Energy Chile - California
Executive Summary
Session 1: Energy Transition

May 19th, 2021

The Chile California Council and the Ministry of Energy of Chile held the first of four working group sessions that will discuss common challenges and opportunities Chile and California face as they transition to more sustainable energy systems. The first session took place May 19th, 2021 and focused on comparing the goals, key challenges, and opportunities of both. The next meetings will examine Chile's and California's approaches to foster and implement significant transitions in electrification, mobility, and develop green hydrogen. A consolidated document will be prepared highlighting the tangible results of these four sessions and next steps to follow.

This executive summary provides an extract of what was discussed in this first session. Participants, sponsors and organizers all found the session very useful and had positive comments on what was achieved.

The main highlights center around how much tangible impact can be obtained from increased collaboration and knowledge transfer; under a working plan designed to bring action and outcomes. This first session proved that the model works and sets high expectations for the subsequent three sessions. Main outcomes include the emergence of concrete collaborative agendas among participants and identifying the most useful incentives, technologies and long-term investments required for the energy transition while tapping into the comparative and complementary experiences happening between Chile and California.

The rest of the document showcases participants and the agenda of the meeting before providing a summary of key points that came out of the meeting.

I. PARTICIPANTS

Commissioner Andrew McAllister - California Energy Commission	Merrian Borgeson - Natural Resources Defense Council
Gabriel Prudencio - Sustainable Energies Division, Ministry of Energy of Chile	Ignacio Fernández - Southern California Edison
Santiago Vicuña - Community Participation and Relations Division, Ministry of Energy of Chile	Trinidad Castro – World Energy Council Chile
Carlos Barria - Studies and Policies Division, Ministry of Energy of Chile	Aura Rearte - ACESOL
Roberto Araos – DECYTI Director – Ministry of Foreign Affairs of Chile	Nicolás Westenenk – Generadoras de Chile
Rafael Friedmann - CCC Chair	
Marcela Angulo - CCC Councilor & Universidad de Concepción	

II. AGENDA RECAP

*Times are expressed in Pacific Standard Time (California)

PART 1: Introductory remarks		
9:00 am – 9:05 am	Welcome & general protocols for the meeting	Representative before the CCC Matias Alcalde
9:05 am - 9:10 am	Introduction words by the Ministry of Energy of the Government of Chile	Head of the International Office Javiera Aldunate
9:10 am - 9:15 am	Introduction words by the Chile California Council (CCC).	Chair of the CCC Rafael Friedmann
PART 2: Chile & California Context		
9:15 am - 9:25 am	Pillars of the "Transition and Decarbonization Plan for Chile by the Ministry of Energy of the Government of Chile".	Head of the Sustainable Energies Division Gabriel Prudencio
9:25 am - 9:35 am	Pillars of the "Transition and Decarbonization Plan for California by the California Energy Commission".	Commissioner Andrew McAllister
PART 3: Discussion groups **Participants will be assigned in advance in the following discussion groups, to work on a "living" document of simultaneous work. This conversation seeks to discuss successful and failed experiences of programs, policies and incentives useful both for Chile and California.**		
9:35 am - 10:05 am	Group 1: "Challenges of energy planning in the context of insertion of renewable energies"	
	Group 2: "Creation of new jobs, transfer of skills in the energy transition and consensus mechanisms in the carbon neutrality process"	
	Group 3: "New technologies, innovations, designs and prototypes for power generation for the next 30 years"	

PART 4: Open Discussion	
10:05 am - 10:15 am	Each group will select a representative to present the main points of view discussed - pitch of 2 mins each.
10:15 am - 10:40 am	Questions and open discussion.
PART 5: Conclusions and Next Steps	
10:40 am - 11:00 am	Identification of the main actions to work on for the future meetings.
	Comments to consider for the next sessions.

III. PRINCIPAL FINDINGS AND DISCUSSIONS

A summary of what was presented and discussed in the meeting follows per the meeting agenda presented earlier.

Chile's Energy Transition

- Chile today has a **liberalized, competitive** and **unsubsidized energy market**, with a high **dependence on imported fossil fuels**, and **an immense renewable energy potential.**
- Chile has set a goal to achieve **carbon neutrality by 2050**, based on 4 main pillars: (1) Coal phase-out and increase of renewable energy, (2) Energy efficiency, (3) Green Hydrogen, and (4) Electric mobility
- A **Just Transition Strategy** that aims to address unemployment, local communities, existing infrastructure and environmental impacts, while ensuring the reliability and security of the system.
- **Given the intermittency of an energy system relying mostly on renewable energy, Chile has a Flexibility Strategy** for the power sector, based on 3 pillars: (1) Market design for a flexible system, (2) Regulation for storage, and (3) Flexible system operation
- The energy transition will have **positive cost-benefit effects** and important impacts in electrification, building, industry, and capture the country's competitive advantage to produce and export green hydrogen.

