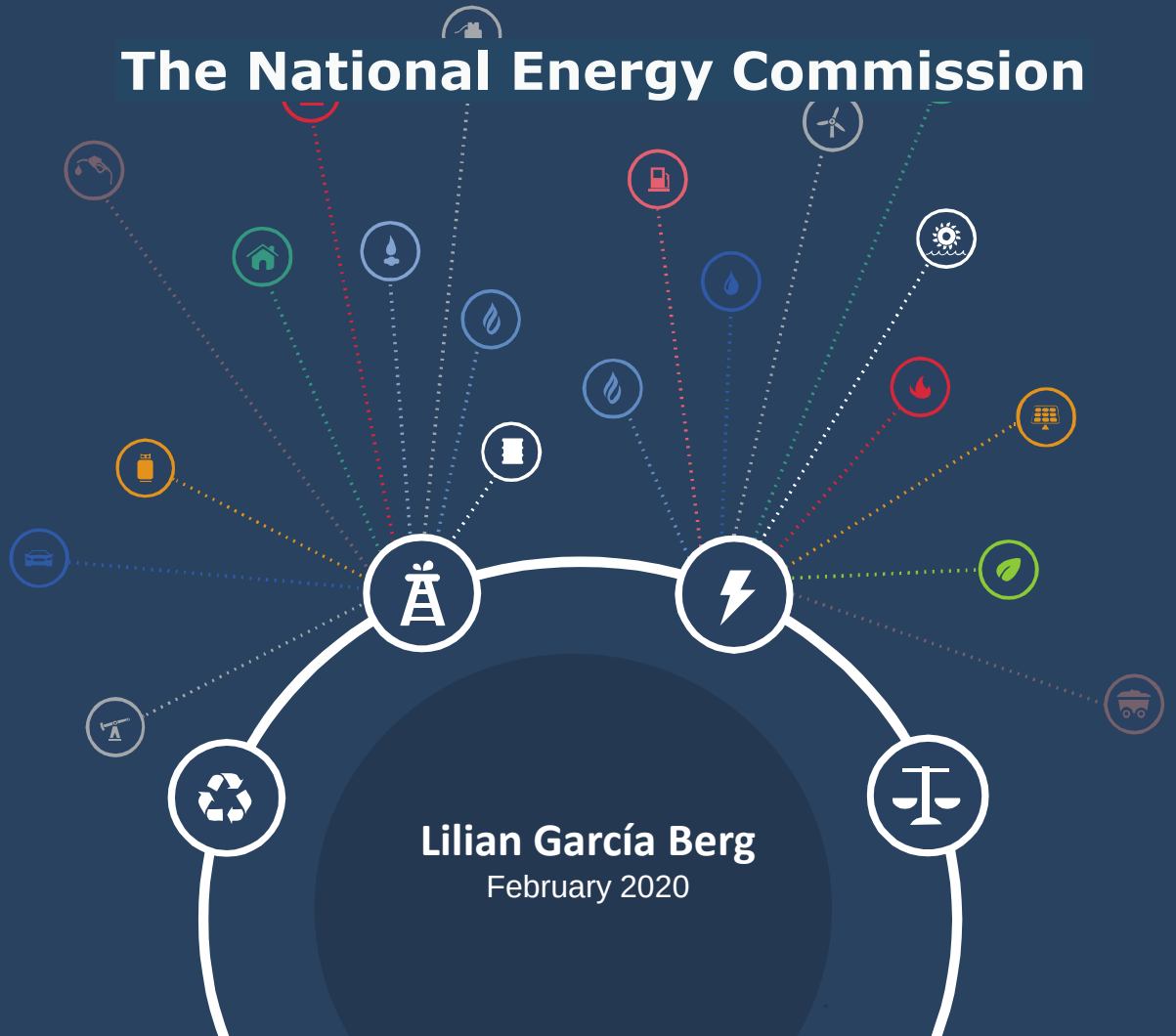
IEA Workshop

Market design for demand-side flexibility
The Chilean experience

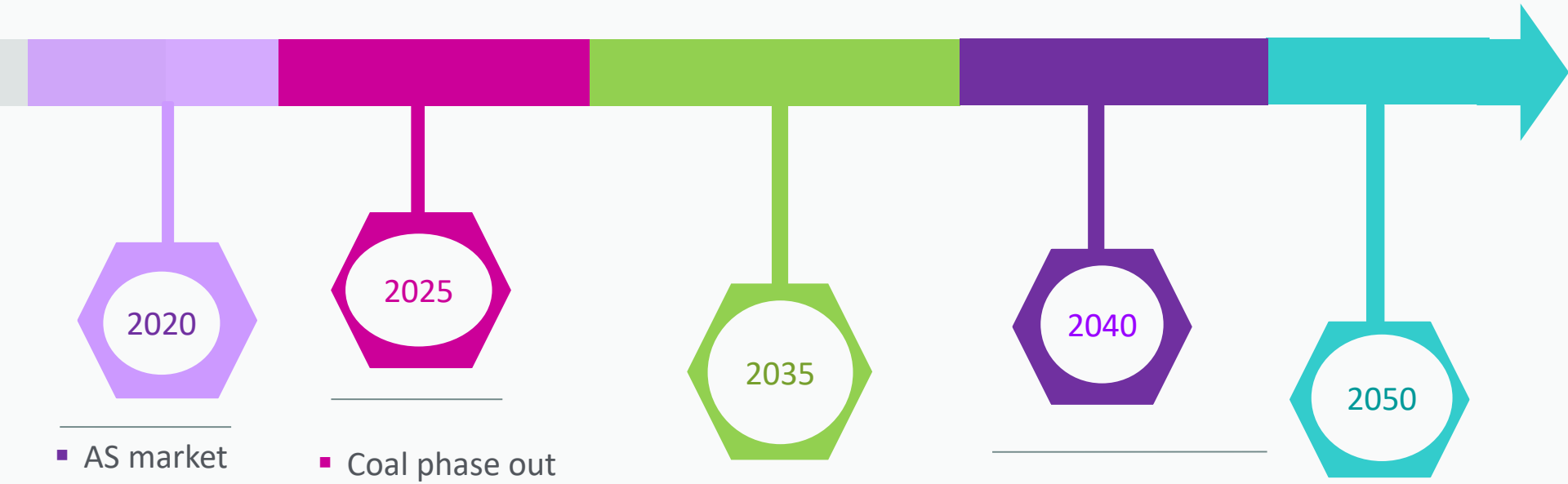
The National Energy Commission



Lilian García Berg

February 2020

Energy transition



