

# **INVESTOR DAY**

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Virtual Conference 2021

Dec. 15 | 11:00 hrs



1	WELCOME REMARKS	Hernán Rodríguez
	POWER SECTOR OVERVIEW AND STRATEGY SUMMARY	Thomas Keller
3	ASSET BASE OPTIMIZATION	Juan Eduardo Vásquez
4	GROWTH IN RENEWABLES	Eduardo Lauer
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### WELCOME REMARKS

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#### Hernán Rodríguez Chairman of the Board



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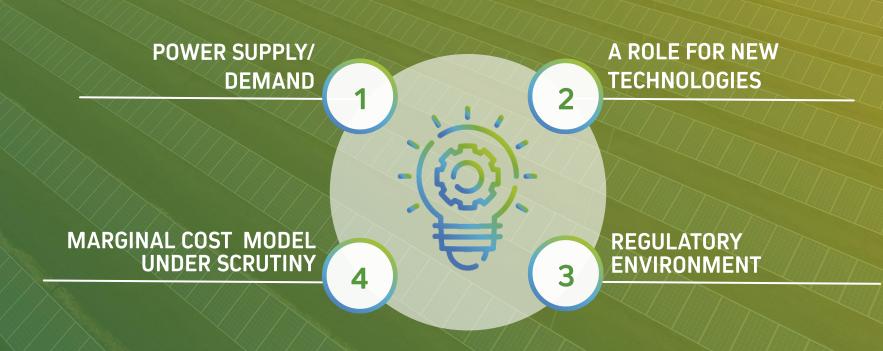


#### POWER SECTOR OVERVIEW AND STRATEGY SUMMARY

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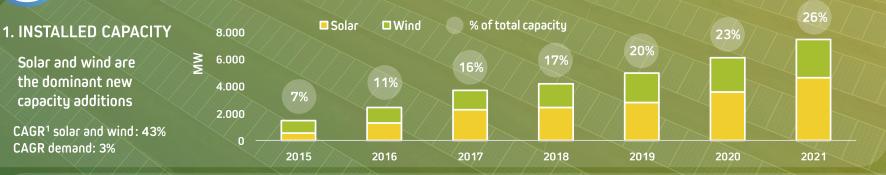
#### Thomas Keller Chief Executive Officer







### **POWER SUPPLY/DEMAND**

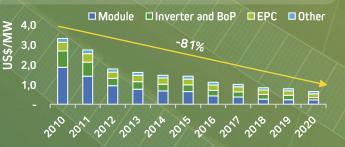


#### 2. TECHNOLOGY COSTS EVOLUTION

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LCOE of these technologies has reduced significantly over time due to capex reduction

#### SOLAR PROJECTS CAPEX<sup>2</sup>



#### WIND PROJECTS CAPEX<sup>2</sup>



1. CAGR: Compound annual growth rate

2. Sources: Bloomberg NEF and CNE





### A ROLE FOR NEW TECHNOLOGIES



Storage systems are likely to play a key role in a "decarbonized" economy

To balance the intermittent nature of renewable's power generation

To increase effective capacity of transmission assets

Reliable price signals are required to attract investment

Regulatory

framework

First steps in this direction are taking place



Will this technology follow the path of solar&wind technologies?





### 3

### **REGULATORY ENVIRONMENT**

#### Decarbonization agenda



An agreement to decommission all coal-fired power plants by 2040 was signed between de Ministry and the power generation companies in 2018



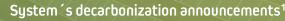
Some companies have decided to accelerate their decommissioning programs

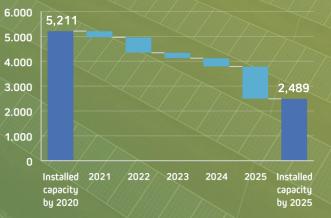


Congress is discussing decommissioning of all coalfired units by 2025



In parallel, a bill has been presented to decommission all fossil-fuel units by 2030





### Enablers for an accelerated decarbonization



New capacity to replace coal/gas/diesel capacity



Expansion of the transmission infrastructure



Investment in power storage capacity

Reliability, environmental performance and cost of the power supply system are at risk if enablers are not considered



### 3

### **REGULATORY ENVIRONMENT (CON'T)**



A case for competitive "bid and offer" wholesale market?



