

Smart Metering as an enabler of customer empowerment

Case Finland

IRENA Innovation Week 2018

Ina Lehto



Finnish Energy



FINLAND

FACTS ABOUT FINLAND

- 5.52 million inhabitants
- Area 338 000 km²
- EU's coldest Member State
- Long distances inside the country and to the EU and other markets
- High energy consumption per capita
- Electricity consumption 80-90 TWh/a
- High share of manufacturing industry
- High energy efficiency in buildings

FACTS ABOUT ELECTRICITY IN FINLAND

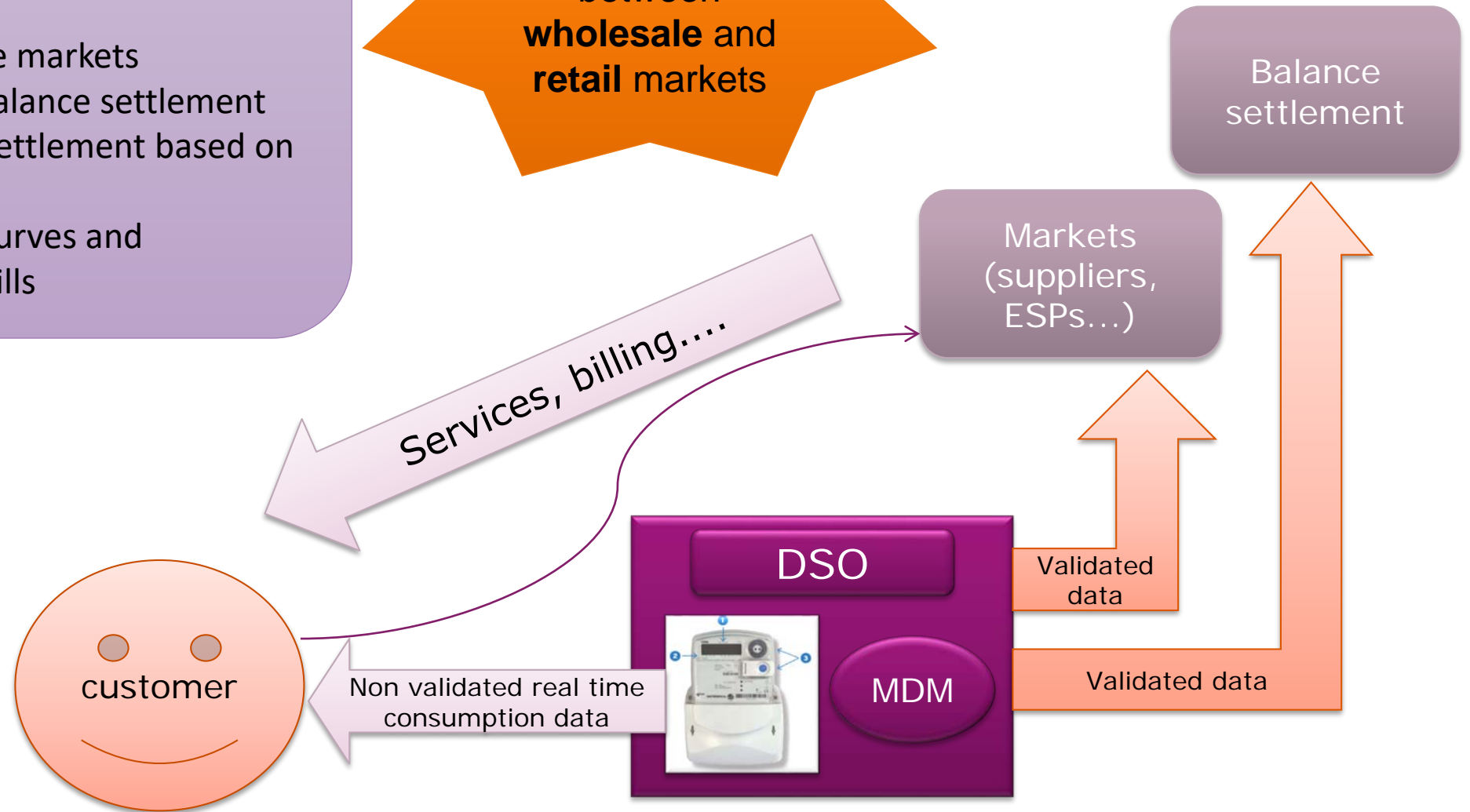
- 3.5 million electricity end user customers*
- 77 electricity DSOs (network companies)*
- 73 electricity suppliers* - 56 offer products nationwide*
- Competitive supplier centric electricity retail market
 - No price regulation for electricity supply
 - 11 % switching rate*
 - 9 % of retail customers have dynamic price contract*
- DSOs responsible for metering
 - Smart Metering fully rolled out
 - Smart Meter 2.0 roll out coming soon

