



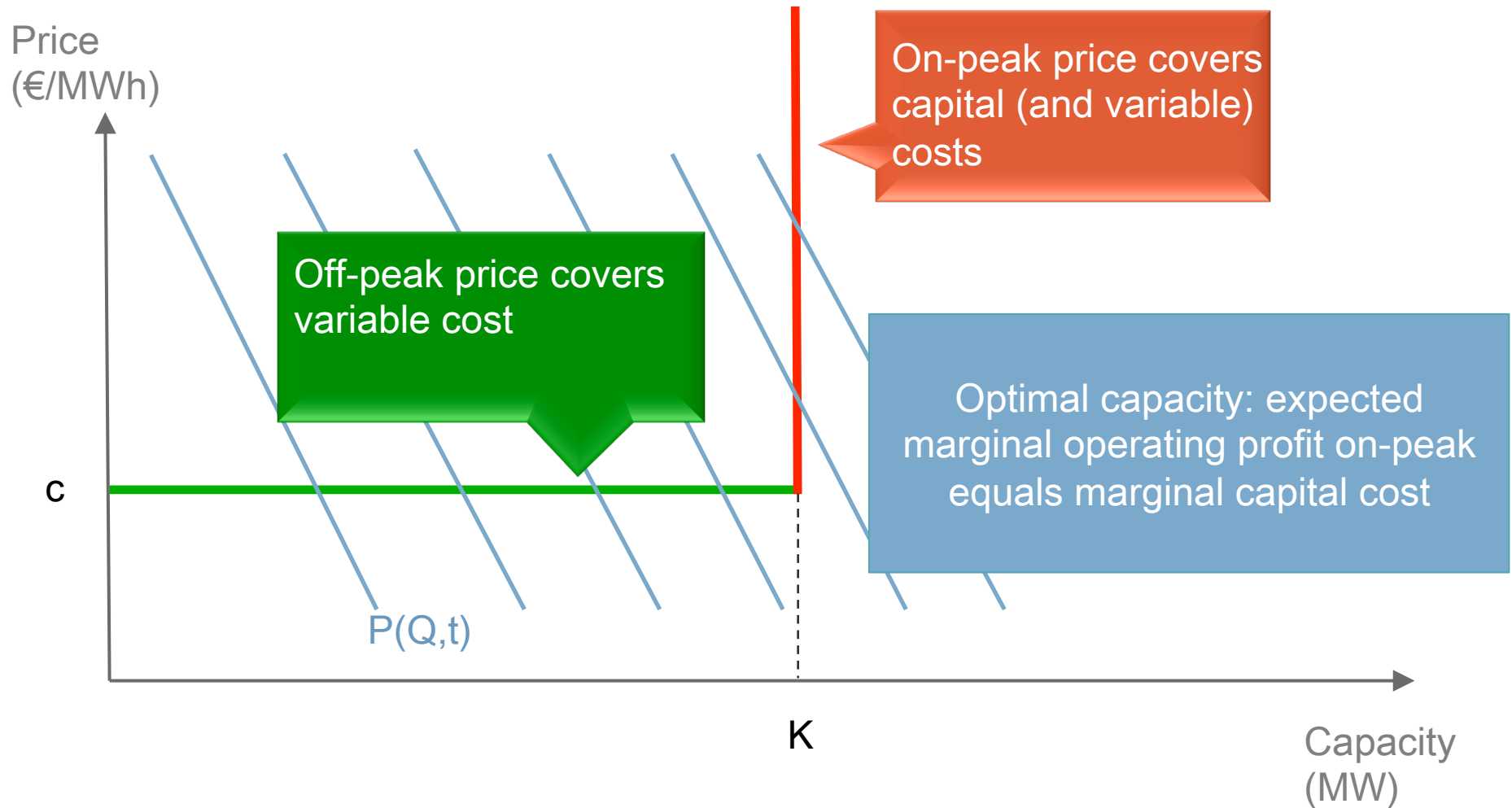
The visible hand: perspectives on capacity markets and mechanisms

