

**Load tariffs in the Nordic countries**

# **Developing DSO's tariff structure**

Stockholm, 5th November 2015  
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# SUMMARY



- Current energy based DSOs tariff structures do not reflect the true costs of the grid and provide weak incentivisation to improve customers' savings, customer behavior and DSO investments
- Future energy needs require regulatory systems enabling DSO tariff that promote incentivisation for the overall energy efficiency of distribution that encourage customers to optimize their load profiles
- The target of future tariff structure development should aim to establish a pricing scheme for DSOs that encourages the end-users to behave in a way that improves the overall efficiency of the energy system, (generation, transmission and distribution), and minimizes the total costs to the national economy
- Smart Meters and Smart Grids shall provide the technical framework enabling tariff structures for the future

# SUMMARY



- Instead of energy based tariff a power based tariff approach is a tariff scheme that better suits the requirements of a DSO tariff structure
- However **GEODE** underlines that **there is no 'one solution fits all' in Europe when discussing tariff structures**. It is therefore essential that the DSOs are allowed to develop their tariff structures to incentivize overall energy efficiency of distribution

# BACKGROUND



- Present distribution tariff structure is inherited from earlier regulatory regimes
- Tariff structure was a combination of distribution and supply requirements and included fixed and energy-based fee
- In theory energy-based fee matched retail and fixed fee matched distribution

## CHALLENGES WITH ENERGY-BASED TARIFF STRUCTURE



- Does not reflect the cost structure of the grid which is based on power
- Does not encourage customers' behavior to optimize the use of distribution systems infrastructure which leads to unnecessarily heavy and expensive grid structure
- Is not fair to the customers – all customers do not have same possibilities to lower their energy consumption with help of own production or new technology

- Development of the DSO tariff structure is needed in order to
  - improve the cost reflectivity
  - provide fairness between customers
  - enable the effects of incentivisation driven by the changes to the energy system resulting from the integration of more renewables and distributed generation

# CHANGES IN THE OPERATIONAL ENVIRONMENT OF THE ELECTRICITY DISTRIBUTION



- Operational environment in electricity distribution is changing rapidly, due to
  - Increasing energy efficiency and energy savings
  - Smart grids, distributed generation, demand response, energy storages
- Significant influences on the demand of the electrical energy and power
  - => Needs for renewing DSOs' tariff structures**
- Smart Meters and Smart Grids provide new technical possibilities for load control and the measurements of the electricity consumption
  - => Possibilities to develop new tariff structures**

# DEMANDS FOR DSO TARIFF STRUCTURE



- Cost reflective, understandable, transparent
- Customer have possibilities to impact on his/her electricity bill
- Does not include contradictory incentives
- Enables and provides incentives for distributed generation and energy efficiency
- Supports the energy and climate policy of EU
- Provide energy efficiency incentives
- Is in-line with the demands of directives and laws
- Enables market based demand response
- Supports the functioning of the electricity markets

**Customer  
DSO**

**Society  
Retailer**

- Ensures adequate and predictable revenues, also in future operational environment
- Cost reflective
- Provide customers with incentives to optimize their electricity usage based on the demands of the distribution network
- Technically and economically possible to implement (metering and billing)
- Enables market based demand response
- In-line with the sales tariff
- Does not yield to conflict of interests between DSO and retailer



# GENERAL PRINCIPLES FOR THE FUTURE DEVELOPMENT OF DSO TARIFFS



- Tariffs should support the EU energy and climate policy
- Tariffs should promote well-functioning electricity markets
- Tariff structure should not conflict with overall regulation and legislation
- Tariffs should be cost reflective, easily understood and transparent
- Tariff structure should enable sufficient and predictable revenues for DSOs investments now and also in the future
- Tariffs should promote DSM
- Tariff structure should encourage distributed generation, demand response, and efficient energy consumption
- Tariffs should be technically feasible to implement (metering and control)

# POWER BASED TARIFF



- The most promising option<sup>\*)</sup> for new tariff structure is a power based tariff, i.e. power band
- Customer subscribes the power band, similarly as in the case of the broadband internet connections
- Billing is based on the subscribed capacity or metered peak power (kW)
- Could be also based on the current (A)
- In the case of the capacity subscription, certain procedure for exceeding the capacity limit (e.g. penalty fee) is needed

<sup>\*)</sup> Tariff scheme options for distribution system operators (Lappeenranta University of Technology 2012  
<http://www.lut.fi/documents/10633/138922/Tariff+scheme+options+for+distribution+system+operators/d2c7a66f-4033-42ff-a581-dc4ef8586592>

# POWER BASED TARIFF APPROACH MEETS THE TARGETS SET FOR THE DSO TARIFF



- It is cost reflective and guarantees a predictable revenue stream for DSOs also in the changing operational framework
- Together with energy based supply pricing, it provides customers with incentives to optimize their consumption and their own production while contributing to the efficiency of the whole energy system
- It encourages customers to participate in demand response activities.
- It is cost reflective and cause-fair tariff system for customers
- It meets the demands of the Energy Efficiency Directive (2012/27/EU)

# CONCLUSION



- Current energy based DSO tariffs structures need to be re-developed, in particular because of their inadequate cost reflectivity and weak incentive effects both for customers' savings and DSOs' investments
- The target of the DSO tariff structure development should be to establish a pricing scheme for DSOs that encourages the end-users to behave so that the overall efficiency of the energy system, including generation, transmission and distribution, is maximized, and the total costs to the national economy are minimized
- This objective is not met by the current energy based pricing tariff structures, but the power based component has to be included in the tariff structure

# CONCLUSION



- **GEODE** proposes a DSO power based tariff approach as one tariff scheme, among others, that better suits the requirements DSO tariff structure should fulfill
- **GEODE** underlines that there is no one solution fits all in Europe when discussing tariff structures. It is, however, utmost essential that the DSO's are allowed to develop their tariff structure without unnecessary regulatory restrictions

## GEODE Position Paper on the Development of the DSO's Tariff Structure

