



South Coast Air Quality Management District



21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

HYBRID TECHNOLOGY COMMITTEE MEETING

Committee Members

Vice Mayor Rex Richardson, Chair
Supervisor Andrew Do
Board Member Gideon Kracov
Mayor Larry McCallon
Board Member Veronica Padilla-Campos
Mayor Carlos Rodriguez

September 16, 2022 ♦ 12:00 p.m.

Pursuant to Assembly Bill 361, a meeting of the South Coast Air Quality Management District Technology Committee will be held at 12:00 p.m. on Friday, September 16, 2022 through a hybrid format of in-person attendance in the Dr. William A. Burke Auditorium at the South Coast AQMD Headquarters, 21865 Copley Drive, Diamond Bar, California, and/or virtual attendance via videoconferencing and by telephone. Please follow the instructions below to join the meeting remotely.

Given health and safety concerns, the meeting format may be changed to full remote via webcast. Please refer to South Coast AQMD's website for information regarding the format of the meeting, updates if the meeting is changed to a full remote via webcast format, and details on how to participate:

<http://www.aqmd.gov/home/news-events/meeting-agendas-minutes>

Face coverings: State and local public health officials strongly recommend, but do not require, the wearing of face coverings while in an indoor public setting.

ELECTRONIC PARTICIPATION INFORMATION (Instructions provided at bottom of the agenda)

Join Zoom Meeting - from PC or Laptop

<https://scaqmd.zoom.us/j/96669409722>

Zoom Webinar ID: 966 6940 9722 (applies to all)

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Audience will be able to provide public comment through telephone or Zoom connection during public comment periods.

PUBLIC COMMENT WILL STILL BE TAKEN.

Cleaning the air we breathe...

AGENDA

Members of the public may address this body concerning any agenda item before or during consideration of that item (Gov't. Code Section 54954.3(a)). If you wish to speak, raise your hand on Zoom or press Star 9 if participating by telephone. All agendas for regular meetings are posted at South Coast AQMD Headquarters, 21865 Copley Drive, Diamond Bar, California, at least 72 hours in advance of the regular meeting. Speakers may be limited to three (3) minutes total for all items on the agenda.

CALL TO ORDER

ROLL CALL

ACTION ITEMS (1-4):

- 1. Transfer Funds to Assist Small Fleets in Purchasing Low NOx and Zero-Emission Trucks under Voucher Incentive Program**
(Motion Requested)

Ashkaan Nikravan
Senior Staff
Specialist

South Coast AQMD has implemented the Carl Moyer On-Road Heavy-Duty Vehicles Voucher Incentive Program (VIP) since 2009. The program is experiencing higher demand due to recently increased funding amounts and an upcoming compliance deadline under the CARB Truck & Bus Regulation. Therefore, additional funds are needed to implement truck projects to assist small fleets in purchasing low NOx and zero-emission replacement trucks under the VIP. This action is to transfer up to \$10 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the VIP Fund (59) to implement truck projects.

- 2. Amend Contracts for Technical Assistance with Incentive Program Implementation and Carl Moyer Program Awards**
(Motion Requested)

Gregory Ushijima
Air Quality Specialist

In April 2021, the Board released an RFQ for technical assistance with South Coast AQMD's Technology Advancement activities and implementation efforts. A contract with Green Paradigm Consulting, Inc. was executed to provide technical assistance with Carl Moyer and Community Air Protection program implementation. Also, in January 2022, the Board approved awards for projects received under Program Announcements for the Carl Moyer and Surplus Off-Road Opt-In NOx (SOON) incentive programs. Staff has identified projects that require adjustments and is requesting Board approval to amend awards under the Carl Moyer and SOON programs. These actions are to: 1) amend a contract with Green Paradigm Consulting, Inc. adding \$100,000 (\$50,000 each) from administrative portions of Carl Moyer Fund (32) and Community Air Protection AB 134 Fund (77); and 2) amend Carl Moyer and SOON program awards approved by the Board in January 2022.

- 3. Execute Contract to Demonstrate Zero-Emission Port Equipment and Mobile Hydrogen Refueler (*Motion Requested*)** Seungbum Ha
Program Supervisor
- Toyota Tsusho America, Inc. (TAI) is developing a hydrogen mobile refueler that can be used to support fuel cell powered off-road equipment. Under this project a mobile hydrogen refueler will be used to support fuel cell powered cargo handling equipment at the Port of Los Angeles. This action is to execute a contract with TAI to develop a hydrogen mobile refueler in an amount not to exceed \$900,000 from the Clean Fuels Program Fund (31).
- 4. Adopt Resolution to Authorize Participation as CARB At-Berth Regulation Remediation Fund Administrator, Establish Special Revenue Fund, Recognize Funds, and Reimburse General Fund for Administrative Costs (*Motion Requested*)** Andrew Yoon
Air Quality Specialist
- In May 2022, CARB invited South Coast AQMD to apply to be a Remediation Fund Administrator per the CARB Ocean-Going Vessels At-Berth Regulation. Use of the Remediation Fund supports alternative pathways for compliance with the Ocean-Going Vessels At-Berth Regulation in limited circumstances where operators or ports are otherwise unable to reduce emissions. Monies paid by these entities will be collected into a remediation fund to be managed and distributed by the administrator to fund incentive projects designed to achieve emission reductions. These actions are to: 1) adopt a Resolution authorizing participation in CARB's Remediation Fund Program as a Remediation Fund Administrator, acceptance of the terms and conditions of the Regulation's Remediation Fund administration requirements, and execution of a subsequent Memorandum of Understanding (MOU) with CARB; 2) establish the At-Berth Regulation Remediation Special Revenue Fund (88) upon execution of the MOU; 3) recognize, upon receipt, funds from CARB into Fund (88); and 4) reimburse the General Fund for up to 10 percent from the At-Berth Regulation Remediation Special Revenue Fund (88) for administrative costs to implement funding towards incentive programs.

INFORMATIONAL ITEM:

5. AQMD Introduction to Cummins Electrolyzers

Henry Ma
Cummins Inc.

Zero emission hydrogen fuel cells vehicles have a major role in current and future light-, medium- and heavy-duty applications. The energy demand of medium- and heavy-duty fuel cell trucks creates substantial demand for additional hydrogen production, specifically renewable hydrogen.

Electrolyzers are ideal to balance the growing share of renewable energy by converting excess renewable energy to hydrogen for fuel cell vehicles, industrial and agricultural uses, injection into natural gas supply, and electrical power production. Cummins Inc., a leading powertrain company, currently offers several commercial scale electrolyzers to support the production of renewable hydrogen. Henry Ma, Business Development & Sales Manager at Cummins Inc. will give a presentation on fundamental of electrolyzers and how electrolyzers can support the growing demand for renewable hydrogen as well as Cummins' experience commercial scale electrolyzer deployment and operation.

6. Other Business

Any member of the Committee, or its staff, on his or her own initiative or in response to questions posed by the public, may ask a question for clarification, may make a brief announcement or report on his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting concerning any matter, or may take action to direct staff to place a matter of business on a future agenda. (Gov't. Code Section 54954.2)

7. Public Comment Period

At the end of the regular meeting agenda, an opportunity is provided for the public to speak on any subject within the Committee's authority that is not on the agenda. Speakers may be limited to three (3) minutes each.

8. Next Meeting Date

Friday, October 21, 2022 at 12:00 p.m.