- AS market begun on January 1st.
- 20% share of RE.
- SAIDI (2019) 12.78 [h]

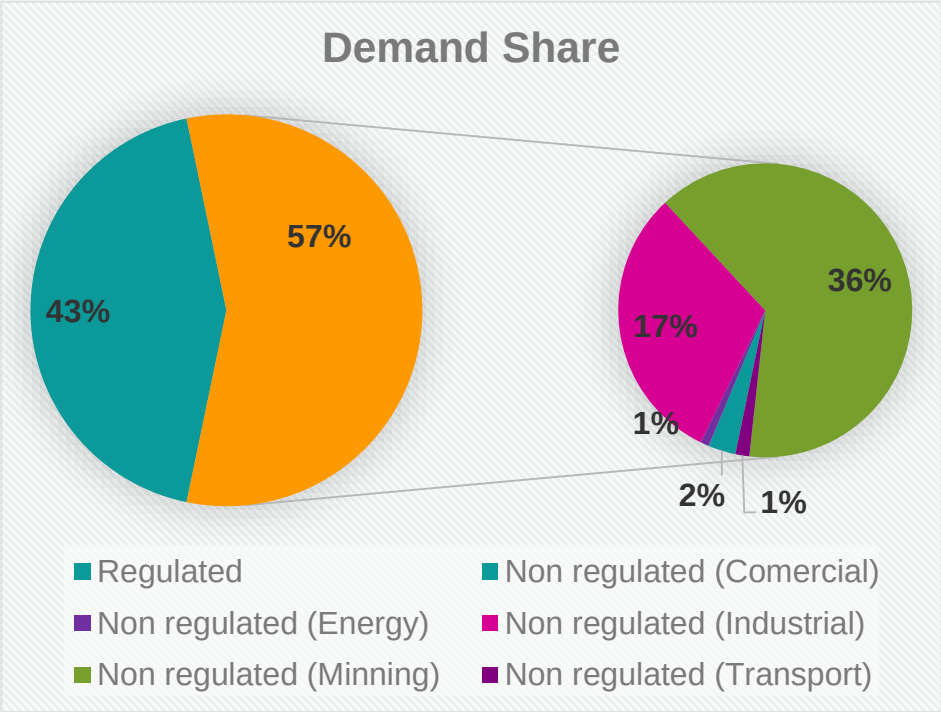
- Coal phase out (stage 1) around 1500 MW
- 2024 DisCo must implement the measurement, monitoring and control systems (except Smart Meters).