California's Energy Transition

- California has committed to **achieve carbon neutrality by 2045**, based on 6 main pillars: Transportation, Electrification, Building Decarbonization, Load Flexibility, Energy Efficiency, and Research & Innovation. This goal requires:
    - Nearly tripling California's current yearly solar and wind build rates
    - Increasing battery storage build rates by nearly 8 times.
- **Continuing to reduce GHG emissions per GDP in California which fell almost by half in the last 20 years.**
- **Further fostering favorable market development that** has resulted in a diverse energy portfolio.
- **Supporting further technological development in storage technologies, that** has already resulted significant reductions in the price of batteries and faster charging speeds.
- **Major investments** into the clean energy transition, energy efficiency and climate response.

Group 1: *"Energy planning in the context of a massive insertion of renewable energies"*

Chile's main challenges:

- Increase permitting efficiency and transparency of the process,
- Create incentives to increase demand for renewables, by for example, creating markets (payments) for flexible systems.
- Build required transmission infrastructure to support the renewable energy growth in the electricity matrix.
- Promote electric mobility and commuting alternatives.
- Electrification of the building sector to switch from firewood to electric heating systems, particularly in areas with air quality problems due to firewood use.
- Secure minimum levels of sufficiency and resiliency of the power grid against extreme power events.
- Define the technical needs for an electric grid reliant on renewable generation (e.g., storage, transmission and distribution enhancements, data acquisition and management).

California's main challenges:

- Increase battery storage 8 times
- Address equity issues so "no one is left behind" in the energy transition.
- Including the most affected populations who often have less incidence in the planning processes.
- Better manage peaking periods *.
- Storage equity – ensure all Californians get access to energy storage
- Improve the design and use of storage and demand flexibility to maximize the use of the renewable generation resource
- Improve transmission to avoid bottlenecks in the electric grid and facilitate fully tapping the renewable resource.

* A big difference nowadays between Chile and California are the energy demand peaks – Chile has its peaks in winter while California in summer (cooling systems).

Group 2: "*Creation of new jobs, transfer of skills and consensus-building mechanisms for the carbon neutrality process*"

- Early planning prevents social and political conflicts
- Important to promote the creation and transfer of skills and capacities for the transition, by detecting specific needs, quantity, time and investments required to build human capacities, through a matrix approach.
- Assess and communicate the benefits and consequences of projects – create and implement advocacy strategies.
- Promote mutually beneficial associations with local communities through established governance models and effective community participation.
- Strengthen the relations between central, regional and local governments, through capacity building programs and exchanges between Chile and California.

Group 3: "*New technologies, innovations, designs and prototypes for power generation for the next 30 years*"

At least three key areas for potential collaboration between Chile and California were identified in the short midterm:

- **Storage:** Explore mechanisms for storage, such as batteries, pumped storage or others that provide the grid with enough flexibility to maximize economic efficiency of the system while minimizing GHG emissions.
- **Hydrogen:** Collaborate with common knowledge and assess how and when hydrogen can be the preferred choice in the transport, industrial, and agricultural sectors.
- **Energy efficiency:** Explore strategies, innovations, technologies, public policies, regulations, incentives and business models that enable the deployment of energy efficiency.

Open discussion

- California has more resources and a bigger economy to promote technological development, but a lot of innovation can also happen and be tested in Chile.
- Chile can learn from California to have government take a more hands-on approach in setting the goals and public incentives, in order to push the market in a desired direction, through effective private-public practices.
- Regulation and Planning are central areas for collaboration. For example, by comparing current instruments in California (IEPR, IRP) to their equivalents in Chile (Energía 2050, MAPS)
- It is important to learn from past mistakes and going forth, have early dialogues with communities about their needs and potential energy projects.
- It is fundamental to address equity, in a way that clearly defines the impacts and benefits to people, that otherwise can turn against the desired outcomes of the energy transition strategy.
- Interagency coordination, more agile public processes, and more adaptable regulations and institutions are urgently needed to make changes at the required pace.
- Need to have certain baseline and levels of education in communities and create systems to train and build skills to qualify communities for potential jobs so they fully benefit from the energy transition.
- Need to find the right balance between Permitting Planning and Environmental Justice, in order to foster renewables without trampling on the rights of historically disadvantaged communities.
- Proactive planning is needed to foster an equilibrium for the supply and demand of labor in the transition to new technologies.

The extended version of session number one will soon be available, with an in-depth vision of the topics presented in this executive summary. Many thanks to everyone involved – more to come soon.