INTERNATIONAL YOUTH FORUM

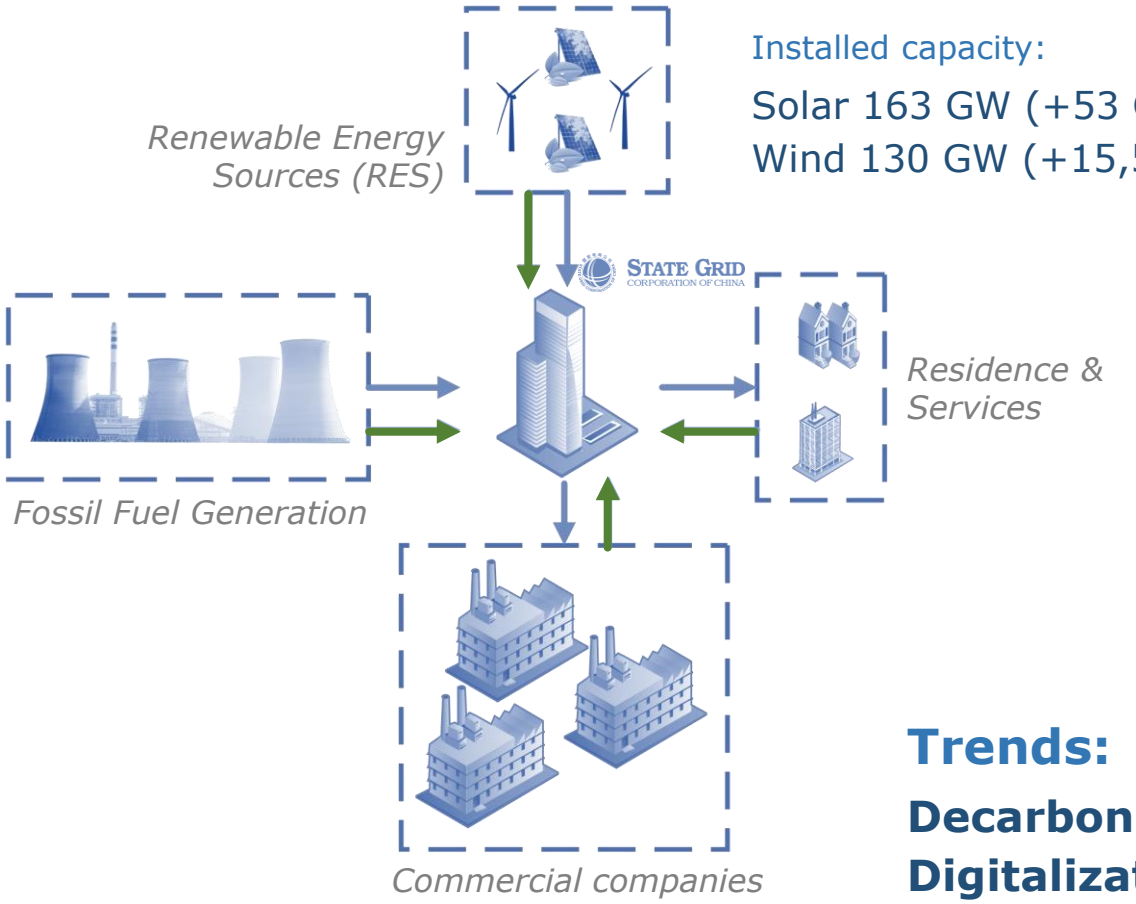
ROSSETI

Project challenge:

Poor load control limits the efficiency of renewable energy

Country challenge-owner: China

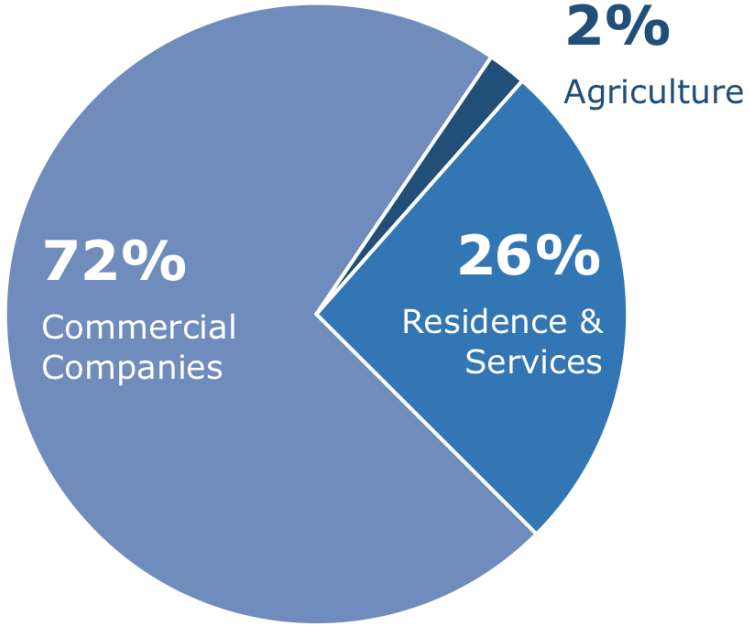
Current situation overview



Installed capacity:

Solar 163 GW (+53 GW)

Wind 130 GW (+15,5 GW)



Chinese consumption profile, 2017

Trends:

Decarbonization (more RES – less pollution – 2030 up to 800 GW)

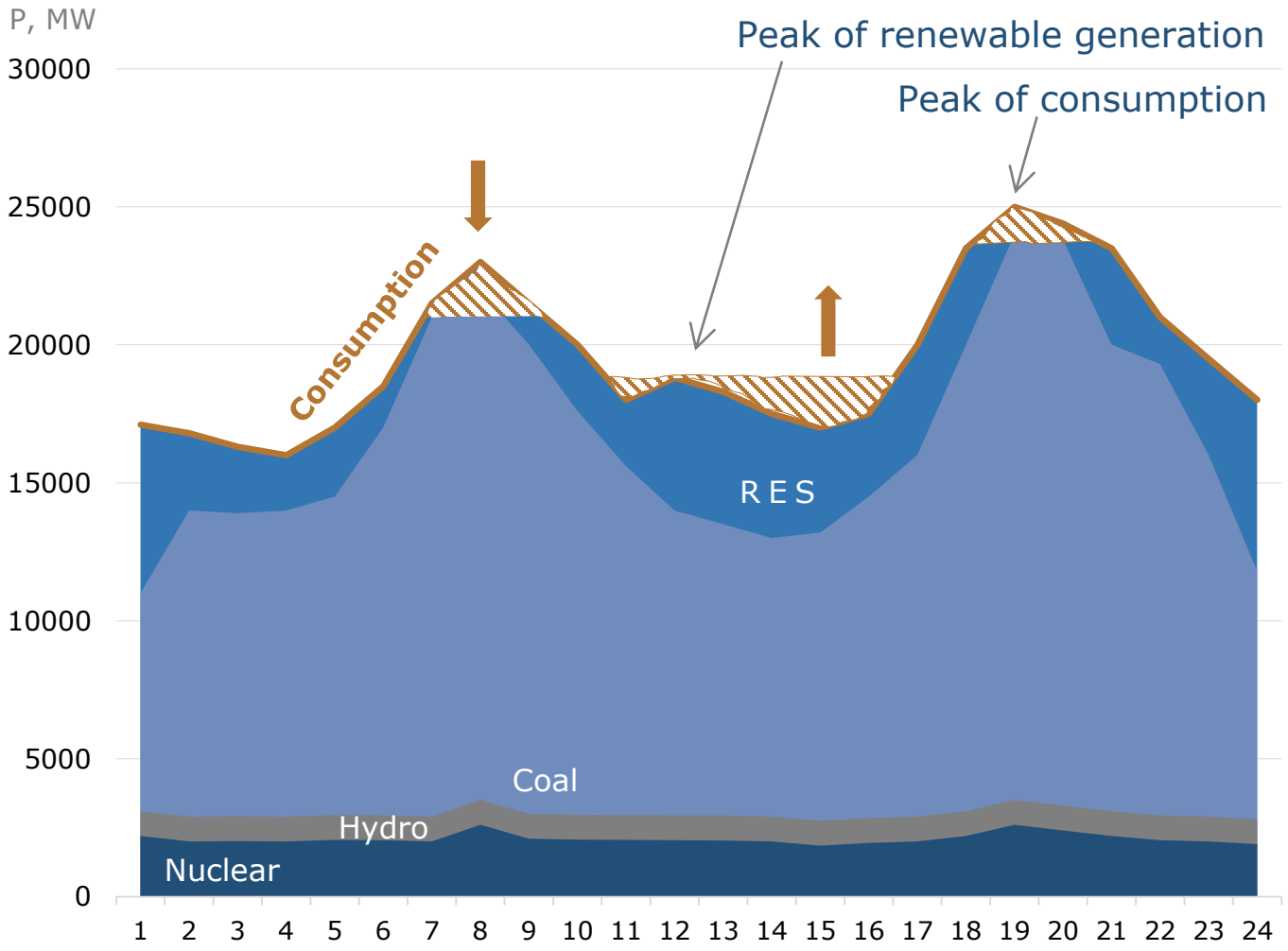
Digitalization (smart metering, Prosumer, P2P)