Picture: The Finland Promotion Board, <https://toolbox.finland.fi/>

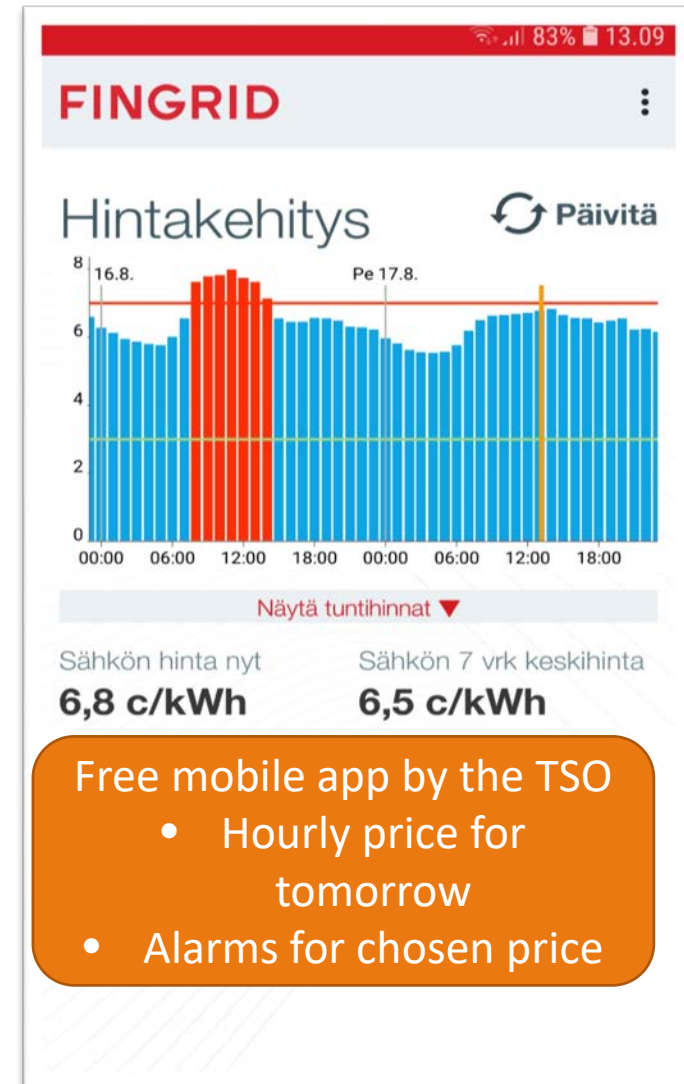
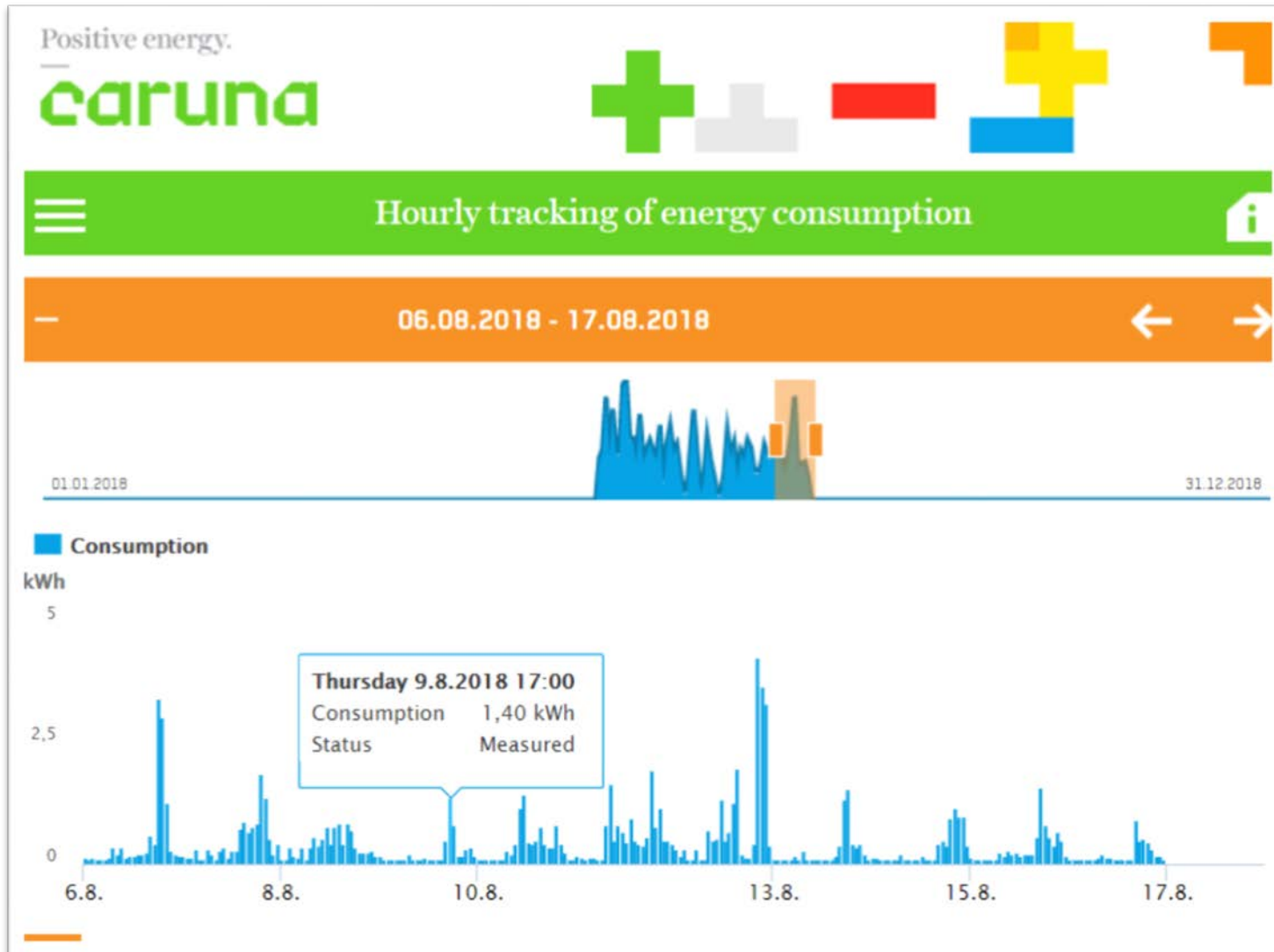
Source for *: [NRA report 2018](#)

