



## SECTION I: BACKGROUND INFORMATION

### *Coalition Information*

The U.S. Department of Energy Clean Cities program aims to stimulate and expand alternative fuel and advanced technology markets to reduce petroleum consumption in the United States by 2.5 billion GGEs (gas gallon equivalent) per year by 2020.

The Houston-Galveston Clean Cities Coalition was officially established in partnership with the DOE in 1996. The primary mission of the HGCCC is to facilitate the use of alternative fuels, advanced vehicle technologies, and fuel conservation strategies in order to reduce air pollution through the displacement of petroleum. This annual operating plan covers our activities from February 1, 2018 to January 31, 2019.

The HGCCC is housed within the Houston-Galveston Area Council (H-GAC), which serves as the region's MPO and COG. The Board of Directors acts as the fiscal agent for H-GAC and the Metropolitan Planning Council determines funding support for Clean Cities from federal transportation dollars. The HGCCC works closely with H-GAC's other air quality programs, especially the Clean Vehicles Program, which provides funding to local fleets to purchase or repower to newer, cleaner technologies.

Coalition administration is funded in part by the Clean Cities support contract. HGCCC does not require membership dues. Additional support for coalition staffing and administration comes from federal grants provided under existing programs at H-GAC, as well as partnerships with statewide initiatives and alternative fuel alliances. Additionally, many of the HGCCC workshops and events utilize in-kind support from industry partners and financial support through sponsorship agreements, event registration and exhibition fees.

HGCCC serves eight southeast Texas counties: Harris, Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, and Waller. This area is classified by the EPA as the Houston-Galveston-Brazoria (HGB) ozone non-attainment region based ozone concentrations.

## *Core Coalition Personnel*

### **Shelley Whitworth**

Clean Cities Co-Coordinator / Air Quality Program Manager

- 20 – 30 hours per week (will drop to 15 hours per week when 2<sup>nd</sup> co-coordinator position filled)
- Oversight of Houston-Galveston Area Council Air Quality Program including Clean Cities
- Support program contract and planning activities as necessary

### **Michael Fuller**

Senior Outreach Coordinator

- 20 hours per week with goal to becoming Co-Coordinator 2018.
- Manage social media content, monthly newsletter, frequent blog posts as needed
- Support program contract and planning activities as necessary

## **SECTION II: MARKET ANALYSIS**

### *Infrastructure Availability for Alternative Fuels In HGB*

Alternative fuel infrastructure in Texas has greatly improved over the last five years. State funding from TERP's programs, The Clean Transportation Triangle (CTT) (now the Clean Transportation Zone) and Alternative Fueling Facilities Program (AFFP), have helped improve alternative fuel infrastructure within the most populous regions of Texas. Drivers can now access many alternative fuel stations while driving along the highway system (Interstates 45, 10, and 35) connecting Texas's three main cities: Houston, Dallas and San Antonio, well as Austin.

In the Houston-Galveston region, **electric, ethanol and LPG stations are currently the most widely available**. TERP gave the second most funding to **electric vehicle charging stations**. Electric stations densely populate the center of Houston within the 610 loop, especially in the southwest portion of city, making access easy for light-duty urban travelers. There is, however, still room for improvement. In the northeaster portion of the region (east of I-69 and north of I-10), only three electric charging stations are available.

**LPG stations** are the most evenly dispersed across Texas, largely because of U-Haul, which owns 31 stations in the Houston-Galveston area alone. Of the 32 other LPG stations in the HGB region, the vast majority are small businesses that sell propane for a variety of purposes, including to power homes and mobile homes. Four others privately serve ISDs. The distribution of these stations seems most beneficial to fleets traveling long distances because there is not a high density of them available within the 610 loop. **Ethanol stations**, the third most available fuel with 66 stations in the region, show a similar distribution problem, with no locations inside

the 610 loop and only 7 within the Beltway 8. Large fueling chains such as Kroger, Corner Store, and Stripes Store have integrated the sale of E85 with the sale of traditional fuels.

