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LCA of IPTV and Peer-to-peer

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**Laboratory for communication network



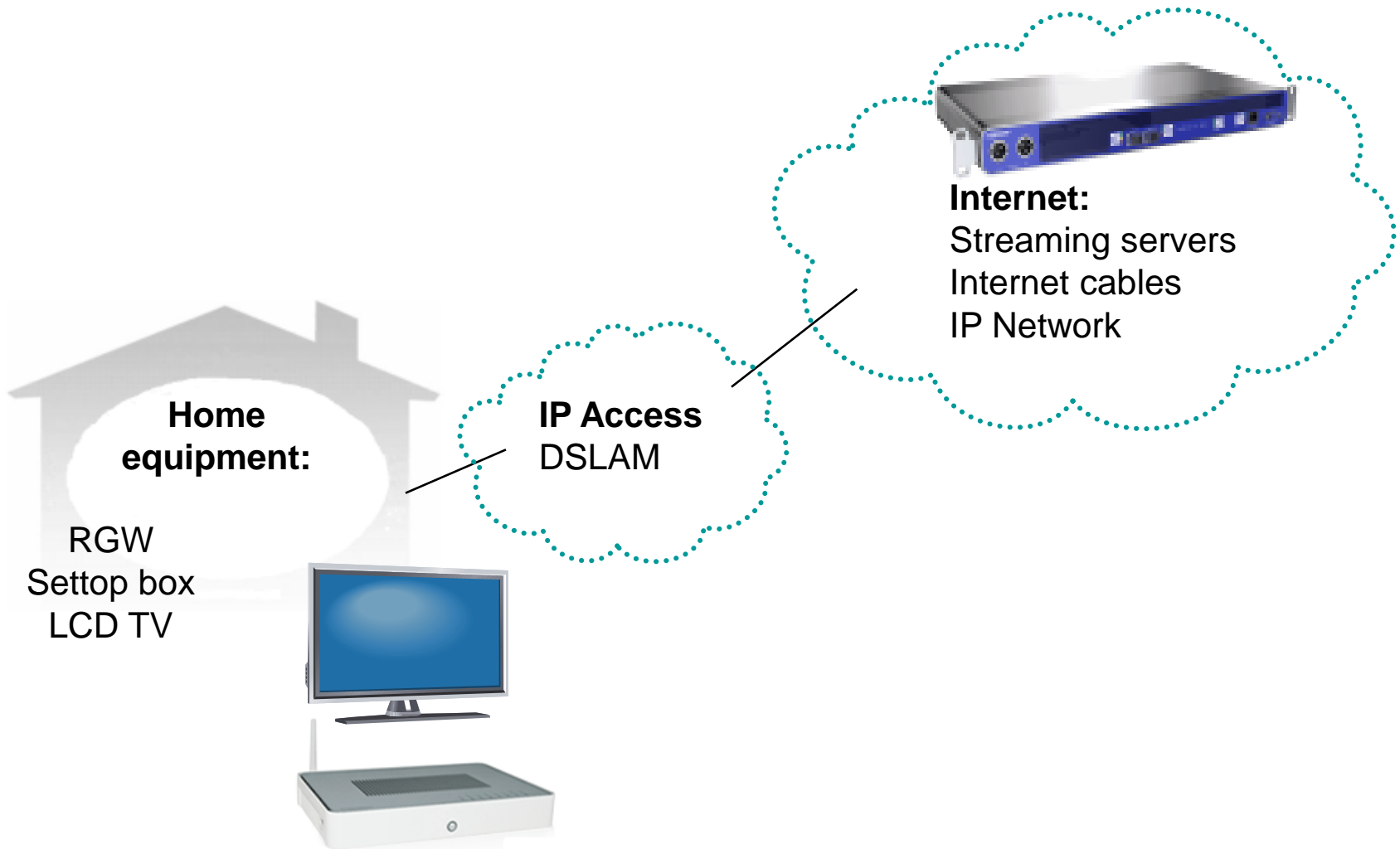
LCA of IPTV and Peer-to-peer

- Aim
- Studied systems
- Method
