

State of California
California Energy Commission
Minutes of the March 17, 2021, Energy Commission Business Meeting

The meeting was called to order by Chair Hochschild. The Pledge of Allegiance was led by Commissioner McAllister.

Chair Hochschild announced Commissioner Monahan will join the meeting late.

Present:

David Hochschild, Chair
Karen Douglas, Commissioner
Siva Gunda, Commissioner

J. Andrew McAllister, Commissioner
Patricia Monahan, Commissioner

The California Energy Commission's (CEC) March 17, 2021 Business Meeting was held remotely, consistent with Executive Orders N-25-20 and N-29-20 and the recommendations from the California Department of Public Health to encourage physical distancing to slow the spread of COVID-19. The public was able to participate and observe the meeting consistent with the direction in these Executive Orders. Instructions for remote participation were provided in the notice for this meeting and as set forth below in the agenda.

THE CEC CONSIDERED THE FOLLOWING AND TOOK ACTION AS NOTED:

1. Consent Calendar.

Items will be taken up and voted on as a group. A commissioner may request that an item be moved and discussed later in the meeting.

- a. MIDWAY SUNSET COGENERATION PROJECT (85-AFC-03C). Possible approval of proposed order. Request to grant approval of the joint CEC and project owner-initiated amendment to delete three specific Conditions of Certification **AQ-15**, **EFF-1**, and **EFF-2** from the final Commission Decision. The original need for including these three conditions in the final decision has ceased. Staff concludes that the deletion of Conditions of Certification **AQ-15**, **EFF-1**, and **EFF-2** meets the requirements of section 1769.1(a), and would not result in a significant impact on the environment nor cause the project to fail to comply with applicable laws, ordinances or regulations. Contact: Mary Dyas.
- b. SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY (21-EPS-01). Consideration and possible adoption of proposed order approving the Executive Director's recommendation that the Southern California Public Power Authority's power purchase agreement with Coso Geothermal Power Holdings, LLC for the procurement of geothermal energy from the Coso Geothermal Energy Project be found compliant with the Emission Performance Standard for Local Publicly Owned Electric Utilities pursuant to Senate Bill 1368 (California Code of Regulations, Title 20, sections 2900-2913). Contact: Michael Nyberg.
- c. SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY (21-EPS-01). Consideration and possible adoption of proposed order approving the Executive Director's recommendation that the Southern California Public Power

Authority's Power Purchase Agreement with Roseburg Forest Products Co. for the procurement of bioenergy from the Weed Cogeneration Plant be found compliant with the Emission Performance Standard for Local Publicly Owned Electric Utilities pursuant to Senate Bill 1368 (California Code of Regulations, Title 20, sections 2900-2913). Contact: Michael Nyberg.

- d. RCAM TECHNOLOGIES, INC. Proposed resolution approving a novation to Agreement EPC-17-023, under which the recipient is Jason Cotrell dba RCAM Technologies, to RCAM Technologies, Inc. RCAM Technologies, Inc. is a Delaware corporation incorporated in 2020. Mr. Cotrell and the project team will continue ultra-tall wind turbine tower research under the new entity. There are no changes to the scope of work. (EPIC funding) Contact: Rizaldo Aldas.
- e. RCAM TECHNOLOGIES, INC. Proposed resolution approving a novation to grant agreement EPC-19-007, under which the recipient is Jason Cotrell dba RCAM Technologies, to RCAM Technologies, Inc. RCAM Technologies, Inc. is a Delaware corporation incorporated in 2020. Mr. Cotrell and the project team will continue on-site ultra-tall wind turbine tower development under the new entity. There are no changes to the scope of work, schedule, or deliverables. (EPIC funding) Contact: Rizaldo Aldas.
- f. THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION INC. Proposed resolution approving Agreement 600-20-005 with The International Council on Clean Transportation Inc. for a \$15,000 membership in the International Zero-Emission Vehicle Alliance (ZEV Alliance). The ZEV Alliance is an association formed by national and subnational jurisdictions to accelerate adoption of ZEVs. As a member, CEC will receive reports analyzing international electric vehicle market and policy developments and provide CEC the opportunity to participate in ZEV Alliance coordination meetings. (Clean Transportation Program funding) Contact: Sharon Purewal.
- g. CENTER FOR HYDROGEN SAFETY. Proposed resolution approving Agreement 600-20-006 with the Center for Hydrogen Safety, a technical entity of the American Institute of Chemical Engineers, for a \$50,000 contract which provides the CEC with a membership for eight months. Membership allows the CEC to participate in member meetings, working groups, workshops, briefings, and other events. The Center for Hydrogen Safety membership provides a forum for the CEC to collaborate with stakeholders in the fuel cell electric vehicle and hydrogen infrastructure communities. (Clean Transportation Program funding) Contact: Sebastian Serrato.