Thomas-Olivier Léautier

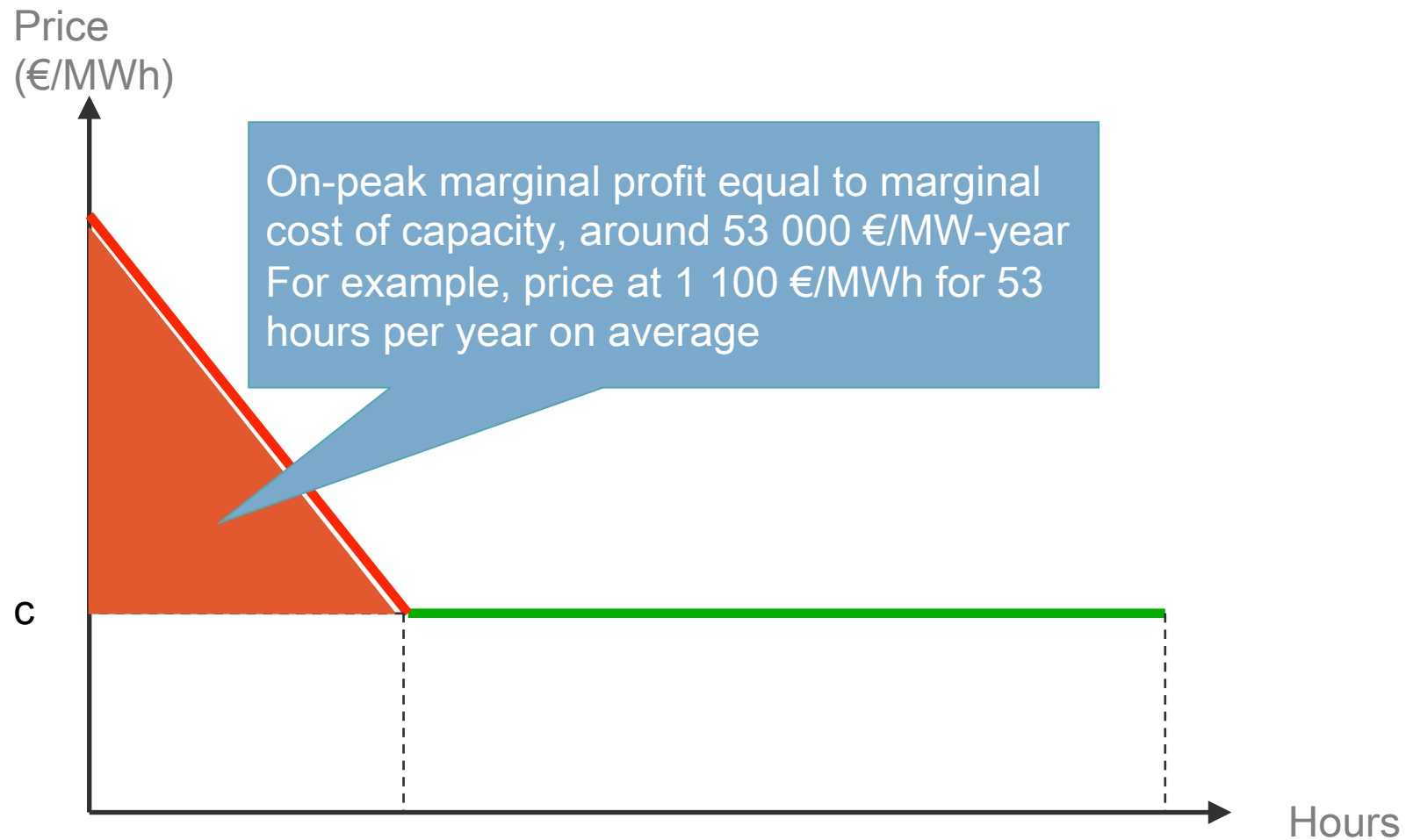
Toulouse School of Economics and
University of Toulouse School of Management

Paris, December 2013

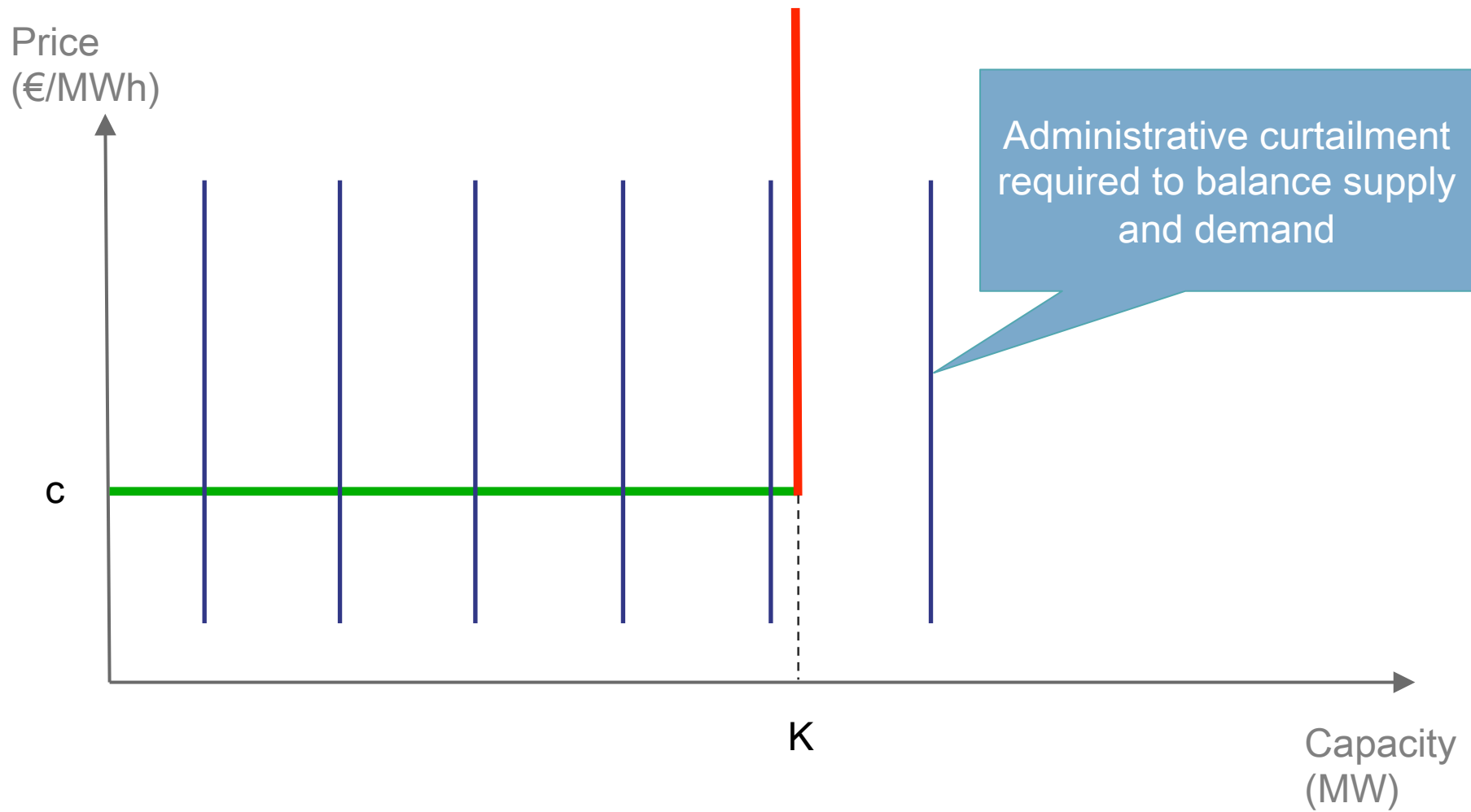
Optimal retail price and capacity – price responsive demand