- Results

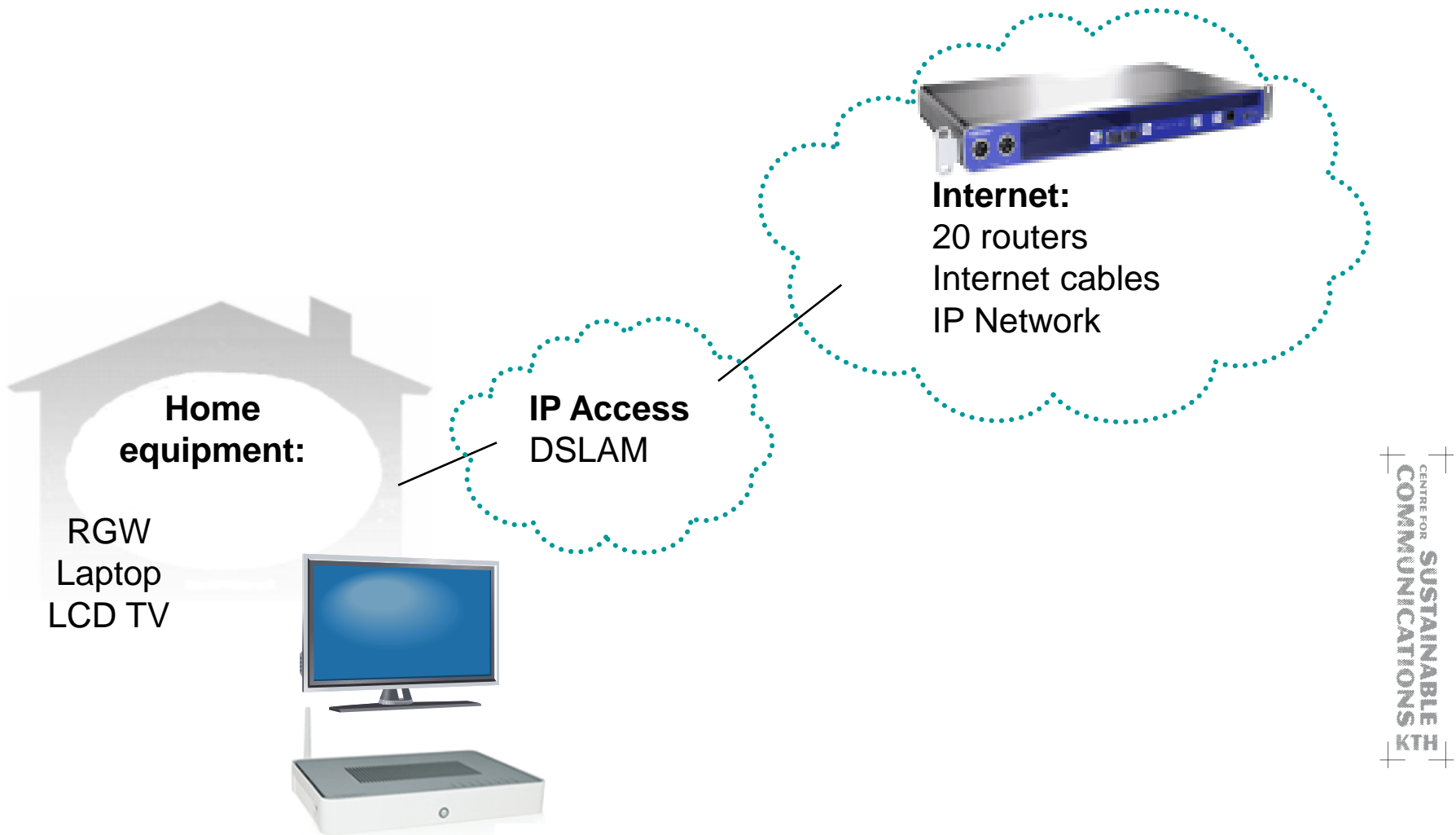
Aim and functional unit

- “To assess the greenhouse gas emissions of an IPTV system and a peer-to-peer system.”
- Movie watched and distributed in Sweden
- Functional unit: distributing and watching a movie (3GB, 2hours)