Commissioner Gunda moved to approve Item 1 and Commissioner McAllister seconded. The vote was (4-0).

2. Discussion of 2021 SB 100 Joint Agency Report, Senate Bill 100 (2018).

Staff presentation on the final 2021 SB 100 Joint Agency Report. Staff will provide an overview of key findings and recommendations. Contact: Terra Weeks. (Staff presentation: 10 minutes)

Staff presented Informational Item 2. No vote taken.

3. Antelope Valley Water Storage, LLC.

Proposed resolution adopting California Environmental Quality Act (CEQA) findings for Antelope Valley Water Storage, LLC's Aquifer Pumped Hydro project, and grant agreement for project implementation. (EPIC funding) Contact: Joseph Sit. (Staff Presentation: 5 minutes)

- a. CEQA FINDINGS. Proposed resolution finding that based on: (1) Kern County's 2006 Environmental Impact Report for the Antelope Valley Water Bank Project (later renamed the Willow Springs Water Bank Project) (State Clearinghouse #2005091117); (2) Rosamond Community Services District's 2018 Addendum to the 2006 EIR; and (3) Antelope Valley Water Storage, LLC's representations, the proposed project presents no new significant or substantially more severe environmental impacts beyond those already considered.
- b. Proposed resolution approving Agreement EPC-20-008 with Antelope Valley Water Storage, LLC for a \$6,406,950 grant to fund a behind-the-meter demonstration of a nonlithium ion energy storage technology, namely Aquifer Pumped Hydro (APH). This pumped-water hydroelectric storage project would provide a minimum of 10 hours of energy storage/discharge capability at a minimum rating of 200 kilowatts. The project will improve understanding of APH and define the value and benefits of longer duration energy storage using APH technology.

Commissioner McAllister moved to approve Item 3 and Commissioner Douglas seconded. The vote was (4-0).

4. The Regents of the University of California, on behalf of the San Diego Campus.

Proposed resolution approving Agreement EPC-20-021 with The Regents of the University of California, on behalf of the San Diego campus, for a \$425,000 grant to match a \$5 million federal grant to continue development of optical switches that have the potential to double the energy efficiency of data centers by increasing data processing efficiency and reducing cooling energy requirements, and adopting staff's determination that this action is exempt from CEQA. (EPIC funding) Contact: Kevin Mori. (Staff presentation: 5 minutes)

Commissioner McAllister moved to approve Item 4 and Commissioner Gunda seconded. The vote was (4-0).

5. Bringing Rapid Innovation Development to Green Energy (BRIDGE) 2020 - GFO-20-301.

This purpose of this solicitation is to competitively award follow-on funding for the most promising energy technologies that have previously received an award from an eligible CEC program or United States federal agency. BRIDGE 2020 seeks to: (1) help start-up companies minimize the time between when their successful publicly-funded project ends and new public funding becomes available; and (2) mobilize more early-stage capital in the clean energy space by providing non-dilutive, matching investments in promising clean energy companies alongside investors and

commercial partners. This provides increased support for the most promising clean energy technologies that have already attracted interest from the market as they are developed and continue their path to market adoption. (EPIC funding) Contact: Michael Ferreira. (Staff presentation: 5 minutes)

