

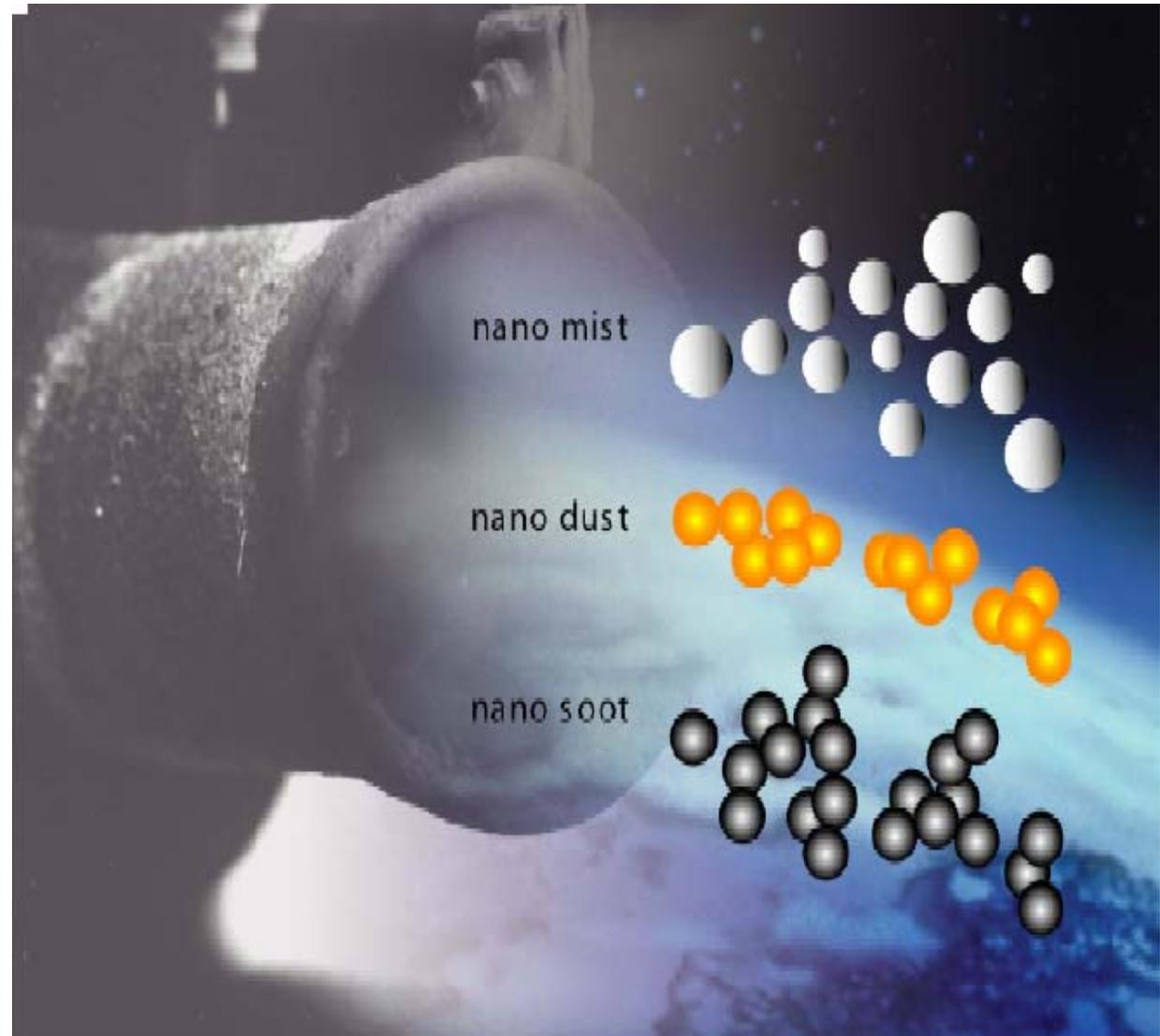
Regulation and Policy Aspects for Country-wide Implementaion of PFS-Technology

