

# Ownership & System Operation governance models for a MOG in the North Sea

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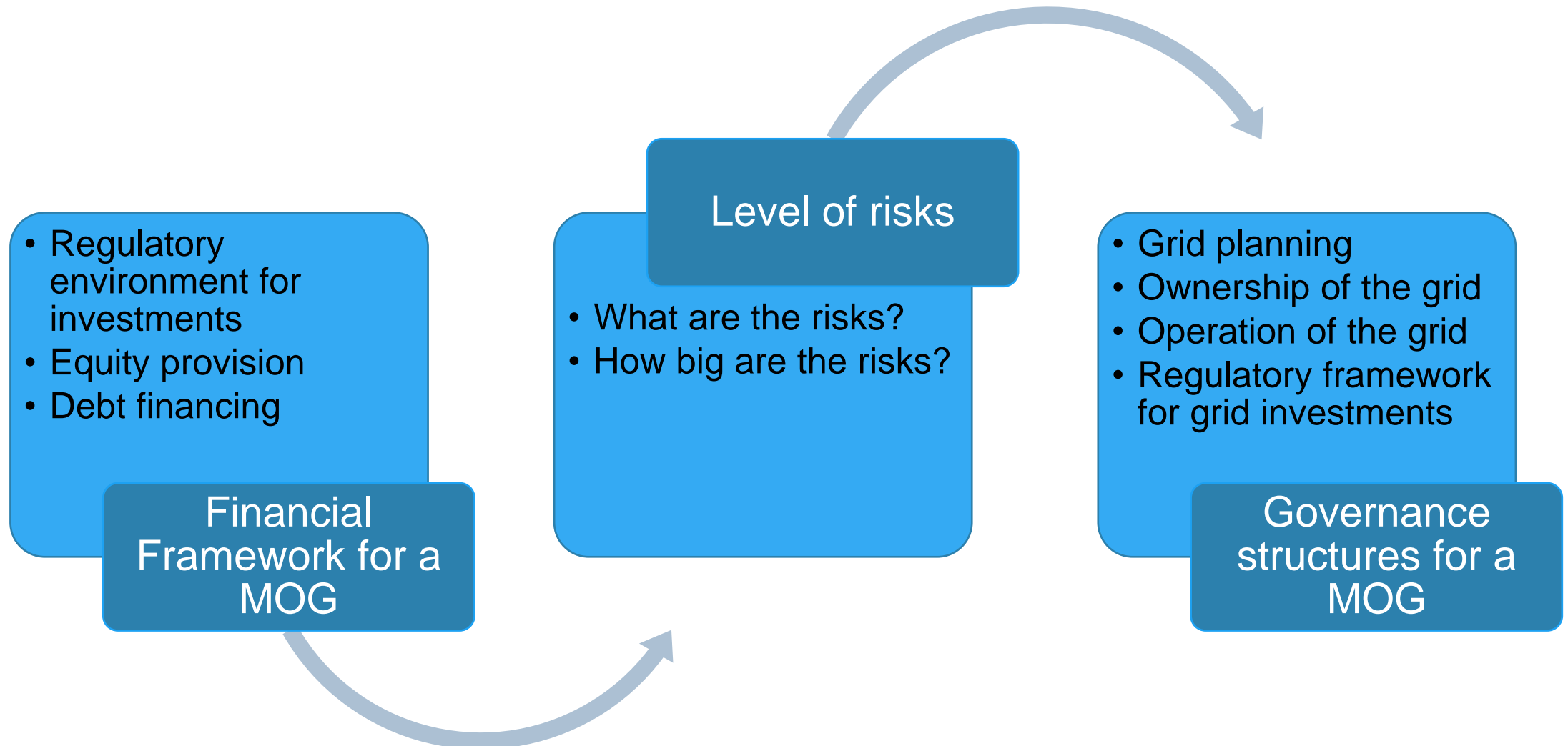


# Objective



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# Objective





# Financing challenges



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# Financing challenges & private investors' concerns