More than 40 CNG and three LNG stations are currently operating in the HGB region. **Natural gas, particularly CNG, has demonstrated the most growth.** Alternative fuel consultants report more demand from fleets for natural gas conversions. According to the coalition's most recent Clean Cities Annual Report submitted in March 2018, two new CNG stations opened in the Houston-Galveston area in 2017.

The CTT gave preference to stations that would sell both compressed and liquefied natural gas to encourage diversity and cater to commercial fleets traveling long distances.

The current need is to know where a vendor would put a station if they knew it would pay off financially. Fleets considering alternative fuels need to learn more about alternative fueling infrastructure in their operating area and gain confidence that alternative fuels will be available when and where they are needed.

#### *Plan to Fill Infrastructure Gaps*

H-GAC continues to develop a GIS-based mapping tool to help match alternative fuel fleets with existing infrastructure in the HGB region. This mapping tool is a localized version of the USDOE Alternative Fueling Station Locator. In addition, H-GAC will survey fleet operators about the composition of their fleets, fuel usage, and how the availability of alternative fueling stations in target areas could impact business growth. Fleets can use the tool to suggest new locations for fueling stations.

H-GAC will then make this information available to alternative fuel providers to help them better locate new infrastructure, with the assurance that this station would be financially viable. We expect that this will result in expanding the available alternative fuel infrastructure within the HGB region.

HGCCC is working with Electrify America to find locations for EV stations in the region as part of the VW Settlement.

#### *Alternative Fuel/Advanced Technology Vehicles in HGB*

##### **Buses, Vans, Shuttles**

According to the Annual Report submitted in March 2018, nine ISDs operate a total of 576 heavy-duty LPG school buses, 121 heavy-duty CNG school buses, and 31 light-duty LPG vehicles. In the airport industry, New South Parking and Park-N-Fly use 41 heavy-duty CNG shuttle buses.

### **Light-Duty Cars**

Private businesses use 16 of the 88 light-duty LPG vehicles and 1,349 of the 1,392 CNG light-duty vehicles. Government entities, such as TxDOT, the City of Houston and ISDs use the remaining light-duty LPG and light-duty CNG vehicles.

### **Semi-Trailer Trucks**

In the private industry, Novus Wood Group, DX Transportation, HEB Grocery, and others currently operate 138 heavy-duty CNG semi-trailer trucks.

### **Electric, Hybrid, Plug-In**

The City of Houston operates 26 light-duty electric cars. The COH, City of Baytown, NASA, and Houston ISD operate 384 light-duty hybrid electric vehicles. Houston METRO operates 122 heavy-duty hybrid electric shuttle buses.

Adoption is continuing at a steady pace for school districts. Applications for AF refuse trucks continue to grow through Clean Vehicles grants. Beer distributors have increased involvement with AFVs. Industrial trucks can continue to be developed, particularly in the distribution centers.

### *Major Participants in the Alternative Fuel & Advanced Technology Industry in HGB*

#### **Major Alternative Fuel Fleets and Vendors**

CNG vendors Freedom CNG, VNG Co, and CNG 4 America have actively participated in the coalition and expanded infrastructure in the area. All have helped in outreach by publishing press releases, participating in case studies and/or contributing material for online features. In addition, Metropolitan Transit Authority of Harris County (METRO) is working with Freedom CNG for their fleet of 200 CNG buses. METRO's new Office of Innovation is working on analyzing potential efficiencies from electric and CNG vehicles and exploring cleaner transportation.

*Clean Energy Fuels* provides a diverse portfolio of customer solutions including airport service vehicles, construction, industrial fleets, rail, marine, taxis, transit, etc. The company also engineers and constructs infrastructure, provides operations support, and modifies existing facilities to use AF. Clean Energy Fuels provided consultation services for H-GAC in the past and could provide comprehensive financial estimates and analysis to fleets hoping to convert.

