

SCAG  
**clean cities**  
COALITION



# HYDROGEN & WORKFORCE DEVELOPMENT

Toolbox Tuesdays  
Sustainability Program  
January 19, 2021



# ROAD TO HYDROGEN

SunLine Transit Agency was **pivotal** in the commercialization of zero emission technology. The Agency is an **expert** in the deployment of alternative fuel vehicles.



# HYDROGEN LEADER



**First to  
Transition  
to CNG**

In 1994, following Board action to move to 100% alternative fuels



**First  
Hydrogen  
Fueling  
Station**

In 2000, Agency emerged as a hydrogen pioneer



**First Transit  
Agency to Own &  
Operate H2  
Generation and  
Dispensing Station**

In 2006, SunFuels was created



# THE PIONEERING EFFORTS OF THE AGENCY DEVELOPED A NEW ERA FOR PUBLIC TRANSIT



# TRANSITIONING TO CLEAN FUELS



1992

LESSONS  
LEARNED

2021

# FUELING INFRASTRUCTURE

NEW METHOD



**ELECTROLYZER**

PREVIOUS METHOD



**STEAM REFORMER**

# HYDROGEN FUELING STATION



900 Kg per day production

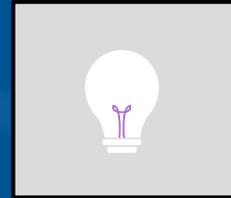
380 Kg use per day

2 dispenser fast fill rate

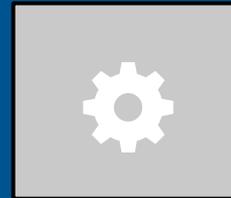
\$8.7 Million CARB Grant

# STATION LESSONS LEARNED

Ensuring utilities were able to support project



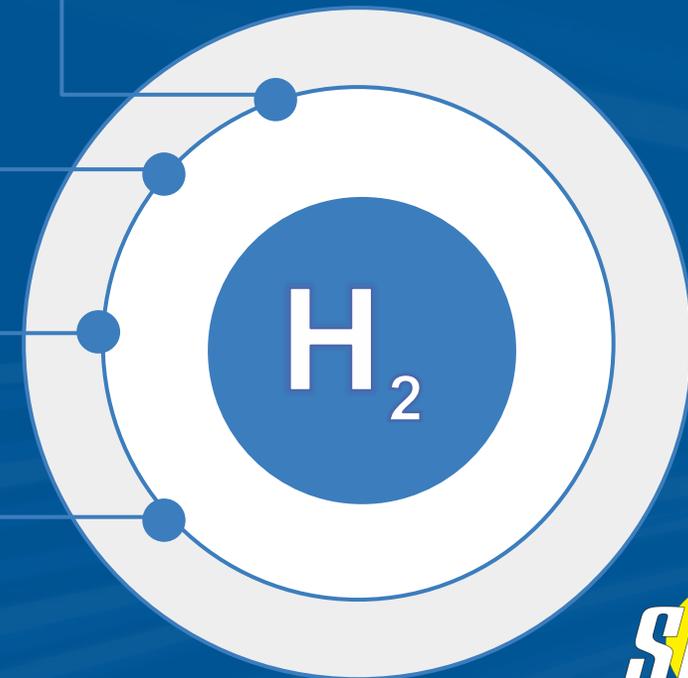
Ensuring we have personnel with the right credentials to execute the project



Correctly estimating the amount of civil work involved



Establishing a performance based statement of work



# FUTURE FUELING PLANS

SunLine is looking to expand its fueling systems with the creation of a micro-grid:

Phase 1 – Solar Farm

Phase 2 – Solar to Hydrogen for Electricity Storage

Phase 3 – 700 Bar Public Fueling Station

Phase 4 – Hydrogen / Electricity Truck Plaza

# ZEV PLANS & CARB RULES

## Innovative Clean Transit (ICT)

requires all public transit agencies to gradually transition to a 100 percent zero-emission bus fleet



## Advanced Clean Truck (ACT)

accelerates a large-scale transition of zero-emission medium-and heavy-duty vehicles from Class 2b to Class 8

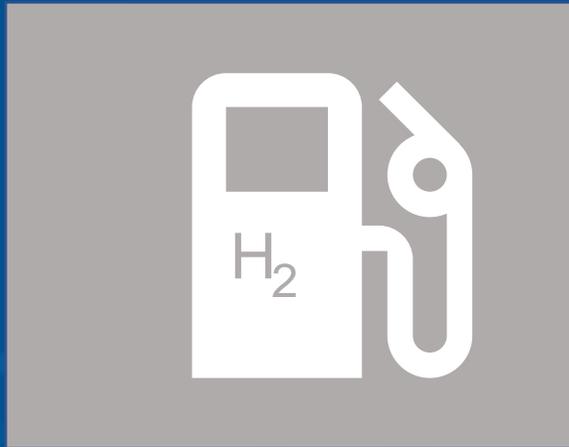


# SUNLINE'S ICT PLAN

SunLine submitted plan to California Air Resources Board 3 years ahead of deadline

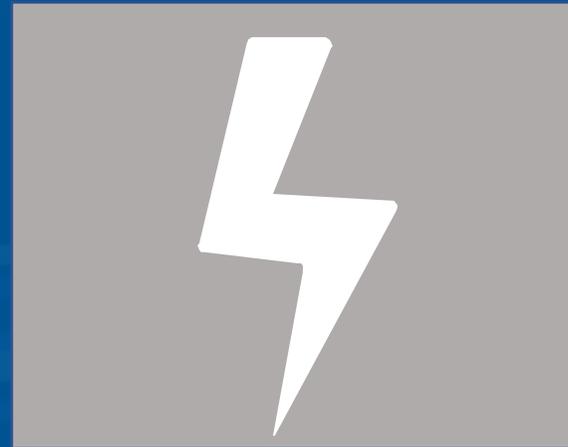
## VISION

SunLine will be the first transit agency in the state/country to transition fleet to 100% zero-emission vehicles



