



Dec. 15 | 11:00 hrs



**WELCOME REMARKS** Hernán Rodríguez **POWER SECTOR OVERVIEW AND** Thomas Keller STRATEGY SUMMARY 3 **ASSET BASE OPTIMIZATION** Juan Eduardo Vásquez **GROWTH IN RENEWABLES** Eduardo Lauer 5 Olivia Heuts **COMMERCIAL HIGHLIGHTS** OTHER GROWTH OPPORTUNITIES 6 Heinz Müller **SUSTAINABILITY** 





**WELCOME REMARKS** Hernán Rodríguez **POWER SECTOR OVERVIEW AND** Thomas Keller STRATEGY SUMMARY 3 **ASSET BASE OPTIMIZATION** Juan Eduardo Vásquez **GROWTH IN RENEWABLES** Eduardo Lauer 5 Olivia Heuts **COMMERCIAL HIGHLIGHTS** OTHER GROWTH OPPORTUNITIES 6 Heinz Müller **SUSTAINABILITY** 

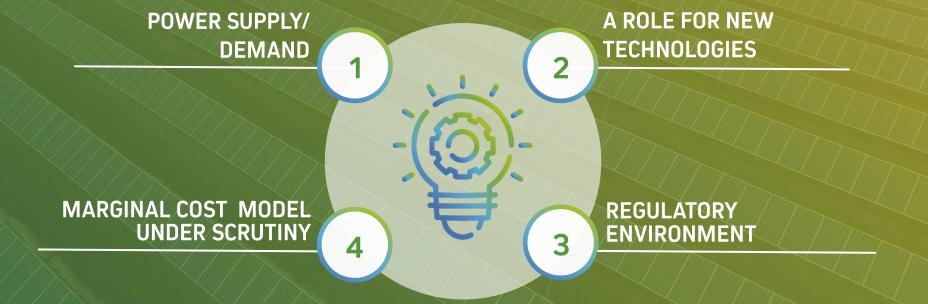


POWER SECTOR
OVERVIEW AND
STRATEGY SUMMARY

Thomas Keller
Chief Executive Officer









1

#### **POWER SUPPLY/DEMAND**

#### 1. INSTALLED CAPACITY

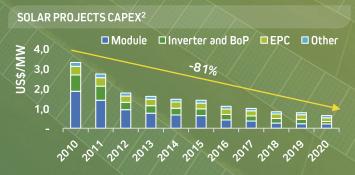
Solar and wind are the dominant new capacity additions

CAGR<sup>1</sup> solar and wind: 43% CAGR demand: 3%



# 2. TECHNOLOGY COSTS EVOLUTION

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





Sources: Bloomberg NEF and CNE

<sup>1.</sup> CAGR: Compound annual growth rate



2

### 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



Regulatory framework

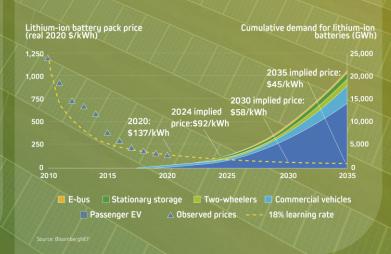
Reliable price signals are required to attract investment



First steps in this direction are taking place



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







#### 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

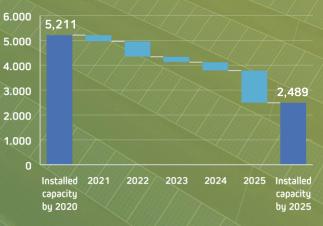


Congress is discussing decommissioning of all coal-fired units by 2025



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)**

Stabilized Price of Energy (PEC)

The 1,350 MMUSD fund is running out

PEC-2 in the making?

**Basic Services Law** 

A significant debt level has accumulated

Part of the burden to be socialized?

LNG Technical Standard

Risk of importing LNG in certain scenarios

??

••••

• • • • •

Water Code Reform

•••• Higher environmental standards for water use

Will it survive a new constitution?