Implementation of optimal pricing



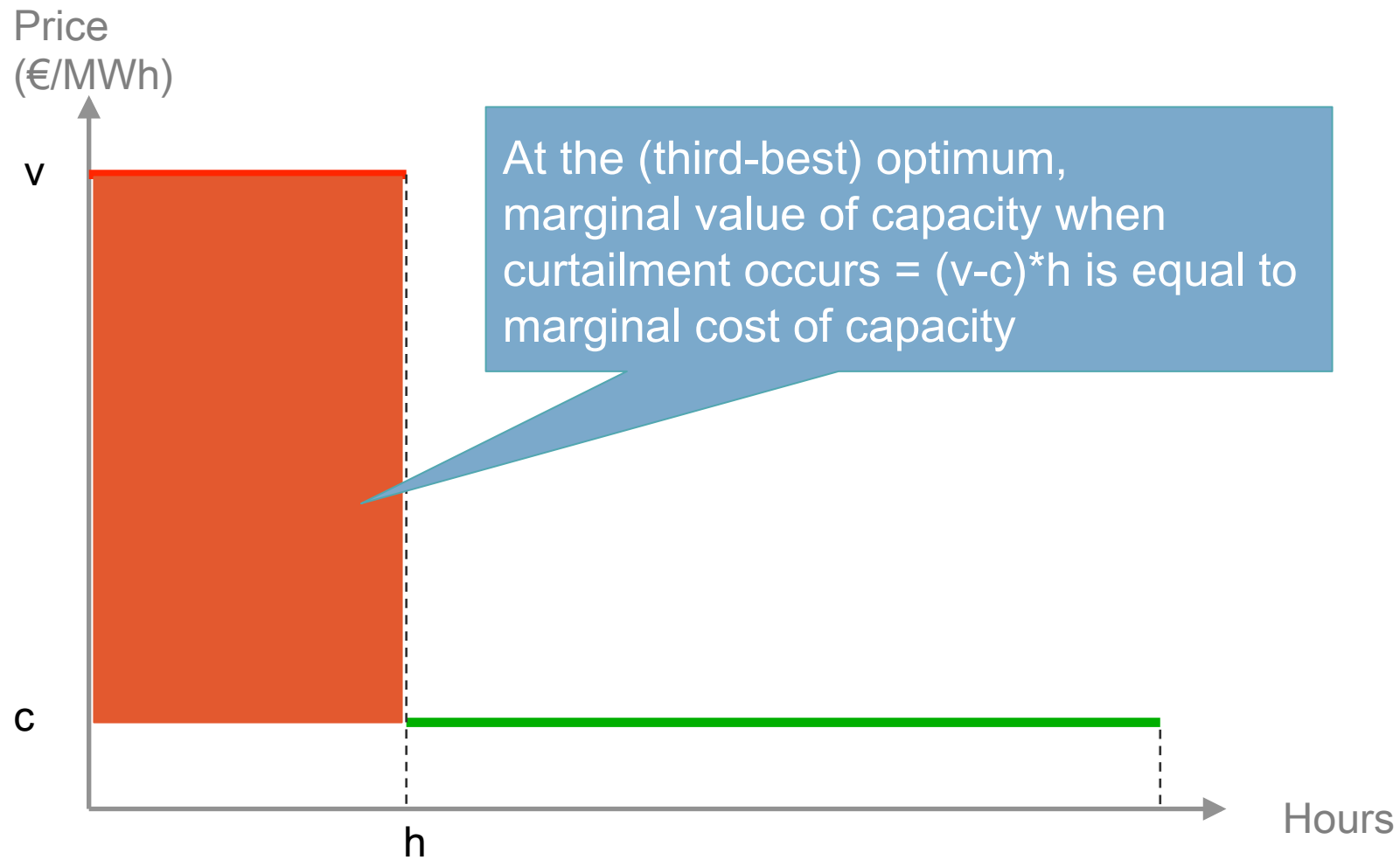
Optimal price and capacity -- inelastic demand