4

### MARGINAL COST MODEL UNDER SCRUTINY

#### Main drivers for change:

- New technologies have increased the complexity of operating the system under the audited cost model
- Increasingly detailed regulation mirrors complexity (but ultimately adds to complexity and increase costs)
- Discrepancies with regulators' rulings and decisions are on the rise
- Need to provide for a competitive market in other products/services (ancillary services and / or capacity)

Increased competition in products

and services

Challenges in a "bid and offer" system

 Need to provide adequate price/market signals to attract investments

Strong data analytics & optimization tools and models





### STRATEGY SUMMARY



### **ENHANCING OUR CORE BUSINESS**

#### ASSET BASE OPTIMIZATION

Strengthen our competitiveness by:

- Continuous improvement in productivity and efficiency
   Respond to the system's
- Respond to the system's increasing flexibility requirements

#### **GROWTH IN RENEWABLES**

Develop a project portfolio that has the potential to add 4,000 MW capacity by 2030 and to operate in the lower quartile of the industry's cost curve

#### **COMMERCIAL STRATEGY**

Focus on unregulated clients with an attractive value proposition

#### **EXPANDING OUR LIMITS**

**INORGANIC GROWTH** 

**STORAGE SYSTEMS** 

#### **POTENCIAL GROWTH OPPORTUNITIES**

DESALINIZATION

WASTE TO ENERGY

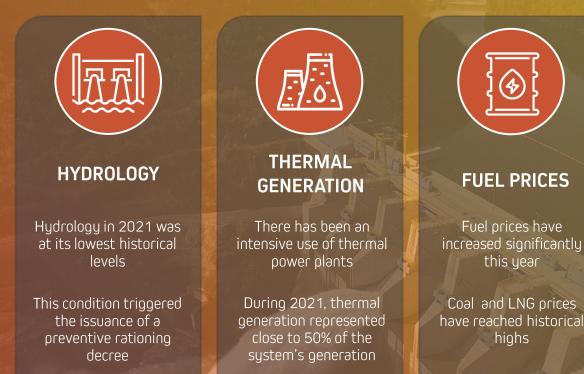
GREEN H<sub>2</sub>



#### Juan Eduardo Vásquez Chief Energy Officer

### **ASSET BASE OPTIMIZATION** Short term challenges







# TRANSMISSION

The transmission system has been under stress

Significant congestion has affected several sections of the system

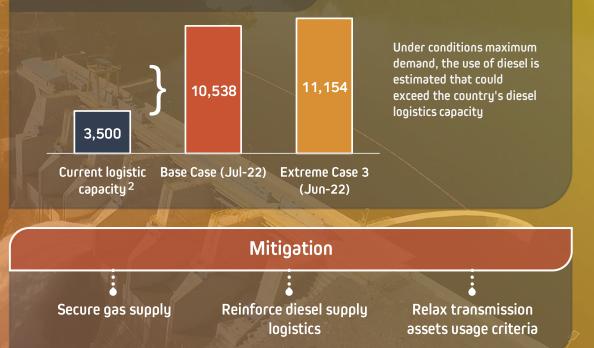
### Short term challenges



**A possible scenario:** Another very dry 2022 with high fuel prices

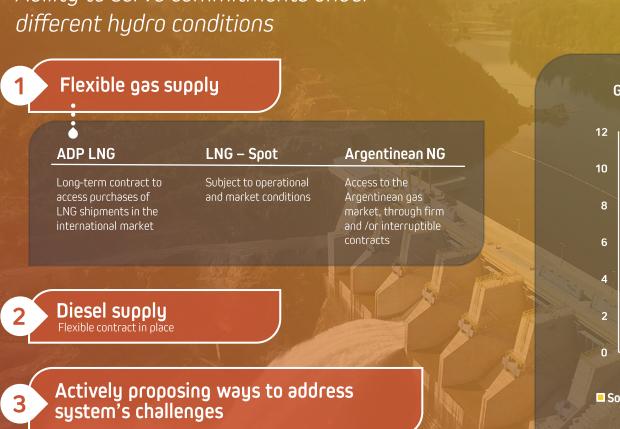
- The system would rely on minimum base load capacity outages
- Peak demand would have to be met by diesel-fired units
- Diesel logistic/infrastructure could become a bottleneck

Diesel requirements could increase in 2022 (m<sup>3</sup>/day)<sup>1</sup>



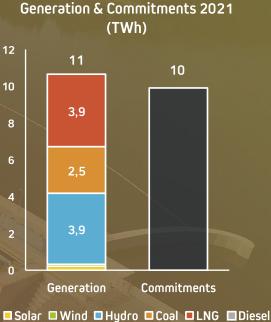
<sup>1</sup> Source: Coordinator Supply Security Study

<sup>2</sup> According to the Coordinator's Safety Study, this figure corresponds to the maximum generation capacity of diesel plants this year, this is equivalent to an availability of diesel between 3,500 and 4,000 m3 / day.