Power supply portability Capacity remuneration

•••• Moving in slow motion

••••

Colbun INVESTOR DAY

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



### 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)

 Need to provide adequate price/market signals to attract investments

Challenges in a "bid and offer" system

Increased competition in products and services

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 efficiencyRespond 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** 

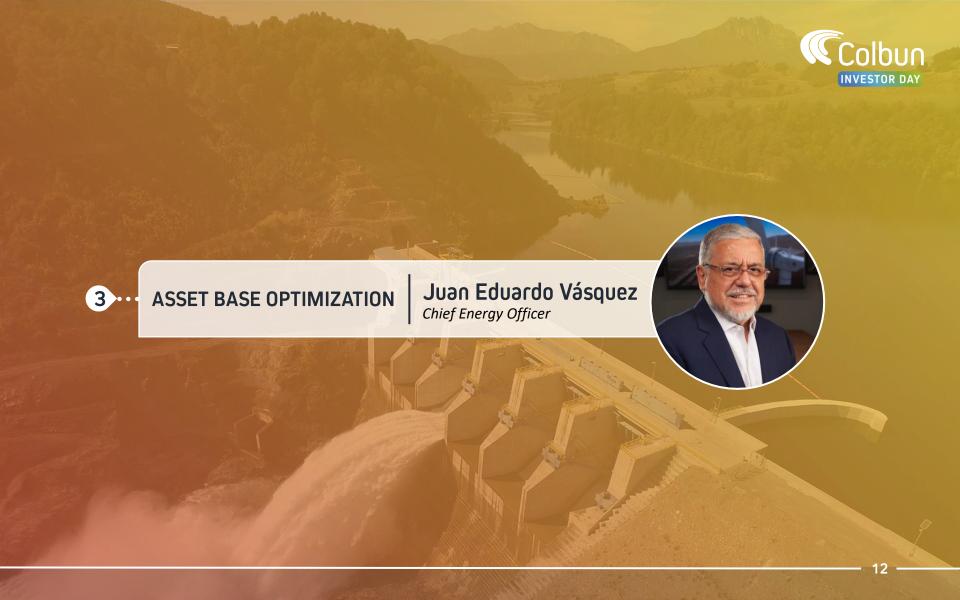
STORAGE SYSTEMS

POTENCIAL GROWTH OPPORTUNITIES

**DESALINIZATION** 

**WASTE TO ENERGY** 

**GREEN H<sub>2</sub>** 



Short term challenges





#### **HYDROLOGY**

Hydrology in 2021 was at its lowest historical levels

This condition triggered the issuance of a preventive rationing decree



# THERMAL GENERATION

There has been an intensive use of thermal power plants

During 2021, thermal generation represented close to 50% of the system's generation



#### **FUEL PRICES**

Fuel prices have increased significantly this year

Coal and LNG prices have reached historical highs



# TRANSMISSION INFRASTRUCTURE

The transmission system has been under stress

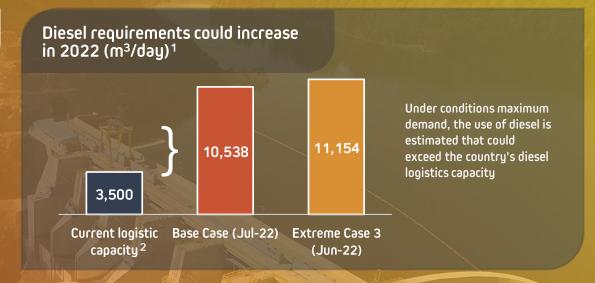
Significant congestion has affected several sections of the system

### 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





Ability to serve commitments under different hydro conditions





ADP LNG

Long-term contract to

access purchases of

LNG shipments in the

international market

Flexible contract in place

Subject to operational and market conditions

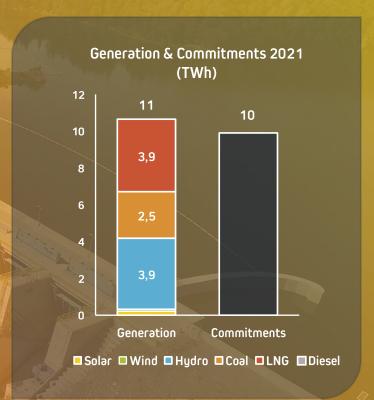
LNG - Spot

Argentinean NG

Access to the Argentinean gas market, through firm and /or interruptible contracts

2 Diesel supply

Actively proposing ways to address system's challenges



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

Continuous improvement in productivity









#### **Key iniciatives**

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

Transmission congestion in the central zone



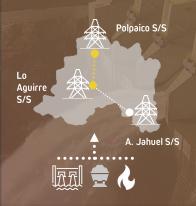
#### Normal conditions

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



#### Background:

- 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







#### 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



PROGRESS STAGE:



Prefeasibility 870 MW Environmentally approved 1,280 MW

Under construction 778 MW

Under commissioning 241 MW



**DIEGO DE ALMAGRO** 

Located in one of the areas with the best radiation in Chile.



With up to 778 MW of installed capacity, this project will become one of the largest wind farms in Latin America.