**Great interest  
in the market**  
(TSOs,  
industry,  
financing  
sector)

**Barrier:**  
Current legal  
and regulatory  
frameworks

## Huge investment volume

- Public & private capital needed
- Debt side:
  - → TSO balance sheet constraints
- Equity side:
  - → government's budget constraints &
  - → legal restrictions on access to private equity

## TSOs' concerns:

- Permitting issues
- Public acceptance
- Complexity due to different national regulatory frameworks
- Timely adjusted return on equity (RoE)

## Private investors' concerns (interviews):

- TSO-monopoly
- TSO legal ownership restrictions
- Lack of regulatory clarity/ regulatory consistency/ retroactive actions
- Complexity due to different national regulatory frameworks
- Lack of central European grid planning and structure

## If interest rates increase:

- greater competition with alternative investments in the market
- danger of limited financing potential for the sector



# Ownership & system operation governance models for a MOG

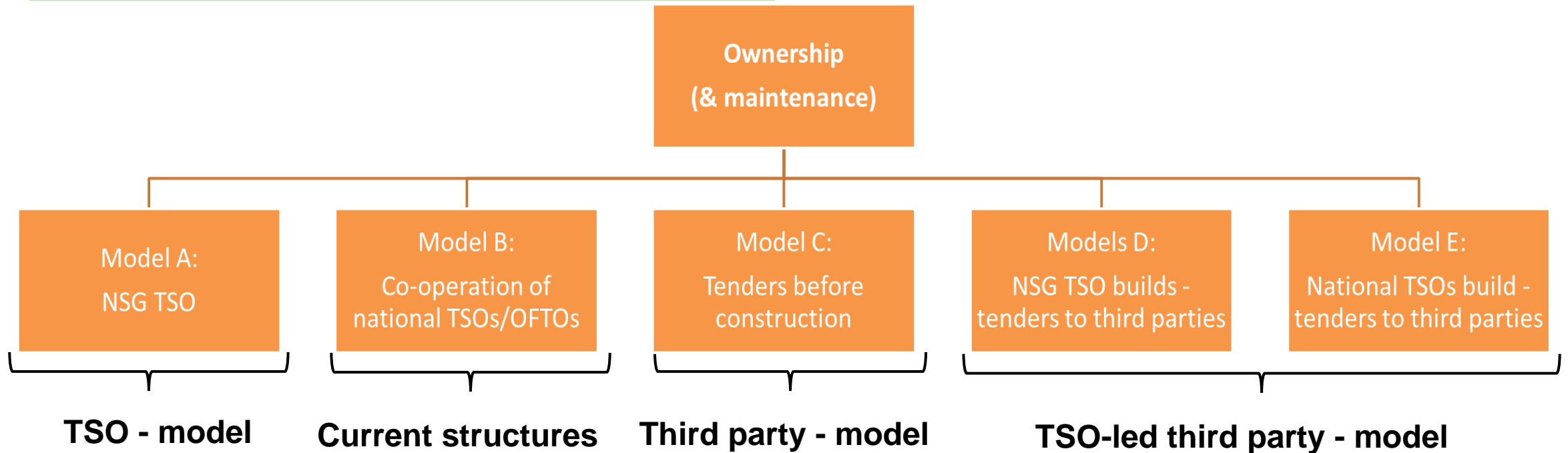


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# Ownership models for a MOG

„Ownership“ refers to the responsibility for:

- **investment**
- **Technical operation & maintenance (O&M)**





# Ownership models for a MOG

## Model A: North Sea Grid Transmission System Operator (NSG TSO)

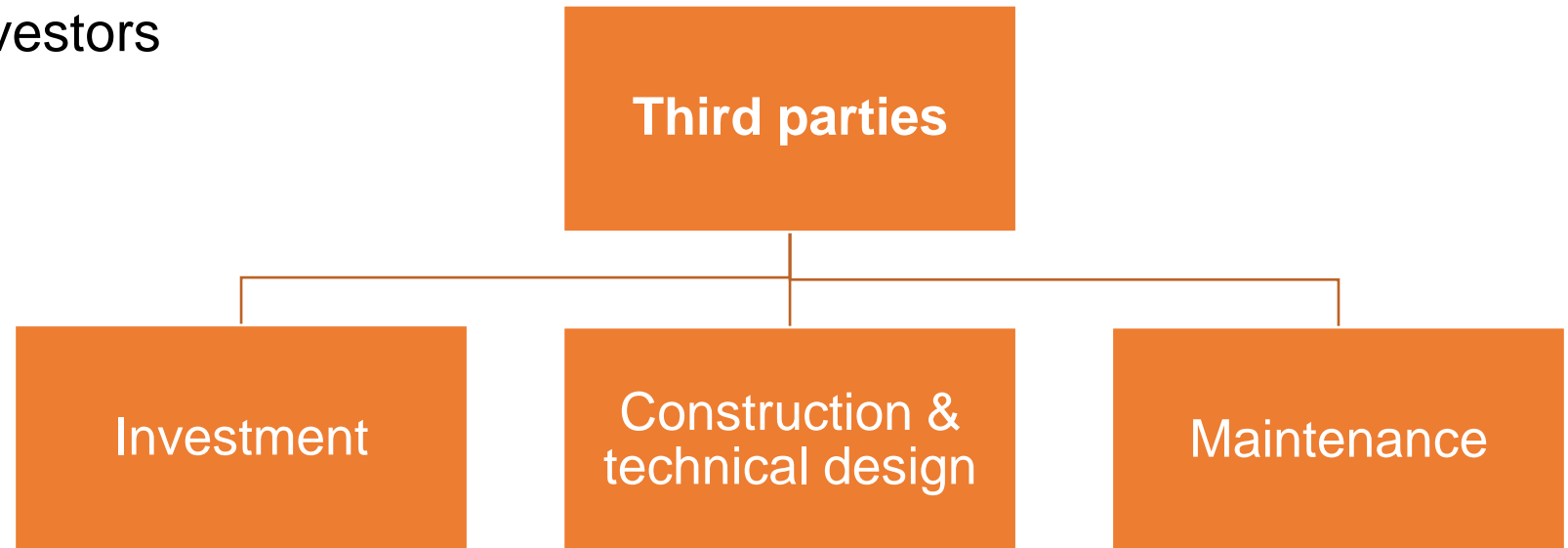
- National TSOs
- National TSOs & private investors
- Private investors