- Meters measure hourly
 - in the future 15 min
- Meters read daily
- Data send D+1 to the markets
 - suppliers and balance settlement
- Billing and balance settlement based on measured values
 - No more load curves and reconciliation bills

Direct link
between
wholesale and
retail markets



MY ELECTRICITY CONSUMPTION



EXAMPLES OF SERVICES AVAILABLE TODAY

- Reporting services
 - Hourly consumption reported to everyone for free
 - Follow your own consumption, get professional advice from your ESP's
 - Additional reporting services
 - In-home displays using the open interface from the meter, SMS notifications for power outages
- Demand side management services
 - Both based on automation or manual actions
 - Home and water heated automatically when it's cheapest, charging EV when it's cheapest
- Other services
 - Selling self produced solar electricity to the markets, EV charging with own solar production

<https://www.virta.global/home>

<https://www.therecorporation.com/home-energy-management-for-home-owners/>

<https://www.forssanenergia.fi/palvelut/energianhallintajarjestelma-se-24-7/>

<https://www.optiwatti.fi/save-electricity/>

<https://www.fortum.com/products-and-services/smart-energy-solutions/all-one-smartliving-solution-better-living>

<https://www.kuopionenergia.fi/lisapalvelut-ja-vinkit/6747-2/nokkela-energiavahti/>