ADJOURNMENT

Document Availability

All documents (i) constituting non-exempt public records, (ii) relating to an item on an agenda for a regular meeting, and (iii) having been distributed to at least a majority of the Committee after the agenda is posted, are available by contacting Penny Shaw Cedillo at 909.396.3179, or send the request to pcedillo@aqmd.gov.

Americans with Disabilities Act and Language Accessibility

Disability and language-related accommodations can be requested to allow participation in the Technology Committee meeting. The agenda will be made available, upon request, in appropriate alternative formats to assist persons with a disability (Gov't Code Section 54954.2(a)). In addition, other documents may be requested in alternative formats and languages. Any disability or language-related accommodation must be requested as soon as practicable. Requests will be accommodated unless providing the accommodation would result in a fundamental alteration or undue burden to South Coast AQMD. Please contact Penny Shaw Cedillo at 909.396.3179 from 7:00 a.m. to 5:30 p.m., Tuesday through Friday, or send the request to pcedillo@aqmd.gov.

INSTRUCTIONS FOR ELECTRONIC PARTICIPATION

Instructions for Participating in a Virtual Meeting as an Attendee

As an attendee, you will have the opportunity to virtually raise your hand and provide public comment.

Before joining the call, please silence your other communication devices such as your cell or desk phone. This will prevent any feedback or interruptions during the meeting.

Please note: During the meeting, all participants will be placed on Mute by the host. You will not be able to mute or unmute your lines manually.

After each agenda item, the Chairman will announce public comment.

Speakers may be limited to a total of 3 minutes for the entirety of the consent calendar plus board calendar, and three minutes or less for each of the other agenda items.

A countdown timer will be displayed on the screen for each public comment.

If interpretation is needed, more time will be allotted.

Once you raise your hand to provide public comment, your name will be added to the speaker list. Your name will be called when it is your turn to comment. The host will then unmute your line.

Directions for Video ZOOM on a DESKTOP/LAPTOP:

- If you would like to make a public comment, please click on the **“Raise Hand”** button on the bottom of the screen.
- This will signal to the host that you would like to provide a public comment and you will be added to the list.

Directions for Video Zoom on a SMARTPHONE:

- If you would like to make a public comment, please click on the **“Raise Hand”** button on the bottom of your screen.
- This will signal to the host that you would like to provide a public comment and you will be added to the list.

Directions for TELEPHONE line only:

- If you would like to make public comment, please **dial *9** on your keypad to signal that you would like to comment.

BOARD MEETING DATE: October 7, 2022

AGENDA NO.

PROPOSAL: Transfer Funds to Assist Small Fleets in Purchasing Low NOx and Zero-Emission Trucks under Voucher Incentive Program

SYNOPSIS: South Coast AQMD has implemented the Carl Moyer On-Road Heavy-Duty Vehicles Voucher Incentive Program (VIP) since 2009. The program is experiencing higher demand due to recently increased funding amounts and an upcoming compliance deadline under the CARB Truck & Bus Regulation. Therefore, additional funds are needed to implement truck projects to assist small fleets in purchasing low NOx and zero-emission replacement trucks under the VIP. This action is to transfer up to \$10 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the VIP Fund (59) to implement of truck projects.

COMMITTEE: Technology, September 16, 2022; Recommended for Approval

RECOMMENDED ACTION:

Approve the transfer of up to \$10 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the Voucher Incentive Program Fund (59) to assist small fleets in purchasing near zero and zero-emission replacement trucks.

Wayne Nastri
Executive Officer

AK:WS:YT:AN

Background

South Coast AQMD has implemented the Carl Moyer On-Road Heavy-Duty Vehicles Voucher Incentive Program (VIP) since 2009. The VIP provides a streamlined incentive program for small fleets and independent owner operators. To date, South Coast AQMD has expended about \$48 million in incentive funds to replace 1,330 older diesel trucks with cleaner, lower-emitting vehicles through the VIP. The 2022 VIP Guidelines greatly increased the potential voucher amounts that are available to small fleets interested in purchasing a low NOx or zero-emission replacement truck. The 2022 VIP Guidelines

increase incentives from up to \$80,000 to up to \$160,000, for a low NOx replacement truck (certified at or below the optional low NOx standard of 0.02 g/bhp-hr), and up to \$410,000 for a zero-emission replacement truck. These new funding amounts have greatly increased demand and interest in this program compared to previous years.

Due to the approaching compliance deadline of January 1, 2023, under the Truck & Bus Regulation, small fleets with a 2007-2009 engine model year truck have been applying under the VIP to replace their older diesel trucks with newer alternative fuel and zero-emission technologies. Due to this increased demand, additional funds are needed to continue this successful program.

Proposal

This action is to transfer up to \$10 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the VIP Fund (59) to implement of truck projects to assist small fleets in purchasing low NOx and zero-emission replacement trucks under the VIP. These additional funds will help maximize the assistance that can be provided to small fleets to upgrade to cleaner technologies. Staff anticipates the demand for this program to continue to increase in the coming years.

Outreach

South Coast AQMD will continue working with the program stakeholders at all levels to ensure outreach is conducted through the various channels that are readily available, including but not limited to, website updates on South Coast AQMD's webpage, flyers, brochures, and targeted social media postings and e-mails to small fleets that may potentially benefit from this program.

Benefits to South Coast AQMD

South Coast AQMD has supported a number of activities directed to the advancement of new cleaner technologies that will support progress in meeting air quality goals for the region. Deployment of zero-emission technologies, particularly from mobile sources, is needed to achieve the National Ambient Air Quality Standards for ozone and is part of the control strategy in the Draft 2022 AQMP. Successful implementation of the VIP are direct results of these technology advancement activities. The vehicles funded under this program will operate for many years, providing long-term emissions reductions.

Resource Impacts

Sufficient funding is available in the Carl Moyer Program AB 923 Special Revenue Fund (80) for the continued support of VIP implementation and the transfer amount to the VIP Fund (59) will not exceed \$10 million.

Agenda Item #1

Transfer Funds to Assist Small Fleets
in Purchasing Low NOx and
Zero-Emission Trucks under Voucher
Incentive Program

Ashkaan Nikravan

Background

- South Coast AQMD has been implementing Carl Moyer Voucher Incentive Program since 2009
- Approximately \$48 million in incentives have helped small fleets replace over 1,330 older, high-polluting diesel trucks
- 2022 VIP Guidelines greatly enhanced funding amounts for near zero and ZE replacement trucks
- CARB's Truck & Bus Regulation compliance deadline for 2007-2009 EMY Trucks is January 1, 2023



Voucher Incentive Program (VIP)

Eligibility	Engine Model Year	Funding Amounts	
		Low-NOx (0.02 g/bhp-hr NOx)	Zero-Emission
Limited to 10 or Fewer Vehicles	2007-2009	Up to \$160K	Up to \$410K
75% Operation in CA			
Diesel or Alternative Fuel (e.g. natural gas)			

Proposal

- Transfer up to \$10 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the VIP Fund (59) to implement truck projects
- These additional funds will help maximize the assistance that can be provided to small fleets wanting to upgrade their fleet to cleaner technologies



Recommended Actions

Approve the transfer of up to \$10 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the Voucher Incentive Program Fund (59) to assist small fleets in purchasing near zero and zero-emission replacement trucks

Technology Committee Agenda #2

BOARD MEETING DATE: October 7, 2022

AGENDA NO.