Value of Lost Load

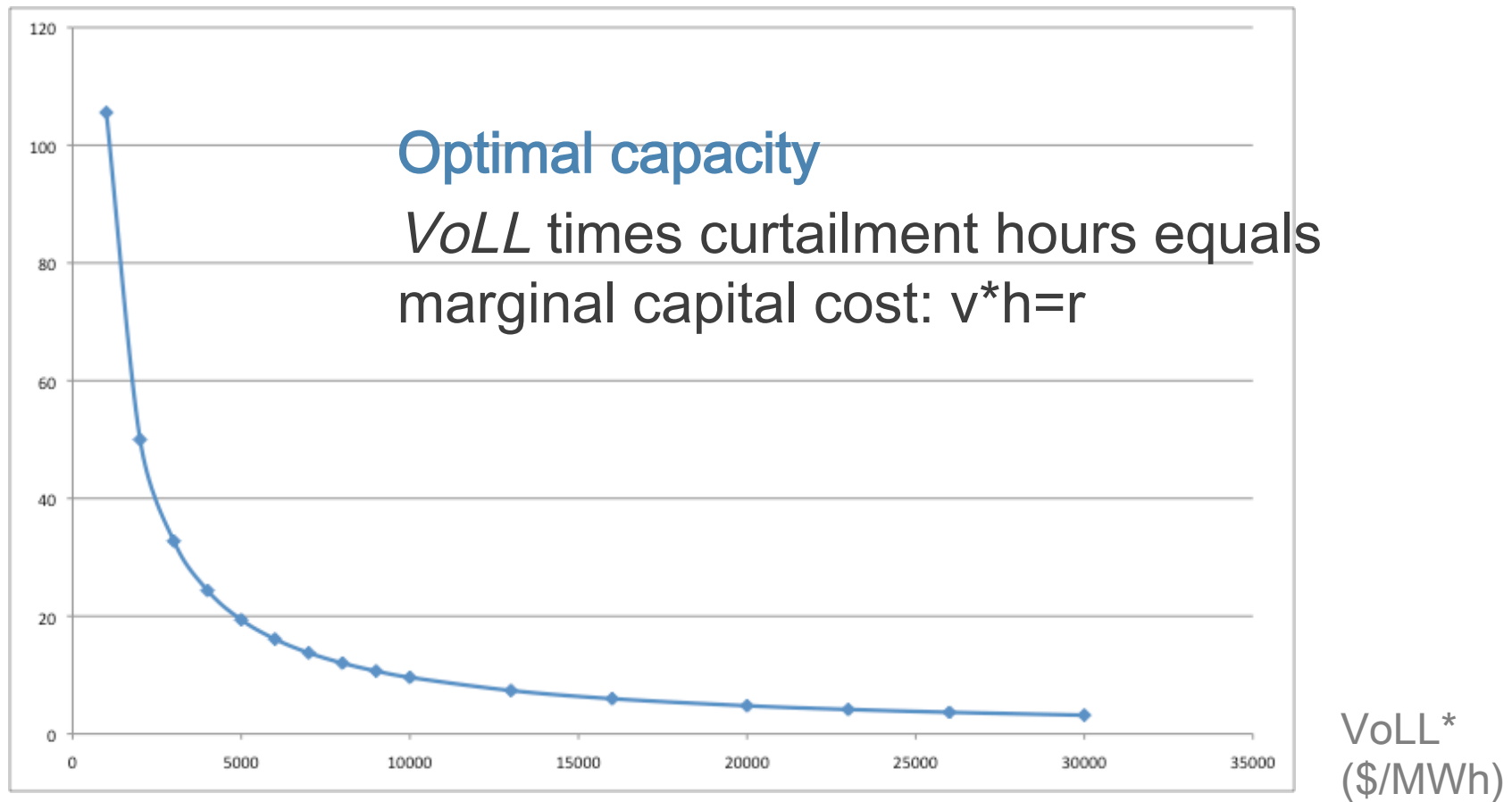
- Value of Lost Load ($VoLL$) is consumers willingness to pay for 1 MWh when curtailed
- $VoLL$ varies across states of the world, consumers classes, outage types and durations
- $VoLL$ (for a given quantity) always higher than price
- Distribution of $VoLL(s)$ is not known. SOs use administrative estimate, denoted v