- a. PACKETIZED ENERGY TECHNOLOGIES, INC. Proposed resolution approving Agreement EPC-20-011 with Packetized Energy Technologies, Inc. for a \$2,000,000 grant to demonstrate advanced grid services provided to the California Independent System Operator and provide cost savings for electric utility customers through time-of-use load shifting and direct incentives, and adopting staff's determination that this action is exempt from CEQA. The demonstration will include at least four megawatts (MW) of flexible capacity aggregated from up to 7,000 new and existing smart energy devices, such as smart thermostats, smart plugs, Mello smart thermostat retrofits for existing electric resistance water heaters, and existing mini-split air conditioners, as well as electric vehicle chargers and electricity storage battery systems. Packetized Energy Technologies, Inc. will partner with community-based organization GRID Alternatives to ensure that up to 2,000 of the devices are installed in and benefit low-income and disadvantaged communities.
- b. NOON ENERGY INC. Proposed resolution approving Agreement EPC-20-013 with Noon Energy Inc. (Noon) for a \$2,166,000 grant to scale-up the recipient's low-cost, long-duration battery technology from TRL 4 to TRL 6 and adopting staff's determination that this project is exempt from CEQA. The project will advance this new technology to industrial scale to meet the demands of the beachhead markets for energy storage. Noon Energy Inc.'s new class of battery technology uses ultra-low-cost storage media, matches the energy efficiency of lithium-ion technology, doubles the energy density of lithium-ion batteries, and enables intermittent renewable electricity sources, such as solar and wind, to cost effectively meet continual demand.
- c. NEXT ENERGY TECHNOLOGIES, INC. Proposed resolution approving Agreement EPC-20-014 with Next Energy Technologies Inc. for a \$3,000,000 grant to scale-up and demonstrate their production manufacturing methods for pilot-sized energy generating windows, and adopting staff's determination that this agreement is exempt from CEQA. The successful demonstration of directly coating the existing technology onto large sheets of heat-treated glass will allow a more seamless application into the window manufacturing process that leads to much higher margins with low capital cost equipment.
- d. SEPION TECHNOLOGIES, INC. Proposed resolution approving Agreement EPC-20-015 with Sepion Technologies, Inc. for a \$1,400,000 grant to advance the development of safe anode-free hybrid lithium-metal cells from a lab-scale validation to a pre-prototype, and adopting staff's determination that this action is exempt from CEQA. This project will enhance two key components--the electrolyte and an anode-free current collector. The optimized components will maximize cycle life, fast-charging capability, and safety of the cell, while the

unique cell design will eliminate a layer of complexity in the commercialization process to enable a competitive price point.

- e. SOUTH 8 TECHNOLOGIES, INC. Proposed resolution approving Agreement EPC-20-016 with South 8 Technologies, Inc. for a \$1,010,227 grant to fund the development and testing of liquefied gas electrolytes for use in lithium-ion cells, and adopting staff's determination that this action is exempt from CEQA. Development will focus on utilizing a graphite anode, high-nickel cathode, and demonstration of high cell safety and recyclability with a focus on their use in energy storage system or electric vehicle applications.
- f. TREAU, INC. Proposed resolution approving Agreement EPC-20-017 with Treau, Inc. for a \$2,761,606 grant to fund the component optimization and cold weather performance tuning of a new low-cost, easy-to-install and high efficiency HVAC appliance that uses low global warming potential refrigerants, and adopting staff's determination that this action is exempt from CEQA.
- g. SKYVEN TECHNOLOGIES, INC. Proposed resolution approving Agreement EPC-20-018 with Skyven Technologies, Inc. for a \$1,110,500 grant to build an artificial intelligence (AI) platform and adopting staff's determination that this action is exempt from CEQA. The AI platform will help accelerate the time-consuming and expensive front-end engineering work needed for decarbonization projects in California's industrial sector and automatically evaluate and choose potential decarbonization measures that best fit an industrial facility. This project will build the front-end engineering AI platform and pilot test the AI with a goal to demonstrate a scalable business model that cut costs by a factor of ten.
- h. FEASIBLE, INC. Proposed resolution approving agreement EPC-20-020 with Feasible, Inc. for a \$1,000,000 grant to support the commercialization of a machine learning driven battery inspection platform called EchoStat and adopting staff's determination that this action is exempt from CEQA. EchoStat uses ultrasound and data analytics to detect manufacturing issues earlier and with more sensitivity. This project aims to reduce battery cell cost and the likelihood of safety incidents from unexpected battery failures.

Commissioner McAllister moved to approve Item 5 and Commissioner Douglas seconded. The vote was (4-0).