Ability to serve commitments under





*Combined Cycles with the potential to provide key services that the system will require* 



#### **REVS** power plants

#### Mass entry

It will require power plants that provide continuous generation to mitigate the variability in a safe way

#### Power plants able to provide flexibility and ancillary services are needed

Hydroelectric and Thermal Power Plants acquire great relevance With coal-fired power plants decommissioning there will be less availability of these type of services



#### Combine Cycles are the best prepared within efficient thermal power plants

They have advantages to provide these services and accompany the system in the massive REVS incorporation process

Colbun has combined cycles that have a significant potential for the delivery of these requirements



#### \*A constant exchange rate was used for this analysis



## **ASSET BASE OPTIMIZATION**

Continuous improvement in productivity and process efficiency

- **Optimizing maintenance**
- **Productivity improvement** ٠
- "Reengineering" of contracts

Key iniciatives





Transmission congestion in the central zone



#### Normal conditions

The Metropolitan Region is supplied by important contributions from both North and South



## Dry hydrological conditions

To supply the south-central zone, diesel must be used by plants located in the south

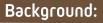


## Our PPA sales and generation are balanced

- Sufficient generation capacity in the north to supply our PPAs in that area
- The same applies to the south albeit with some exposure under very dry conditions

Colbun has not been required to post financial guarantees in 2021. This reflects a low exposure to the spot market

Peruvian Market: Change in gas price declaration methodology



- The declared cost of gas-based power generation now must reflect the entire gas supply chain; supply, transportation and distribution
- The marginal cost price increased from 10-15 USD/MWh to 25 USD/MWh



#### Santa Rosa Marginal Cost 2021 (USD/MWh)



#### 13 13 14 14 14 14 13 12 9 10 11

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec No Regulatory Change With Regulatory Change

- Higher prices for sales in the spot market
- Likely upward pressure on prices for future PPAs



#### Eduardo Lauer Chief Engineering and Project Officer



**Objective:** To develop projects with LCOE in the first quartile of the industry

#### DEVELOPMENT PHASE

TARGET CRITERIA

- High Load Factor
- Close to system interconnection points
- Generation profile (night/winter)
- Low social and environmental impact

#### PROJECT EXECUTION PHASE

EXCELLENCE IN ENGINEERING AND CONSTRUCTION

- Colbun as EPC integrator
- Experienced local and international suppliers and contractors
- Best of class in key equipment and components
- Logistics optimization









KEY INDICATORS	
• Estimated capacity 778 MW - 140 Wind Turbin	
Net annual generation	2,400 GWh
• Estimated capacity factor	35.3%
• Land surface	8,000 ha
• Connection point Parinas S/S 500/220 kV (9,7 and 15,8 km)	
Env. Impact Assessment Approved	
Estimated COD	Nov 2024
• Main Contracts	EPC WT - Enercon BoP Civil - Strabag BoP Electric - Sigdo Koppers



Rende



#### Horizonte Wind Farm Project

Site Works - November 2021



#### Changos-Cumbres 500 kV TEN Line





#### Diego de Almagro PV Project

Location: Diego de Almagro, Atacama Region



### **KEY INDICATORS**

• Estimated capacity	232 MW PV + 32 MWh BESS
Net annual generation	648 GWh
• Estimated capacity factor	35%
<ul> <li>Land surface</li> </ul>	330 ha
Connection point	Illapa S/S 220 kV (2.6 km)
• Env. Impact Assessment	Approved
• Estimated COD	PV Mar 2022 BESS Nov 2022





Diego de Almagro PV Project

Site Works - December 2021

All equipment already on site First power injection: Dec 2021







#### Machicura PV Project

Location: Colbún, Maule Region





### **KEY INDICATORS**

Estimated capacity	9 MW	
Net annual generation	20.5 GWh	
• Estimated capacity factor	24%	
Land surface	20 hə	
Connection point	Connected to Colbun's line	
• Env. Impact Assessment	Approved	
• COD	Nov 21	





#### Machicura PV Project

Site Works - November 2021









### **KEY INDICATORS**

Estimated COD	TBD
Env. Impact Assessment Approved	
Connection pointCrucero + Kimal S/S 220 kV (9 km)	
Land surface	1,105 ha
Estimated capacity factor	35%
Net annual generation	~2,000 GWh
	3: 250 MW
Estimated capacity	2: 250 MW
	1: 250 MW





KEY INDICATORS		
Estimated capacity	540 MW	
Net annual generation	1,500 GWh	
Estimated capacity factor	35%	
Land surface	1,000 hə	
Connection point	New Pozo Almonte S/S 220 kV	
Env. Impact Assessment	Approved	
Estimated COD	TBD	



#### Olivia Heuts Chief Commercial Officer

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Our strategy considers 3 key initiatives



Increase share of sales to unregulated clients in our sales mix

Risk profile of unregulated clients is more attractive

Better fit between unregulated client's requirements and Colbun's value proposition