The *Texas Center for Clean Engines, Emissions & Fuels* (TxCEF) studies cleaner emissions, renewable fuels and increased fuel economy for medium/heavy-duty vehicles. The University of Houston hosts and staffs the center with engineers and researchers from the Departments of Chemical, Biomolecular, and Mechanical Engineering. The center conducts testing activities for the public and private sector mainly on emissions control technologies to decrease NO<sub>x</sub>, and particulate matter (PM) emissions from on/off-road vehicles and equipment. The center also

performs optimization of technologies, concept development, and technology demonstrations. This could be a valuable asset for our vendors developing new technology as well as hesitant fleet operators, who may put more trust in seeing technology tested and demonstrated by a reliable third party.

### ***Major Fleets Using AFVs in HGB***

Major fleets using AFVs in the public sector are Houston ISD, City of Houston, Houston METRO, and TxDOT. Major fleets using AFVs in the private sector are AT&T, Nissan, Coca-Cola, Frito-Lay, Silver Eagle Distributors, HEB Grocery, Houston Distributing Company, UPS, Wal-Mart, Maersk Line, and Waste Management.

In 2017, 140 fleet operators have received Clean Vehicles grants, many have not signed formal agreements to work with Houston-Galveston Clean Cities Coalition.

### ***AFV Adoption in the HGB Region***

#### **New Policies in Texas Tax Code**

On September 1, 2015, the State of Texas repealed the Texas motor fuels tax on liquefied gas (LG) or liquefied petroleum gas (LPG) (propane, butane, methane, ethane, or a mixture of those gases). Vehicles that operate using LPG, CNG or LNG no longer prepay the Texas motor fuels tax by purchasing a decal annually (fee based on the vehicles' registered gross vehicle weight rating and the number of miles driven the previous year).

CNG and LNG operators still pay a state tax of fifteen cents (\$0.15) per gallon. Consumers pay the tax at the pump and the licensed CNG/LNG dealer pays the tax to the state. This transfers the effort to the dealers, not the consumer, which could be favorable for CNG/LNG adoption by private fleets.

Also, effective September 1<sup>st</sup> 2015, Texas municipalities are exempt from the state motor fuels tax on CNG and LNG and, if charged, can get a refund from the Comptroller's office. Metropolitan Rapid Transit Authorities and Regional Transportation Authorities are also exempt if the entity had a prepaid liquefied gas tax decal on Jan. 1, 2015, and the motor vehicle is operated by a transit company providing services or a regional transportation authority.

#### **New Policies in Federal Tax Code**

On January 1, 2016, the units of measurement used for taxation changed to reflect the energy content, rather than the volume, of LPG and LNG. LPG will go from \$0.183 per gallon to \$0.183 per GGE (5.75 lbs LPG). LNG will go from \$0.243 per gallon to \$0.243 per DGE (6.06 lbs LNG).

Summary of Taxes on AFs		
Fuel	TX State Tax	Federal Tax in 2016
CNG	\$0.15/gal	\$0.183/GGE
LNG	\$0.15/gal	\$0.183/DGE
E85	n/a	\$0.183/gal
BD	n/a	\$0.243/gal
LPG	n/a	\$0.183/GGE
Gas	\$0.20/gal	\$0.184/gal
Diesel	\$0.20/gal	\$0.184/gal

In Texas, the biodiesel or ethanol portion of blended fuel containing taxable diesel is exempt from the diesel fuel tax.

Source: [Texas Comptroller](#), [DOE's AFDC](#), [American Petroleum Institute](#)

### **National Incentives Affecting AFV Deployment**

The Propane Education & Research Council (PERC) offers incentives for propane lawn mowers to end-users nationwide on mowers with 36 to 72 inches in deck size. The incentive offers \$1,000 per purchase of new factory built mowers or \$500 per EPA certified conversion.

### **Texas Emissions Reduction Plan (TERP) Incentives**

The *Texas Natural Gas Vehicle Grant Program* (TNGVGP) funded the repower or replacement of heavy/medium-duty diesel vehicles with CNG and LNG with engines and vehicles. TCEQ is now accepting proposals from Participating Dealers.