6. Hydrogen Fuel Cell Demonstrations in Rail and Marine Applications at Ports (H2RAM) - GFO-20-604.

The purpose of this solicitation is to fund the design, integration, and demonstration of hydrogen fuel cell systems and hydrogen fueling infrastructure for locomotive and commercial harbor craft applications at California ports to reduce air pollutant and GHG emissions. Projects will advance technologies that can enable ports to scale up demand and lower costs for renewable hydrogen across multiple applications. (PIER NG funding) Contact: Peter Chen. (Staff presentation: 5 minutes)

- a. INSTITUTE OF GAS TECHNOLOGY DBA GAS TECHNOLOGY INSTITUTE. Proposed resolution approving Agreement PIR-20-001 with Gas Technology

dba Gas Technology Institute for a \$3,999,971 grant to integrate a hydrogen fuel cell module, onboard hydrogen storage, and a battery module to provide an efficient zero-emission alternative to diesel switcher locomotives, and adopt staff's determination that this action is exempt from CEQA. The project will design, build, and demonstrate a hydrogen fuel cell switcher locomotive with Sierra Northern Railway, a Class III short-line railroad that serves the Port of West Sacramento.

- b. CALSTART, INC. Proposed resolution approving Agreement PIR-20-002 with CALSTART, Inc. for a \$498,309 grant to develop an actionable hydrogen fuel cell-powered tugboat design that will be ready for construction and implementation at the Port of Los Angeles, and adopt staff's determination that this action is exempt from CEQA. The project will develop a pathway to decarbonize the marine sector by identifying and addressing challenges related to producing, delivering, transferring, and storing liquid hydrogen to power a zero-emission tugboat.
- c. GOLDEN GATE ZERO EMISSION MARINE, INC. Proposed resolution approving Agreement PIR-20-003 with Golden Gate Zero Emission Marine, Inc. for a \$2,000,000 grant to develop a marine hydrogen fuel cell powertrain to power a passenger/patrol vessel, and adopt staff's determination that this action is exempt from CEQA. The project will develop a portable refueling system to enable the vessel to be fueled with hydrogen sourced from existing retail stations, avoiding the need for siting shoreside infrastructure. The researchers will demonstrate the completed zero-emission vessel at the Port of San Francisco and Port of Long Beach to validate performance.

Commissioner McAllister moved to approve Item 6 and Commissioner Gunda seconded. The vote was (4-0).

7. Cerritos Community College District.

Proposed resolution approving Amendment #3 to Agreement 600-16-005 with Cerritos Community College District for an augmentation of \$1,500,000 and a 24-month extension, and adopting staff's determination that this action is exempt from CEQA. Under this contract, the district will expand and implement workforce development ZEV career pilot programs for high schools, focusing on underrepresented communities and regions impacted by poor air quality. (Clean Transportation Program funding) Contact: Larry Rillera. (Staff presentation: 5 minutes)

Chair Hochschild announced Items 7-14 will be skipped until Commissioner Monahan arrived and moved onto Items 14-18.

Commissioner Monahan arrived when Item 18 was heard.

After Item 18 concluded, Commissioner Monahan moved to approve Item 7 and Commissioner Gunda seconded. The vote was unanimous (5-0)

8. ~~California Air Resources Board (CARB).~~

~~Proposed resolution approving Agreement RMB600-20-007 with CARB for CARB to provide \$1,000,000 to the CEC for a solicitation for ZEV workforce training and development in underrepresented communities, and adopting staff's determination that this action is exempt from CEQA. Contact: Larry Rillera. (Staff Presentation: 5 minutes)~~

The Chair announced that Item 8 was removed.

9. CALSTART, Inc.

Proposed resolution approving Agreement ARV-20-006 with CALSTART, Inc., for an up to \$50,000,000 block grant to design, implement, and fund, with CEC oversight, various medium- and heavy-duty ZEV refueling infrastructure incentive projects throughout California, and adopting staff's determination that this action is exempt from CEQA. The CEC is providing \$17,000,000 in grant funds to design and implement this block grant project and fund incentive projects in the state. Additional funds may be added up to \$50,000,000 at future dates for similar activities, subject to future appropriations and Clean Transportation Program Investment Plan funding allocations. (Clean Transportation Program funding). Contact: Matthew Kozuch. (Staff Presentation: 5 minutes)

Commissioner Monahan moved to approve Item 9 and Commissioner McAllister seconded. The vote was unanimous (5-0).