# Ownership models for a MOG

## Model C: Tenders before construction

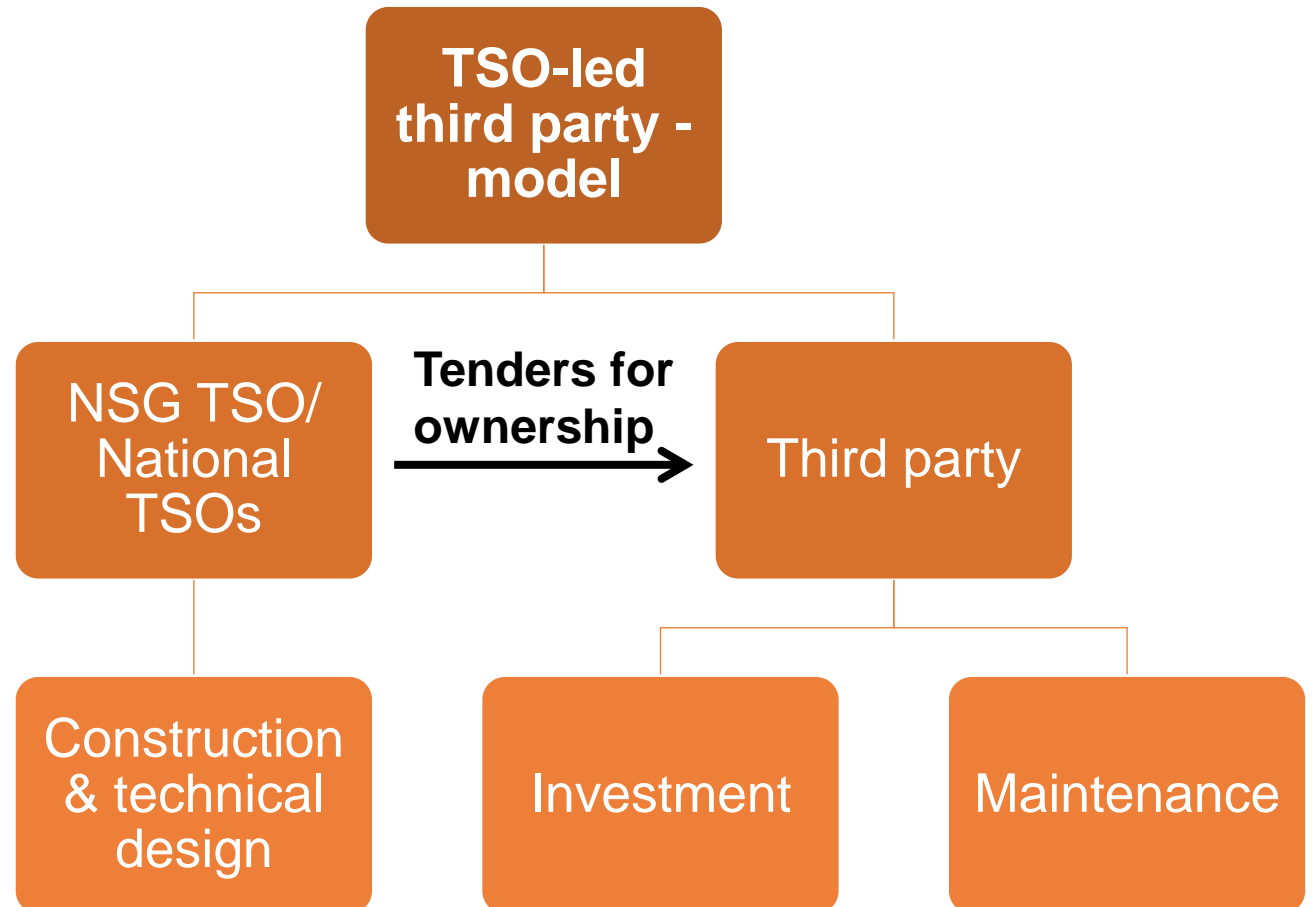
- Private or public investors
- National or international investors
- Public-private consortia