- 60% share of RE.
- SAIDI 4 [h]

- Coal phase out (stage 2) around 4000 MW

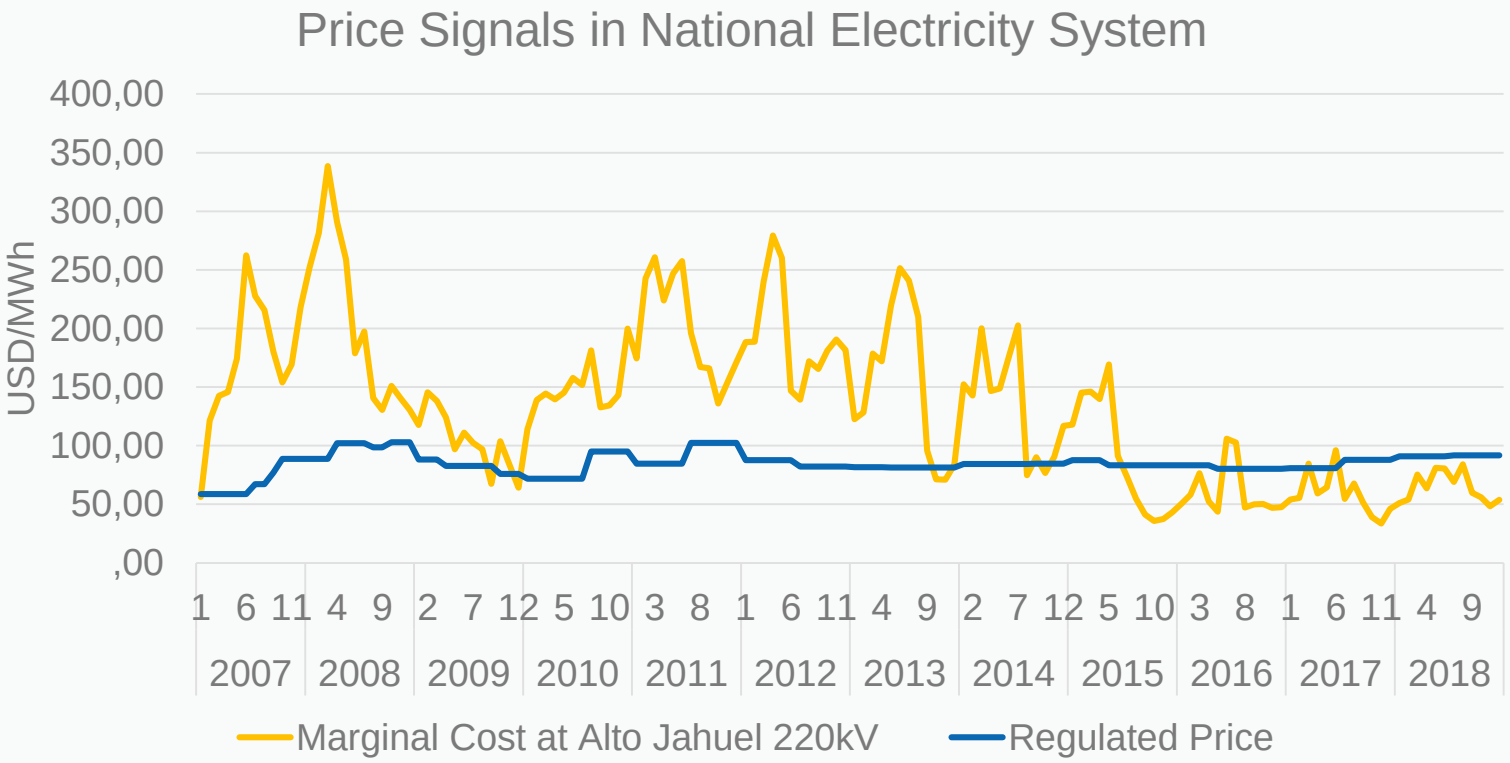
- 70% share of RE.
- SAIDI 1 [h]
- 100% public transport and 40% private transport with EV.