THANK YOU

Ina Lehto
Senior Adviser, Networks

Ina.lehto@energia.fi

+3585705589

www.energia.fi

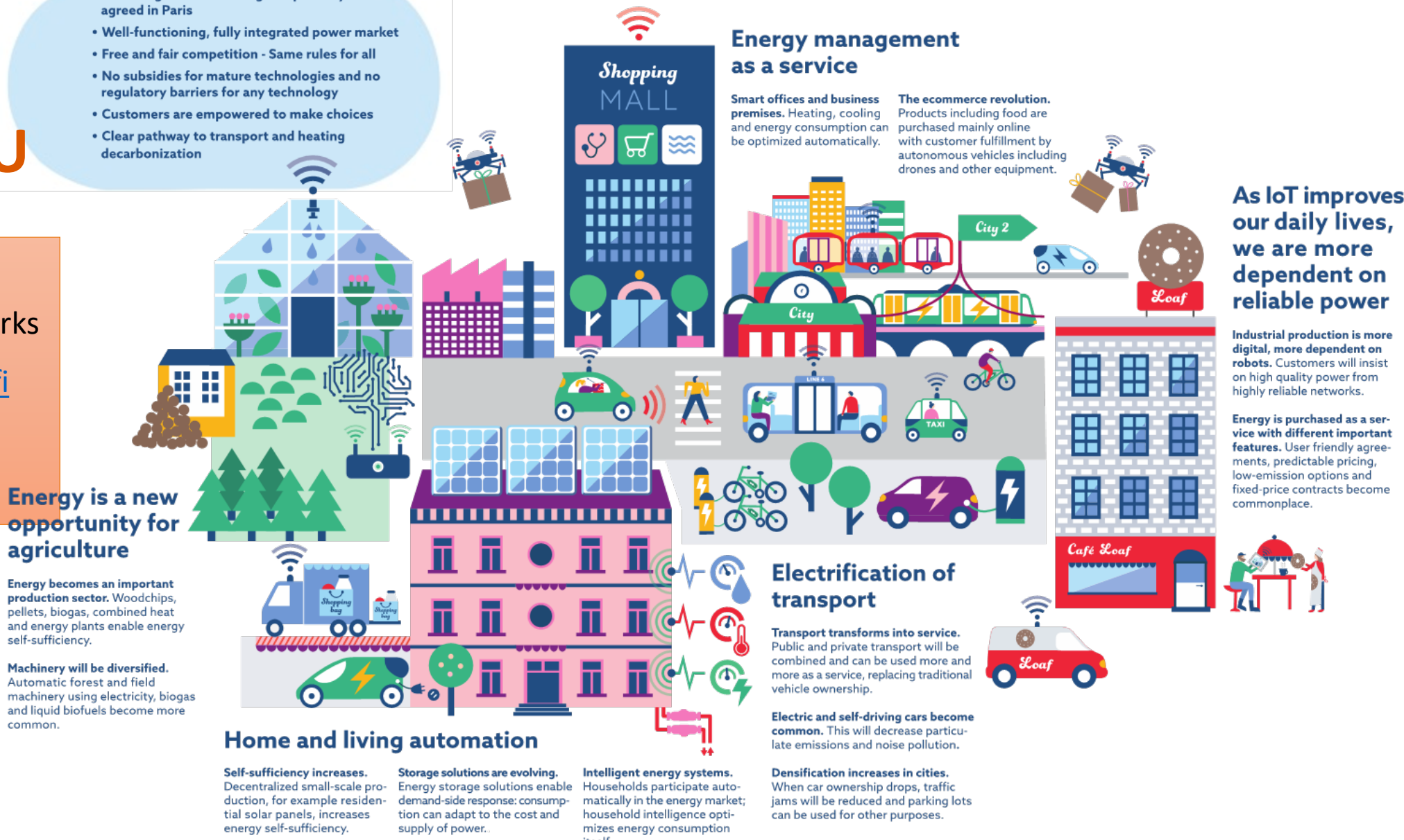
Finnish Energy

Six key points to climate neutral Europe

- 2050 target to the 1.5 degrees pathway agreed in Paris
- Well-functioning, fully integrated power market
- Free and fair competition - Same rules for all
- No subsidies for mature technologies and no regulatory barriers for any technology
- Customers are empowered to make choices
- Clear pathway to transport and heating decarbonization

Our energy future

Is defined by digital technology, climate change and urbanization



Energy is a new opportunity for agriculture

Energy becomes an important production sector. Woodchips, pellets, biogas, combined heat and energy plants enable energy self-sufficiency.

Machinery will be diversified. Automatic forest and field machinery using electricity, biogas and liquid biofuels become more common.

Home and living automation

Self-sufficiency increases. Decentralized small-scale production, for example residential solar panels, increases energy self-sufficiency.

Storage solutions are evolving. Energy storage solutions enable demand-side response: consumption can adapt to the cost and supply of power.

Intelligent energy systems. Households participate automatically in the energy market; household intelligence optimizes energy consumption itself.

Electrification of transport

Transport transforms into service. Public and private transport will be combined and can be used more and more as a service, replacing traditional vehicle ownership.

Electric and self-driving cars become common. This will decrease particulate emissions and noise pollution.

Densification increases in cities. When car ownership drops, traffic jams will be reduced and parking lots can be used for other purposes.