Optimal pricing and capacity inelastic demand

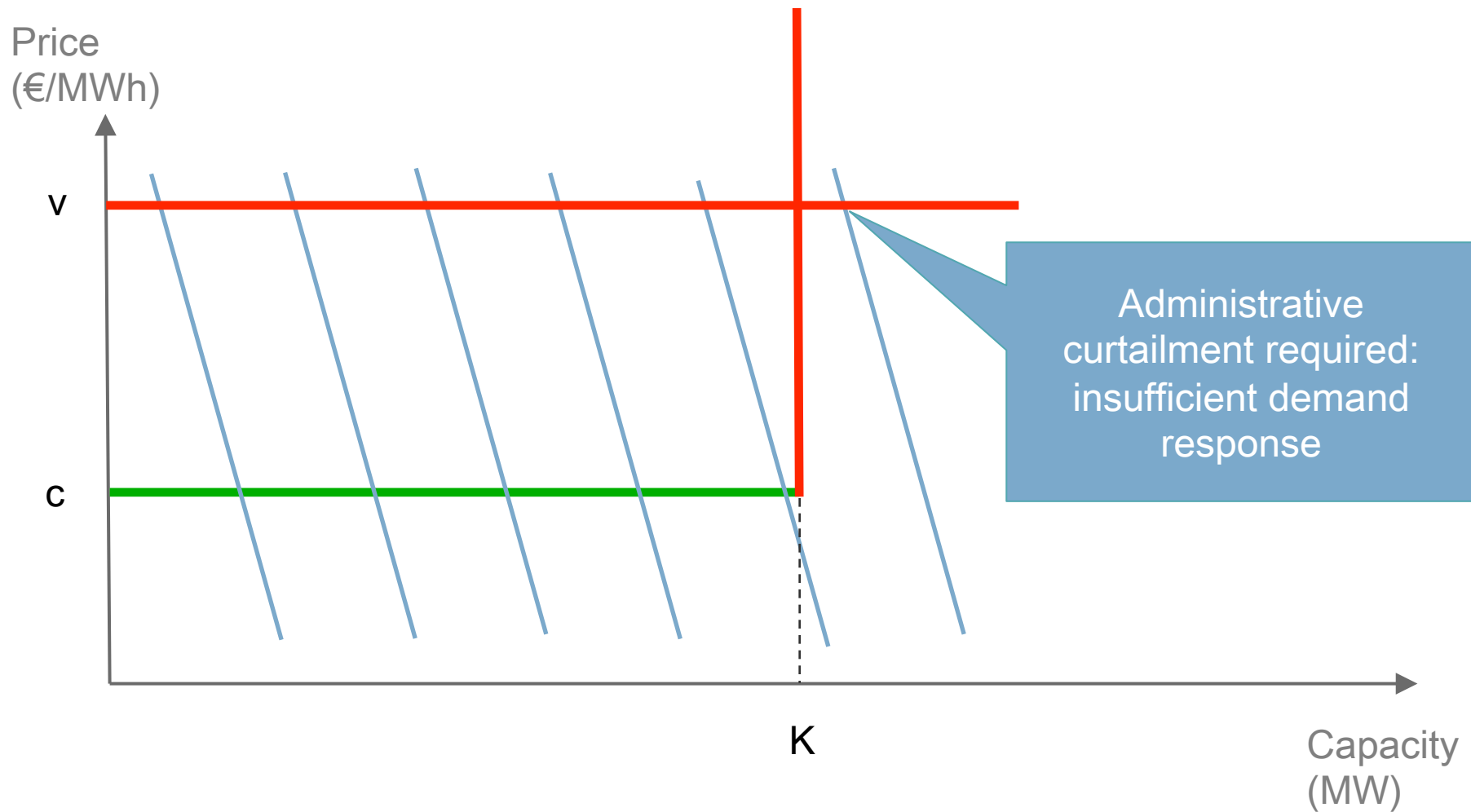


VoLL vs. Expected curtailment hours

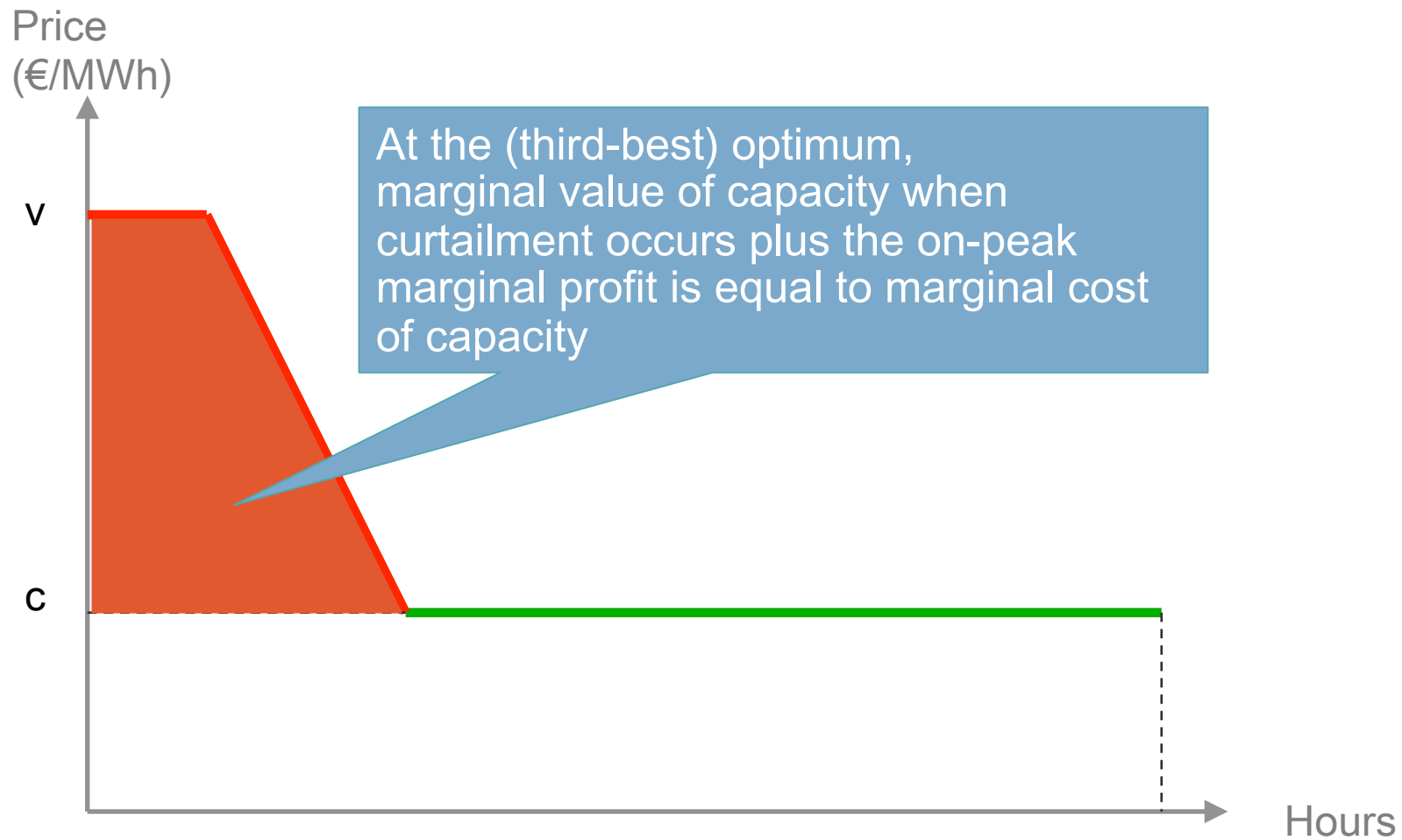
