risk



Step 1. Developer holding Risk

- Starts with interest in holding merchant risk
 - Merchant tail/nose
 - Selling not 100% as PPA
- But
 - No dedicated market risk/trading team
 - No advanced risk management systems
- How to make this first step?



Solution: risk management as a service

Provide regular risk overview of portfolio

- No need to develop own resources (yet)
- Full access to industry-leading merchant risk management
- Tailored to your requirements
- Allows build-up of internal knowledge

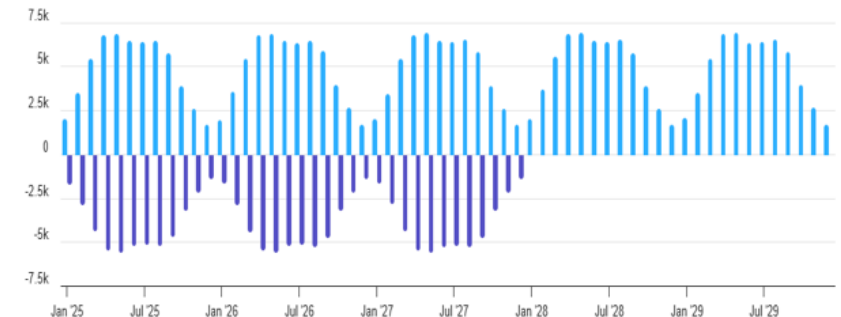


Portfolio report for IPP XYZ

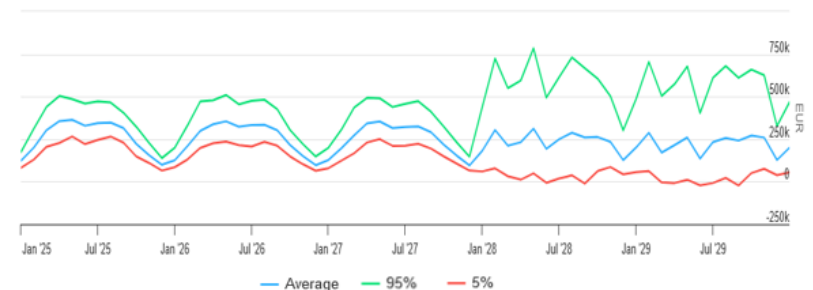
22-Mar-24

Key portfolio indicators:			2025	2026	2027	2028	2029
Expected generation		GWh	788	1,051	1,183	1,314	1,577
Locked in sales	PPA	GWh	473	631	355	394	158
		%	60%	60%	30%	30%	10%
	other	GWh	252	263	0	0	0
		%	32%	25%	0%	0%	0%
Expected revenues		mIn €	47	63	71	79	95
Worse case revenues (P)		€	30	45	21	24	28

Position overview - total portfolio



Revenue distribution - total portfolio



Step 2. Developer managing risk -> IPP

- Own team dedicated to managing risk:
 - Traders/originators
 - Risk managers
- Nothing new
 - Aggregators/utilities are doing this for years!
- IPP should build up same capabilities and systems!
 - Risk guidelines
 - Hedging strategies
 - Limit monitoring
 - > Risk management software



Solution: risk management software

Key features

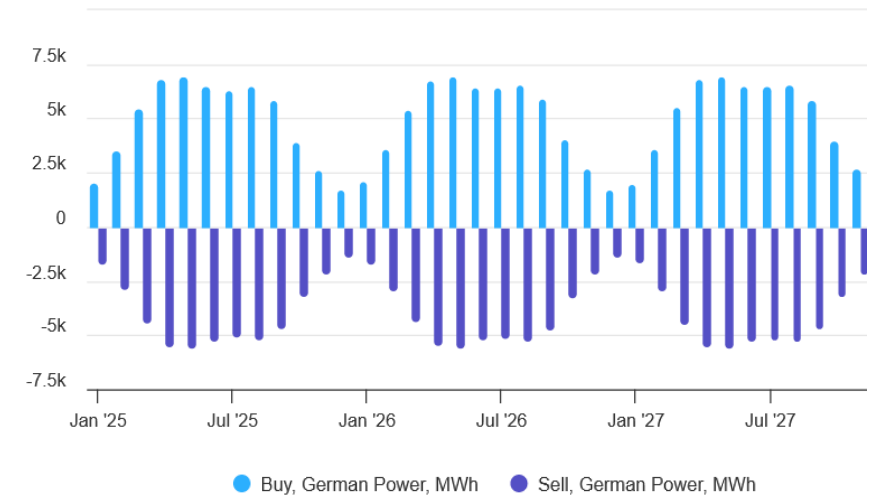
- Management of prices curves: use different curves
- Flexible to capture all assets/PPAs
- Advanced engine to create correlated price and generation simulations
- Flexible report to monitor risk:
 - per country/platform/technology/SPV

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[Settings](#) [Price data](#) [Time series](#) [Curves](#) [Assets & Contracts](#) [Risk analytics](#) [Analytics](#)

Welcome to the KYOS Analytical Platform

Positions



KYOS

Key take-aways

- Renewable developers are growing
- Active risk management allows for further growth
- Trend towards IPP model
- Requires dedicated resources and systems!



Contact details

We look forward to supporting you with the right tools and advice in the rapidly changing energy sector!



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