

Solar PV

Insurance set-up & Key risks

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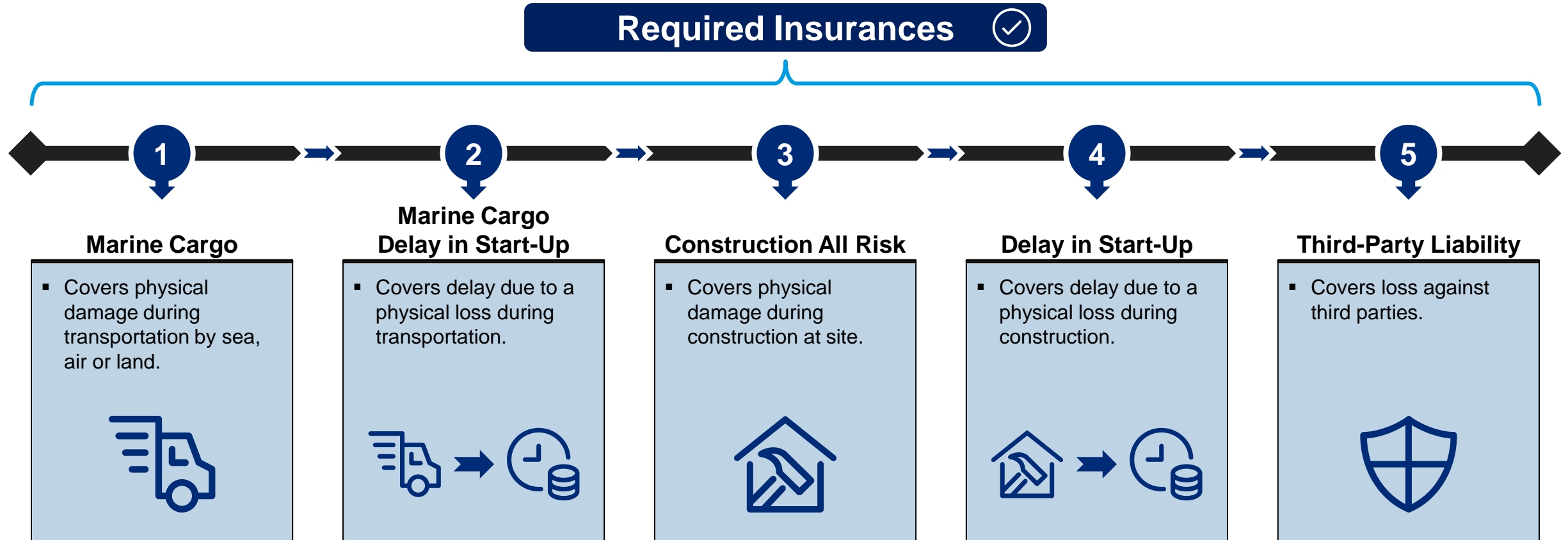


