

Overcapacity with Chinese characteristics: The case of wind energy

Henrik Wachtmeister

Swedish National China Centre (NKK), Swedish Institute of International Affairs (UI)

What is overcapacity?

- Some overcapacity is 'natural'
- Some is not:
- Persistent industrial overcapacity driven and sustained by non-market policy and practices
- Production capacity in excess of domestic demand, untied from global demand, where the reasons for this overcapacity is overinvestment driven by state support
- Non-market driven industrial overcapacity, geopolitical or geoeconomic industrial overcapacity
- Overcapacity with Chinese characteristics?

Overcapacity with Chinese characteristics

- Market economy with a high degree of state ownership and control – capitalism with Chinese characteristics
- Policy has preferred manufacturing over domestic consumption
- China's economy is unbalanced compared to other major economies
- High share of savings and investments and a low share of consumption (e.g. household consumption)
- Gives the state additional influence over the economy
- Relies on foreign demand for its production to higher degree
- Various other channels for the state to exert influence and control

The visible hand of the CCP

- A firm hand of the Chinese Communist Party influence the economy
- Points out strategic sectors, geographies and strategies, in order to serve broader strategic ambitions and objectives
- Initiatives like Made in China 2025, the Belt and Road Initiative and 'Go global'
- Many channels: access to cheap capital, subsidies, control over large state-owned enterprises, and research institutions
- A key current objective is to become a world leader in green technology
- Already attained leadership in solar, batteries, and EVs, and is now advancing toward dominance in wind energy as well

Chinese overcapacity in the wind energy sector?

- Upcoming NKK study:
- ***Chinese presence in the Swedish wind energy sector: Vulnerabilities and risks***
- Risk and vulnerabilities associated Chinas role in the wind energy sector
- Several concerns: supply chain dependence, competitiveness and ownership of energy infrastructure
- Risks and vulnerabilities often mentioned in general terms, but what are they specifically, and how big are they?

Chinese presence in the Swedish wind energy sector

- Map the Chinese presence in the Swedish wind power sector and analyze potential (economic and security) vulnerabilities and risks associated with this, including:
 1. Mapping Chinese ownership of wind power in Sweden
 2. Mapping turbines manufactured by Chinese companies
 3. Mapping other turbine manufacturers' dependencies on Chinese supply chains for wind power components and materials
 4. Analyze any vulnerabilities/risks with the above and how they can be addressed

Chinese presence in the Swedish wind energy sector

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 1. Mapping Chinese ownership of wind power in Sweden – **about 10.4% of wind capacity, 3.4% of total electricity production**
 2. Mapping turbines manufactured by Chinese companies – **less than 1% of installed capacity**
 3. Mapping other turbine manufacturers' dependencies on Chinese supply chains for wind power components – **70-80% of key components, close to 100% for some materials**
 4. Analyze any vulnerabilities/risks with the above and how they can be addressed