Curtailment hours



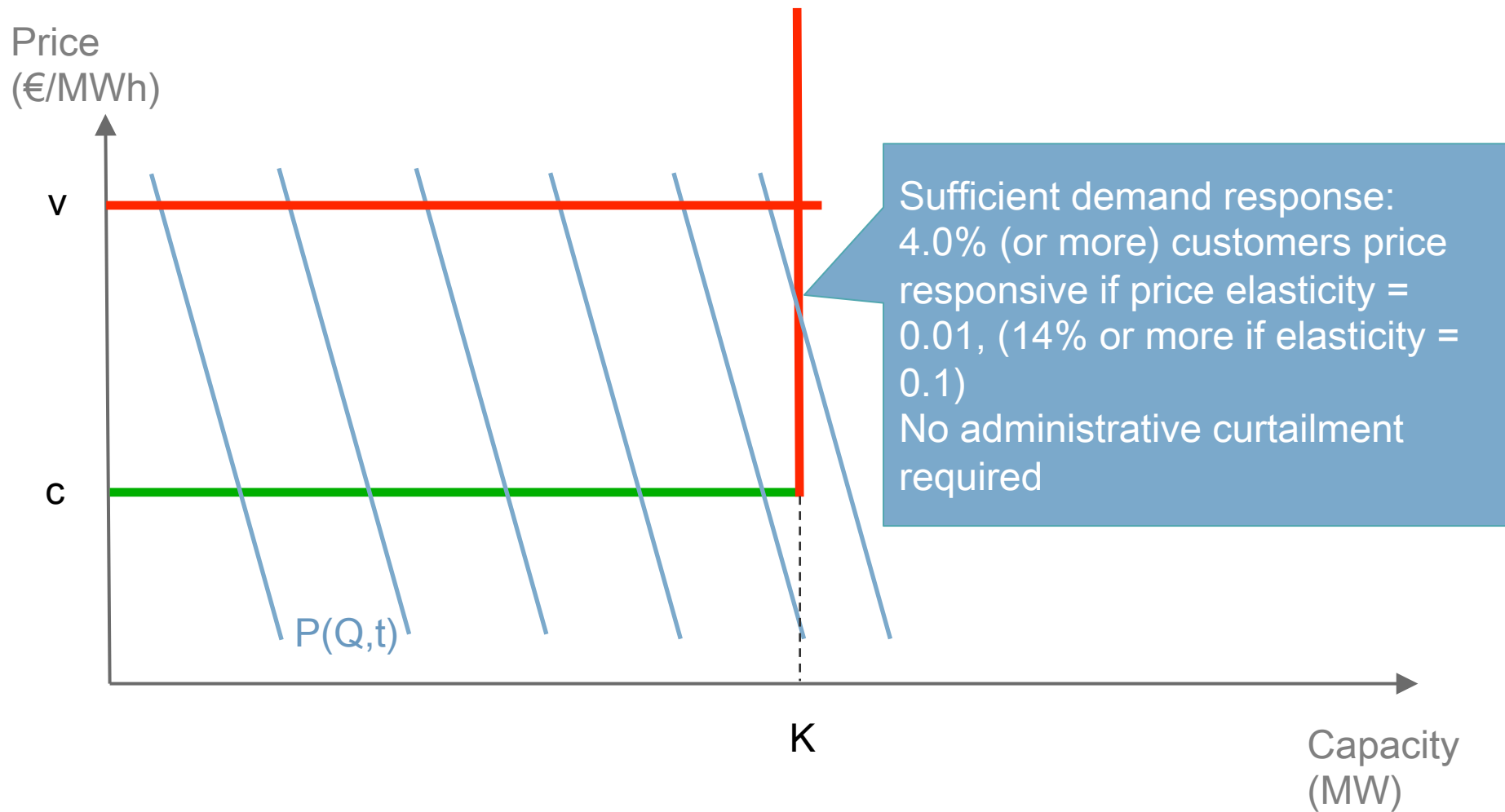
Optimal retail price and capacity – partially elastic demand, curtailment required