Demand share



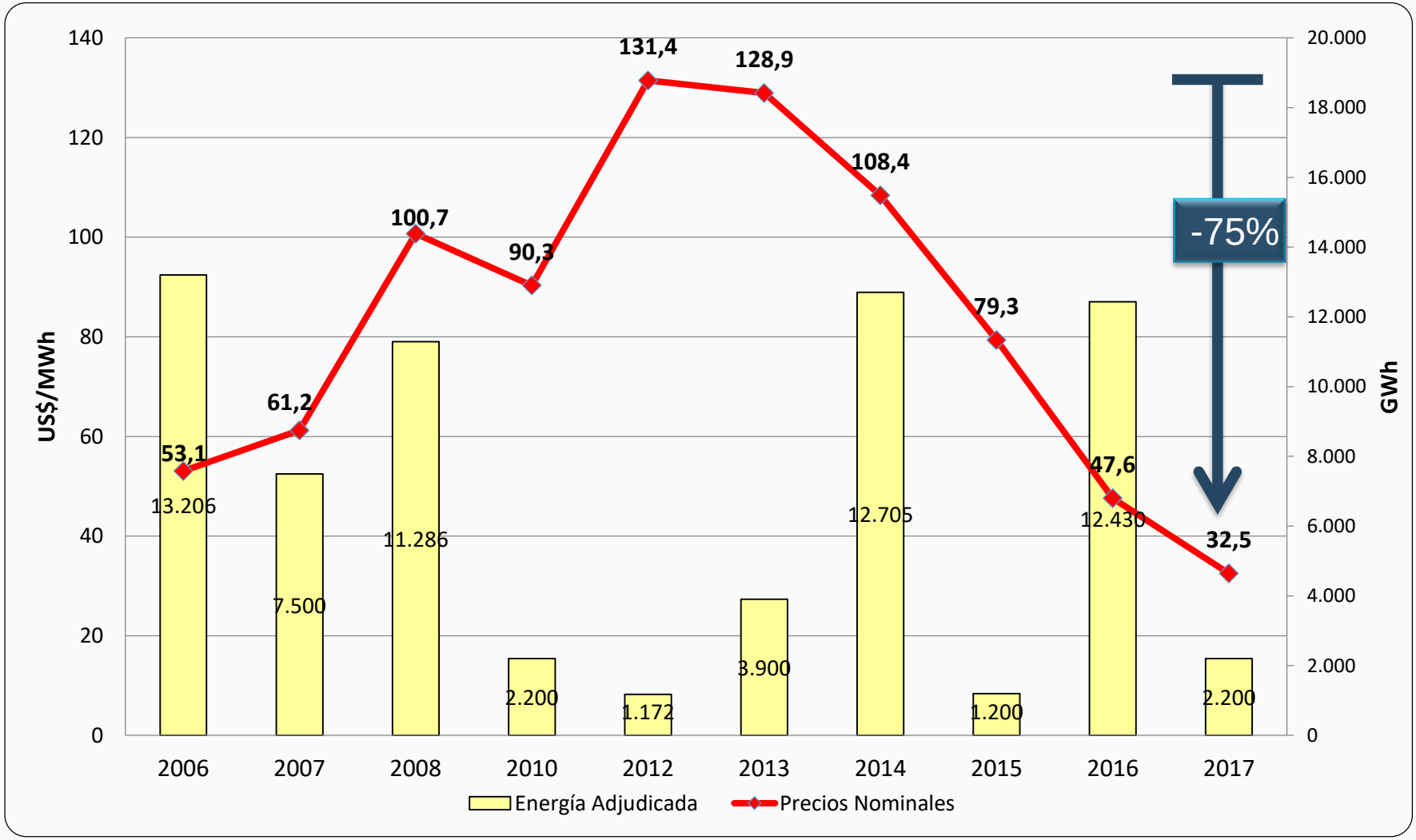
- Regulated costumers (below 500kW)
- Customers between 500kW-5MW, choice between regulated or non-regulated.