Studied systems: IPTV



Studied systems: Peer-to-Peer





Studied systems: IPTV vs. P2P

- IPTV: movie streamed, use time 2 h
- P2P: movie by file sharing, down- and uploading, use time depends on speed (50-1000 kB/s)



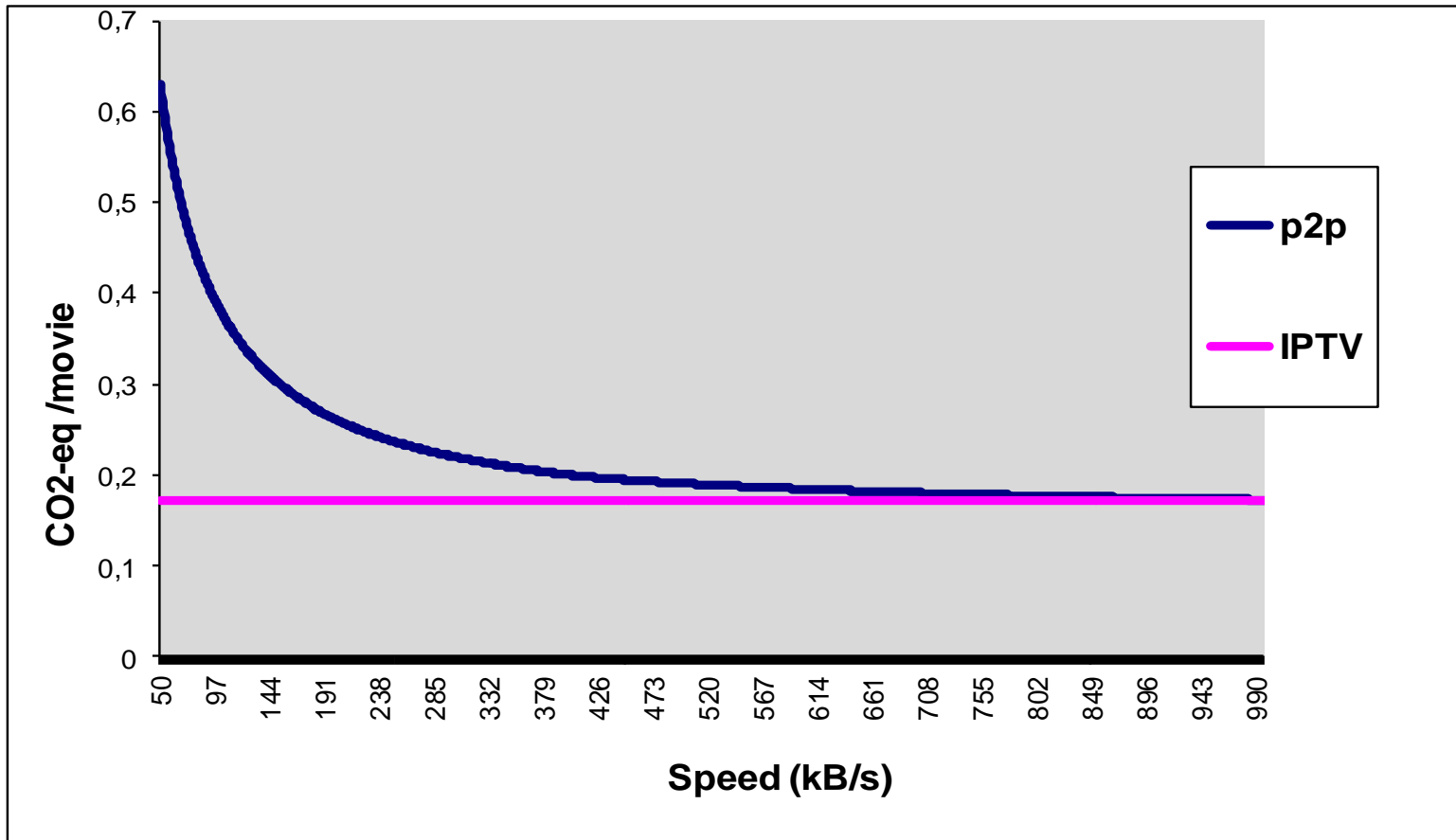
Method

- Life Cycle Assessment (LCA)
- Average data for Swedish user
 - Data from Ecoinvent database
 - Data from supplier
 - TV: Fraunhofer Institute (2007)
- Impact assessment method: ReCiPe
 - Carbon dioxide equivalents (CO₂-eq)

