

Abatement Cost and Cost-Effectiveness In European Refineries

Update for EGTEI
November 2011



EGTEI February 2011:

- ▶ Presented approach to updating refinery emissions abatement costs
- ▶ Challenges
 - ▶ Commercially valuable information
 - ▶ Competition laws restrict information exchange
- ▶ Method
 - ▶ Proposed EGTEI (2005) synopsis sheet values and asked for feedback
 - ▶ Units sized to common scale
 - ▶ Standardised cost approach (interest rates, write down period)
 - ▶ Asked High or Low - by how many times
- ▶ Results
 - ▶ Presented "mid range" values of the responses as annualised costs.
 - ▶ Calculated incremental marginal costs for some technique combinations
 - ▶ Estimated how marginal costs might vary across refineries based on their 2006 emissions
 - ▶ 400+ combustion stacks, 33 FCC units and 56 Sulphur Recovery Units

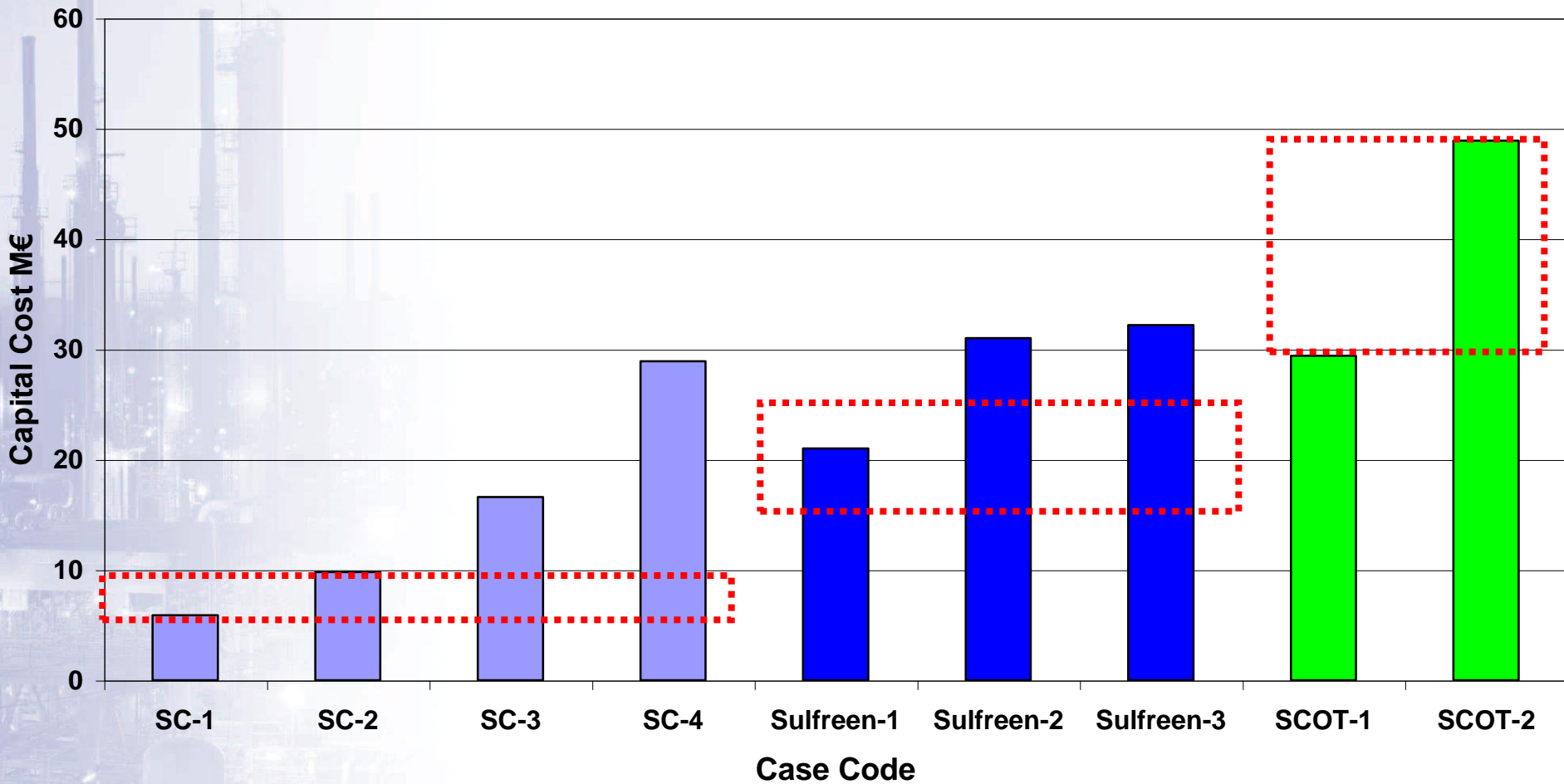


- ▶ Looked at spread about mid-range more closely.
 - ▶ Asked for specific data (still scaled for anonymity)
 - ▶ Identify and eliminate outliers
 - ▶ 5x upper cut-off on EGTEI uplift
- ▶ Evaluated how a cost-effectiveness argument might lead to investments in abatement.
 - ▶ Reference value for effectiveness threshold (€/tonne)
 - ▶ Policy shadow price derived from Thematic Strategy on Air Pollution
 - ▶ Referenced to the Economics and Cross Media Bref
 - ▶ Reflects policy ambition - for industry to be delivered via the IED
- ▶ Reported the work in public document CONCAWE 6/11
 - ▶ Available on www.concaawe.org and through EGTEI.