PROPOSAL: Amend Contracts for Technical Assistance with Incentive Program Implementation and Carl Moyer Program Awards

SYNOPSIS: In April 2021, the Board released an RFQ for technical assistance with South Coast AQMD's Technology Advancement activities and implementation efforts. A contract with Green Paradigm Consulting, Inc. was executed to provide technical assistance with Carl Moyer and Community Air Protection program implementation. Also, in January 2022, the Board approved awards for projects received under Program Announcements for the Carl Moyer and Surplus Off-Road Opt-In NOx (SOON) incentive programs. Staff has identified projects that require adjustments and is requesting Board approval to amend awards under the Carl Moyer and SOON programs. These actions are to: 1) amend a contract with Green Paradigm Consulting, Inc. adding \$100,000 (\$50,000 each) from administrative portions of Carl Moyer Fund (32) and Community Air Protection AB 134 Fund (77); and 2) amend Carl Moyer and SOON program awards approved by the Board in January 2022.

COMMITTEE: Technology, September 16, 2022; Recommended for Approval

RECOMMENDED ACTIONS:

1. Authorize the Executive Officer to amend a contract with Green Paradigm Consulting, Inc. for continued technical assistance with implementation of the Carl Moyer and Community Air Protection programs in an amount not to exceed \$100,000 (\$50,000 each) from the administrative portions of the Carl Moyer Program Fund (32) and Community Air Protection AB 134 Fund (77); and
2. Authorize the Chair to amend awards approved by the Board in January 2022 and execute contracts with Long Beach Container Terminal, Ramona Dairy, and Whittier Fertilizer Company from the Carl Moyer Program Fund (32) as shown in Table 1.

Wayne Nastri
Executive Officer

Background

In April 2021, the Board approved RFQ #Q2021-06 to solicit proposals for technical assistance for implementation of incentive funding programs. The RFQ solicited statements of qualifications from individuals and organizations to provide technical assistance in a variety of areas to support staff activities, including assistance with advanced, pre-commercial technology demonstration programs, as well as administering various incentive programs to meet program expenditure and liquidation deadlines. From the RFQ, a contract with Green Paradigm Consulting, Inc. (GPCI) was subsequently executed to assist with implementation of the Carl Moyer and Community Air Protection programs. GPCI's contract is set to expire in December 2023. Although the initial contract award amount has already been spent down, South Coast AQMD continues to require assistance with incentive funding projects. As such, it is necessary to amend GPCI's contract to secure its continued assistance with implementation of these projects. This assistance will include, but not be limited to, technical evaluation of mobile source projects, outreach, and assistance with surplus emission reductions and cost effectiveness calculations.

In January 2022, the Board combined and approved awards for "Year 23" and "Year 24" Carl Moyer and SOON programs due to the high number of eligible applications. Staff has identified amendments necessary to proceed with three awards as shown in Table 1.

Table 1
Updates to Project Name, Engine Count and/or Award Amount

Applicant Name	Updated Applicant Name	Original Number of Engines	Updated Number of Engines	Original Award Amount	Updated Award Amount
Long Beach Container Terminal	LBCT LLC	--	--	--	--
Ramona Dairy	Ramona Dairy LLC	--	--	\$295,364	\$355,364
Whittier Fertilizer Company	--	2	1	--	--

Two of the applicants inadvertently submitted incorrect business names. Also due to transcription errors, the January 2022 Board Letter listed two engines instead of one for Whittier Fertilizer and incorrectly listed the award for Ramona Dairy as \$295,364 instead of \$355,364.

Proposal

This action is to amend a contract with GPCI for continued technical assistance with implementation of the Carl Moyer and Community Air Protection programs, in an amount not to exceed \$100,000 (\$50,000 each) from the administrative portions of the Carl Moyer Program Fund (32) and Community Air Protection AB 134 Fund (77).

This action is to also amend awards approved under “Year 23” and “Year 24” Carl Moyer and SOON Provision programs with the applicants specified in Table 1 to correct project names, engine count, and an award amount.

Benefits to South Coast AQMD

The Carl Moyer and the Community Air Protection Programs provide incentive funding to owners of heavy-duty vehicles and equipment to reduce emissions in the South Coast Air Basin, particularly in AB 617 and other disadvantaged communities, beyond regulatory requirements by replacing, repowering, or retrofitting their older engines. Outside expertise and technical assistance with incentive programs provides an effective means of helping oversee incentive fund projects, assessing emission reductions, and reviewing large numbers of applications in a limited timeframe to successfully carry out incentive program implementation activities.

Resource Impacts

The contract amendment with GPCI will be funded by the administrative portions of the Carl Moyer Program Fund (32) and Community Air Protection AB 134 Fund (77). The increase in the award amount of \$60,000 for Ramona Dairy LLC will be from the Carl Moyer Program Fund (32). Sufficient funding is available in the administrative and program portions of the Carl Moyer Fund (32) and in the administrative portion of the Community Air Protection AB 134 Fund (77).

Agenda Item #2

Amend Contracts for Technical
Assistance with Incentive Program
Implementation and Carl Moyer
Program Awards

Gregory Ushijima

Background

- In April 2021, the Board approved a RFQ to solicit proposals for technical assistance for the implementation of various incentive funding programs
 - Contract executed with Green Paradigm Consulting Inc. in December 2021
- In January 2022, the Board approved awards for projects received under Program Announcements for the Carl Moyer and Surplus Off-Road Opt-In NOx (SOON) Incentive Programs

Proposals

- Amend contract and add funds with Green Paradigm Consulting, Inc.
- Amend the following awards:

Applicant	Proposed Amendment	Description
Long Beach Container Terminal	Update company name	LBCT LLC
Ramona Dairy	Update company name and award amount	Ramona Dairy LLC; Increase award amount from \$295,64 to \$355,364
Whittier Fertilizer Company	Update number of engines	2 to 1 engine

Recommended Actions

- Amend a contract with Green Paradigm Consulting, Inc. in an amount not to exceed \$100,000 from the administrative portions of the Carl Moyer Program Fund (32) and Community Air Protection AB 134 Fund (77)
- Amend awards under the Carl Moyer Program to revise company names for Ramona Dairy and Long Beach Container Terminal, engine numbers for Whittier Fertilizer Company, and award amount for Ramona Dairy

Technology Committee Agenda #3

BOARD MEETING DATE: October 7, 2022

AGENDA NO.

PROPOSAL: Execute Contract to Demonstrate Zero-Emission Port Equipment and Mobile Hydrogen Refueler

SYNOPSIS Toyota Tsusho America, Inc. (TAI) is developing a hydrogen mobile refueler that can be used to support fuel cell powered off-road equipment. Under this project a mobile hydrogen refueler will be used to support fuel cell powered cargo handling equipment at the Port of Los Angeles. This action is to execute a contract with TAI to develop a hydrogen mobile refueler in an amount not to exceed \$900,000 from the Clean Fuels Program Fund (31).

COMMITTEE: Technology, September 16, 2022; Recommended for Approval

RECOMMENDED ACTION:

Authorize the Chair, or on the Chair's behalf, the Executive Officer, to execute a contract with Toyota Tsusho America, Inc. to develop a hydrogen mobile refueler in an amount not to exceed \$900,000 from the Clean Fuels Program Fund (31).