# Ownership models for a MOG

## Model D / E: NSG TSO/national TSOs build(s) - tenders to third parties

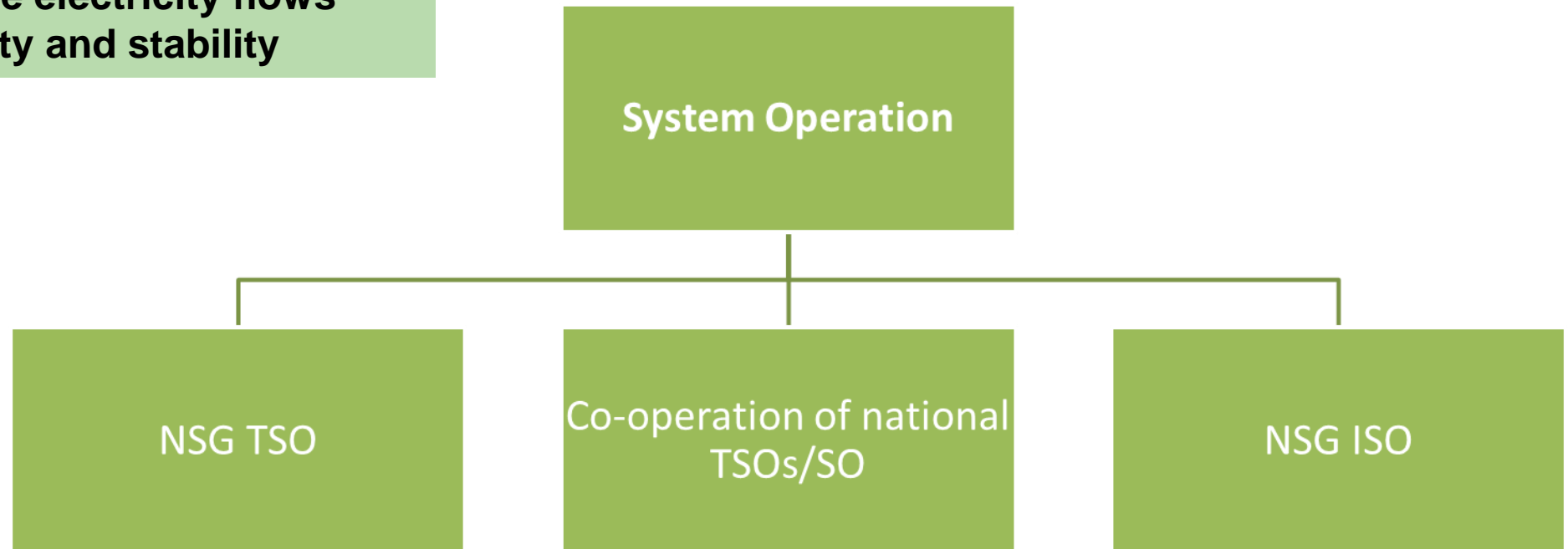
- TSO (national TSOs / NSG TSO) builds the grid
- The grid is tendered for ownership to third parties



# System operation models for a MOG

„System Operation“ refers to the responsibility for:

- **Real time balancing of the system**
- **Managing the electricity flows**
- **System safety and stability**



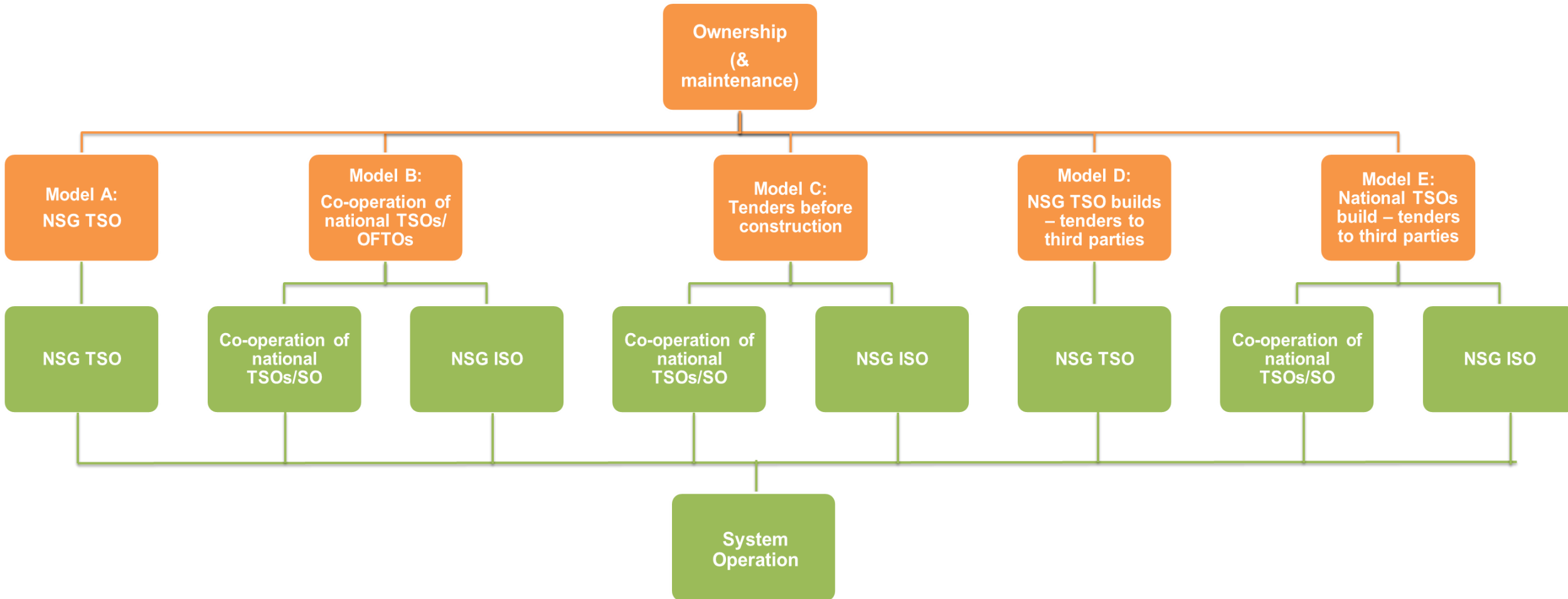
# Definition: North Sea Grid Independent System Operator (NSG ISO)