Price Signals for Customers

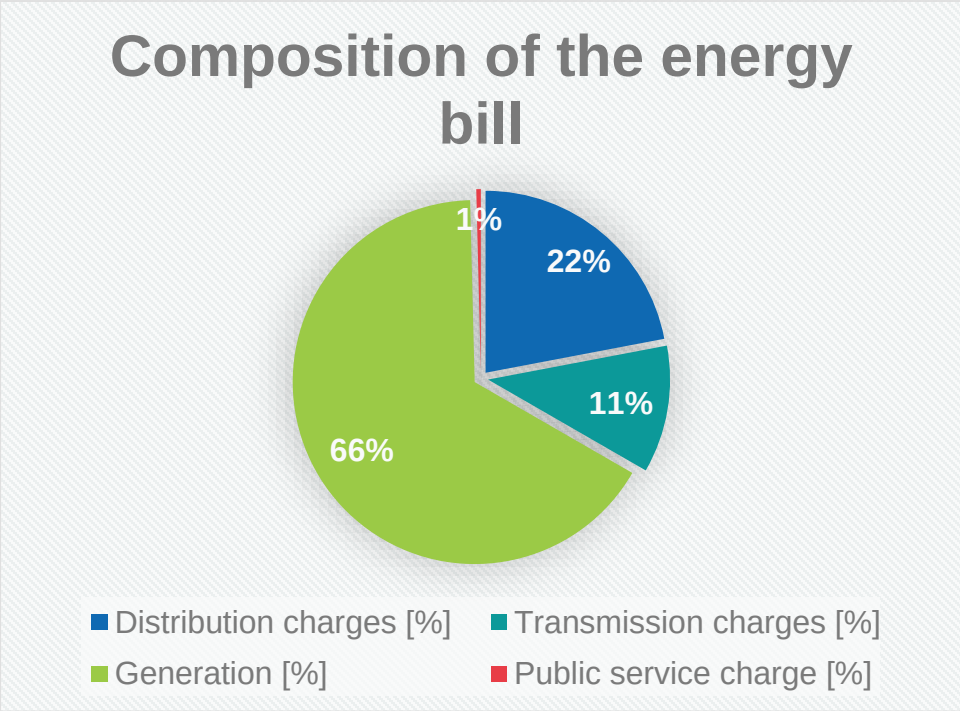


2021: It is expected that around 1000 customers would change from regulated to non-regulated contracts (6% of Regulated demand).

