



Contribution ID: 463

Type: **not specified**

A Trust Framework for Peer-to-Peer Energy Markets

Monday, 1 December 2025 11:30 (30 minutes)

Peer-to-peer energy markets rely on trust to enable secure participation; however, existing trust models often address only isolated trust concerns. This fragmented approach leaves significant gaps in ensuring holistic trust across the peer-to-peer energy market, exposing participants to market-related threats. To address this, the paper proposes a trust framework grounded in the Trust over IP (ToIP) model, which integrates technical mechanisms and governance policies to sustain trust in decentralised environments. Using the STRIDE threat model, key threats in the peer-to-peer energy market are identified, while also analysing how existing research mitigates these risks. The corresponding trust and security mechanisms are then mapped to the ToIP architecture, offering a comprehensive approach to trust establishment that unifies social-behavioural and security dimensions of trust. By leveraging ToIP as a formal foundation for trust establishment in this work, the proposed framework provides a holistic approach to building and maintaining trust in the market, thereby fostering greater user confidence and encouraging broader market participation.

Presenting Author

Email

Student or Postdoc?

Institute

Registered for the conference?

CHPC User

CHPC Research Programme

Primary author: LEOTLELA, Boitumelo

Presenters: LEOTLELA, Boitumelo; LEDWABA, Lehlogonolo; COETZEE, Marijke (North-West University)

Session Classification: ISSA