Electricity flow

Unidirectional Information (data) flow

Why residence?

Average daily load curve



- Stable heavy industry load
- Smart meter coverage – 99%
- Peak loads reason

Demand Response

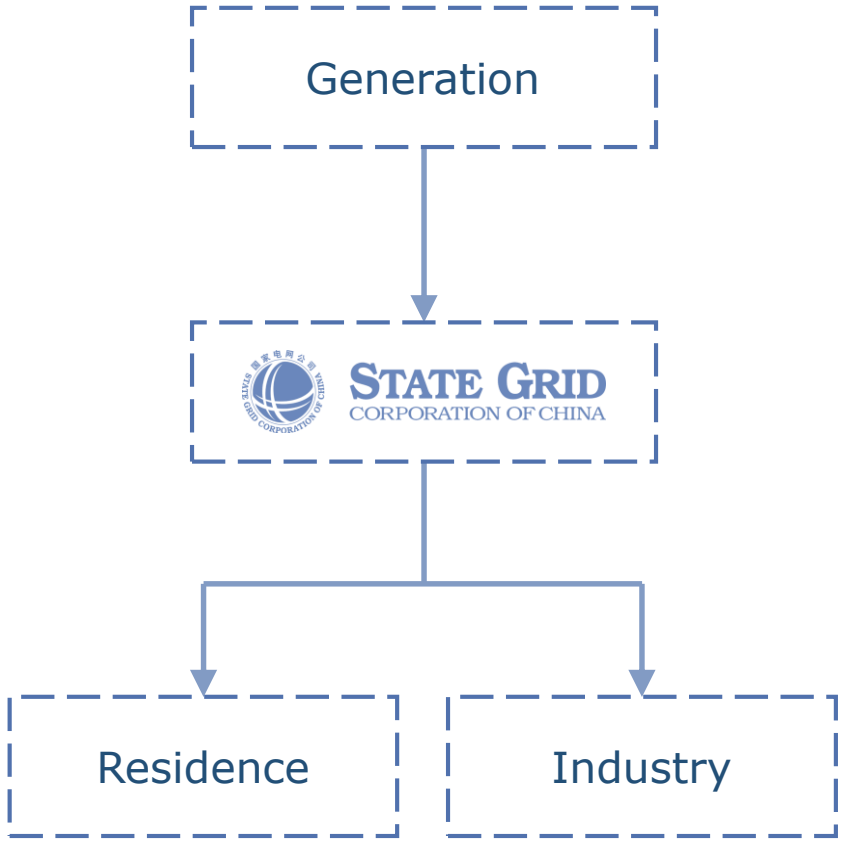