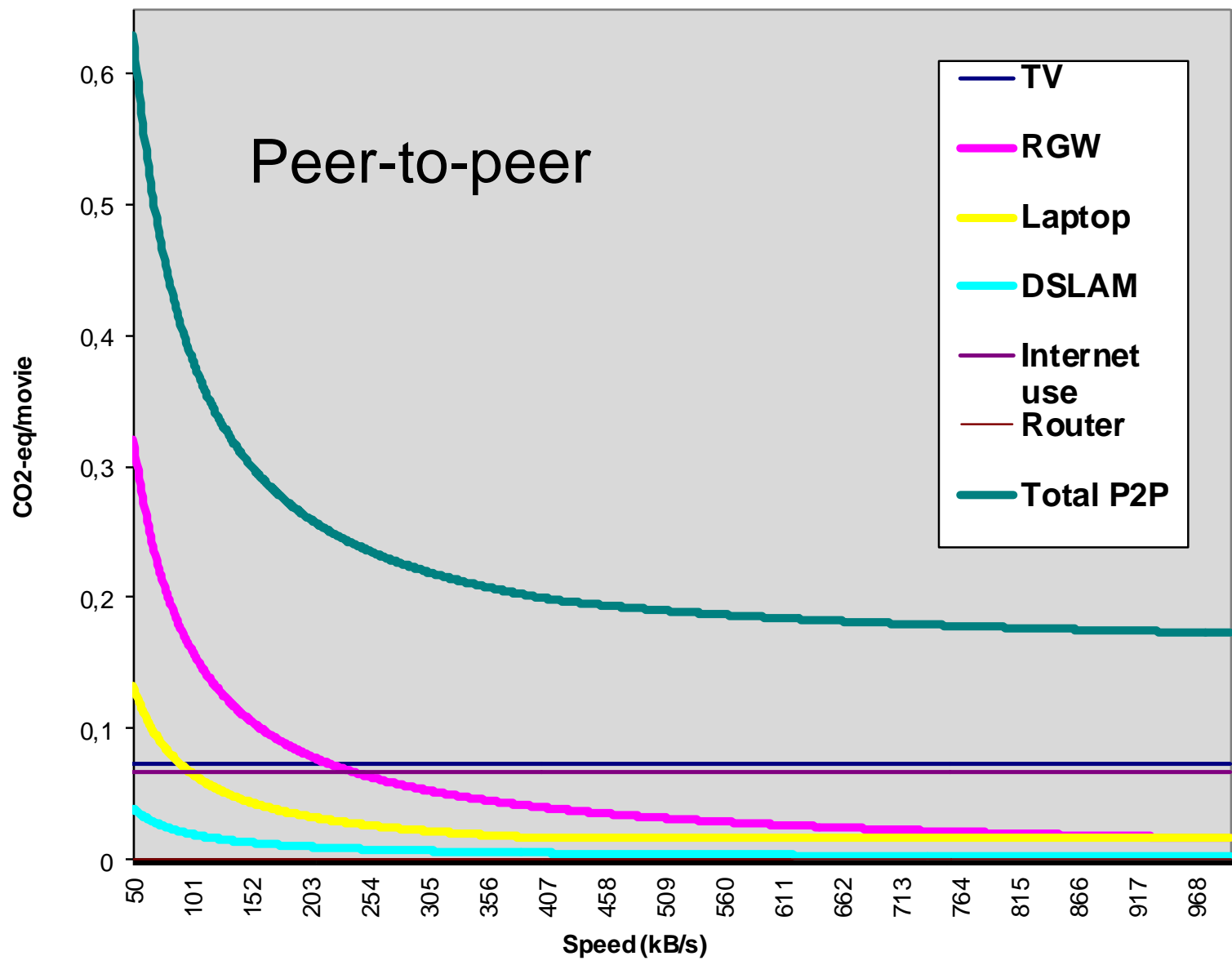
Method

- Allocations
 - Home equipment:
(Production/active life time)*time
for watching the movie
 - Internet:
(Energy/transported data in the
system)*GB for movie