Assessment of specific risks



Threat: an entity that can exploit a vulnerability

Vulnerability: a circumstance or weakness that can be exploited by a threat

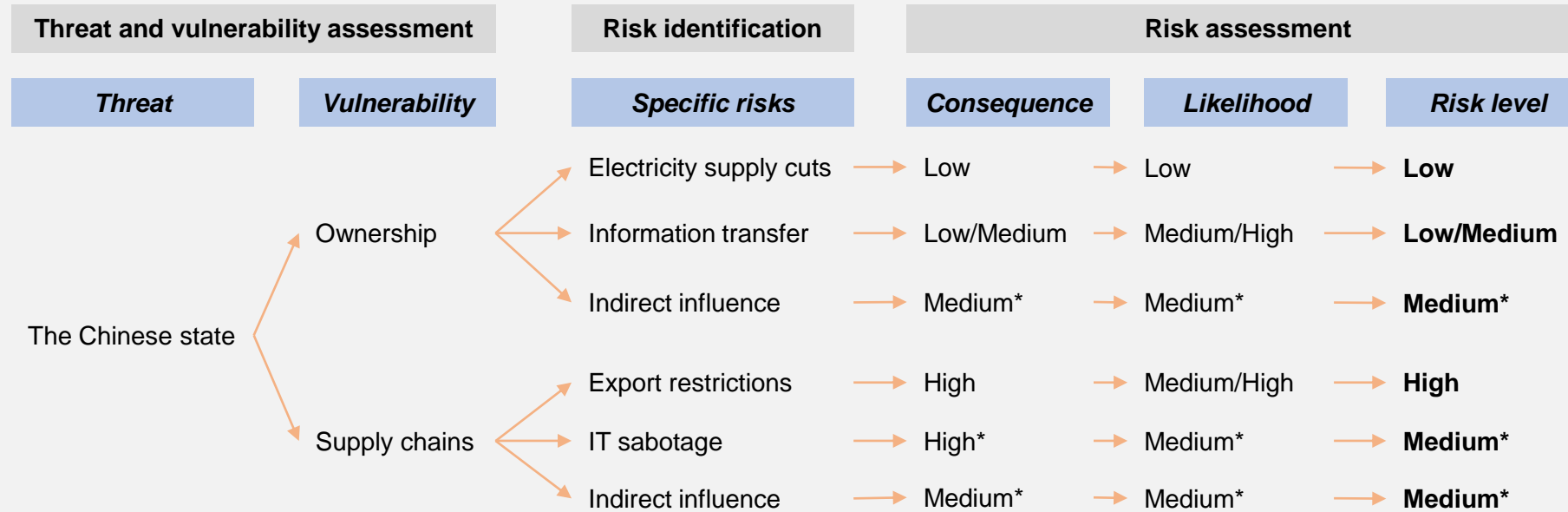
Specific risk: A threat exploiting a vulnerability in a certain way

Consequence: the (negative) impact of the risk materializing

Likelihood: the probability of the risk materializing

Risk level: The magnitude of the risk, based on the definition of risk as $\text{Risk} = \text{Consequence} \cdot \text{Likelihood}$