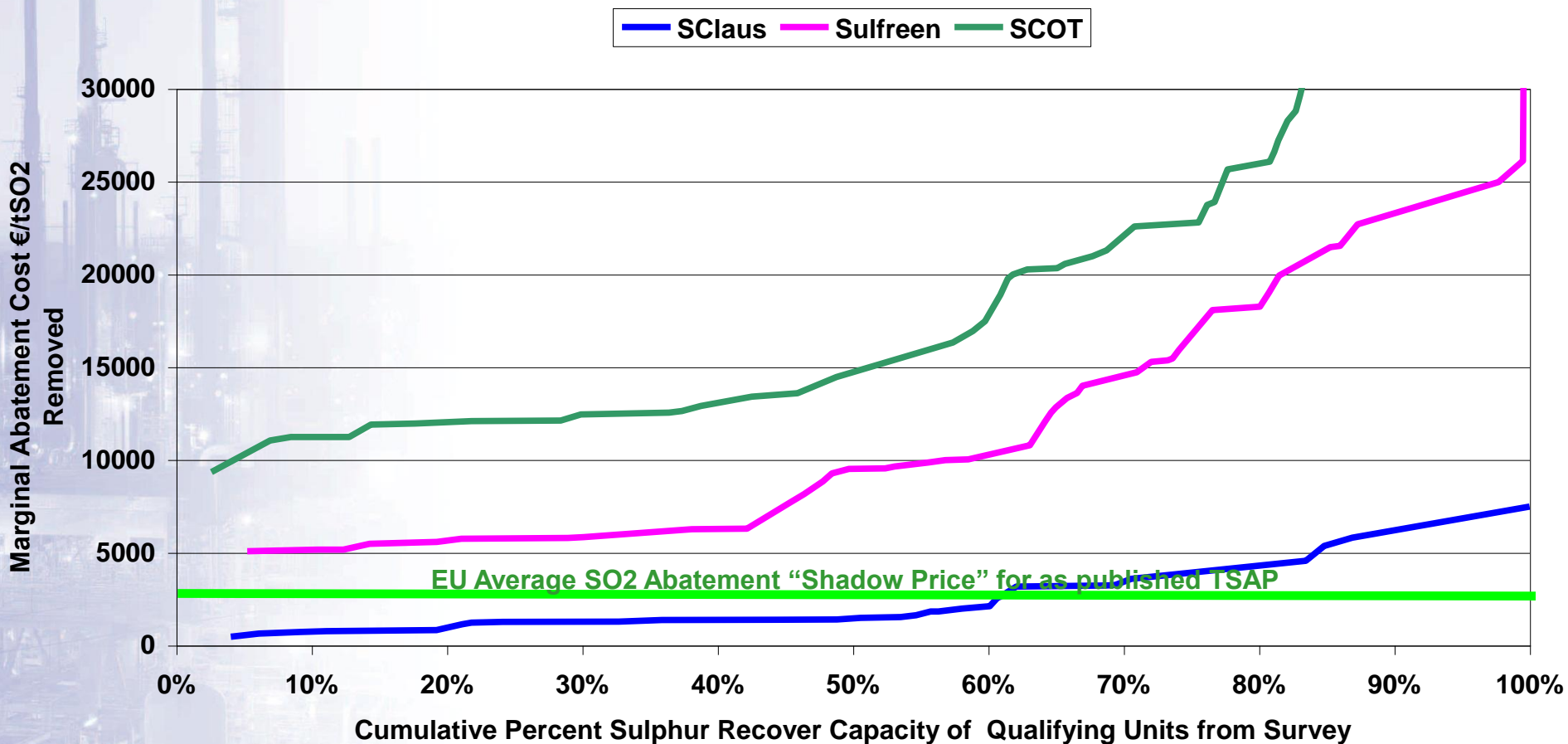


Concaawe Member Company Input on BAT Costs for Existing SRUs

(all cases adjusted to EGTEI reference size of 33ktS/y)