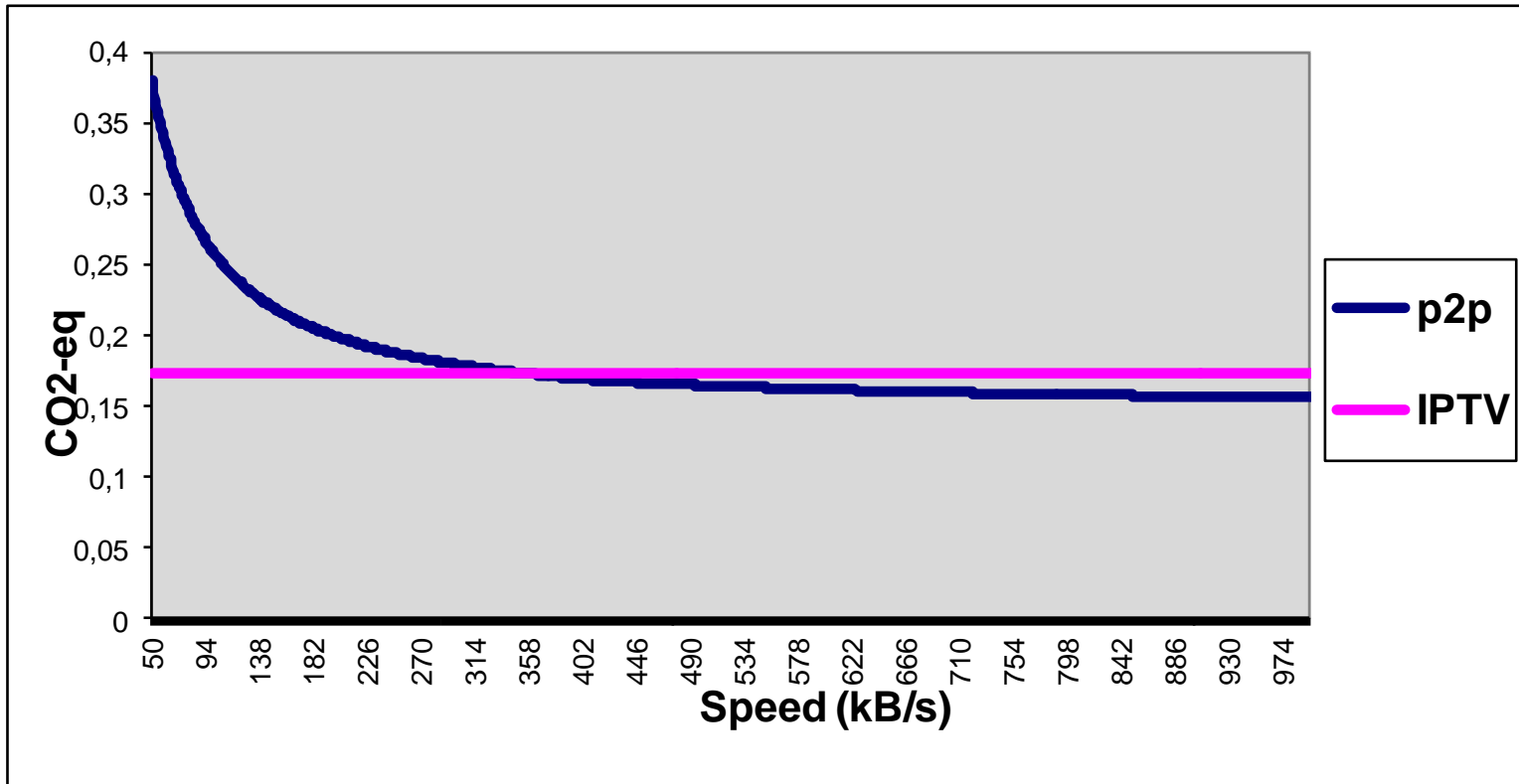
Results: IPTV and P2P



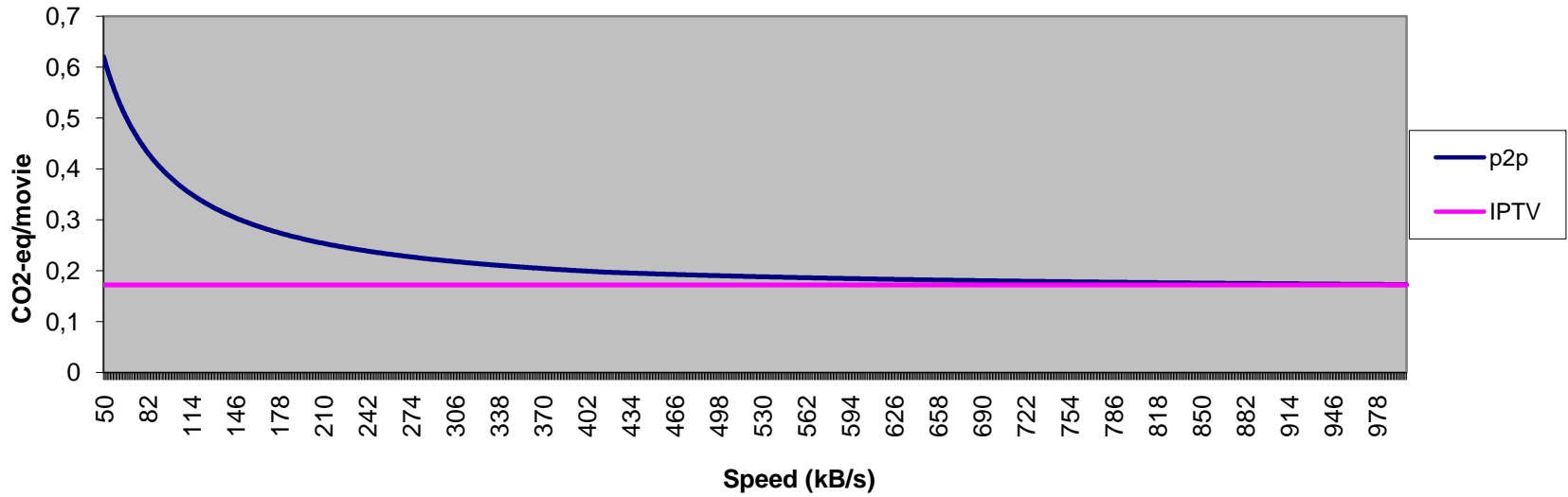
Peer-to-peer



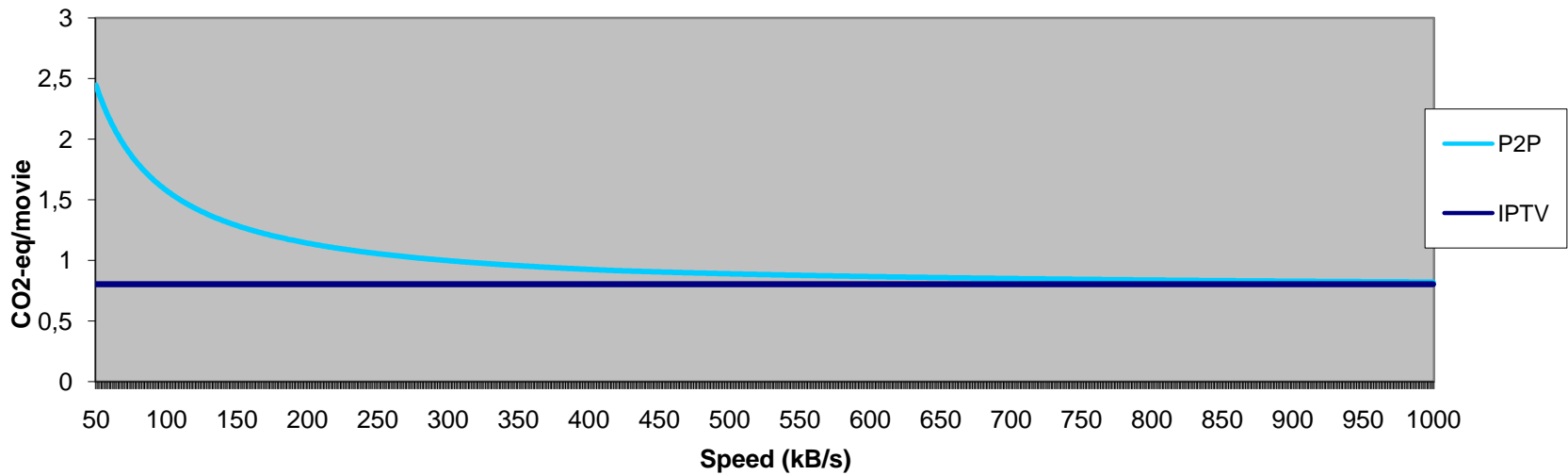
Results: working while uploading