Overview

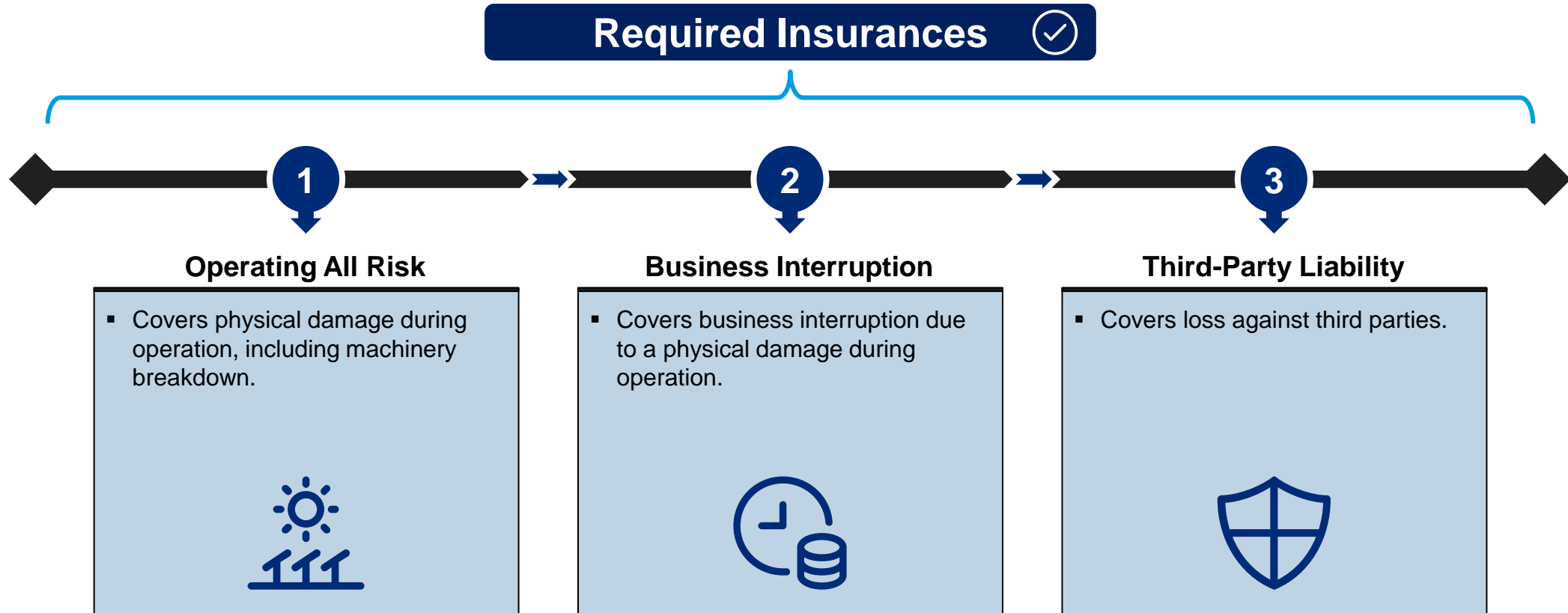
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Insurance set-up

Project Phase – Basic “Bankable” Insurance Structure



Operational Phase – Basic “Bankable” Insurance Structure



Project & Operational Phase – Examples of Additional Insurance Requirements

Additional Insurances

Terrorism

- Covers damage by any person or group acting from a political, ideological or religious motive.



Cyber

- Covers cost of remediating cyber attacks and business interruption losses.



Environmental Liability

- Covers sudden and unforeseen pollution.
- Covers gradual and biodiversity losses. (not often needed)



Decommissioning

- At a fixed premium, a guarantee for decommissioning is issued that runs for 5 or 10 years and
- can be renewed as long as the agreement with the landowner is valid.