10. Electric Vehicle Ready Communities Phase II – Blueprint Implementation - GFO-19-603.

The purpose of this solicitation is to fund projects developed and identified in Phase I, Blueprint Development, of the Electric Vehicle (EV) Ready Communities Challenge to advance and support communities in their transition to ZEVs. (Clean Transportation Program funding) Contact: Sharon Purewal. (Staff presentation: 5 minutes)

- a. CITY OF SACRAMENTO. Proposed resolution approving Agreement ARV-20-007 with the City of Sacramento for a \$1,825,418 grant to implement various projects to support the adoption of EVs identified in the City's EV Ready Communities Challenge Blueprint, and adopting staff's determination that this action is exempt from CEQA. Under this agreement, the City of Sacramento will install EV charging infrastructure, implement an E-bike pilot program, and conduct activities and outreach to ensure projects benefit disadvantaged and low-income communities.

Commissioner Monahan announced she is recusing herself from Item 10a the proposed award to the City of Sacramento, which includes a sub-award to the University of California Davis for transportation studies. Commissioner Monahan is on the Board of Advisors for the ITS, UC DAVIS ITS Program. Commissioner Monahan left the meeting for Item 10a. Commissioner Gunda moved to approve Item 10a and Commissioner Douglas seconded. The vote was (4-0). Commissioner Monahan came back to the meeting after Item 10a was voted on.

- b. **CONTRA COSTA TRANSPORTATION AUTHORITY.** Proposed resolution approving Agreement ARV-20-008 with Contra Costa Transportation Authority (CCTA) for a \$2,467,067 grant to implement key strategies outlined in CCTA's EV Readiness Blueprint adopted by the CCTA Board in 2019, and adopting staff's determination that this action is exempt from CEQA. Key strategies include: expanded access to EV chargers at multiunit dwellings and public locations to improve health and welfare of residents who face barriers to zero emission mobility options; workforce development programs that train local residents in underserved communities to repair EVs and install/maintain EV supply equipment; and implementing car share programs to provide reliable transportation options in underserved communities.

Commissioner Monahan moved to approve Item 10b and Commissioner McAllister seconded. The vote was unanimous (5-0).

11.2021 Integrated Energy Policy Report Natural Gas Demand and Rate Forecasting Forms and Instructions (21-IEPR-03).

Consideration and possible adoption of proposed resolution. Title 20 of the California Code of Regulations requires that each gas utility submit a demand forecast according to forms and instructions adopted by the CEC and that each gas utility company submit a forecast of retail gas prices. Staff is proposing the forms and instructions to collect this information for the 2021 IEPR. The information will enable staff to assess changing gas demand patterns as the energy system is decarbonized and to improve the quality of CEC natural gas demand forecasting. Contact: Jason Orta. (Staff presentation: 10 minutes)

Commissioner McAllister moved to approve Item 11 and Commissioner Gunda seconded. The vote was unanimous (5-0).

12. Order Instituting Informational Proceeding (OIIP) (21-IEPR-01).

Consideration and possible adoption of an OIIP to gather and assess information for analyses identified in the 2021 Integrated Energy Policy Report (IEPR) Scoping Order. The 2021 IEPR will address four topics: (1) energy reliability over the next five years; (2) the evolving role of the pipeline gas system; (3) building decarbonization and energy efficiency; and (4) energy demand. Contact: Heather Raitt. (Staff presentation: 5 minutes)

Commissioner McAllister moved to approve Item 12 and Commissioner Gunda seconded. The vote was unanimous (5-0).

13.2020 IEPR Update, Volume I and Volume III (20-IEPR-01).

Proposed resolution approving the *2020 IEPR Update, Volume I: Blue Skies, Clean Transportation* and the *2020 IEPR Update, Volume III: California Energy Demand Forecast Update* (CEC-100-2020-001-V1-CMF and CEC-100-2020-001-V3-CMF). Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the

state's economy; and protect public health and safety (Public Resources Code section 25301[a]). The CEC prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the IEPR. Contact: Heather Raitt. (Staff presentation: 15 minutes)

Commissioner Monahan moved to approve Item 13 and Commissioner McAllister seconded. The vote was unanimous (5-0).