Global Warming Potential, Swedish electricity mix

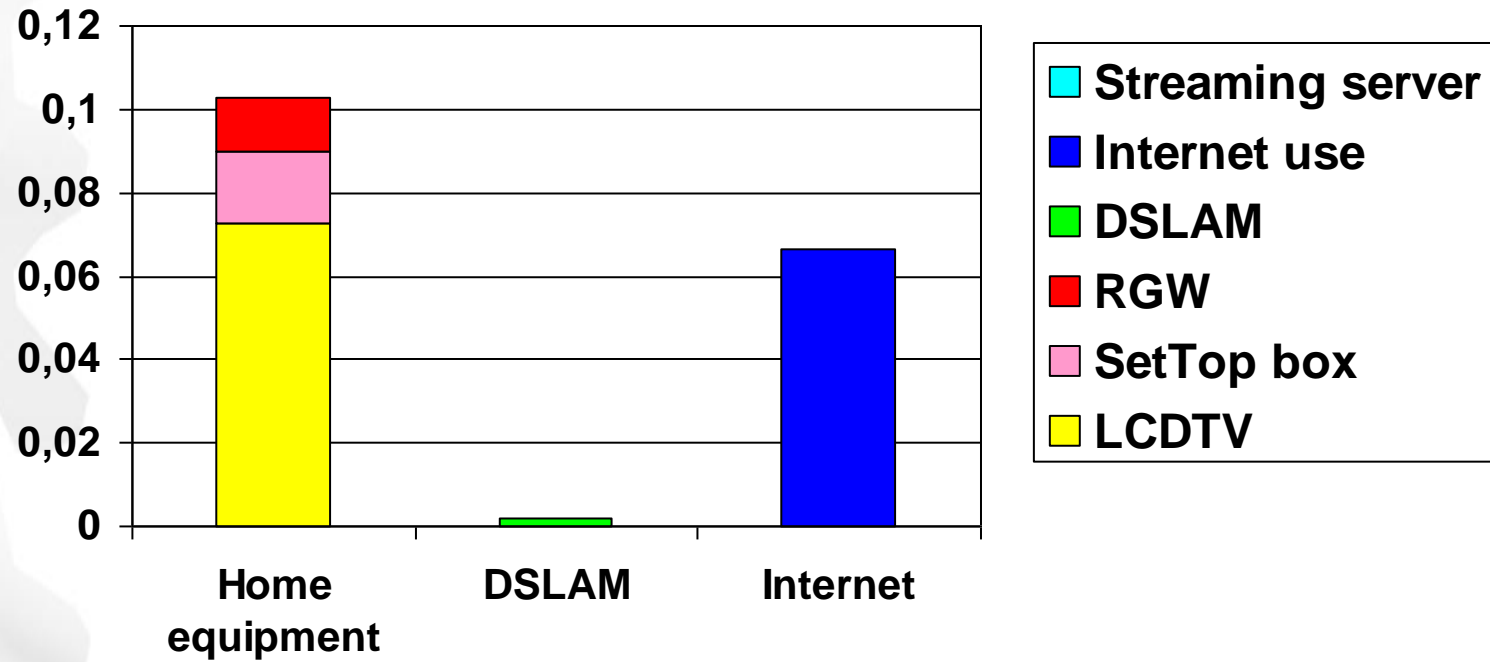


Global Warming Potential, US electricity mix



Results, IPTV

kg CO₂-eq/movie



Summary

Key aspects

IPTV

- Home equipment
- Internet use
- Use
- Production

Key aspects

P2P

- Home equipment
- Use
 - Speed
 - Movie size
- Production



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Thank You!

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