A. Mayer
TTM

Pollutant defined

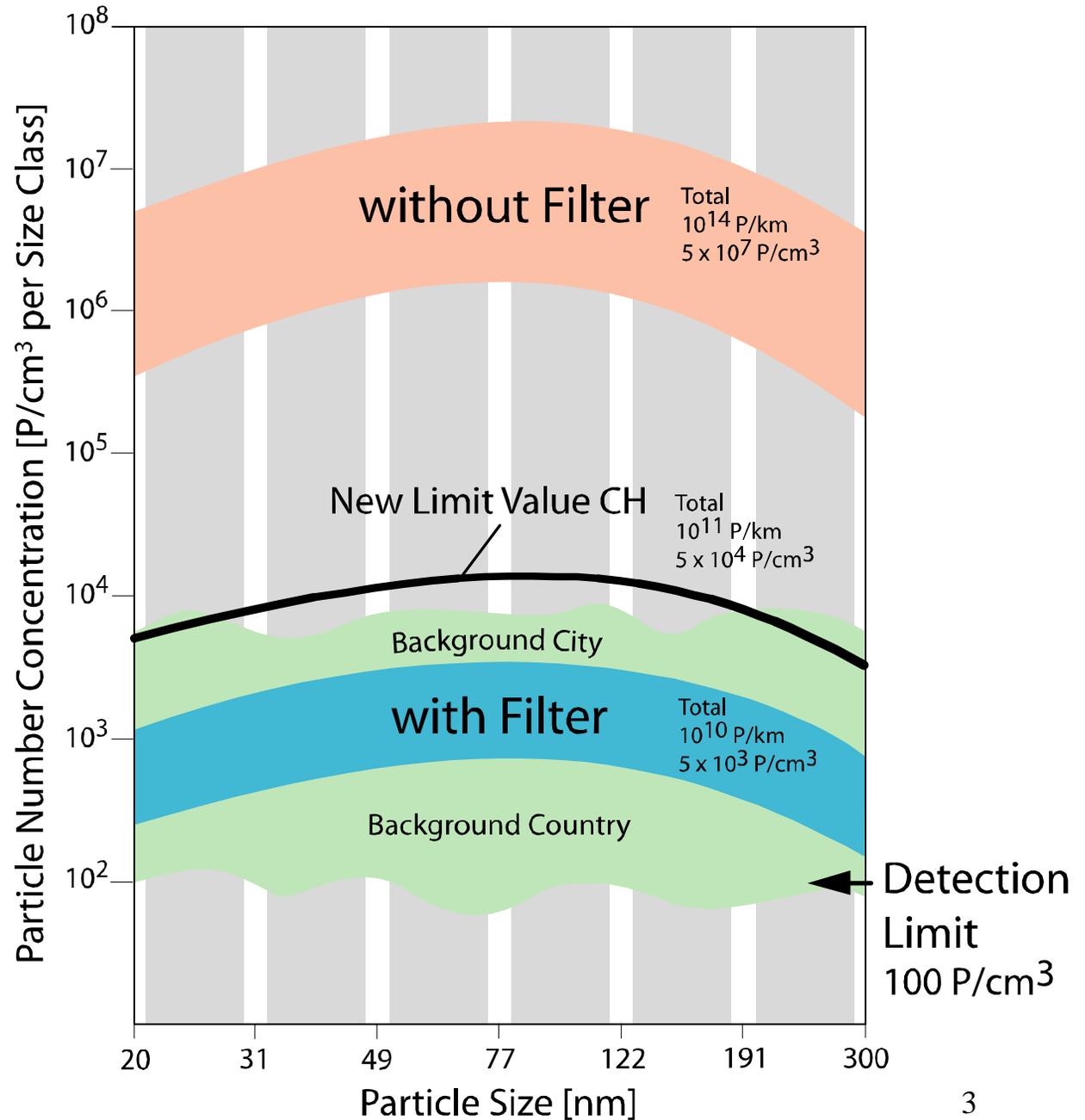
„Solid
Particles
Size range
20-300 nm“

(Quelle:
M.Kasper/ ME)