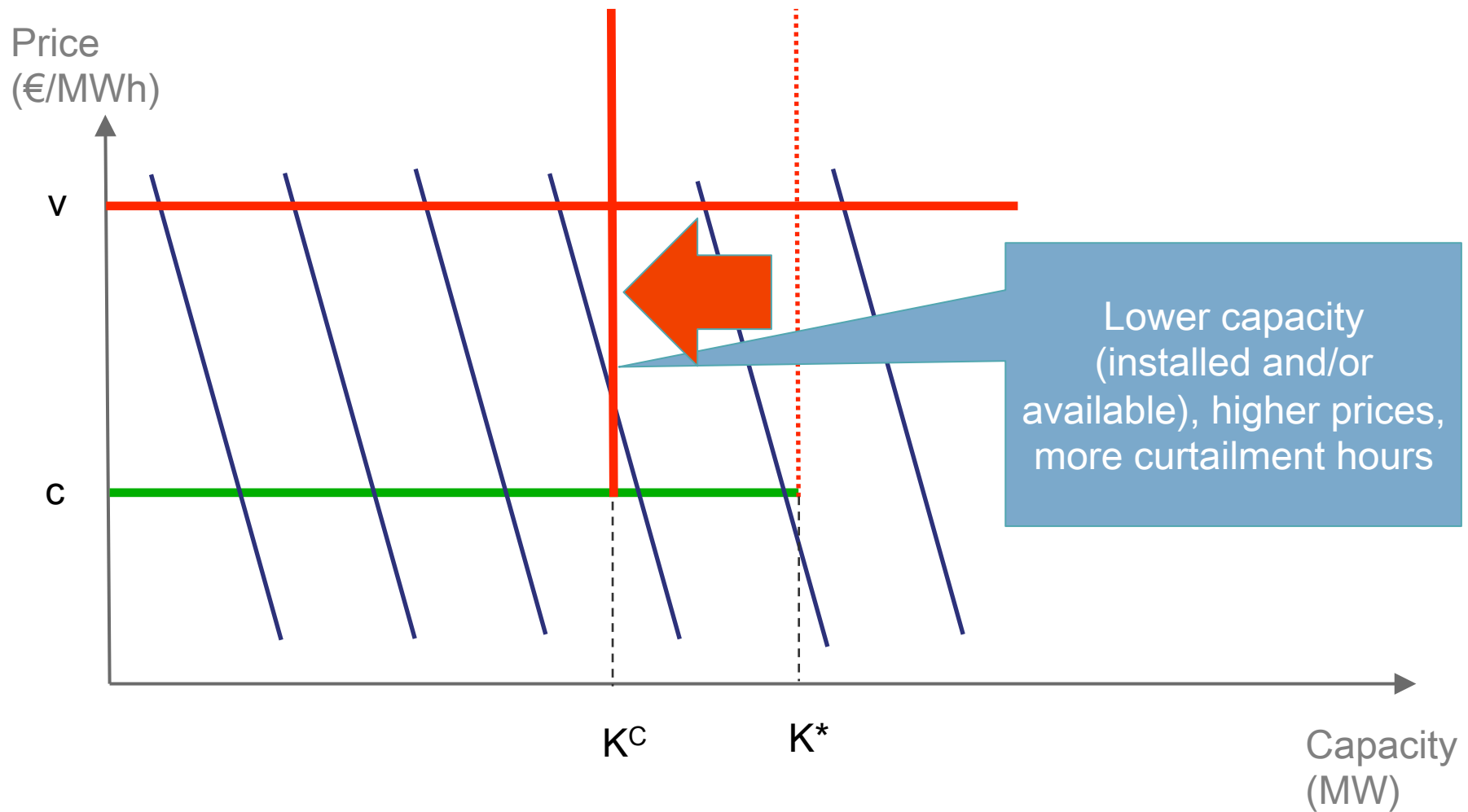
Resulting optimal pricing



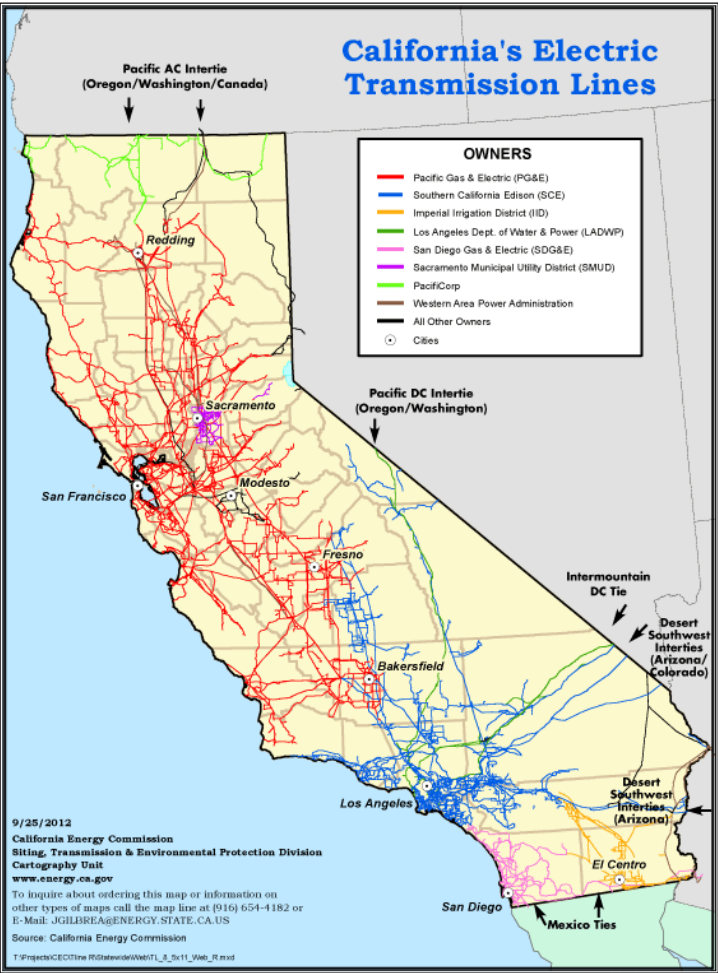
Optimal retail price and capacity – partially elastic demand, no curtailment required



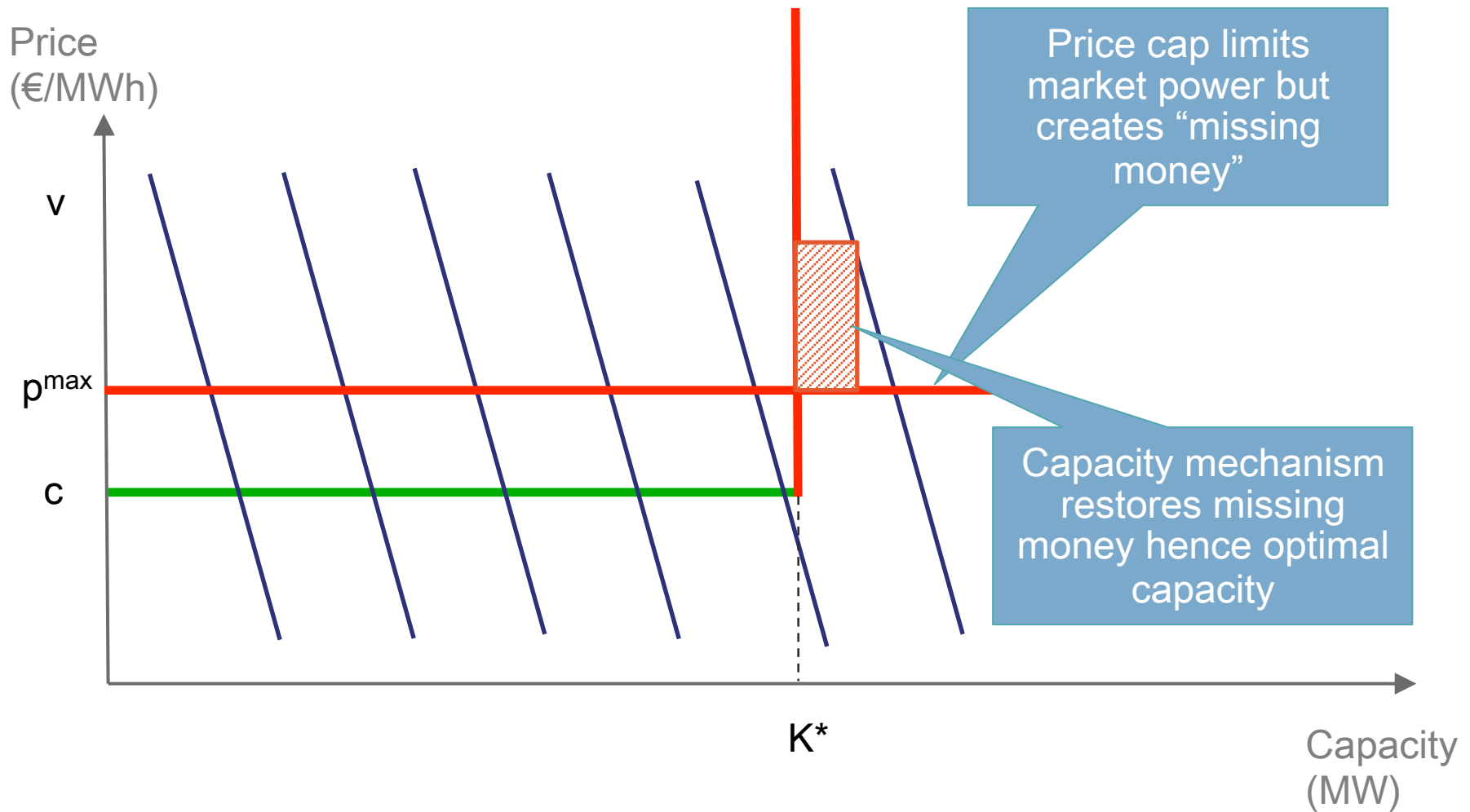
Risk to energy-only markets: producers' exercise of market power