Tender Results (Awarded Energy and Prices)

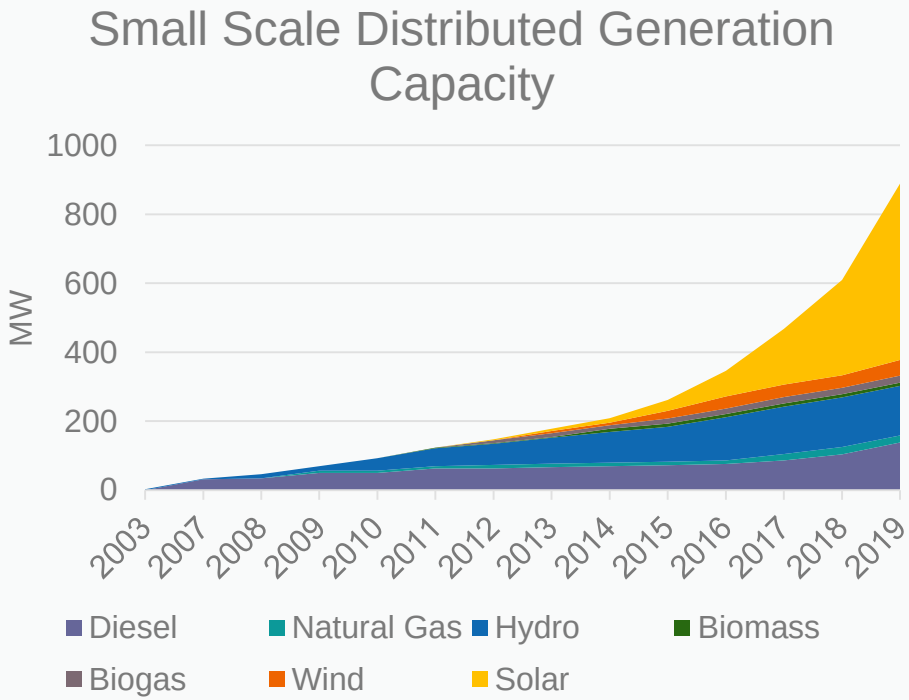


Tariffs



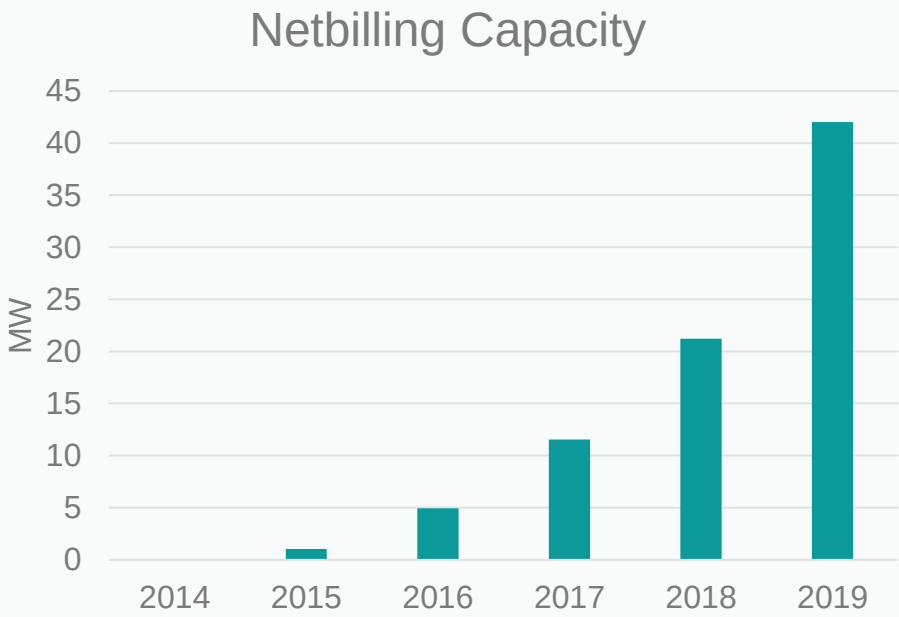
- Grid tariffs are **largely volumetric**.
- Demand response in Chile has been highly used **for peak management** through network and supply tariffs.
- Network tariffs (High/Medium-Low voltage).
- Supply Tariffs (Fixed Tariff, Flexible Tariffs).