- Set up a NSG ISO: national TSOs and/or national authorities
- NSG ISO could be a not-for-profit enterprise





# Ownership & System Operation governance models for a MOG





# Evaluation of the governance models



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# Evaluation method for ownership & operation models

Assessment criteria	
Criteria	Description
<b>Economic benefits</b>	Comparison with structures under radial connections/point-to-point interconnectors Aim: deliver solutions at least cost and maximum benefit
<b>Speed of implementation</b>	Time needed to design legal regime Time needed to construct the MOG
<b>Socio-political acceptance</b>	Level of acceptance by policy-makers at national (countries around North Sea <sup>1</sup> ) and EU-level (governments, European or supranational institutions, etc.)
<b>Provision of private capital</b>	Facilitation of private capital to overcome financial challenges

Assessment	
Score	Description
(+)	Advantages
(-)	Disadvantages
	Not relevant

<sup>1</sup> Norway, Denmark, Germany, Netherlands, Belgium, France, UK, Ireland

# Ownership: Model A: NSG TSO

Assessment criteria	Ownership models	
	Model A: NSG TSO	
	Advantages	Disadvantages
<b>Economic benefits</b>	(+) Economies of scale --> bring the costs down	(-) Risk of lack of competition --> higher costs
<b>Speed of implementation</b>	(+) Decisions made by one entity --> fast approach	(-) Complex and lengthy legislative procedure
<b>Socio-political acceptance</b>		(-) Reduction of national TSOs' and governments' sovereignty over the grid assets -->Low acceptance
<b>Provision of private capital</b>	(+) Also private investors as shareholders --> facilitate private capital provision	(-) Only national TSOs as shareholders --> balance sheet constraints --> hinder private equity provision

## Model B: Co-operation of national TSOs

Assessment criteria	Ownership models	
	Model B: Co-operation of national TSOs/OFTOs	
	Advantages	Disadvantages
<b>Economic benefits</b>	(+) Economies of scale by TSOs OFTOs increase competition --> bring the costs down	
<b>Speed of implementation</b>	(+) Overall agreement among parties -->Fast implementation	(-) No binding framework --> long procedures for construction of MOG
<b>Socio-political acceptance</b>	(+) Existing structures --> High acceptance	
<b>Provision of private capital</b>	(+) OFTOs have no debt level constraints	(-) Legal ownership constraints --> hinder private equity provision



## Model C: Tenders before construction

Assessment criteria	Ownership models	
	Model C: Tenders before construction	
	Advantages	Disadvantages
<b>Economic benefits</b>	(+) Intorduction of competition --> Cost savings	
<b>Speed of implementation</b>	(+) In UK already tenders More parts of the grid can be built at the same time --> Fast process	(-) Where TSO-model exists higher legislative effort is needed --> Longer process
<b>Socio-political acceptance</b>	(+) Cost savings --> High acceptance	(-) TSOs in competition with other investors to extend their RAB Separation of system operation and maintenance --> Low acceptance
<b>Provision of private capital</b>	(+) Facilitate private capital provision	