The *Texas Clean Fleet Program* (TCFP) provides incentives to owners of large fleets in Texas to replace diesel-powered vehicles with alternative fuel or hybrid vehicles.

The *Emissions Reduction Incentive Grants* (ERIG) Program provides grants for eligible activities –including upgrades or replacement of heavy-duty vehicles, non-road and stationary equipment – to offset the incremental costs of projects that reduce emissions of nitrogen oxides (NOx) from high-emitting internal combustion engines.

The *Alternative Fueling Facilities Program* (AFFP) offers grants for the construction or expansion of natural gas and other alternative fuel fueling stations within the Clean Transportation Zone. Effective September 1, 2017, the Texas Health and Safety Code (THSC) Chapters 393 and 394 were amended to combine the AFFP and the Clean Transportation Triangle (CTT) programs.

The *Drayage Truck Incentive Program* (DTIP) provides financial incentives for the replacement of older drayage trucks operating at eligible seaports and Class I rail yards in areas of Texas designated as nonattainment under the Federal Clean Air Act.

## **Effective Messages Driving AFV Deployment**

Cost savings most effectively resonate with fleets considering transitioning to alternative fuel. Alternative fuel vendors mainly try to convey the greatly reduced cost of maintenance and the greater price stability of alternative fuels produced domestically. The marketing power of “sustainability” provides the secondary motivation. In some cases, partners/customers of private fleets will request the use of cleaner fuel.

The public, business and industry like the visibility of participating in clean air or green alternatives. The notion of local “air quality” and “cleaner air” has been very successful, especially relating to the immediate impact on the health of citizens. Several ISDs have posted articles online after winning the Clean Air Champion Award for Fleets from H-GAC’s Commute Solutions department. In 2014 Dayton ISD said their “measures reduce emissions, which leads to improved public health.” Brazosport ISD said “improving air quality in our community is paramount.” Barbers Hill ISD said they “promote cleaner air.” In 2015 Pearland ISD said “we’re committed to...better air quality for our community.” ISDs often stated that transporting students safely is their main priority; they also support doing so efficiently and in an “environmentally sound manner,” as mentioned by Cy-Fair ISD. Three other ISDs also specifically mentioned the environment.

### ***Public Awareness***

Fleets have been receptive to alternative fuels/technology when given financial incentives. Once fleets have joined the Clean Vehicles program and received funding, successful engagement in many other forms becomes much more likely. Fleets, ISDs, Fuel Providers participated in the 2017 Clean Cities Technologies Conference and filled out surveys for the Annual Report. Private sector fleet attendance at coalition meetings to participate in discussions and meet vendors of alternative fuel and advanced technology has improved in the last two years. Public fleets have been the most receptive, especially the many school districts. School district fleets have many incentives, including tax exemption for using alternative fuels in their buses.

### ***Barriers to AFV Deployment***

Traditionally, low gas prices have reduced the incentive for alternative fuels. Proximity to oil industry also typically makes gas prices about 12-15% lower than the national average. The Houston-Galveston region’s economy has many ties to the oil and gas industry.

In particular, Houston is known as a world capital of the oil and gas industry with over 5000 energy firms doing business in the region. Houston’s economy has demonstrated rapid growth and crippling recessions related to the oil industry.

Fleets hesitate to transition from older technologies because of the initial investment and lack of familiarity with newer technologies. Additionally, many diesel vehicles have been improved to be cleaner than ever.