Chinese digital ecosystem, e.g. WeChat

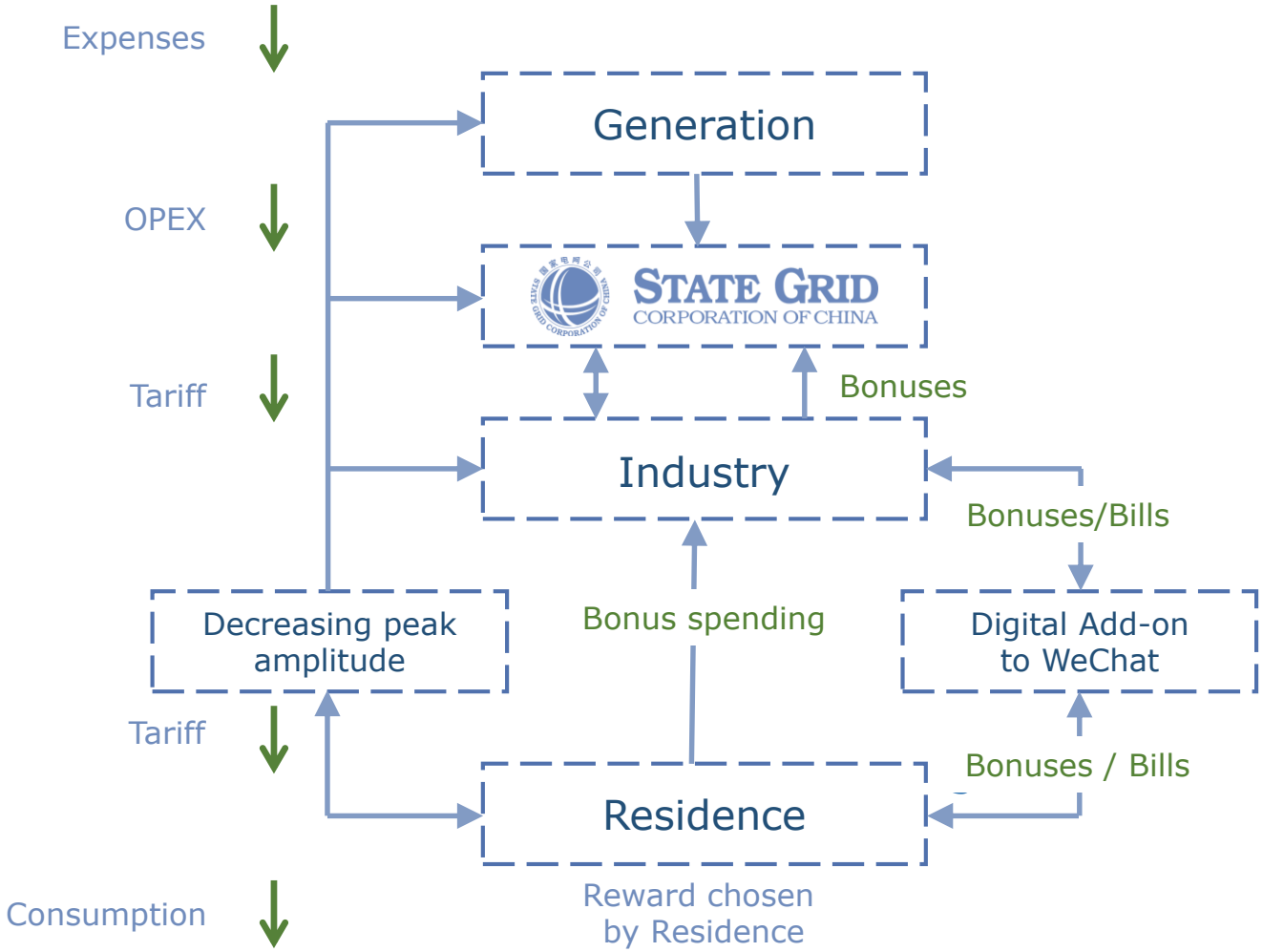
Mind-change

Why WeChat?

- 1 bln WeChat users (residence & services are already in)
- Digital infrastructure with different services (rental, social, business contacts etc.)