Distributed Generation in Chile



955.95 MW

Up to 9 MW (injections)
Energy trading

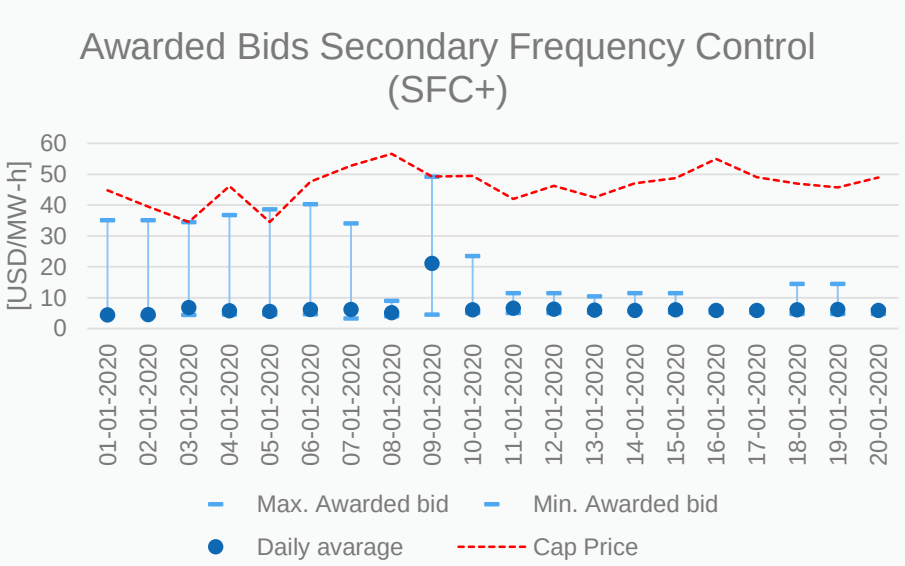


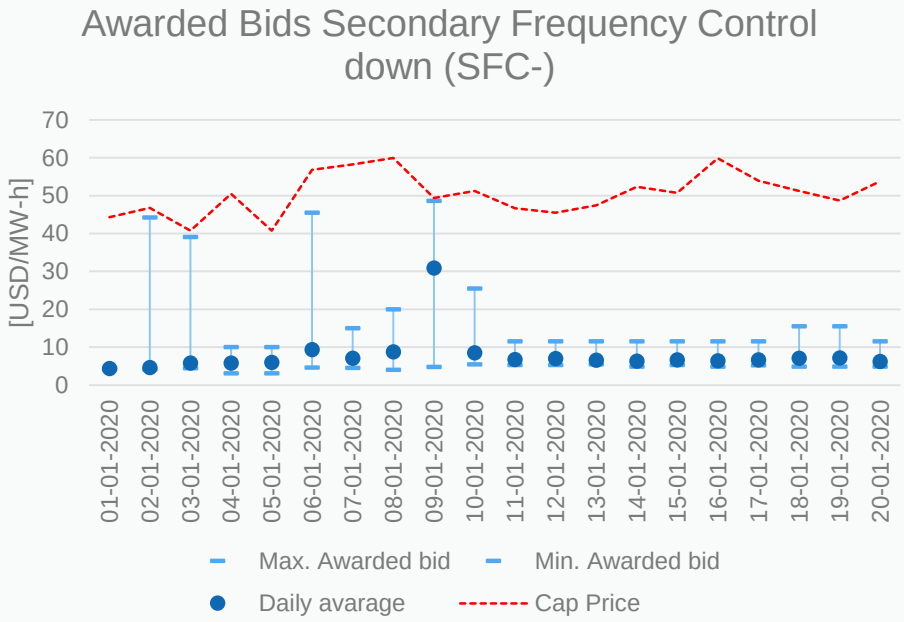
42 MW (99% solar)
85% residential
10% regulated (commercial)

Up to 300 kW (installed capacity)
Self-consumption

Ancillary Services

- **Since January 2020**, the provision of Ancillary Service is open to competition, particularly Secondary and Tertiary Frequency Control Services.
- Regulatory principle: **Technology neutrality,** allowing demand response participation**.**
- Ancillary Services related to increases or reductions in electricity demand by End Users measured from their point of connection to the electric system may be provided by the same **End Consumers, individually or in groups**. The grouping of End Consumers may be carried out by a third party (**Aggregator**) .
- **Explicit Demand Response Products**: Interruptible Loads (no required in 2020), Automatic or Manual Load Shedding (2693 MW).