### SECTION III: ACCOMPLISHMENTS

<b>Coalition - Overall</b>	
All	<p>Report at least 12 million GGEs displaced in the 2017 annual survey with 80 respondents.</p> <p>In H-GAC's Annual Survey conducted in early 2017 for the previous year's data almost 12 million GGEs were documented to be displaced. H-GAC expects to document a significant increase in the GGEs displaced by 2018.</p>
<b>Coordination</b>	
Stakeholder Engagement	<p>Form Advisory Council with Chair &amp; Vice Chair.</p> <p>The HGCCC formed an Advisory Board with the election of a Chair, Vice Chair. The Advisory Board also has primary and secondary representatives for Natural Gas, LPG, Electricity, Biofuel, Public Sector Fleets &amp; Private Sector Fleets. Representatives on the Advisory Council are currently meeting within their interest groups to work on identifying potential education and outreach activities for 2018.</p>
Stakeholder Engagement	<p>Engage and Educate ISD's</p> <p>The HGCCC reached out and successfully engaged with ISDs on several occasions. During the Summer of 2017, a concerted effort was made to update fleet contact information. After Hurricane Harvey, HGCCC reached out to the ISDs to provide assistance and encourage them to convert to AFV. HGCCC addressed local ISDs at the Association for Pupil Transportation. Further engagement is planned throughout 2018.</p>
<b>Outreach</b>	
Stakeholder Engagement	<p><i>Issue monthly social media pieces describing alt. fuel success stories.</i></p> <p>HGCCC utilized the H-GAC MPO Social media feed, website newsfeed, reintroduced the HGCCC newsletter.</p>
<b>Education</b>	
Stakeholder Engagement	<p><i>Attract Corporate and Private Fleets, Fueling and equipment companies as participants for the 2017 CFTC event</i></p> <p>On November 14, 2017, HGCCC held its annual Clean Cities Technologies Conference featuring Low NOx and Zero Emission Technologies. This fuel-neutral conference featured panel discussions about CNG, Propane/AutoGas, EV technologies, as well as educate attendees about Funding Grants, Incentives and the upcoming VW Settlement agreement.</p>

The Houston-Galveston Clean Cities Newsletter began regular publication in 2017 and will continue to reach out, inform and educate. Coalition members are encouraged to submit articles.

Date	Outreach Goal	Activity Completed
April	Stakeholders Event	“Workhorse Pickup Truck – CenterPoint Energy”
May	Stakeholders and VW Settlement	“Texas Clean Air Work Group VW”, “Port Communities Meeting”, “Electrify American Conference Call”, “Meeting with City of Houston & Council members regarding CNG”
June	Stakeholders Event and VW Settlement	“Greater Houston NGV Alliance Road Rally”, “Gulf Coast Association for Pupil Transportation”, “VW Settlement Workshop – Austin”,
July	Stakeholders and VW Settlement	“Clean Cities ZEV Investment Discussion - Electrify America”, “Natural Gas and Propane Volkswagen Settlement Workshop”,
August	Stakeholders and VW Settlement	“Ports and Rail Switching Yards - VW Settlement meeting”, “Joint Meeting of Greater Houston Natural Gas Vehicle Association and Natural Gas Clean Cities Stakeholders”
September	Additional activity	“Clean Cities Conference Call about COG/MPO/RPC”
October	Additional activity	“South Central Regional Clean Cities Coalition Conference”, “
November	Stakeholders and VW Settlement	“Electrification of Urban Freight Webinar”, “Grand Opening for Alameda Fuels CNG Station”, “VW Settlement Update”, “Meetings with METRO and City of Houston”
November	Event	“Clean Cities Technologies Conference”
December		“New Process for Submitting EPA Grant Proposals Webinar”, “Clean Cities VW Discussion”, “GHP Environmental Advisory Committee meeting”, “iREV Resources and Pilots Webinar”,

Target Date	Education Goal	Activity Completed
January	Stakeholder Meeting	Stakeholder Meeting 1-24-17
April	Stakeholder Meeting	Stakeholder Meeting 4-26-17
July	Stakeholder Meeting	Stakeholder Meeting 7-26-17
October	Stakeholder Meeting	Canceled

Target Date	Administration Goal	Activity Completed
January	Alternative Fuel Price Report Q1	Completed
March	Complete 2016 Annual Alt Fuel Survey	Completed
April	Alternative Fuel Price Report Q1	Completed