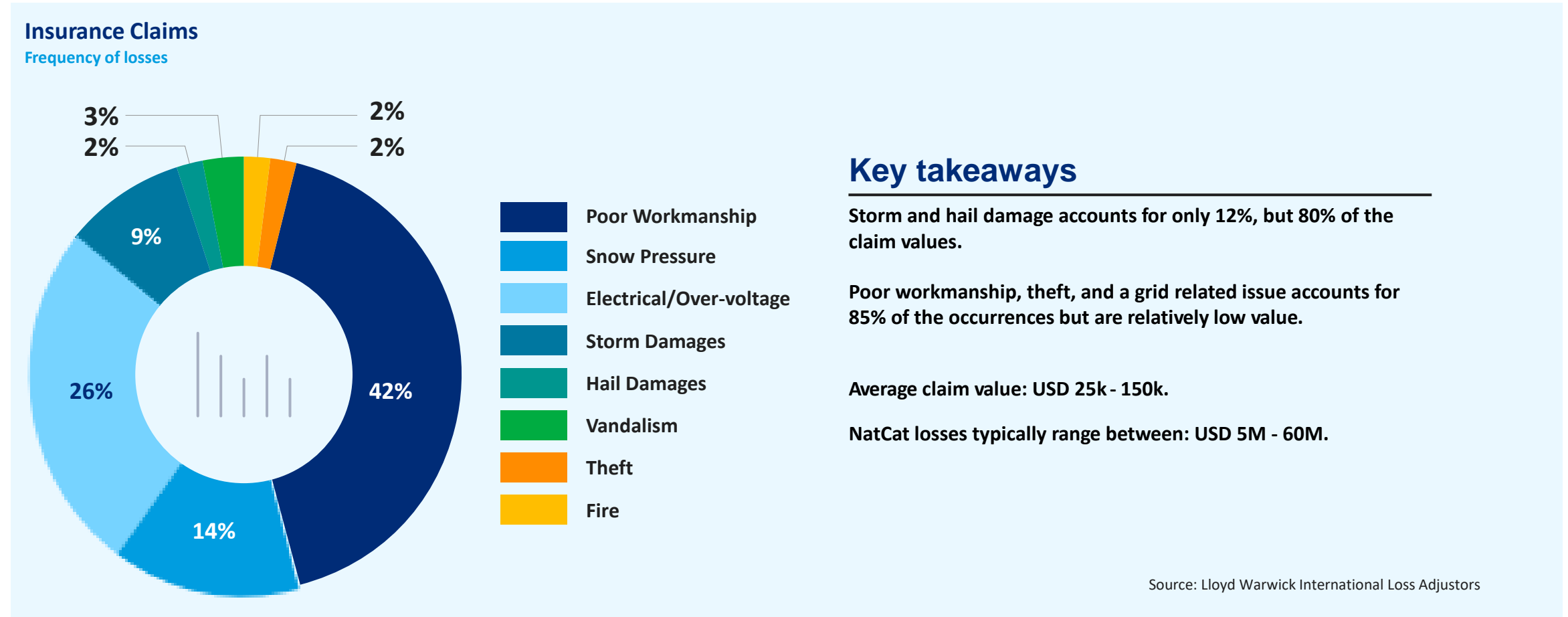


Q&A

Appendix - Key risks

Risk Overview of Larger Utility Size Solar PV Installations

Claims Globally



Key risks

Solar PV and Renewable Energy in General



Natural perils.

Proportion of assets entering post-warranty.

Operations and Maintenance (O&M) costs.

Marine and Inland transits.

Redundancy.

Availability of spare parts on-site or nearby.

Prototypical equipment (installation, T&C challenges)
period (esp. wind and solar).

Lead times for replacement equipment
(order>manufacture>delivery>installation>T&C).