H2 INFRASTRUCTURE

+



BEB INFRASTRUCTURE

# SUNLINE'S ICT PLAN

*SunLine's is poised to lead the country in fuel cell electric bus (FCEB) and battery electric bus (BEB) deployments and demonstrate the effectiveness of a zero-emission fleet*

Fixed route fleet 100% ZEB by **FY-2035** – 67 FCEBs, 18 BEBs

Paratransit fleet 100% ZEB by **FY-2033** – 39 FCEBs, 0 BEBs

# NEXT STEPS AS INDUSTRY LEADER

SunLine Transit Agency recognized that there were **limited resources** for agencies and their pursuit of zero emission technology





FOR EVERY  
INVESTMENT IN  
TECHNOLOGY,  
THERE SHOULD BE  
A FOCUSED  
INVESTMENT IN  
**TRAINING**

PROVIDE A  
TRANSITION  
PATHWAY FOR  
**CURRENT  
EMPLOYEES**

ATTRACT  
THE NEXT  
GENERATION OF  
**TECHNOLOGY  
TECHNICIANS**



# THE FACILITY WILL BE LOCATED AT OUR HEADQUARTERS IN THOUSAND PALMS, CA



CLASSROOM

EXIT

MAINTENANCE BAY

LEARNING CENTER

BUS ENTRANCE

# SUNLINE'S ROLE



Facilitated multiple workshops with public agencies and Original Equipment Manufacturers (OEMs) to document needs and build curriculum

# CURRICULUM AND BETA TESTING

## Completed Training Modules:



Advanced Technology  
Technician Training



Procurement Insights for ZEB  
purchases



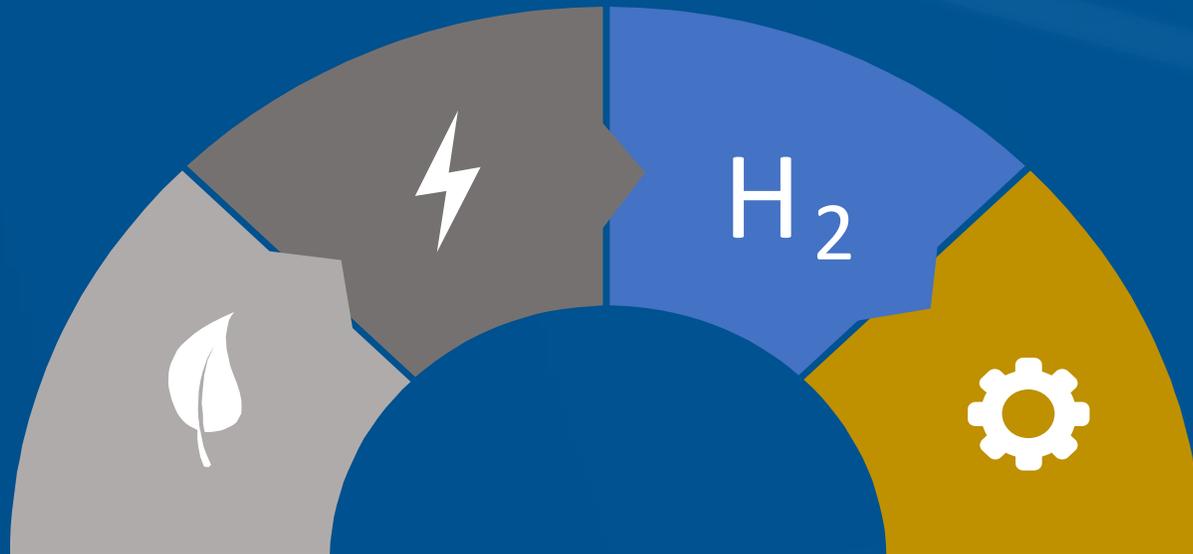
Planning and executing ZEBs  
in service



Leadership, mission, value creation for  
a successful ZEB Program



# BEYOND TRANSIT



The maintenance bay will have space for heavy duty trucks and other zero emission machinery, beyond transit vehicles

# FUNDING STATUS

## FUNDING FOR BUILDING



Federal Transit  
Administration funded  
the physical building

## IN-KIND MATCH

OEMs have  
committed to  
providing  
equipment

## FUNDING FOR OPERATING

SEEKING  
OPERATING  
FUNDS

# OEM SUPPORT

Original Equipment  
Manufacturers have been at  
the table **engaging in  
discussions** and helping  
**build curriculum** since the  
start



The goal is for  
agencies to be  
trained for  
successful  
deployment

# ADVISORY BOARD



NOVA BUS

BALLARD®



# BOARD OBJECTIVES

- Help identify new training programs and opportunities
- Create industry certified training programs and coursework to ensure the material and training meet the needs of the operators and manufacturers
- Advance the industry influence of the Board and training materials
- Build collaborations that will leverage the agreed to training programs and coursework
- Help secure funding for Board initiatives and programs

# WCCOE AS A MODEL



The structure and curriculum could be used for widespread deployment



*We typically don't invest in training and skills for personnel – that needs to change*

# IMPORTANCE OF FUNDING



Need to simplify and streamline direct funding for training or re-training of the workforce

# CLOSING THOUGHTS

SunLine has put in their own resources because they understand the importance of this facility and the training



Investment in WCCOE for workforce development supports the *state's goals and mandated conformity*

# Thank you for attending!

The recording and slides will be posted to SCAG's  
Toolbox Tuesday site.

<https://scag.ca.gov/toolbox-tuesday>

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