If you do not believe in market power ...



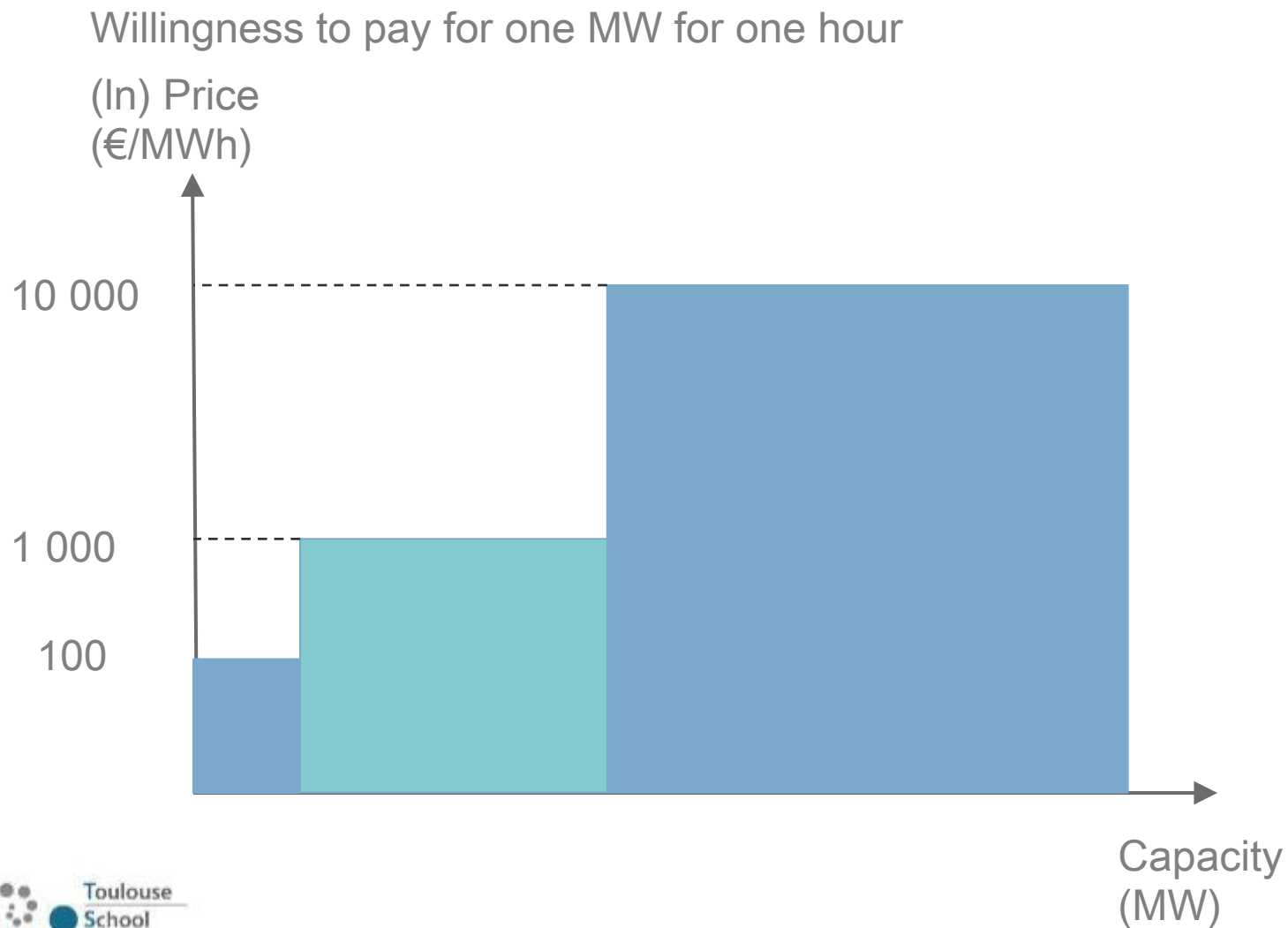
Policy response: capacity mechanism



Perspective on capacity mechanisms

- Capacity mechanisms are capital subsidies to non renewable power producers, as Feed in Tariffs are capital subsidies to renewable power producers
- Political economy: transfer from consumers to utilities to limit damage from renewables
- Main drawbacks:
 - Complex administrative mechanisms – back to regulation?
 - Probable inconsistencies between national capacity mechanisms: European Commission rightly skeptical
 - Detract attention from flexibility and demand response, which are key issues

Large users demand response curve



Capital subsidies reduce demand response