Proposed business model

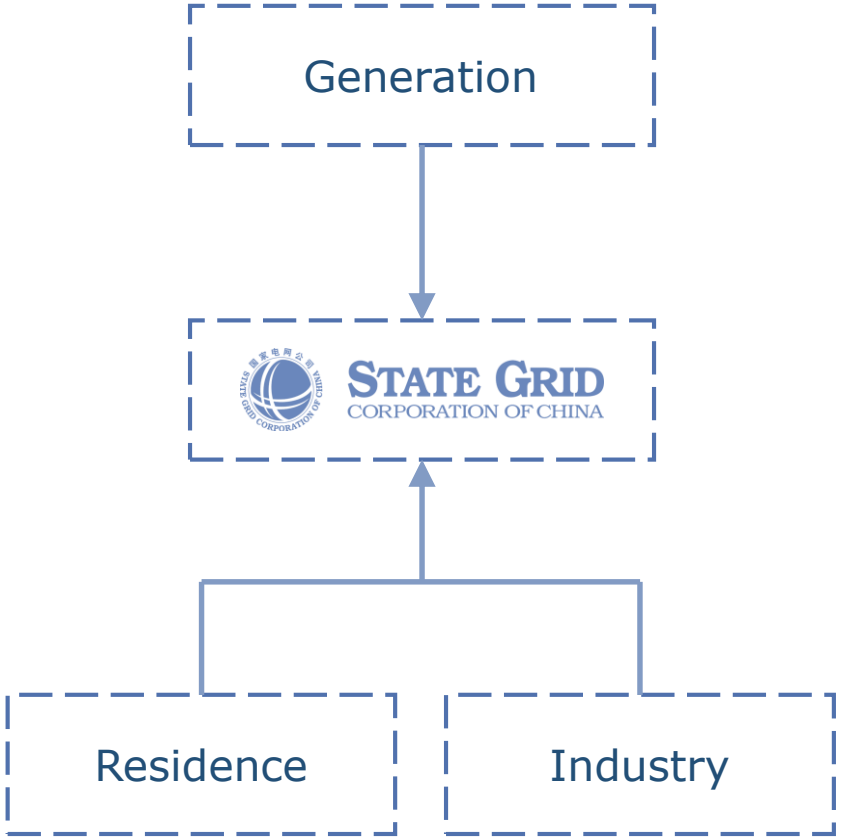




Current business model

Proposed business model

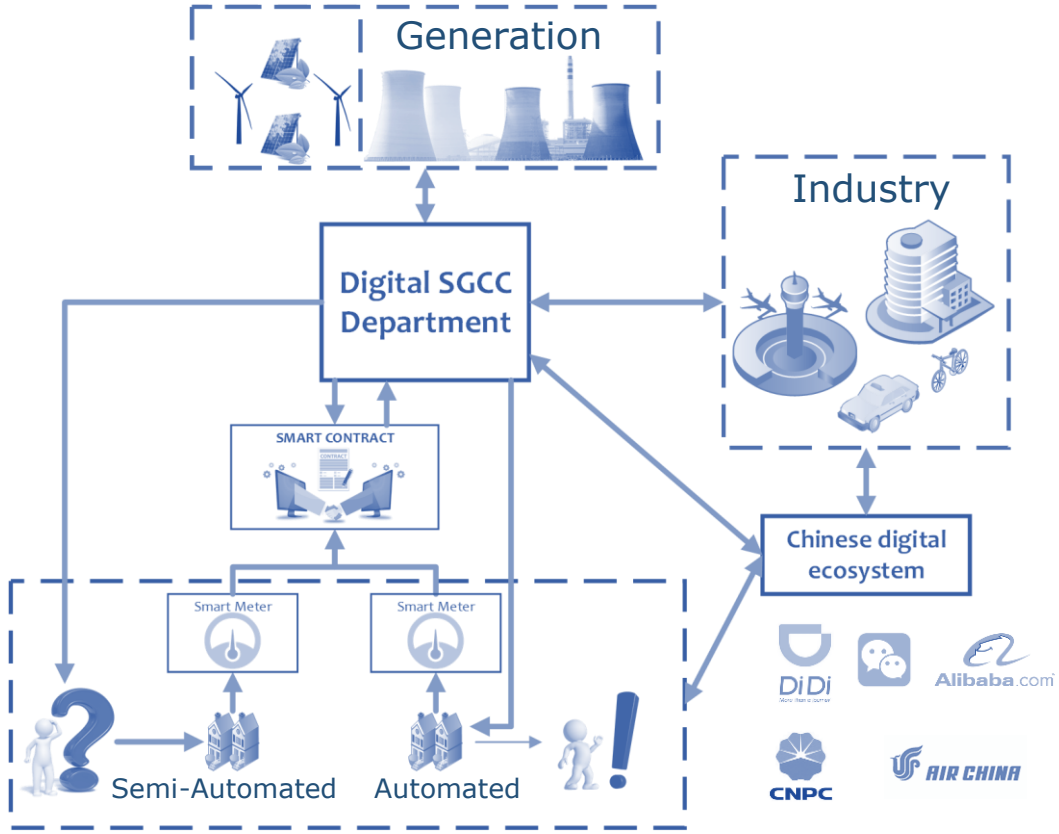
Digitalization. Data flow



Current data flow

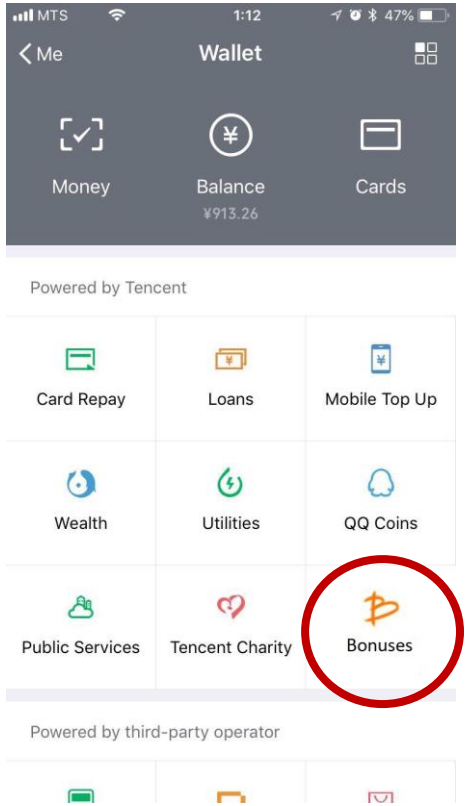
Bonuses:

Cashback
Air miles
Promo-codes
Discounts
Decrease of interest rate
Subway passes
Bicycle rent

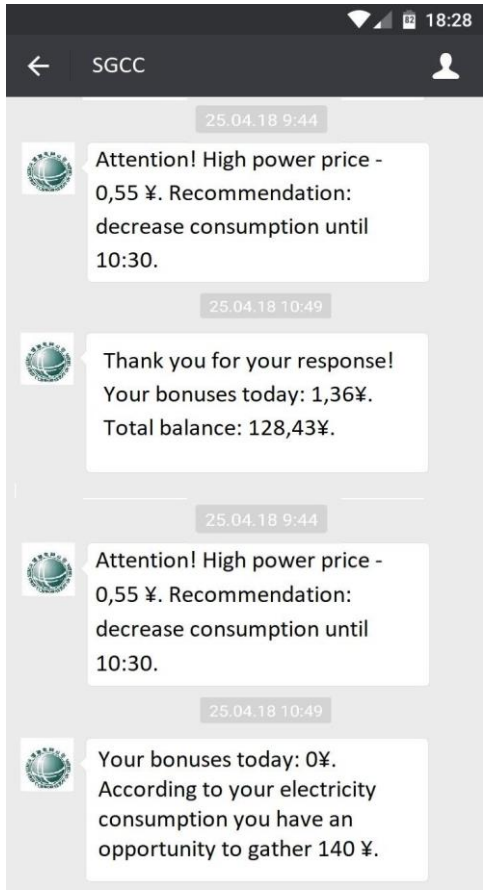


Proposed data flow

Digital solution



One click — all bonuses



Examples of notifications

Digital solution

- On-line distribution power system's mode analysis
- Short recommendation messages for devices' end users based on information gathered from generation & consumption
- Automated load control with enforced demand response
- Dynamic tariff during peaks (16.00 – 20.00)
- Overall bonus system integration and electricity payments into WeChat

