



Hydro Tasmania

FCAS Presentation to OTTER

Contents

- Preferred Price Control Mechanism
- Determining the Cost Elements
- Pricing and Allocating the Cost Elements
- Considering Confidentiality
- Hedge Contract Principles
- Summary

Preferred Price Control Mechanism

- Regulating hedge contracts provided by Hydro Tasmania is the preferred price control mechanism:
 - Consistent with the National Electricity Market Objective.
 - No impact on market dispatch outcome.
 - No impact on the wider National Electricity Market.
 - Allows participants to know and manage their exposure in advance.
 - Not impose significant regulatory costs on the Regulator or Hydro Tasmania.

Determining Cost Components

- Inefficient generation as a result of providing FCAS
- Critical inertia (synchronous condenser)
- Cost of the FCAS Regulation Process

Pricing the Cost Elements

Inefficient Generation

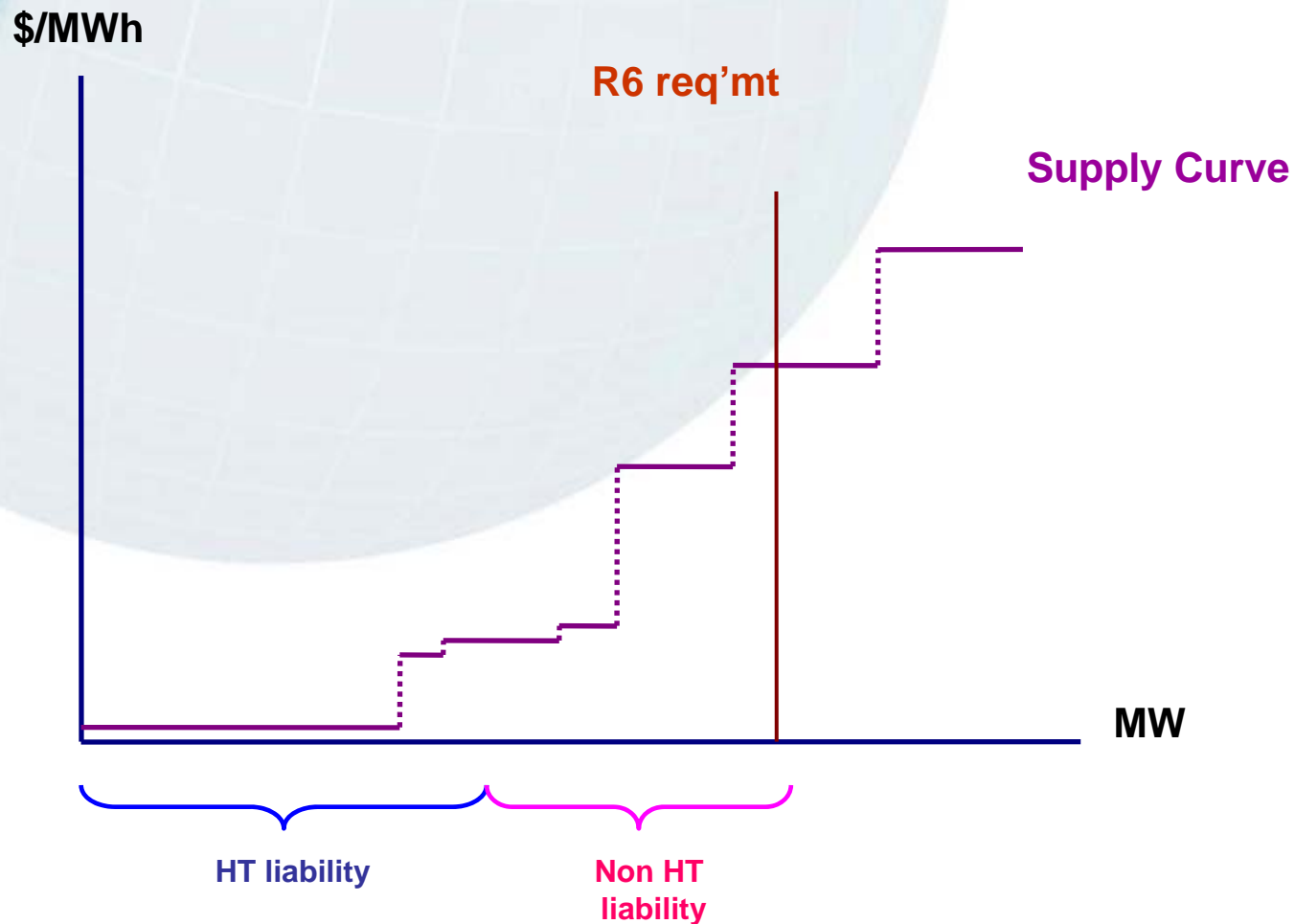
Cost component	Cost calculation	Price reference
Foregone energy	Inefficiency * Unit Cost	New Entrant LRAC
Foregone REC	Inefficiency * REC probability * REC price	REC Spot Price
Start up cost	No. additional starts * Start up costs	Start up costs