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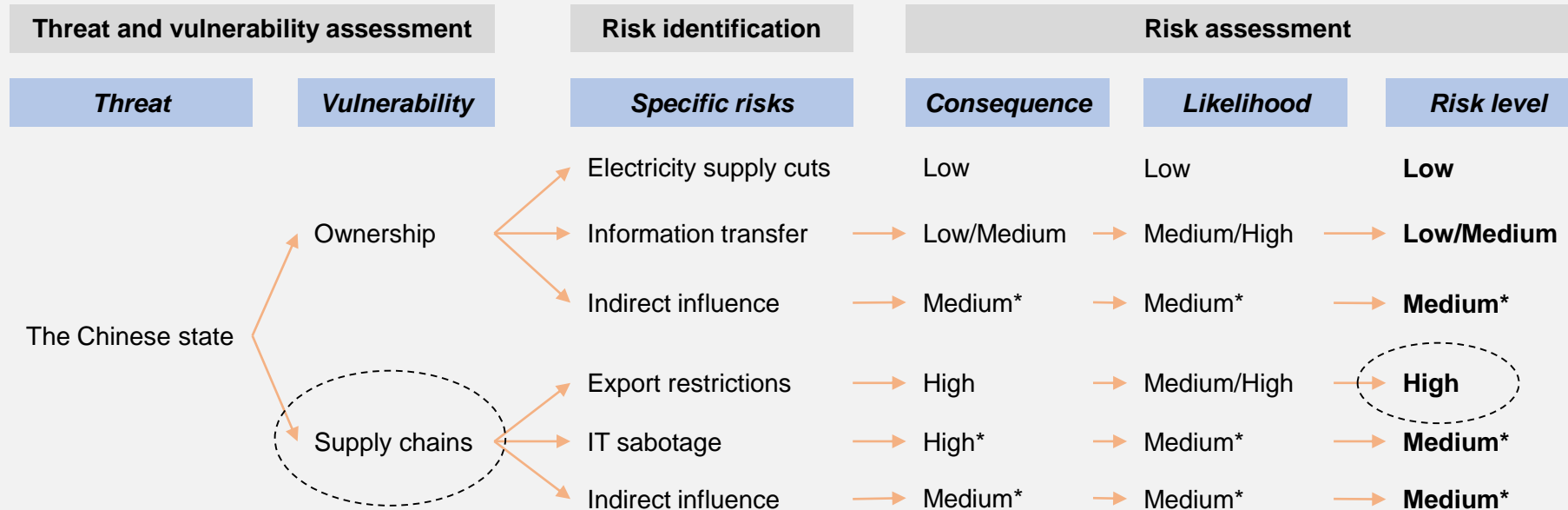
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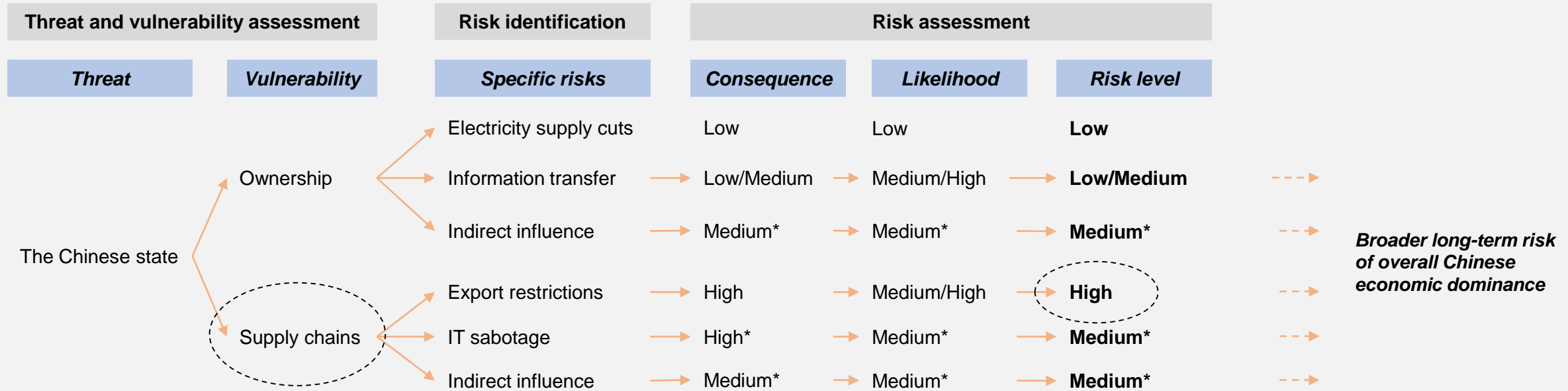
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Supply chain dependence and signs of overcapacity

- China the worlds largest wind power market (58%)
- And the worlds largest manufacturer of wind power equipment and materials (64%)

- China mainly builds for its own market but it is still a net exporter.
- In many key segments the market share is significantly higher than the average:
- Gearboxes 80%, generators 73%, converters 81%, castings 82%, blades 65%.
Neodymium refining near 100%, dysprosium refining 88%

- Technology transfer, supply and demand side subsidies, economies of scale, dynamic innovation and skill
- Signs of saturation on the Chinese domestic market

- Exports of final turbines is beginning to grow
- Chinese turbines offered at 20-25% below western competitors

So what's the problem? Short term benefits vs long term risks

- So what are the risks with this overcapacity?
- In the short term there are definitely advantages
- In the long term there are potential significant disadvantages
- Outcompete European wind manufacturers
- Adding to overall Chinese economic dependence and dominance
- Political influence and vulnerability to monopolistic practices
- Negative economic adjustments
- Chinese overcapacity risks putting Europe in a economic and political vulnerable position in the future, for short term benefit

What can be done?

- How can Europe compete with Chinese overcapacity?
- Three overarching options to level the playing field:
 - Change China
 - Change Europe
 - Change trade conditions
- Europe is unlikely willing or able to change many of the factors giving China a competitive advantage (high wages, high environmental standards, high energy prices etc)
- China in turn is unlikely to Change its economic model in the short to medium term.
- Trade barriers and trade tools is the likely outcome (e.g. EV duties, CBAM, local content requirements)
- Design and extent of these will be important going forward, striking the right balance between economic protection and political integrity vs benefits of trade and functional relations with Beijing

Thank you for your attention!

henrik.wachtmeister@geo.uu.se

@henrikwacht

