

DEFINING SECURITY OF SUPPLY

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OVERVIEW

Security of energy supplies is a popular topic in both policy discussions and academic papers. Still there is a lot of confusion about what is actually meant by the term. Different aspects of supply security are investigated in separate papers. What is missing is a common framework for putting the analyses together in order to obtain a complete picture and a common language to avoid misunderstanding in the collaborative research effort. Our paper is a first step in this direction.

METHOD

- Literature Review.

RESULT

Looking at the most common security of supply definitions we find that the common underlying concept can be described as the *safety of a system from supply related threats*.

We extend the work of [1] by identifying a total of five dimensions along which interpretations of this concept can be distinguished.

The first two dimensions describe the *system boundaries* in terms of the *sources of risk* and the *scope of the impact measure* that are considered. The remaining three dimensions describe the *type of behaviour* that is considered a threat in terms of the *size* and the *speed* of the impact and the *singularity* of its occurrence.

We map existing security of supply definitions to this framework (Fig. 1) and show how frequent disputes concerning the definition are connected to differing opinions about the appropriate impact measure or the size of disturbances that should be considered a security issue.

Security of Supply Definition	System Boundaries								Certainty of Impacts						
	Source of Risk				Scope of Impact Measure				Speed of impacts		Size of Impacts		Certainty of impacts		
	Nature	Technology	Human Perfect Markets	Human Market Failure	Commodity	Monetary Value	Services	Environment, Society	short, shocks	long, stresses	normal behaviour	phase change	Occurrence Unexpected	Occurrence Expected	Occurrence Time Predicted
IEA (2007)	x	x	x	x	x				x	x	x	x	x	x	x
Bohi & Toman (1996)	x	x	x	x		x			x	x	x	x	x	x	x
Li (2005)	x	x	x	x			x		x	x	x	x	x	x	x
EC (2001)	x	x	x	x	x			x	x	x	x	x	x	x	x
Kruyt- Availability	x				x				x	x	x	x	x	x	x
Kruyt- Accessibility			x	x	x				x	x	x	x	x	x	x
Kruyt- Affordability	i	i	i	i		x			x	x		x	x	x	x
Kruyt- Acceptability	i	i	i	i				x	x	x	x	x	x	x	x

Fig. 1. Dimensions of Supply Security Covered by Different Definitions

In order to obtain a complete picture of supply security all of the above mentioned aspects have to be analysed and aggregated in a suitable fashion.

CONCLUSION

There are several possible interpretations of supply security, which depend on how the boundary of the system is set and which types of behavior are considered as threats.

While a wider interpretation has the advantage of being more complete, it increases the complexity of measurement. Most models therefore choose to quantify only parts of the possible connotations. In the light of this development it is important to develop a common language for the distinction between interpretations in order to avoid confusion. Our paper suggests five dimensions that can be used to make this distinction.

REFERENCES

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