#### **Horizonte Wind Farm Project**

Location: Taltal, Antofagasta Region



#### **KEY INDICATORS**

<ul><li>Estimated capacity</li></ul>	778 MW - 140 Wind Turbines
--------------------------------------	----------------------------

• 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





### **Horizonte Wind Farm Project**

Site Works - November 2021









#### Diego de Almagro PV Project

Location: Diego de Almagro, Atacama Region



#### **KEY INDICATORS**

• Net annual generation 648 GWh

• Estimated capacity factor 35%

• Land surface 330 ha

Connection pointIllapa S/S 220 kV(2.6 km)

• Env. Impact Assessment Approved

Estimated CODPV Mar 2022BESS Nov 2022





#### Diego de Almagro PV Project

Site Works - December 2021

All equipment already on site First power injection: Dec 2021











#### **KEY INDICATORS**

Estimated capacity
9 MW

Net annual generation
 20.5 GWh

Estimated capacity factor 24%

• Land surface 20 ha

• Connection point Connected to Colbun's line

▶ Env. Impact Assessment Approved

● COD Nov 21





### Machicura PV Project

Site Works - November 2021









#### Inti Pacha 1, 2 & 3 PV Project

Location: María Elena, Antofagasta Region



KEY INDICATORS		
Estimated capacity	1: 250 MW 2: 250 MW 3: 250 MW	
Net annual generation	~2,000 GWh	
<ul> <li>Estimated capacity fact</li> </ul>	<b>tor</b> 35%	
Land surface	1,105 hə	
Connection point	Crucero + Kimal S/S 220 kV (9 km)	
Env. Impact Assessmen	nt Approved	
Estimated COD	TBD	





#### Jardín Solar PV Project

Location: Pozo Almonte, Tarapacá Region





#### **KEY INDICATORS**

•	<b>Estimated</b>	capacity	540 MW
---	------------------	----------	--------

Net annual generation
 1,500 GWh

Estimated capacity factor 35%

Land surface 1,000 ha

Connection point
New Pozo Almonte S/S 220 kV

**Env. Impact Assessment** Approved

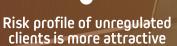
Estimated COD TBD



Our strategy considers 3 key initiatives



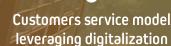
Increase share of sales to unregulated clients in our sales mix



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



Excellence in customer experience





Delivery of focused valueadded services



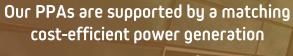
8 products/services:

"Colbun by Efizity"



Power supply commitments





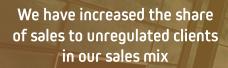
Cost structure properly reflected in sale prices + active risk management

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



Focus on unregulated customers





As a result, our market share in the unregulated segment has increased



2016

Colbun

Sales to unregulated costumers

Colbun's share in the unregulated market



Colbun



Delivery of focused value added services



We are serving an increasing number of costumers



How likely would you recommend to become a COLBUN client?

Colbun's NPS



**70** 2021

Expanded delivery of value-added services by acquiring Efizity







Energy Manager



Energy Audit



Power Consumption Monitoring and Control



Energy Efficiency Advisory



Splice Migration



Photovoltaic Self-Generation



Energy Management System



Electric Charger



Multipoint Power Management



OTHER GROWTH
OPPORTUNITIES
SUSTAINABILITY

Heinz Müller
Chief Development and
Innovation Officer



# OTHER GROWTH OPPORTUNITIES

Power storage systems





**HVDC** Line

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

GIZ and Ministry of Energy, 2014 BloombergNEF, Dec2020

### 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
- 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



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

Sustainability Strategy

Integrated in all areas of the Company

2010

Angostura Hydroelectric Complex

Environmental and social innovation

2014

Reportability progresses

- Integrated Annual Report

- DJSI "listing" (Chile & MILA)

- Stakeholder surveys

2015

Business Sustainability integration is reinforced

Growth focus on renewable energy

2017

- ESG commitments and goals made public

- First green bond issued

2021



informereporta



Dow Jones Sustainability Indices In Collaboration with RobecoSAM 40







### SUSTAINABILITY

Our ESG goals and highlights



#### **ENVIRONMENTAL**



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



# LOWER CO<sub>2</sub> EMISSION FACTOR (ton CO<sub>2</sub>e/MWh):

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



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

Operational (m³/MWh):

- 40% reduction by 2025
- **45% reduction by 2030** *Non-operational (m³):*
- 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

#### **GOVERNANCE**



Board of Directors and Senior Management continuous engagement

 Sustainability Committee and Risk Management Committee



Focus on ESG goals and commitments



Stakeholders' engagement



Higher standards in information/communication





Dec. 15 | 11:00 hrs