Wayne Nastri
Executive Officer

AK:PSK:SH

Background

There are a variety of fuel cell applications for off-road equipment. Off-road equipment generally does not have access to hydrogen fueling stations and installing onsite hydrogen refueling would add significant costs and is not feasible in land constrained areas such as port complexes. Mobile hydrogen refueling stations may provide the necessary refueling support to fuel cell powered off-road equipment without installing expensive hydrogen fueling infrastructure.

Under this project, a fuel cell powered mobile hydrogen refueler will be developed and demonstrated to provide hydrogen to fuel cell powered cargo handling equipment

(CHE). This demonstration will help ascertain the technical details needed for mobile hydrogen fueling and the economic feasibility of this approach at a port complex.

Proposal

Toyota Tsusho America, Inc. (TAI) proposes to develop a fuel cell powered hydrogen mobile refueler for refueling fuel cell CHE. The CHE hydrogen technologies will be demonstrated in the Fenix Marine Services terminal at the Port of Los Angeles (POLA).

TAI has assembled a team of industry stakeholders and service professionals that includes: Toyota Motor North America (TMNA—fuel cell stack developer); US Hybrid (fuel cell system integrator); OneH2 (mobile refueler technology and hydrogen production provider); Fenix Marine Services terminal (demonstration site); National Renewable Energy Laboratory (data analysis); and Momentum (grant and project administration).

Fenix Marine Services will provide one diesel top handler currently operating at its terminal to US Hybrid to be retrofitted with a fuel cell from TMNA. OneH2 will design and assemble a fuel cell powered mobile, ultra-high-pressure hydrogen mobile refueler. The fuel cell top handler and hydrogen mobile refueler will be demonstrated for a 12-month period including data collection and analysis of operational data in revenue service.

South Coast AQMD funding will be for the development of a fuel cell powered hydrogen mobile refueler. This action is to execute a contract with TAI in an amount not to exceed \$900,000 from the Clean Fuels Program Fund (31).

Sole Source Justification

Section VIII.B.2 of the Procurement Policy and Procedure identifies four major provisions under which a sole source award may be justified. This request for sole source award is made under provision B.2.d.: Other circumstances exist which in the determination of the Executive Officer require such waiver in the best interest of the South Coast AQMD. Specifically, these circumstances are B.2.d.(1): Project involving cost-sharing by multiple sponsors. The proposed projects will include in-kind contributions and cost-share by POLA, TAI, OneH2, FENIX, and US Hybrid.

Benefits to South Coast AQMD

Projects to support development and demonstration of zero emission drayage truck technologies are included in the Technology Advancement Office Clean Fuels Program 2022 Plan Update under the category “Hydrogen and Fuel Cell Technologies and Infrastructure.” This project is to develop and demonstrate zero emission fuel cell drayage truck technologies for goods movement operations. Currently, nearly 400 top handlers operate within the San Pedro Bay Ports. Implementation of this project is consistent with the Draft 2022 AQMP which relies on zero-emission technologies to

achieve National Ambient Air Quality Standards for ozone and PM2.5. The successful demonstration of fuel cell top handlers and mobile hydrogen refuelers will serve as a model to build confidence among end-users, increase demand for fuel cell CHE, and reduce costs to enable the feasible transition of CHE to zero-emission technologies.

Resource Impacts

The total cost for the proposed project is \$7,996,045, of which South Coast AQMD’s proposed contribution will not exceed \$900,000 from the Clean Fuels Program Fund (31), as summarized below.

Proposed Zero Emission Port Demonstration Project Costs

Source	Funding Amount	% of Project
TAI and Project Partners	\$6,236,045	78
POLA	\$860,000	11
South Coast AQMD (proposed)	\$900,000	11
Total	\$7,996,045	100

Sufficient funds are available in the Clean Fuels Program Fund (31) for this proposed project. The Clean Fuels Program Fund (31) is established as a special revenue fund resulting from the state mandated Clean Fuels Program. The Clean Fuels Program, under Health and Safety Code Sections 40448.5 and 40512 and Vehicle Code Section 9250.11, establishes mechanisms to collect revenues from mobile sources to support projects to increase the utilization of clean fuels, including the development of the necessary advanced enabling technologies. Funds collected from motor vehicles are restricted, by statute, to be used for projects and program activities related to mobile sources that support the objectives of the Clean Fuels Program.

Agenda Item #3

Execute Contract to Demonstrate
Zero Emission Port Equipment and
Mobile Hydrogen Refueler

Seungbum Ha

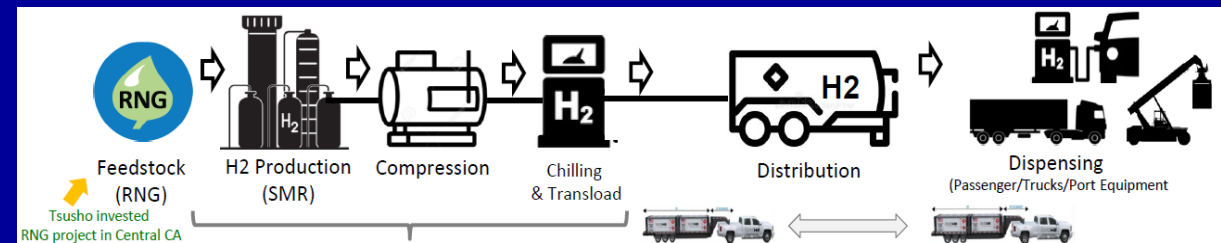
Background

- Demand of off-road fuel cell equipment growing, but equipment does not have access to hydrogen fueling stations
- Mobile hydrogen refueling stations provide necessary refueling to support fuel cell off-road equipment as well as on-road vehicles
- Toyota Tsusho America Inc. (TAI) assembled team of industry stakeholders and service professionals to develop and demonstrate fuel cell powered mobile hydrogen refueler for fuel cell cargo handling equipment (CHE)



Proposal

- TAI proposes to develop fuel cell powered hydrogen mobile refueler to support fuel cell CHE
- US Hybrid will retrofit diesel-powered CHE to fuel cell top handler using Toyota fuel cell stack
- Fuel cell CHE and hydrogen mobile refueler will be demonstrated in Fenix Marine Services terminal at POLA



Proposed Project Costs

Funding Source	Funding Amount	Percent
TAI and Project Partners	\$6,236,045	78%
POLA	\$860,000	11%
South Coast AQMD (proposed)	\$900,000	11%
Total	\$7,996,045	100%

Recommended Actions

Execute contract with Toyota Tsusho America Inc. to develop hydrogen mobile refueler in an amount not to exceed \$900,000 from the Clean Fuels Program Fund (31)

Technology Committee Agenda #4

BOARD MEETING DATE: October 7, 2022

AGENDA NO.

PROPOSAL: Adopt Resolution to Authorize Participation as CARB At-Berth Regulation Remediation Fund Administrator, Establish Special Revenue Fund, Recognize Funds, and Reimburse General Fund for Administrative Costs

SYNOPSIS: In May 2022, CARB invited South Coast AQMD to apply to be a Remediation Fund Administrator per the CARB Ocean-Going Vessels At-Berth Regulation. Use of the Remediation Fund supports alternative pathways for compliance with the Ocean-Going Vessels At-Berth Regulation in limited circumstances where operators or ports are otherwise unable to reduce emissions. Monies paid by these entities will be collected into a remediation fund to be managed and distributed by the administrator to fund incentive projects designed to achieve emission reductions. These actions are to: 1) adopt a Resolution authorizing participation in CARB's Remediation Fund Program as a Remediation Fund Administrator, acceptance of the terms and conditions of the Regulation's Remediation Fund administration requirements, and execution of a subsequent Memorandum of Understanding (MOU) with CARB; 2) establish the At-Berth Regulation Remediation Special Revenue Fund (88) upon execution of the MOU; 3) recognize, upon receipt, funds from CARB into Fund (88); and 4) reimburse the General Fund for up to 10 percent from the At-Berth Regulation Remediation Special Revenue Fund (88) for administrative costs to implement funding towards incentive programs.

