



Fleximar, A Novel **Marketplace for Energy Flexibility**

Speaker: Klaus Känsälä, Principal Scientist, Technical Research Centre of Finland,









Introduction



- The need of flexibility in distribution grids is increasing rapidly:
 - Peak hours are causing overload to power lines and transformers
 - The use of renewable resources (wind, solar) is causing fluctuations
 - The amount of devices using electricity is growing in private households (Portable) devices, Ecars, TV sets, computers, etc.)
- How can we use this fleet of devices to create flexibity on demand?







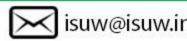


Context



- TERMs for trading small bacthes of energy (Flexibility)
- Almost zero cost transactions >totally automated operations
- Micro payments made by ledger based tokens (IoTa)
- Minimised data transfer for trading&verification
 - How much?
 - How long?
 - Where (location)











Relevance



- The current electricity markets are not suitable for trading of small batches of energy
- Location is not used as an asset FLEXIMAR provides a new tool for localized power management:
 - Open source software tools and platforms used
 - Simple trading rules and bidding mechanisms
 - Open market for byers&sellers
 - Almost real time operation











Use Case/Smartbots



Resource Managing Bot (RMB)

- Estimates the flexibility available from the building/facility
- Controls the devices locally
- Does metering/verification of accepted trades
- Shortest flexibity time slot 15 minutes
- RMB has advanced AI-based boundary computing algoritms

Energy Trading Bot (ETB)

- Communicates with Fleximar platform
- Makes the bids based on information from RMB
- Makes online contracts with Fleximar platform
- Follows market information in order to optimise the time/income



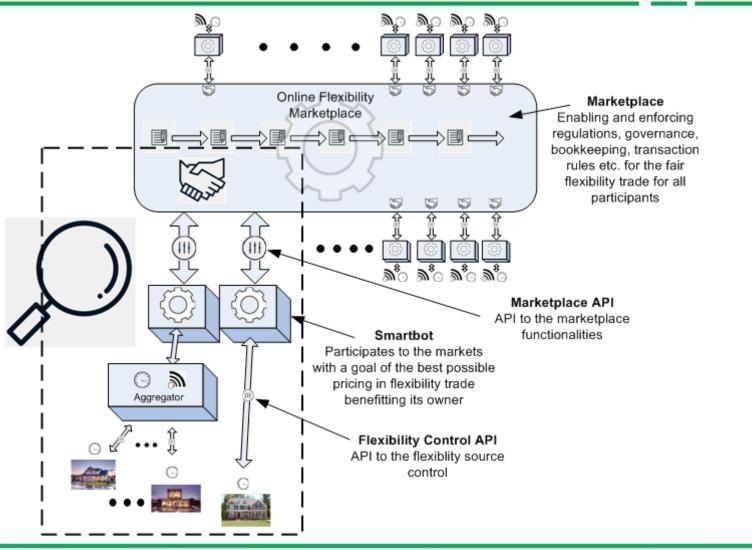




Use Case/Case Study



- Smartbots are making flexibility bids to marketplace
- Bids are visible to everybody and they can be purchased by byers using IoTa wallet
- An agreement is made and verified by the marketplace
- Local smartbot gets message about the trade, fulfils the delivery and sends verification
- Marketplace makes micropayment from the buyer to the customer







Key Takeaways



- Want to study VTT's solution?
- Go to fleximarex.com
- Create user ID for yourself
- Get detailed instructions, software examples and make your own application,

WELCOME TO FLEXIMAR

nergy flexibility trading marketplace developed by VTT along with several Finnish partners that uses IOTA blockchain in the background.

the audience consisting of individual households up to large industrial size consumers and network operators, i.e. not restricted to any predefined

trading activities on the marketplace includes selling and purchasing of batches of energy flexibility without any bias.

low free market principles (as free as it is possible to make it) with its own intrinsic supply and demand patterns setting the suitable and agreed















Thank You

For more information Contact WWW.Fleximarex.com

India Smart Grid Forum

CBIP Building, Malcha Marg, Chanakyapuri, Delhi-110021

Website: www.indiasmartgrid.org