Allocation Methodology

- Cheapest capability allocated to Hydro Tasmania's own liability
- Competitors are attributed costs of supply up to the marginal supplier pro-rated on expected energy output

Pricing the Cost Elements cont.

Allocation methodology for Inefficient Generation



Pricing the Cost Elements cont.

Critical inertia (synchronous condenser)

Cost component	Cost calculation	Price reference
Energy absorbed	Volume (MWh) * energy price	Forward Vic contract price
REC reduction	Volume (MWh) * REC price * REC probability	REC Spot Price
Start up cost	No. additional starts * Start up costs	Start up costs

Cost of the FCAS Regulation Process

FCAS Regulation Process Determination	Total Resource Cost proportionally allocated to generators	Fixed value (total cost proportioned per quarter).
---------------------------------------	--	--



Considering Confidentiality

- Need to protect Hydro Tasmania's commercial information
 - Variables referenced to external values as much as possible
 - Most contractual information to participants
 - Some information can only be provided to the Regulator
-
- Semi-transparent process: would allow Regulator to approve value of pricing parameters before contract entered into

Considering Confidentiality cont.

Pricing Component Disclosure

Disclosed to Market

- Planned outages
- Other commitments
- Foregone energy (aggregated)
- REC probability
- No. of starts (FCAS)
- New entrant LRAC
- Start up costs
- REC price
- Vic forward price curve
- REC price
- REC reduction (MWh)
- No. of starts (critical inertia)
- FCAS Regulation process costs
- Hedge admin cost

Disclosed to Regulator

- Forecast hydro generation
- Forecast Basslink flow
- Forecast competitor on-island generation
- Forecast contingency size
- Allocation mechanism for inefficient generation



Hedge Contract Principles

- Form of regulation should provide for customisation of products
- Standard contract cover liability for all three raise FCAS products
- Contract based on standard ISDA form
- Term: termination date no later than the end of the determination
- Parameters: only set when there is a request for contract

Hedge Contract Principles cont.

- **Contract Exclusions**
 - Are events such as Gordon and Basslink forced outages
 - Characteristics which make them very hard to price are
 - Low probability
 - High impact
 - Unknown duration
 - Timing
 - Revised price offered when actual event happens
 - Terms used to limit risk exposure and provide better value to customers
 - The use of exclusion contract terms is preferred to 'pricing in' outliers or extreme events

AETV and Provision of FCAS

- Frequency Operating Standards Review
 - AETV have consistently relied on the ROAM modelling which has always used 30MW of fast raise.
 - Aurora/AETV have consistently endorsed this modelling
- AETV's claim: "that the actual costs to Hydro of providing FCAS contingency services are very minimal", is not true.
 - Total recent cost of raise FCAS is \$4-5 million pa
 - Hydro Tasmania has invested over \$1million in reducing FCAS costs in last 12 months

Summary

- Regulating FCAS hedges is the best approach
- AETV's claim of "minimal cost" is wrong
- Pricing methodology maximises use of public information but some values can not be made public



Hydro Tasmania

the renewable energy business