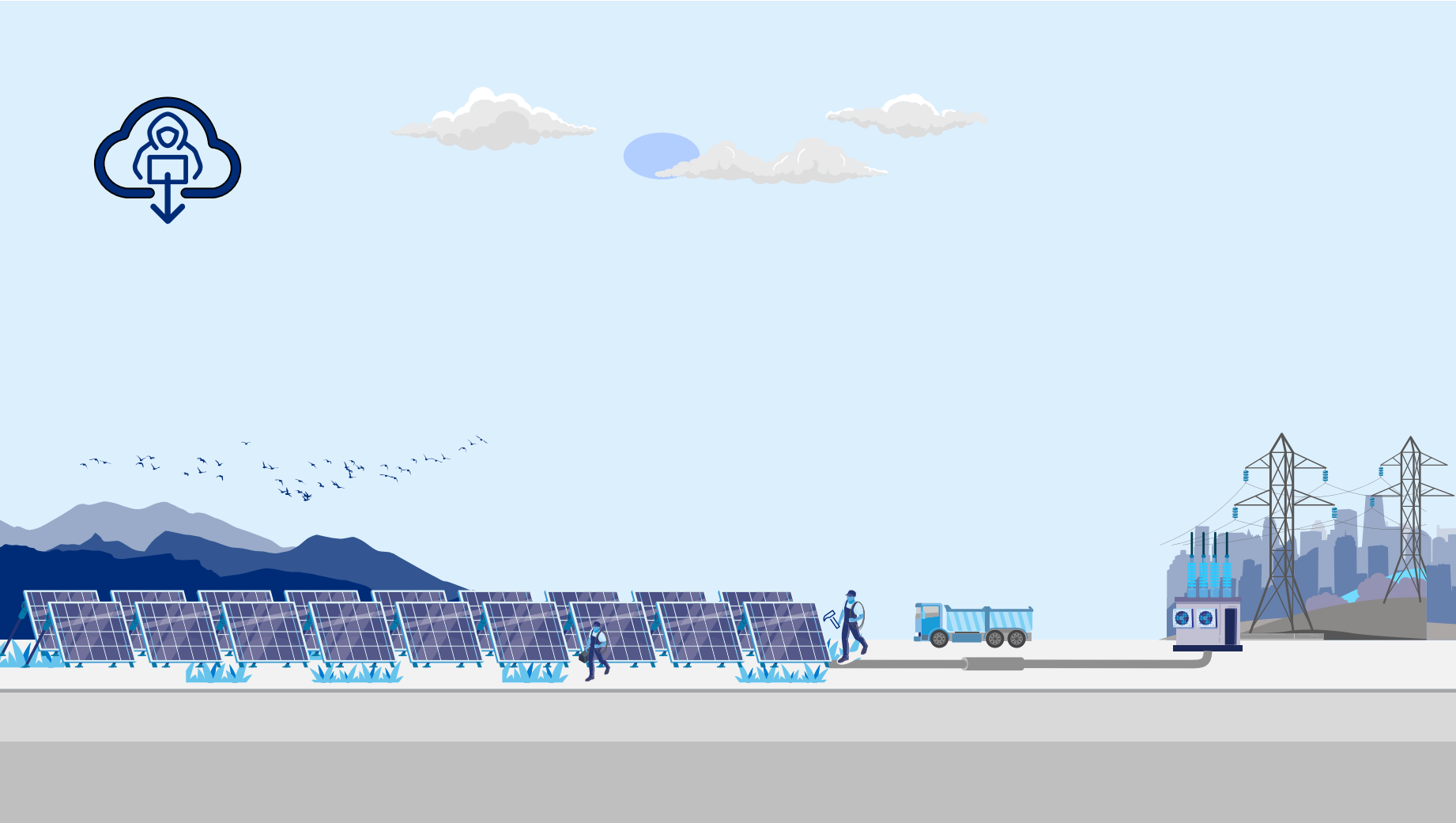
Supply chain restrictions (c.f. Covid, 'deglobalisation').

Lead replacement times.

Valuation accuracy (average):

- Asset inflation (material & labour costs; delivery logistics).
- Revenue increases (energy price volatility).

Risks & Exposure – Solar PV



- A major damage to the project’s substation (i.e. due to fire) is likely the worst-case scenario
- Natural Catastrophe Exposures (Hail, Snowstorms, Rain, Flooding etc.)
- Major damage during installation works
- Exposure to theft is highest when all panels are stored together before installation.
- Cyber Risk

- Major damage on transports
- Availability of spare parts (lead time exposure).
- Offsite storage (physical damage exposure)
- Serial defects or major damage to key components, i.e. with advanced technology
- Damage to utility systems leading to contingent business interruption losses

Additional Risks for Tracking System Solar PV



- Mechanical and Electrical breakdown

- Tracker and hydraulic oil fire

Additional Risks for Rooftop Solar PV



- Fire from building

- Liability for the existing building

Risk Mitigation Measures | Nordic Solar PV

In recent years, the Nordic insurance market has made notable progress in defining sufficient risk mitigation levels for utility-scale Solar PV projects, although standards are still under development.

Standard Level Risk Mitigation Measures

Enclosed site with fencing



Camera surveillance of the park



Monitoring connected to alarm center



Additional Risk Mitigation

- On-site guard service during critical periods of the project.
- Anti-pull cable protection system / cables secured in ducts.
- Infrared (IR) Sensors to detect motion and heat – can be connected to larger security system, triggering alarms or alerts when unusual activity is detected.
- Lockable screws securing panels

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