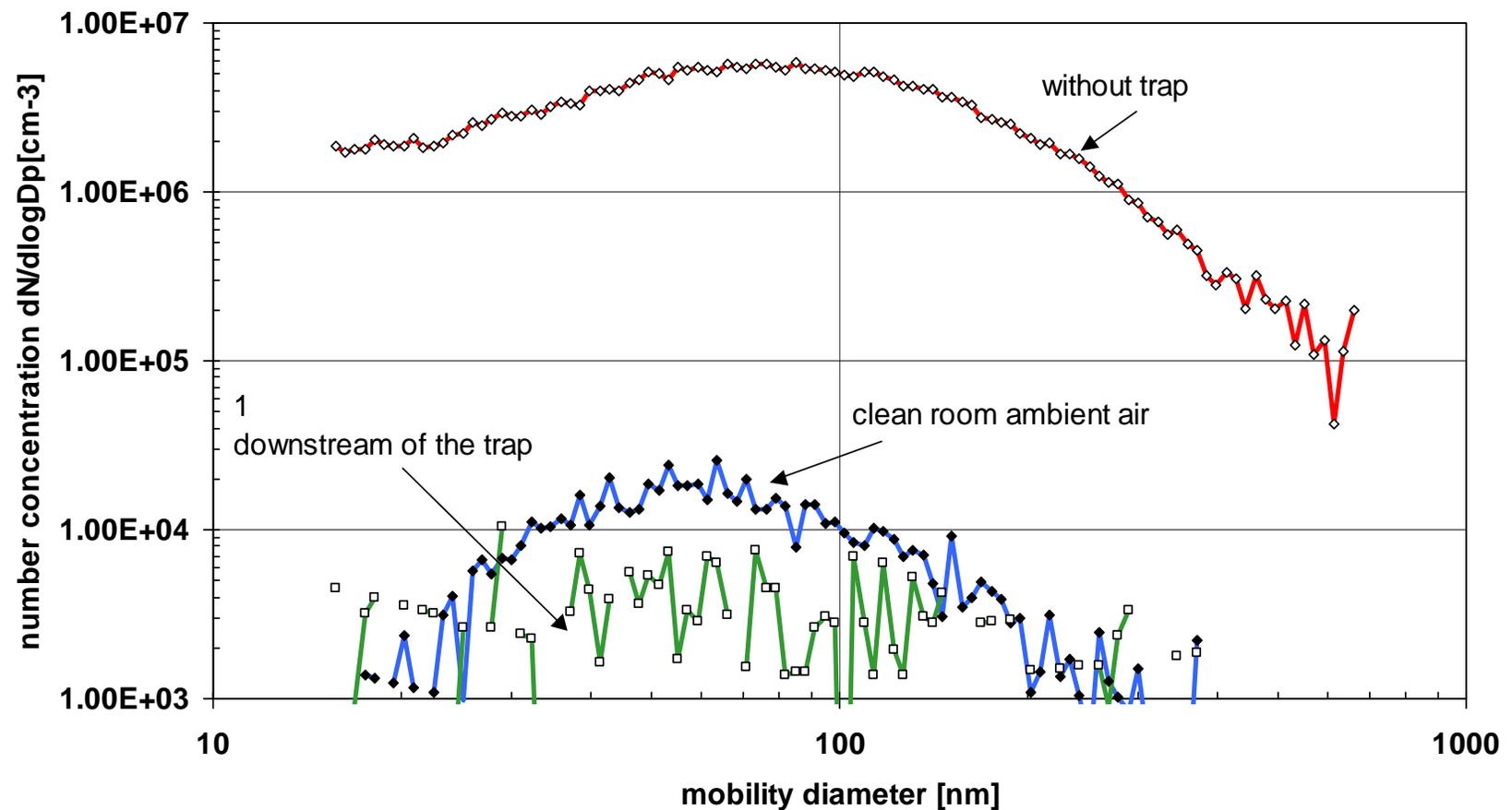
Number – Limits

address the HE-metric and force the introduction of best available Technology



BACT required

Exhaust Gas downstream Filter cleaner than Ambient Air !