COMMITTEE: Technology, September 16, 2022; Recommended for Approval

RECOMMENDED ACTIONS:

1. Adopt the attached Resolution that authorizes the South Coast AQMD to participate in CARB's Remediation Fund Program as a Remediation Fund Administrator, accept the terms and conditions of the Ocean Going Vessels At-Berth Regulation's Remediation Fund administration requirements, and execute a Memorandum of Understanding (MOU) with CARB;
2. Establish the At-Berth Regulation Remediation Special Revenue Fund (88) upon execution of the MOU with CARB;

3. Recognize, upon receipt, funds from CARB into the At-Berth Regulation Remediation Special Revenue Fund (88); and
4. Reimburse the General Fund for up to 10 percent from the At-Berth Regulation Remediation Special Revenue Fund (88) for administrative costs incurred in implementing the incentive programs.

Wayne Nastri
Executive Officer

AK:WS:TL:AY

Background

The goal of the California Air Resources Board's (CARB's) Ocean-Going Vessels At-Berth Regulation (OGV At-Berth Regulation) is to reduce diesel PM and NOx emissions from auxiliary engines and boilers while the vessels are docked at California ports. Since 2014, emissions from containers, refrigerated cargo, and cruise vessels have been controlled through CARB's OGV At-Berth Regulation. On June 25, 2020, CARB amended the OGV At-Berth Regulation to include auto carriers and tanker vessel types and visits, starting in 2023.

The updated OGV At-Berth Regulation also provides an additional compliance option that allows operators to use a remediation fund option under certain limited circumstances, set forth in California Code of Regulations Section 93130.15. These circumstances include, but are not limited to, instances where vessel or terminal operators, CARB Approved Emission Control Strategy (CAECS) operators, or ports have made attempts to install and/or use infrastructure to comply with the OGV At-Berth Regulation but new or replacement equipment has not been timely received. Monies collected from these entities will be managed by a Remediation Fund Administrator and used to remediate excess emissions via implementation of emission reduction projects. Remediation funds must fund projects that comply with CARB guidelines on existing incentive programs.

On May 31, 2022, CARB sent letters to California Air Pollution Control Officers Association and air districts soliciting those with jurisdiction in communities adjacent to ports to become a Remediation Fund Administrator. If selected, the Executive Officer will execute an MOU with CARB to serve as the Remediation Fund Administrator.

Collection of remediation funds from the container, refrigerated cargo, and cruise vessel operators may begin as early as January 1, 2023. Additional vessel types including roll-on/roll-off (or auto carrier) and tankers will be subject to the emission control requirements of the OGV At-Berth Regulation starting in 2025 at the Ports of Los

Angeles and Long Beach. Tankers visiting other California ports are not subject to the OGV At-Berth Regulation until 2027.

Proposal

South Coast AQMD applied to CARB to be a Remediation Fund Administrator in September 2022. The attached Resolution must be Board approved in order for the South Coast AQMD to participate in the remediation fund program.

The purpose of the remediation fund is to mitigate the community impact of excess emissions from vessel visits that do not reduce emissions at berth to the levels set forth in the OGV At-Berth Regulation. The remediation funds will be used to fund incentives programs that achieve early or surplus emission reductions of any other state, federal, or international rules and regulations. The remediation fund will be applied to CARB-approved funding programs, including but not limited to Carl Moyer, Proposition 1B, the incentive program developed under AB 617 Community Emission Reduction Program, or similar programs for mobile and/or stationary sources of air pollution.

If South Coast AQMD is selected as a Remediation Fund Administrator, a Memorandum of Understanding (MOU) will be executed with CARB and a special revenue fund account, At-Berth Regulation Remediation Special Revenue Fund (88), will be established to track funds used towards incentive projects. Up to 10 percent of the funds received can be used for the administrative costs necessary for the implementation of the incentive programs.

It is not yet known how frequently the remediation compliance pathway will be used or how much funding will be collected into the Remediation Fund.

Benefits to South Coast AQMD

The successful implementation of this program will provide direct reductions in NO_x, Reactive Organic Gases (ROG), diesel particulate matter, and GHG emissions by offsetting excess emissions from vessels at local ports. Proposed projects in disadvantaged and low-income communities (DAC) will receive priority for awards and project implementation. Thus, DAC and AB 617 will receive benefits from the emission reductions that will be achieved by implementing the projects funded under the At-Berth Regulation Remediation Special Revenue Fund (88).

The Ports of Los Angeles and Long Beach, are major hubs of Ocean-Going Vessels in the state. As a Remediation Fund Administrator, the South Coast AQMD will play an important role in implementing emission reduction projects in communities impacted by excess emissions from the port or independent marine terminals through its administration of the fund.

Resource Impacts

Revenue will be recognized into the OGV At Berth Regulation Remediation Special Revenue Fund. The remediation fund awards will not exceed the amount received. Up to ten percent of the revenue received can be used for the administrative cost of implementing the programs.

Attachment

Resolution

RESOLUTION NO. 22-

A Resolution of the South Coast Air Quality Management District Governing Board Authorizing Participation in the California Air Resources Board's Remediation Fund Program, Accepting the Terms and Conditions of Section 93130.16 of the Final Regulation Order Control Measure for Ocean-Going Vessels At-Berth, and Authorizing Execution of an MOU with CARB

WHEREAS, the South Coast AQMD recognizes the need to reduce oxides of nitrogen (NOx) and particulate matter (PM) emitted from ocean-going vessels while docked at berth at California ports; and

WHEREAS, the California Air Resources Board's (CARB's) Final Regulation Order Control Measure for Ocean-Going Vessels At-Berth (OGV At-Berth Regulation), California Code of Regulations (CCR) Section 93130 *et seq.*, sets forth a control measure to reduce emissions from ocean-going vessels at-berth that meets the community health goals of Assembly Bill 617 (AB 617), reduces emissions of NOx, reactive organic gases, PM, diesel particulate matter, and greenhouse gases; and

WHEREAS, the OGV At-Berth Regulation provides an alternative path to compliance with its emissions limits under limited circumstances set forth in CCR Section 93130.15, via implementation of incentive programs aimed at reducing emissions in impacted communities, using monies managed by a Remediation Funds Administrator; and

WHEREAS, CARB has invited the South Coast AQMD to apply for the position of Remediation Funds Administrator; and

WHEREAS, in order for the South Coast AQMD to be selected as Remediation Funds Administrator, it must accept the terms and conditions set forth in CCR Section 93130.16 governing the criteria and qualifications to serve as a Remediation Funds Administrator, including technical expertise and knowledge and demonstration of capacity to administer funds; and

WHEREAS, if selected as Remediation Funds Administrator, the South Coast AQMD agrees to execute a Memorandum of Understanding with CARB under the terms and conditions set forth in Section 93130.16(h) of the Ocean-Going Vessels At-Berth Regulation, which include requirements for use of incentive funds, reporting, recordkeeping, oversight, and applicability guidelines; and