## Model D: NSG TSO builds – tenders to third parties

Assessment criteria	Ownership models	
	Model D: NSG TSO builds - tenders to third parties	
	Advantages	Disadvantages
<b>Economic benefits</b>	(+) Economies of scale --> bring the costs down NSG TSO relieved from financing burden --> investments at reasonable financial costs	(-) Transaction costs
<b>Speed of implementation</b>	(+) Decisions made by one entity --> fast approach	(-) Complex and lengthy legislative procedure
<b>Socio-political acceptance</b>	(+) Cost savings --> High acceptance	(-) Reduction of TSOs and governments' sovereignty over the grid assets Separation of system operation and maintenance --> Low acceptance
<b>Provision of private capital</b>	(+) Facilitate private capital provision	

## Model E: National TSOs build – tenders to third parties

Assessment criteria	Ownership models	
	Model E: National TSOs build - tenders to third parties	
	Advantages	Disadvantages
<b>Economic benefits</b>	(+) Economies of scale --> bring the costs down NSG TSO relieved from financing burden --> investments at reasonable financial costs	(-) Transaction costs
<b>Speed of implementation</b>		(-) Change to tender-system --> Complex and lengthy legislative procedure No binding framework --> long procedures for construction of MOG
<b>Socio-political acceptance</b>	(+) TSOs relieved from the financing burden Cost savings --> higher acceptance	(-) TSOs in competition with other investors to extend their RAB Separation of system operation and maintenance --> Low acceptance
<b>Provision of private capital</b>	(+) Facilitate private capital provision	

# System Operation: Co-operation of national TSOs

Assessment criteria	System operation models	
	Co-operation of national TSOs/SO	
	Advantages	Disadvantages
<b>Economic benefits</b>	(+) No interface risks between onshore & offshore operators --> less coordination costs	(-) Interface risks among offshore grid operators --> Higher cooperation & coordination costs
<b>Speed of implementation</b>	(+) Overall agreement among parties -->Fast implementation	(-) No binding framework --> Long time for operational coordination of MOG
<b>Socio-political acceptance</b>	(+) Existing structures --> High acceptance	
<b>Provision of private capital</b>	Of limited relevance: this operation model is an extension of current structures	

# NSG TSO

Assessment criteria	System operation models	
	NSG TSO	
	Advantages	Disadvantages
<b>Economic benefits</b>	(+) One control centre for the entire MOG -->limit possible co-operation & coordination costs (offshore)	(-) Interface risks between NSG TSO and onshore TSOs/SOs -->higher co-operation & coordination costs(onshore-offshore)
<b>Speed of implementation</b>		(-) Complex and lengthy legislative procedure Interaction between NSG TSO and onshore TSOs/SOs --> Lower development pace of MOG
<b>Socio-political acceptance</b>		(-) Reduction of TSOs' and governments' sovereignty over the grid assets, --> Low acceptance
<b>Provision of private capital</b>	If NSG TSO includes private investors the criterion is very relevant: remuneration of investors for the system operation Evaluation to be determined	



# NSG ISO

Assessment criteria	System operation models	
	NSG ISO	
	Advantages	Disadvantages
<b>Economic benefits</b>	(+) One control centre for the entire MOG -->limit possible co-operation & coordination costs offshore	(-) Interface risks between NSG ISO and onshore TSOs/SOs -->higher co-operation & coordination costs (onshore-offshore)
<b>Speed of implementation</b>		(-) Complex and lengthy legislative procedure Interaction between NSG ISO and onshore TSOs/SOs --> Lower development pace of MOG
<b>Socio-political acceptance</b>		(-) Reduction of TSOs' and governments' sovereignty over the grid assets Separation of system operation and maintenance --> Low acceptance
<b>Provision of private capital</b>	The NSG ISO could be a not-for-profit enterprise	

## APPENDIX

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*The opinions in this presentation are those of the author and do not commit in any way the European Commission*

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