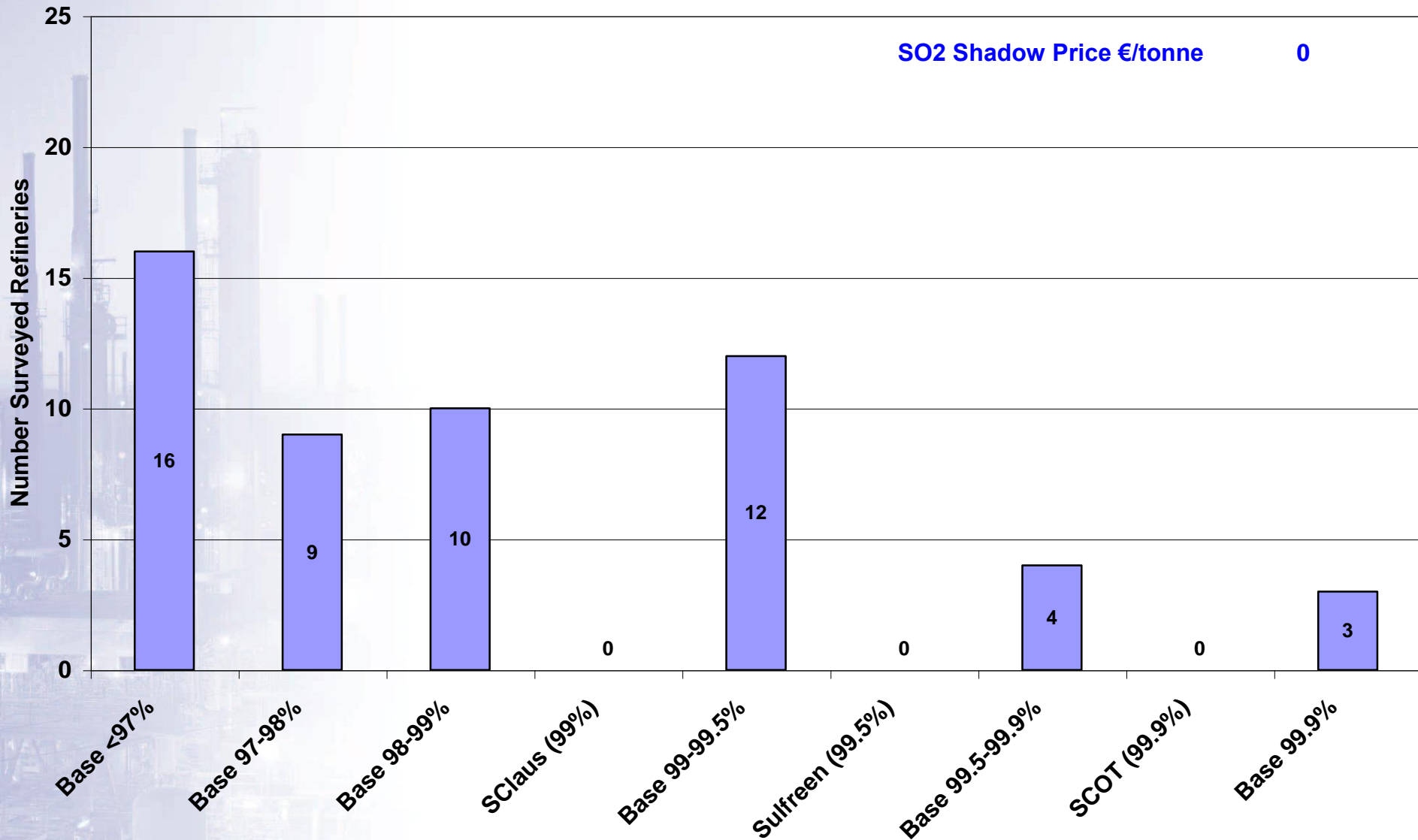


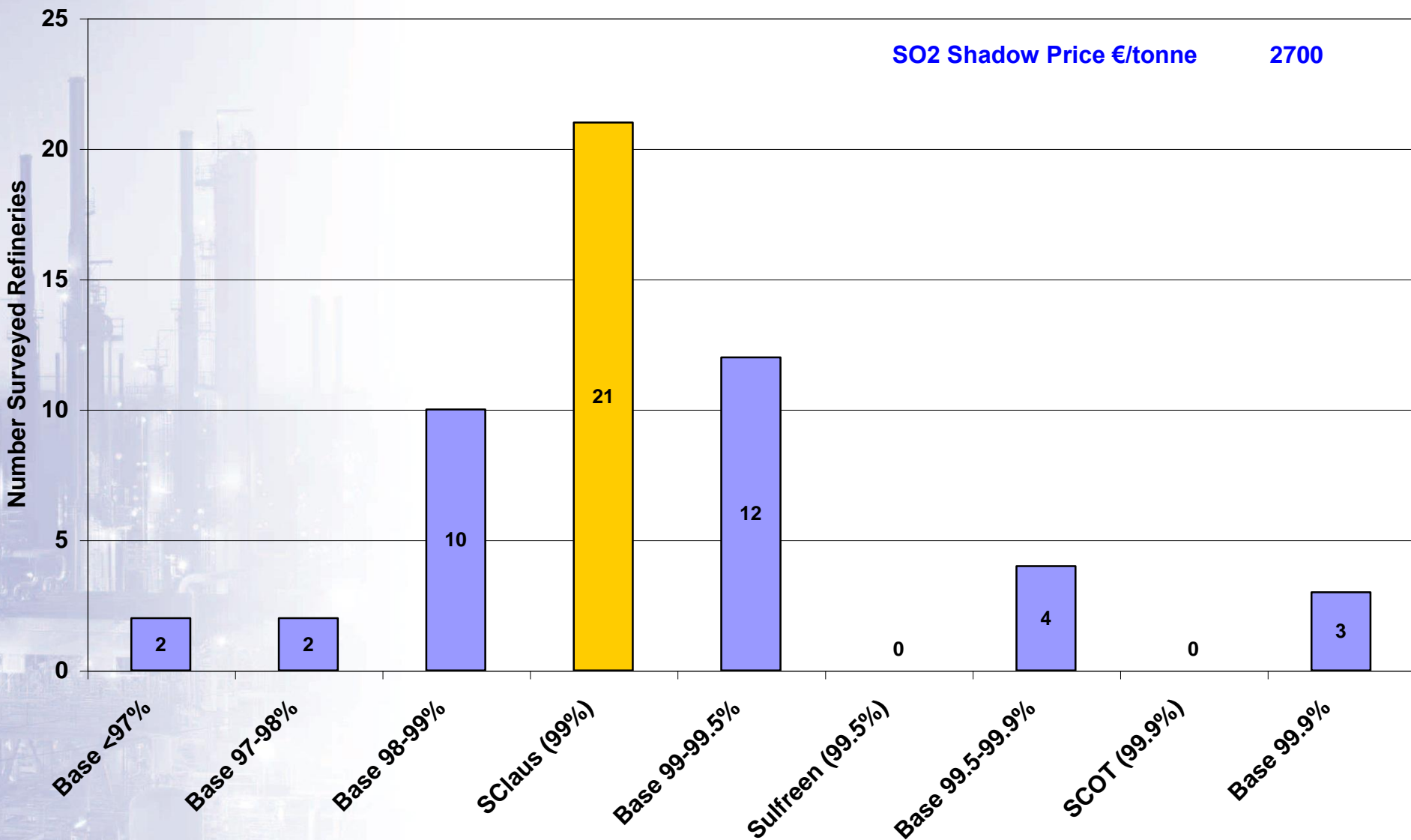
Estimated Abatement Costs/tSO₂ For Sulphur Recovery Units Based On Operational Data From Concawe's 2006 Sulphur Survey and Member Company "Mid-Range" Cost Data