WHEREAS, the South Coast AQMD agrees to conduct its programs in a manner that ensures the fair treatment of all people in the State; and

WHEREAS, the South Coast AQMD agrees to use remediation funds for incentive activities that directly benefit communities impacted by excess emissions from the ports or independent marine terminals, and achieve emission reductions consistent with CARB's

most recent applicable incentive program guidelines for the: Carl Moyer Program, Proposition 1B Program, Community Air Protection Incentives Program, or similar programs for mobile and/or stationary sources of air pollution; and

WHEREAS, the South Coast AQMD agrees to prioritize eligible activities in communities that are also identified by CARB under the AB 617 Community Air Protection Program or disadvantaged communities as defined by the Secretary for Environmental Protection. While at-berth remediation funds can be administered as part of an existing incentive program, the remediation funds cannot be used in place of any required match funding. Remediation funds may only be combined with funds from other incentive programs to the extent that the emission reductions caused by the remediation fund are capable of being calculated and attributed to the remediation fund; and

WHEREAS, the South Coast AQMD agrees to recruit, evaluate, select, fund, and track incentive activities in conformance with the requirements of the applicable guidelines for the incentive program or programs identified in the application; and

THEREFORE, BE IT RESOLVED that the Governing Board of the South Coast AQMD, State of California, in regular session assembled on October 7, 2022, does hereby authorize the agency to act as Remediation Fund Administrator per CARB's Final Regulation Order Control Measure for Ocean-Going Vessels At-Berth and accepts the terms and conditions required of a Remediation Fund Administrator as set forth in Section 93130.16 of the Regulation.

BE IT FURTHER RESOLVED that the Executive Officer is authorized and directed to enter into an MOU with CARB and take all other steps necessary to carry out this Resolution.

Date

Faye Thomas, Clerk of the Board

Agenda Item #4

Adopt Resolution as CARB At-Berth
Regulation Remediation Fund
Administrator and Establish Special
Revenue Fund, Recognize Funds, and
Reimburse General Fund for
Administrative Costs

Andrew Yoon

Background

- Ocean-Going Vessels At-Berth Regulation first adopted in 2014
- 2020 update to the regulation includes:
 - Additional vessel types
 - Remediation fund compliance option
- May 2022, CARB requested applicants for an At-Berth Remediation Fund administrator
 - Funds offset excess emissions from vessels that elect to pay into a remediation fund
 - Collection of funds begins in 2023



Proposal

- South Coast AQMD applied to CARB to be an At-Berth Remediation Fund Administrator
- Application requires Board authorization to adopt a Resolution and execute an MOU
- If the application is approved, South Coast AQMD will implement incentive projects through CARB-approved funding programs



Recommended Actions

- Adopt Resolution that authorizes the South Coast AQMD to participate in CARB's Remediation Fund Program as a Remediation Fund Administrator, accept the terms and conditions of the Ocean-Going Vessels At-Berth Regulation's Remediation Fund administration requirements, and execute an MOU with CARB
- Establish the At-Berth Regulation Remediation Special Revenue Fund (88) upon execution of the MOU with CARB
- Recognize, upon receipt, revenue from CARB into Fund 88
- Reimburse the General Fund for up to 10 percent from the At-Berth Regulation Remediation Fund (88) for the administrative costs incurred for implementing the incentive programs



AQMD Introduction to Cummins Electrolyzers

Henry Ma
Business Development & Sales Manager, USA
Cummins Inc.
Friday, September 16th,2022

CUMMINS



Engines



Power generators



Electrification



Hydrogen & Fuel Cells

190
Countries



59.9K
Global Employees



1.3M+
Engines built



10.6K
Distributor & dealer locations



\$1.1B
Invested in research & development



103 YEARS
of industry leadership



*2021 figures

NEW POWER - CORE TECHNOLOGIES



BATTERY ELECTRIC COMPONENTS AND POWERTRAINS

Creating technologies and products for commercial battery electric vehicles

- On-highway: transit bus, school bus, medium-duty truck, walk-in van
- Off-highway: construction equipment, terminal tractor, material handling
- Components: Battery Modules, Battery Packs



FUEL CELL VEHICLE SYSTEMS AND POWERTRAINS

Creating and integrating components for hydrogen fuel cell electric vehicles and rail

- Electric vehicles: urban transit bus, commercial fleet, utility vehicle, electric lift truck
- Installation: freestanding electrical power plant



HYDROGEN PRODUCTION

Creating solutions for industrial and commercial hydrogen generation and MW-scale energy storage

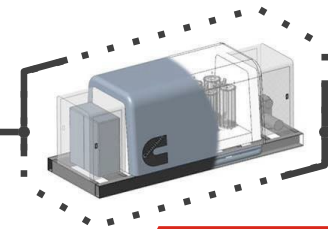
- Industrial processes and fueling stations: PEM generator, alkaline hydrogen generator
- Critical and uninterruptible power supply, power-to-gas technology

