



Schweizerische Eidgenossenschaft
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Federal Department
of the Environment, Transport, Energy and Communications DETEC

Federal Office for the Environment FOEN
Air Pollution Control and Chemicals Division

Swiss regulations to control emissions from residential wood burning

Working Group on Strategies and Review (CLRTAP)

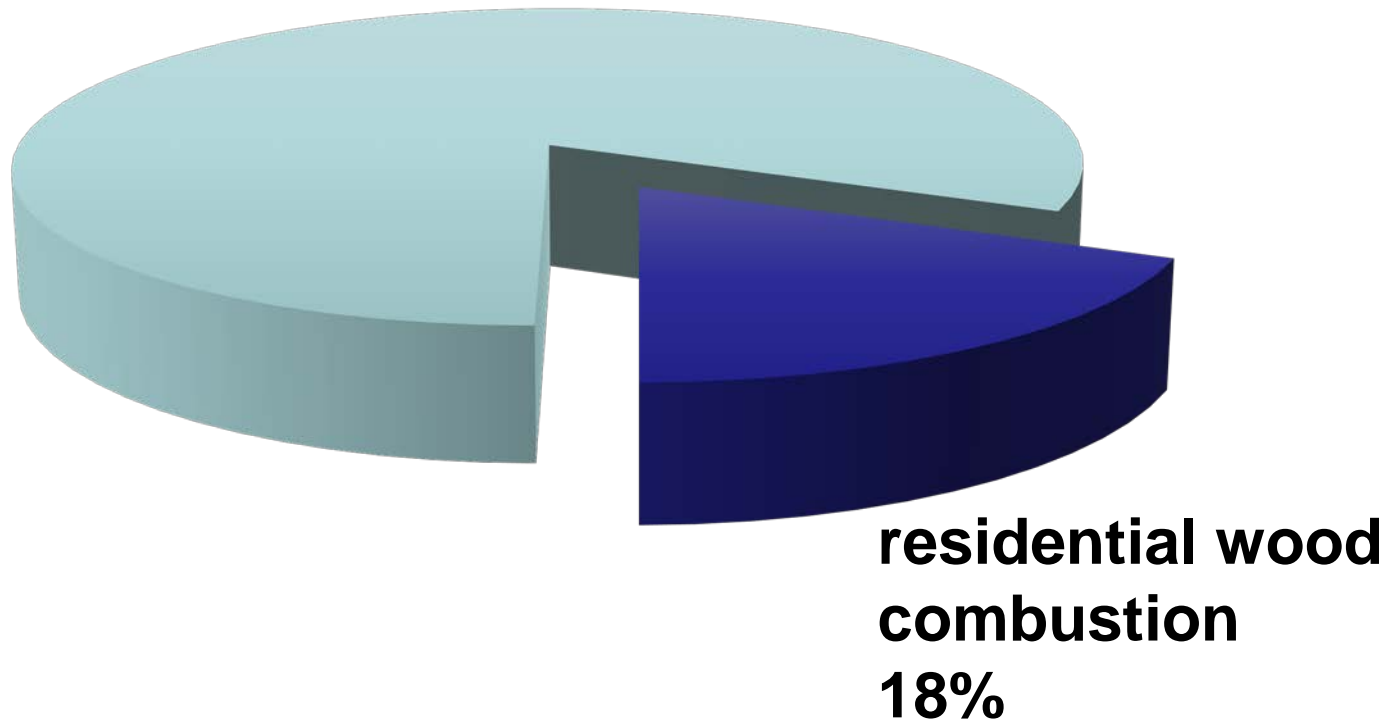
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PM2.5 emissions (2015)

Total: ~7300 t





Revision of Swiss regulations for wood combustion installations up to 70 kW

Context

- Catch up with technological progress
- harmonization with EU construction products regulation and ecodesign directive
- importance of periodic inspections and monitoring under operating conditions in addition to type approval



Revision of Swiss regulations for wood combustion installations up to 70 kW

Topics

- compatibility of regulations for placing on the market with ecodesign regulations:
 - EU 2015/1185 solid fuel local space heaters <50 kW
 - EU 2015/1189 solid fuel boilers <500 kW
- tightening of Swiss ELVs for CO and introduction of ELVs for dust under operating conditions
- obligation for periodic inspections and monitoring
- obligation for equipment of boilers with heat accumulators



Emission limit values for wood combustion installations up to 70 kW under operating conditions

category	CO (mg/m ³)	dust* (mg/m ³)
cooking stoves	4'000	100
single room heaters	2'500	100
boilers, hand stoked	2'500	100
boilers, autom. stoked	1'000	50

O₂ ref: 13%

* in force after 1.6.2019



Putting into service, inspection and monitoring

	putting into service	periodic check
cooking stoves	declaration of performance <i>or</i> acceptance measurement CO & dust <i>or</i> ESP	periodic inspection every 2 years + informative guidance
single room heaters		
boilers, hand stoked	acceptance measurement CO & dust	periodic monitoring CO every 4 years
boilers, autom. stoked		



Periodic inspection & measures in case of non-compliance

- **Visual inspection and «soft» measures**
 - fuel wood quality (moisture, size, naturalness, no waste)
 - residues in combustion chamber (ash, soot)
 - operating conditions (ignition from top, air supply)
 - technical condition of heating device (air flow, tightness)
- **«hard» measures**
 - retrofit with electrostatic precipitator
 - replacement of heating device



Heat accumulators for wood boilers up to 500 kW

- heat accumulators → emission reduction by avoiding operation at partial load
- definition of minimum accumulator volumes for hand stoked and automatic boilers depending on nominal heat output
- exception for pellet boilers < 70 kW (low emissions under modulated partial load)



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Cost & benefits

expected reduction of dust emissions from small combustion installations: ~ 30% (time horizon: 10 years)

- reduction of external costs from health impacts and material damage: 50 – 250 mio CHF per year
- costs for periodic monitoring & inspections, retrofitting and replacement: 150 – 260 mio CHF, cumulated over next 10 years



Thank you for your attention!