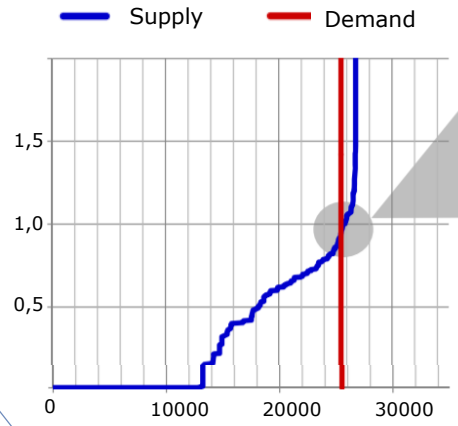
WeChat allows

- Additional value from new data
- Bonuses for each consumer of residential sector
- Transparency of services for power grid company as well as for consumer

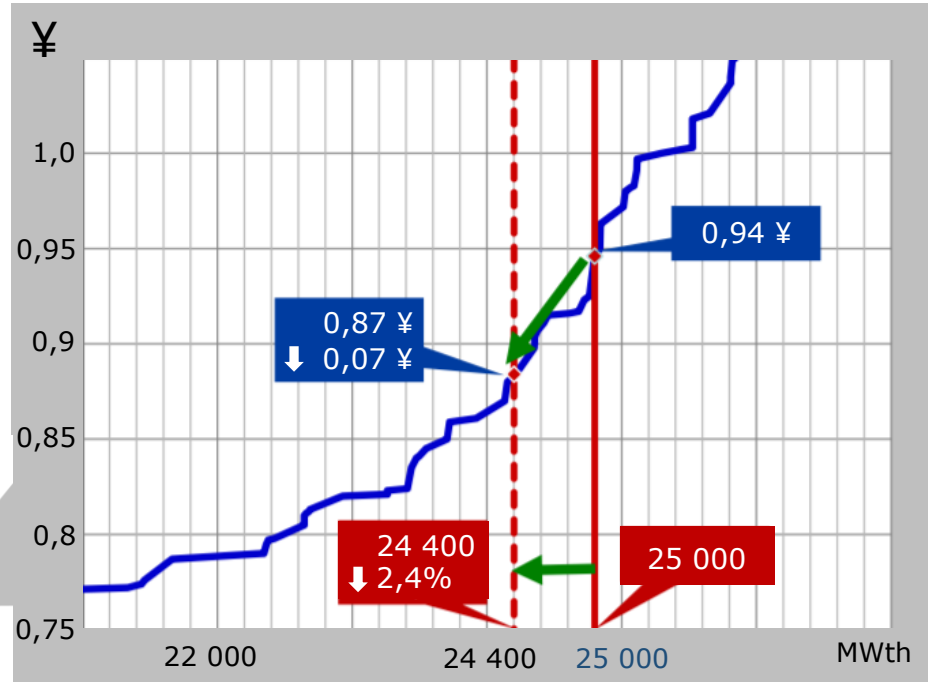
Pilot

Jiangsu province, Sūzhōu city

Parameter	*Value*
Maximum load, GW	22-25
Households and services, % of load	20-30
Population, mln ppl	10,7
WeChat users, mln ppl	7,6
Smart metering coverage, %	99,3



Price dependence on the level of consumption



Using Demand Response to decrease the load by 2,4% will lead the reducing of the price to 0,07¥

Road map

№	Name of stages	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
1	Creation of business model										
2	Creation of technical solution										
3	Regulation and technical facilities development										
4	Application development										
5	Testing period in imitation model										
6	Application implementation										
7	Testing period in pilot region										
8	Implementation of the system on the national scale										

Results:

- Reduce up to **5%** of load capacity **(up to 1,25 GW)** → tariffs for industry from **0,94 ¥/kWh** to **0,74 ¥/kWh**
- Creation of unified bonus system
- Benefit for end consumer **34 ¥** per month
- Profit for industry **67 mln ¥** per month
- CAPEX+OPEX for grids decrease for **10%**
- Expenditures for Fossil Fuel Generation decrease for **12,5%**
- Opportunities for **1,25 GW RES** capacity implementation without loosing stability

INTERNATIONAL YOUTH FORUM
2018
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