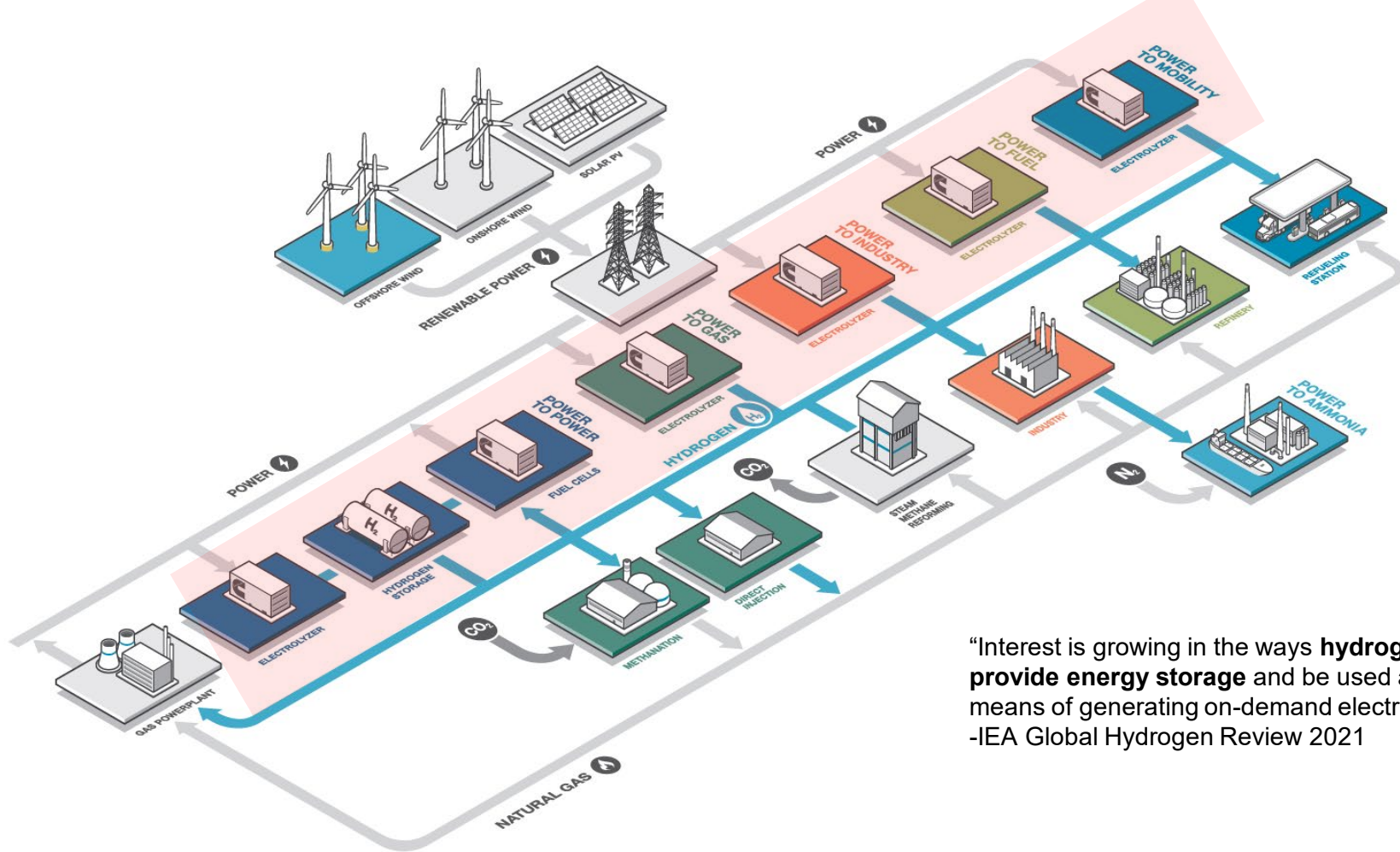


SOLID OXIDE FUEL CELLS

Creating modular, efficient solutions for stationary power applications

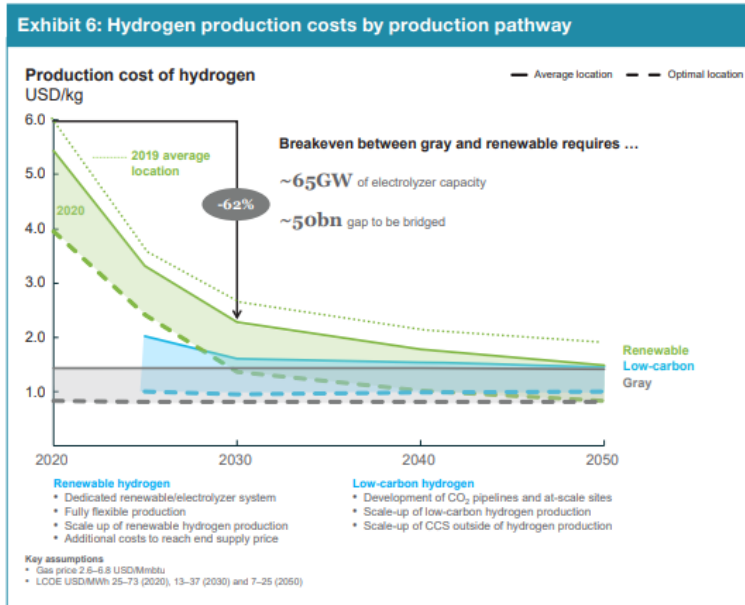
- Utility: microgrids, MW-scale grid firming and renewable integration
- Commercial/Industrial: manufacturing, data centers, water treatment facilities, hotels/resorts





“Interest is growing in the ways **hydrogen can provide energy storage** and be used as a means of generating on-demand electricity...”
 -IEA Global Hydrogen Review 2021

PRODUCTION COST IN THE FUTURE

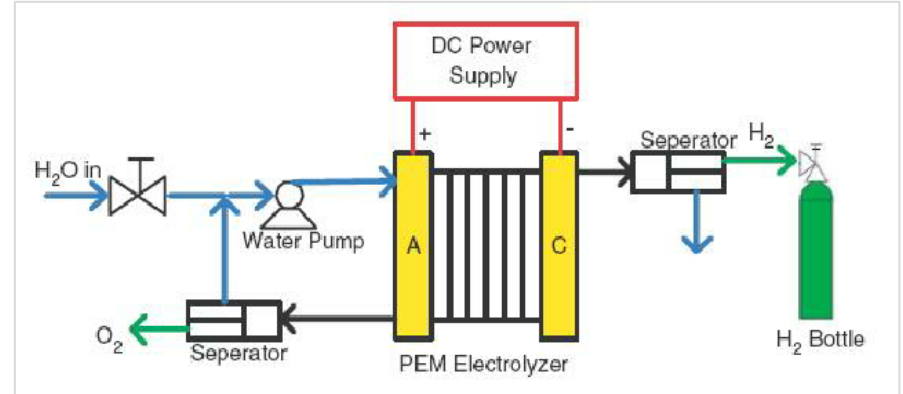
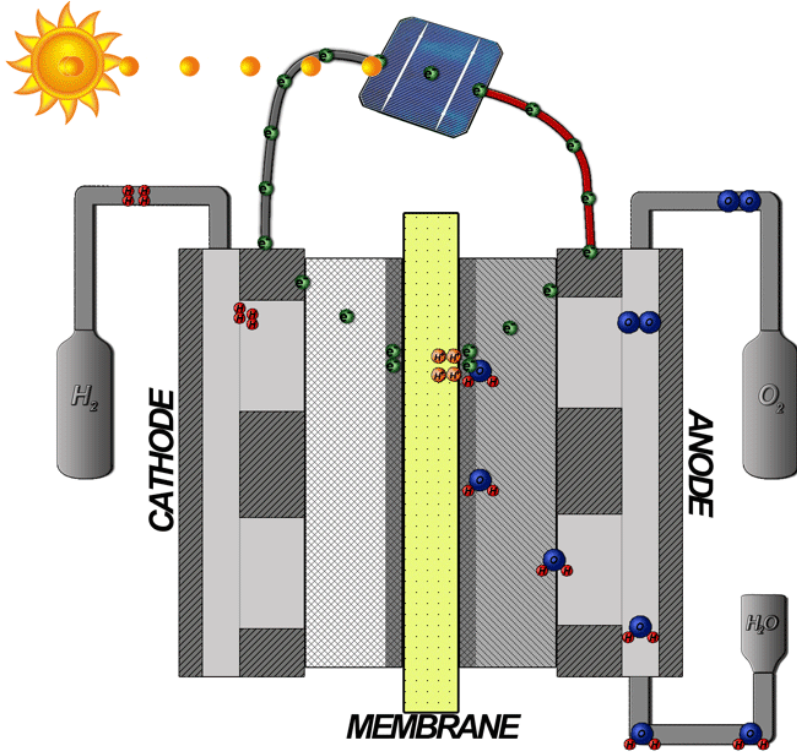