Excellence in customer experience

Customers service model leveraging digitalization

Delivery of focused valueadded services

> 8 products/services: "Colbun by Efizity"





Power supply commitments



Our PPAs are supported by a matching cost-efficient power generation Cost structure properly reflected in sale prices + active risk management

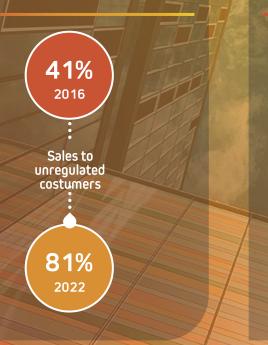
Consequently, our PPAs portfolio will increase as our new renewable capacity comes on stream



Focus on unregulated customers



We have increased the share of sales to unregulated clients in our sales mix As a result, our market share in the unregulated segment has increased



Colbun 14% 2016 Colbun's share in the unregulated market Colbun 18% 2022

Delivery of focused value added services

We are serving an increasing number of costumers



66

2020

70

2021

How likely would you recommend to become a **COLBUN client?** 

Colbun's NPS



System



Power Management





#### OTHER GROWTH OPPORTUNITIES SUSTAINABILITY

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#### **Heinz Müller** Chief Development and Innovation Officer

### **OTHER GROWTH OPPORTUNITIES**



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A. Marganese and





Operational only by 2029+

Price arbitration opportunity between day and night hours Solar resource/ generation abundance

Potential 1,200 GW only in Antofagasta<sup>1</sup> Lower CAPEX for batteries expected

50% by 2030<sup>2</sup>

#### Key role for renewable penetration

System balance and ancillary services

### **OTHER GROWTH OPPORTUNITIES**

Storage systems can leverage our asset base



#### RENEWABLE ASSETS + BESS



- Manageable injections
- Reduced exposure to spot risk. BESS transfer energy from off-peak periods to peak hours

#### D. Almagro utility-scale pilot project

• PV installed capacity: 232 MW

Aller and the second second

 BESS installed capacity: 8 MW and 32 MWh

#### Solar PV projects

- Colbun has a PV project pipeline of 1,825 MW
- These projects represent a 1,000 MW growth option in storage systems

#### Behind The Meter (BTM) projects

- BTM could be part of Colbun's value proposition
- Running pilot

### OTHER GROWTH OPPORTUNITIES

Exploring new areas: infrastructure assets with an important role for power supply



#### WASTE TO ENERGY

- WTE reduces CO<sub>2</sub> emissions by ~70% and waste volume by ~90% (vis a vis waste disposed off in landfills)
- Existing landfills are close to the end of their useful life and approval for new sites is highly unlikely
- WTE is an opportunity for an environmentally friendly solution with energy contribution

#### DESALINIZATION AND WATER MANAGEMENT

- The supply of continental water will be increasingly limited due to climate change, prolonged drought and social pressure
- Need for solutions in water infrastructure/management (desalination, sewage reuse and seawater conduction)

#### **GREEN HYDROGEN**

- Green H<sub>2</sub> development has been boosted worldwide as a way to replace fossil fuels and achieve carbon neutrality
- The production of green hydrogen will require an increase in renewable energy generation

### SUSTAINABILITY Our Pathway

Stanson and Allen and Martin



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We must excel in social, environmental and corporate governance performance to create value for our shareholders in the long term



### **SUSTAINABILITY** *Our ESG goals and highlights*



### ENVIRONMENTAL



E

Add **4,000** MW of renewable energy from variable sources by 2030

#### LOWER $CO_2$ EMISSION FACTOR (ton $CO_2e/MWh$ ) :

- 30% net reduction by 2025
- 40% net reduction by 2030
- Carbon neutrality by 2050

#### **EFFICIENT WATER USE:**

Operational (m<sup>3</sup>/MWh):

- 40% reduction by 2025
- **45% reduction by 2030** Non-operational (m<sup>3</sup>):
- 40% reduction by 2025



#### WASTE MANAGEMENT:

• 98% of ash recovery by 2025 (61% average in last 4 years)



BIODIVERSITY MANAGEMENT (internal goals)



## SOCIAL

 CLIENTS:
 Maintain a Net Promoter Score (NPS) above 50 points

#### WORKERS:



 Increase female participation to 25% of the workface by 2025; focus in masculinized areas/roles (18% in 2018)

• Maintain a Promoter Score above 88 points

### 

#### OTHER INTERNAL GOALS:

- Stakeholders' engagement indicators:
  - Communities
  - Suppliers
  - Investors

#### Board of Directors and Senior Management continuous engagement

**GOVERNANCE** 

 Sustainability Committee and Risk Management Committee



### Focus on ESG goals and commitments



Stakeholders' engagement



Higher standards in information/communication





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