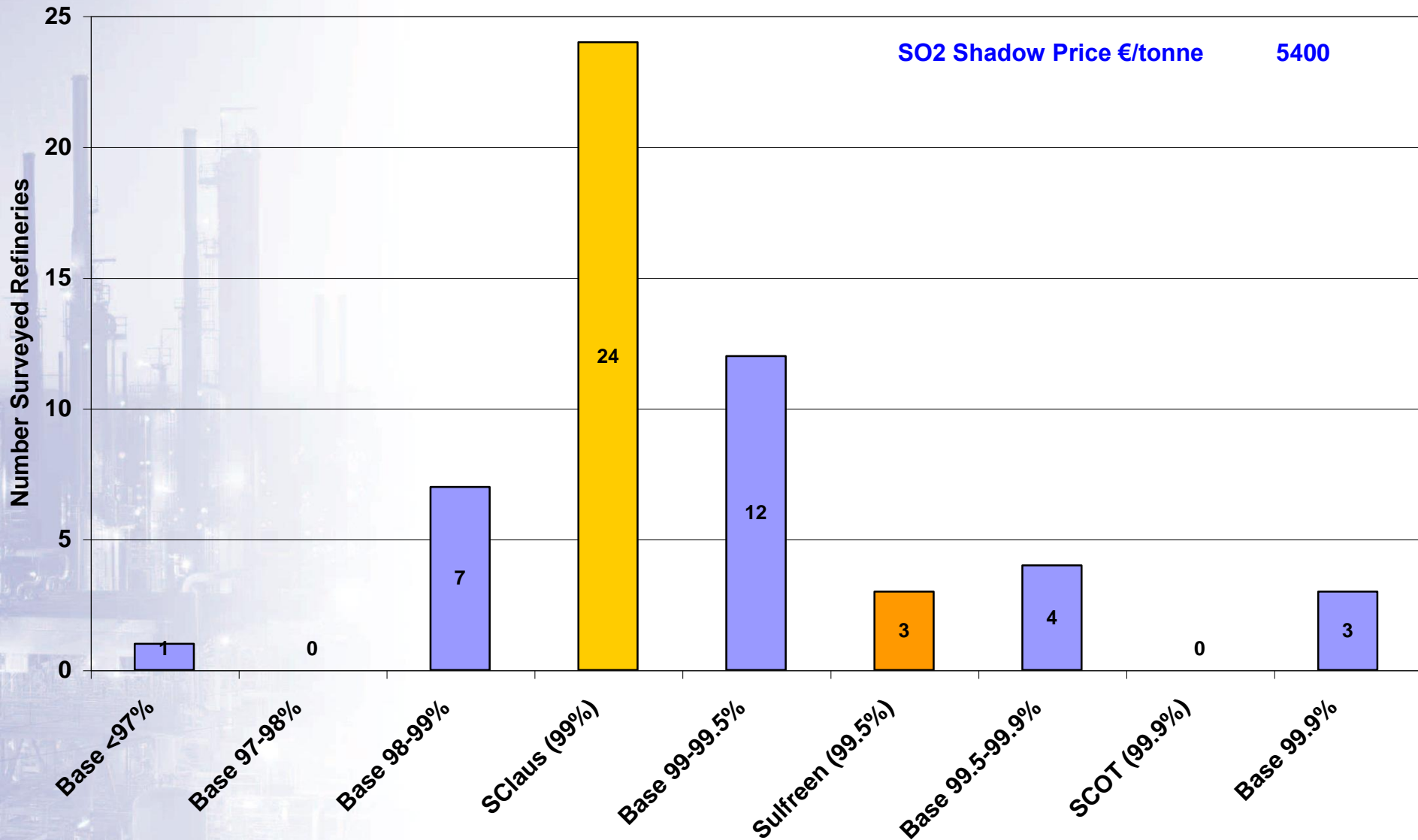


Implications for Existing Installations As of 2006

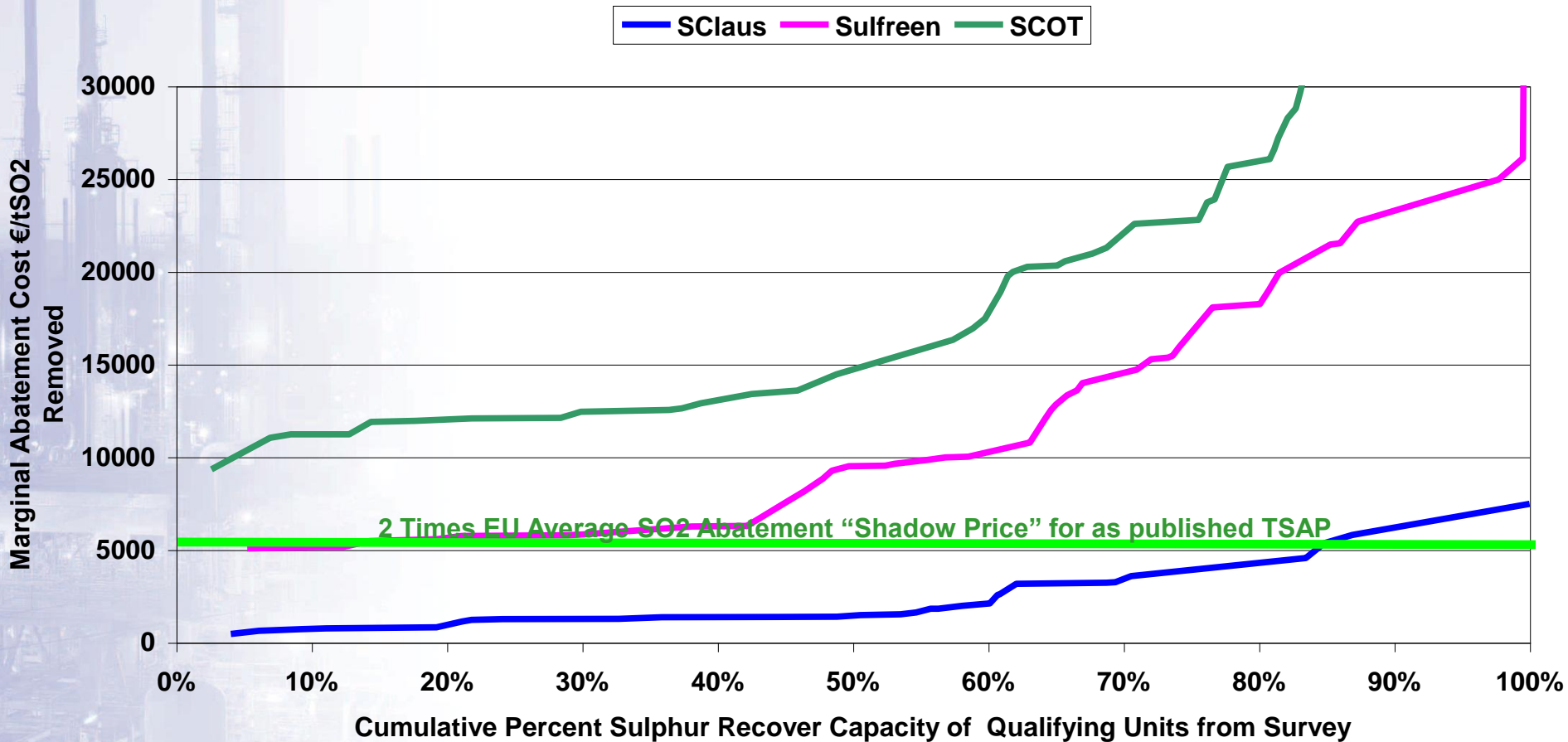








Estimated Abatement Costs/tSO₂ For Sulphur Recovery Units Based On Operational Data From Concaawe's 2006 Sulphur Survey and Member Company "Mid-Range" Cost Data



- ▶ Approach to member companies proved a viable way to obtain difficult and sensitive data.
- ▶ Learned that the increased costs from EGTEI (2005) were mainly due to installation and retrofit.
- ▶ Need to look for reasons for high (and low) as individual circumstances can be very different.
- ▶ Use of an external standard is useful cost-effectiveness measure
 - ▶ Note:
 - ▶ principle of external standard is the important item
 - ▶ maybe reasons for other than cost-effectiveness controlling decisions.
- ▶ Given industry wide data can judge the potential impacts of the cost-effectiveness judgement => important for BAT conclusions
- ▶ Extending data collection => PM control on FCC



Thank you for your attention!