Hydrogen Insights Report 2021
Hydrogen Council, McKinsey & Company

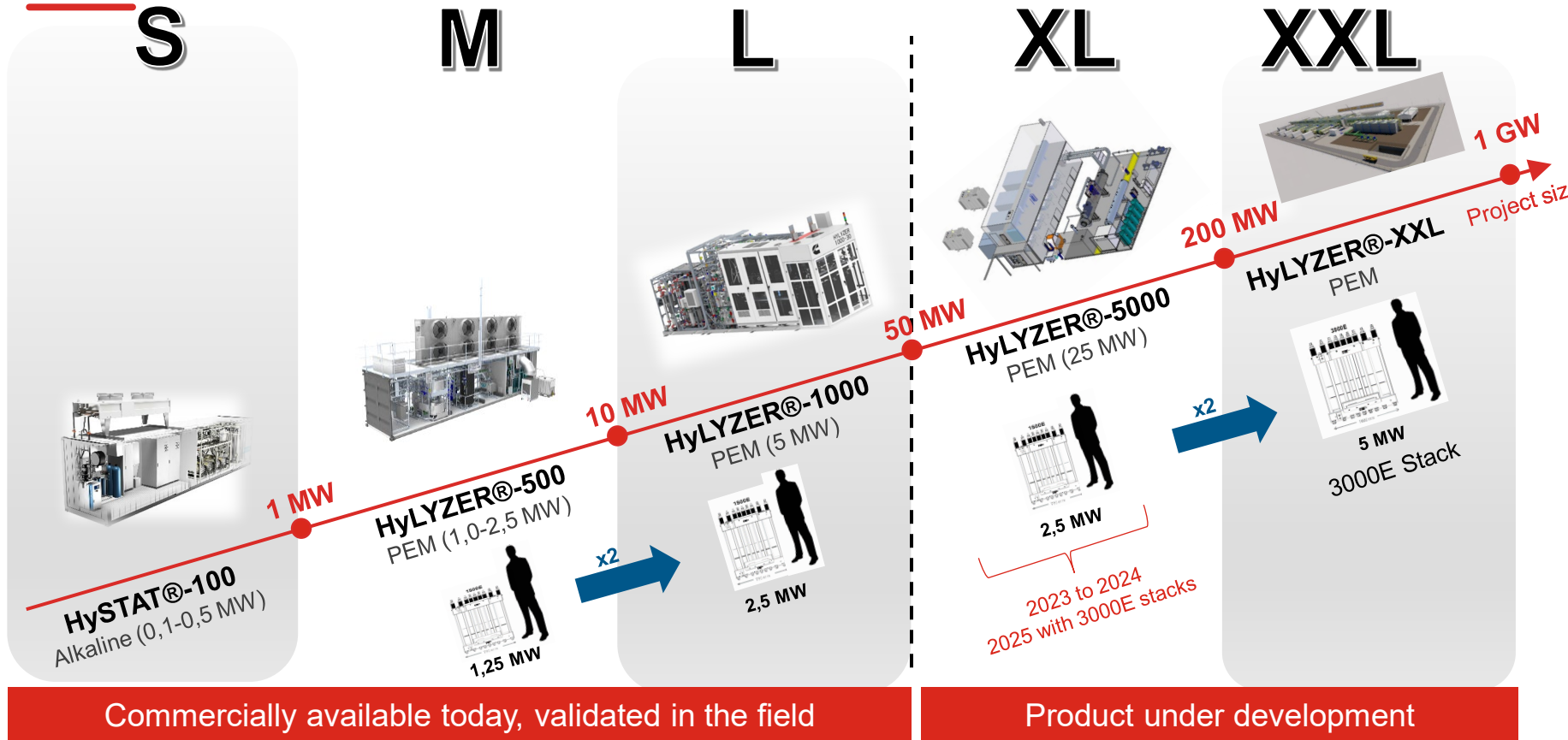
- **Cost of Renewable Hydrogen in the future in DECREASING** because of 3 primary reasons
 - Reduction in CAPEX
 - Levelized cost of energy (LCOE) is reducing quicker
 - Utilization is increasing
- US Inflation Reduction Act of 2022 will expedite this decrease by:
 - H2 Production Tax Credits (PTC) for H2 Production
 - Credits for consumer and commercial vehicles
 - HRS property credit
 - Other grants and funding opportunities

<https://www.fchea.org/transitions/2022/8/5/how-the-inflation-reduction-act-of-2022-will-advance-a-us-hydrogen-economy>

ELECTROLYSIS TODAY: PROTON EXCHANGE MEMBRANE TECHNOLOGY



HYLYZER® PRODUCT ROADMAP



GROWING OUR ELECTROLYZER FOOTPRINT



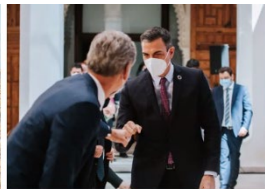
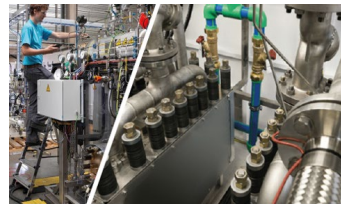
CASTILLA-LA MANCHA, SPAIN

- PEM Electrolyzers

WUHAN, CHINA

▪ **Ongoing expansions plans, leading to 1-2 GW/year PEM electrolyzer production capacity by 2025**

- New electrolyzer manufacturing plant in Castilla-la-Mancha (Spain) - Cummins - 500MW / 1GW
- New electrolyzer manufacturing plant in Foshan (China) - JV with Sinopec Corporation - 500MW / 1GW
- Expansion in existing Cummins manufacturing sites : Oevel (Belgium) and Mississauga (Canada)



Cummins and Sinopec say

“Ni Hảo”

to new electrolyzer plant



HYLYZER[®]-500 PEM ELECTROLYSERS

- **HyLYZER[®] 200/250/400/500-30**
 - **Containerized system**
 - **Turnkey product (Plug&Play):** including hydrogen gas generation system, power rectifier AC-DC, water purification (reverse osmosis), cooling (dry cooler)
 - **Dual stack platform:** up to 2 cell stacks of 250 Nm³/h (1,25 MW) to reach 500 Nm³/h (2,5 MW)
 - **Product versions:**
 - 1,0 MW: 200 Nm³/h (1 stack)
 - 1,25 MW: 250 Nm³/h (1 stack)
 - 2,0 MW: 400 Nm³/h (2 stacks)
 - 2,5 MW: 500 Nm³/h (2 stacks)
 - **Output pressure: 30 barg**



World's Largest PEM Electrolyzer 20 MW

More info & video tour:

<https://www.cummins.com/news/2021/10/04/video-case-study-cummins-hylyzer-pem-electrolyzer-becancour-quebec>

2022 | Hydrogen and Electrolyzers at Cummins



Air Liquide Becancour, Canada

4x HyLYZER® 1000-30 – indoor – 20 MW – 4.000 Nm³/h

DOUGLAS COUNTY PUD ELECTROLYZER PLANT → 5MW OVER 2 TONS per DAY



Hydropower from the Columbia River



Public Utilities in WA, USA can produce, sell, distribute Renewable Hydrogen (SB5588)



Ground breaking ceremony at the location of the 5MW electrolyzer and tube trailer refueling station in East Wenatchee

HYDROGEN BLENDING PROJECT

2.5MW PEM ELECTROLYZER FOR POWER-TO-GAS

MARKHAM ENERGY STORAGE FACILITY (TORONTO, CAN)



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FPL ANNOUNCES CUMMINS TO SUPPLY ELECTROLYZER FOR FLORIDA'S FIRST "GREEN" HYDROGEN PLANT – POTENTIAL KEY TO CARBON-FREE ELECTRICITY

February 28, 2022 8:06am EST

Download as PDF

JUNO BEACH, Fla.--(BUSINESS WIRE)-- Florida Power & Light Company (FPL) today announced Cummins Inc. (NYSE: CMI) will supply a 25-megawatt (MW) electrolyzer system for the groundbreaking FPL Cavendish NextGen Hydrogen Hub – Florida's first of its kind "green" hydrogen plant – which could lay the groundwork for a 100% carbon-free energy future.