Distribution Reform

Distribution Law Draft

Segment Structure

- Definitions, Actors, Roles.
- Liberalised retail electricity market.
- DisCo only DNO services.

Distribution Remuneration

- Improved “Efficient-firm Standard”
- Secure income through tariffs.
- Real profitability monitoring

Distribution Network Operation and Planning

- Utilities run their own investments plans
- Incentives to reduce cost (flexibility integration).
- DSO






Flexibility Strategy (Short and Mid Term)



Market design for the development of a flexible power system



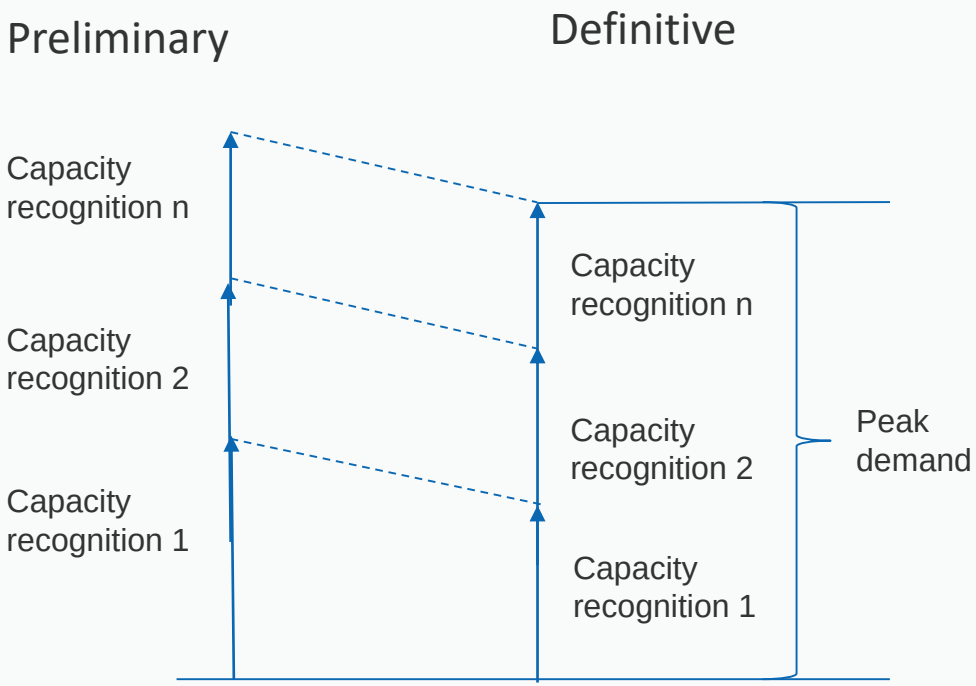
Regulatory framework for Storage



Flexible System Operation

3 strategic goals and 12 initiatives

Capacity Mechanism and Demand



Preliminary Capacity recognized (16530 MW)

Peak Demand (10334 MW)

- Capacity mechanism to ensure the necessary level of adequacy.
- Currently capacity payment available **only for generation units**.
- Capacity recognition is **adjusted to peak demand**.
- Payments are done by **demand at peak hours**.
- It´s necessary to **improve price signals to avoid inefficient solutions** for peak management (diesel generation behind the meter).

Future Challenges

- Provide the **right incentives for Demand Response** in a context of more flexibility requirements due to high renewable penetration.
- **Eliminate regulatory barriers** for Demand Response.
- Promote **Energy Efficiency (EE Law).**
- Paradigm shift: **Transition from traditional Power Grid to smarter grids**.
- Regulate properly the **interactions between new actors**.
- Tackle **technical challenges** (smart meters, VPP), and **social challenges** (raise costumer awareness).



Thank you for your attention

The National Energy Commission