14. Minutes.

Possible approval of the February 10, 2021 business meeting minutes.

Commissioner McAllister moved to approve Item 14 and Commissioner Douglas seconded. The vote was unanimous (5-0).

15. Lead Commissioner or Presiding Member Reports.

The Commissioners reported on their recent activities.

16. Executive Director's Report.

The Executive Director gave a report.

17. Public Advisor's Report.

The Public Advisor gave a report.

18. Public Comment.

Pablo Gorriceta, Acterra
Bill Van Amburg, CALSTART, Inc.
William Zobel, California Hydrogen Business Council
Vince Romanin, Treau, Inc.
Ricky Elder, Golden Gate Zero Emission Marine
Fred Silver, CALSTART, Inc.
Tim Carmichael, SoCalGas
Les Mood, SineWatt Inc.
Ted Barnes, Gas Technology Institute
Shrayas Jatkar, California Workforce Development Board
Abdel Zaro, Acterra
Peter Engel, Contra Costa Transportation Authority
Kristian Corby, California Electric Transportation Coalition
Jennifer Venema, City of Sacramento
(written testimony read into the record.)

19. Chief Counsel's Report.

- a. Pursuant to Government Code section 11126(e), the CEC may adjourn to closed session with its legal counsel to discuss any of the following matters to which the CEC is a party:
 - i. *In the Matter of U.S. Department of Energy (High Level Waste Repository), (Atomic Safety Licensing Board, CAB-04, 63-001-HLW); State of California v. United States Department of Energy (9th Cir. Docket No. 09-71014).*
 - ii. *Communities for a Better Environment and Center for Biological Diversity v. Energy Resources Conservation and Development Commission, and*

California State Controller (Alameda County Superior Court, Case No. RG13681262).

- iii. *State Energy Resources Conservation and Development Commission v. Electricore, Inc. and ZeroTruck* (Sacramento County Superior Court, Case No. 34-2016-00204586).
 - iv. *Natural Resources Defense Council, Inc., et al. v. United States Department of Energy* (Federal District Court, Northern District of California, Case No. 17-cv-03404).
 - v. *State Energy Resources Conservation and Development Commission v. HyGen Industries, Inc* (Sacramento County Superior Court, Case No. 34-2019-00252543).
 - vi. *Olson-Ecologic Testing Laboratories, LLC v. CEC.* (Orange County Superior Court, Case No. 30-2019-01115513).
 - vii. *Interlink Products International, Inc. v. Xavier Becerra, Drew Bohan, Melissa Rae King* (United States District Court for the District of New Jersey, Case No. 2:20-cv-10566).
 - viii. *Southern California Gas Company v. California State Energy Resources Conservation and Development Commission* (Orange County Superior Court, Case No. 30-2020-01152336-CU-WM-CXC).
- b. Pursuant to Government Code sections 11126 (a) and (e), the CEC may also discuss any judicial or administrative proceeding that was formally initiated after this agenda was published; or determine whether facts and circumstances exist that warrant the initiation of litigation, or that constitute a significant exposure to litigation against the CEC, which might include personnel matters.

The Chief Counsel had nothing to report.

Appearances:

Vince Romanin, Treau, Inc.
William Zobel, California Hydrogen Business Council
Ricky Elder, Golden Gate Zero Emission Marine
Tim Carmichael, Southern California Gas Company
Fred Silver, CALSTART, Inc.
Ted Barnes, Gas Technology Institute, GTI
Les Mood, SineWatts, Inc.
Pablo Gorriceta, Acterra
Abdel Zaro, Acterra
Shrayas Jatkar, California Workforce Development Board
Bill Van Amburg, CALSTART, Inc.
Peter Engel, Contra Costa Transportation Authority
Jennifer Venema, City of Sacramento
(written testimony read into the record.)
Kristian Corby, California Electric Transportation Coalition

There being no further business, the meeting was adjourned.

Respectfully submitted,

PATRICIA CARLOS
Secretariat