VERT FILTER LIST

**Tested and approved Particle-Trap-Systems for
retrofitting Diesel Engines**

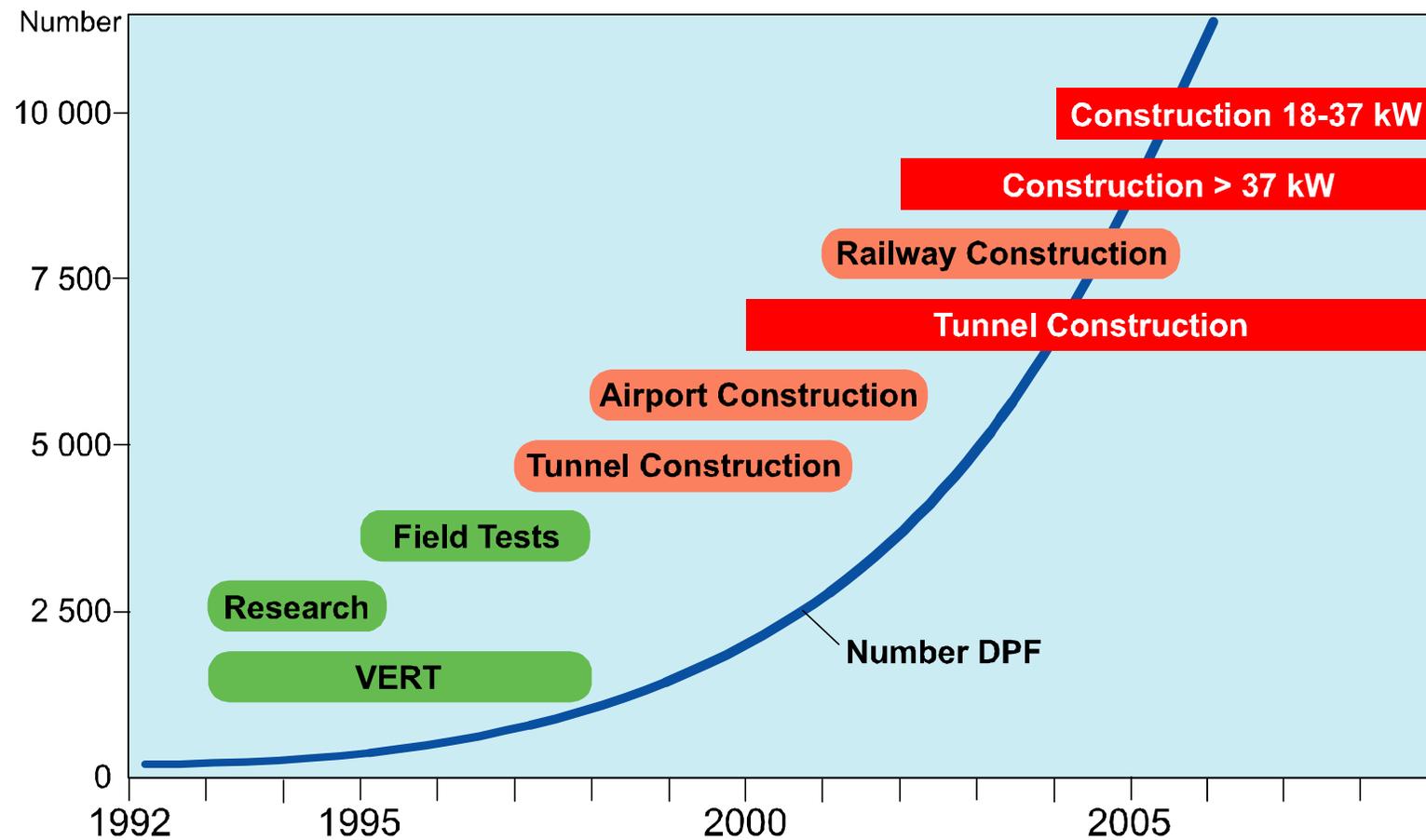
accepted by

BUWAL, SUVA, TBG, AUVA, TRGS, UBA, MSHA, DEEP, CONAMA-CHILE, DTI-DANMARK



<http://www.umwelt-schweiz.ch/buwal/eng/fachgebiete>

Stepwise Build-up by Public & Private Demonstration Projects



Basic Requirements

- ***retrofit every Diesel Engine***
→ ***deversified technology***
- ***close to the end user***
→ ***many small retrofit companies***
- ***high degree of confidence***
→ ***close cooperation between authorities and market forces***

Safe Investment

→ long term enforcement rules

→ no competition distortion

→ cost transfer to the society

agree on filter cost model to be included in quotations

→ exceptions for old machines

Unité de Doctrine

- ***HE: Ultrafines = Air Contaminant No 1***
- ***Metrics : number, size, substance not PM***
- ***Financing: no Subsidizing beside of Demonstration Projects***

Success Factors

- ***Growing market***
- ***Decreasing failure rate***
- ***Transparency (Filter List)***
- ***Proof of effectiveness***
- ***Cost/Benefit-ratio high***

Responsibilities

- **Authority**
 - Filtration & Emissions-Approval: VFT1, VSET
 - Reliability-Approval: 2000 hrs. VFT2/3
- **Retrofitter**
 - Installation, Safety, Functionality, OBD
 - 2 Years Warranty,
- **User**
 - Maintenance

Controls and Monitoring

- **Yearly Failure Statistics of Retrofitters**
 - Reporting to the EPA: Installations, Failures
 - Loss of Approval if Failures exceed 5 %
- **Emission Test every 2 Years - documented**
 - Opacity Measurement
 - Check of all Emission-relating Elements
- **Controls of local Authorities**
 - Fines up to 10 % of Vehicle Value