July	Alternative Fuel Price Report Q3	Completed
October	Alternative Fuel Price Report Q4	Completed
November	Clean Cities Technologies Conference	Completed

## SECTION IV: ANNUAL PLAN

### Market Development

Goal	1-year goal	3-year goal	Activities
<b>Coalition - Overall</b>			
Overall Goal	Report at least 12 million GGEs displaced in the 2018 annual survey with 80 respondents.	Report at least 25 million GGEs displaced in the 2020 annual survey with 200 respondents.	Increase reach of survey with online marketing and direct contact. Monthly newsletter and coordinated social media outreach to achieve awareness of all Coalition activities.
<b>Infrastructure</b>			
Increase the number of alternative fueling refueling stations and/or recharging stations in the coalition area.	Foster the submission of at least 5 refueling infrastructure applications for H-GAC's Clean Vehicles program.	Accept at least 13 refueling infrastructure applications to Clean Vehicles.	Perform weekly check-ins with applicants and identify/regularly update info about additional external grant opportunities.
Additionally, increase fuel volume at existing stations.	Work with fleet managers to update interactive alternative fuel mapping tool when plan stations.	Establish at least 5 new refueling stations during 2020.	Perform outreach to fleets in Clean Vehicles. Attempt contact with fleets at least twice a week.
<b>Vehicles</b>			
Increase number of AFVs and/or Advanced Technology Vehicles. Focus on ZEV/Near Zero Emissions Vehicle adoption	Foster the submission of at least 5 proposals supporting alt. fuel vehicles and regional demand.	Foster the submission of at least 10 proposals supporting alt. fuel vehicles, and regional demand in 2020.	Perform weekly check-ins with applicants and identify/regularly update info about additional external grant opportunities, including VW settlement funds.
<b>Awareness</b>			

Increase awareness of alternative fuels and advanced vehicle technologies	Obtain 100 unique views of the HGCCC website a week as measured by Google Analytics by March 2019.	Obtain 200 unique views of the HGCCC website a week as measured by Google Analytics by March 2020.	Distribute information online and via email marketing campaigns about: lower alt. fuel maintenance costs (vs. oil/diesel), air quality in Houston from diesel and gas, long-term price stability of alt. fuels.
<b>Behavior</b>			
Increase the use of smart driving or idle reduction	Receive 20 reports fleets using idle reduction policies currently in place and collect additional data on 30 through the Annual Survey.	Receive 30 reports fleets using idle reduction policies currently in place and collect additional data on 50 through the Annual Survey.	Create white papers, assessments and best practice documents for all alternative fuels.

### *Organizational Development*

HGCCC will be working on a renewed outreach to gain and renew membership in the coming year. Our goal is a total of 75 members by the end of 2018. In 2020, the goal is have 125 members. HGCCC is working on recruiting more fleets who have participated in the Clean Vehicles program and reconnecting lapsed members.

### *Coalition Meeting/Event Plan*

<b>Activity Description</b>	<b>Target Date</b>	<b>Target Audience</b>	<b>Topics to be Addressed</b>
Stakeholder Meeting	Q1 2018	All Stakeholders	
Stakeholder Meeting	Q2 2018	All Stakeholders	Annual Survey results Annual Operating Plan UPS DOE project
Texas Association for Pupil Transportation	June 2018	ISD Fleet Managers	Clean Cities, Clean School Bus programs. Encouraging ISDs to convert fleets to cleaner fuel types, educating them fuel types and vehicles available.
Texas Clean Cities Coalitions Webinar series	June 2018	All Stakeholders	A series of webinars in the four coalitions in Texas featuring different aspects of converting to clean fuels, types of vehicles and VW funding opportunities.
Stakeholder Meeting	Q3 2018	All Stakeholders	

National Drive Electric Week	Sept 2018	EV Stakeholders	National Drive Electric Week educates and demonstrates EV's across the country
Landscape Equipment Workshop	TBD	Propane/Autogas Stakeholders	Propane/Autogas Landscape Equipment workshop
National Drive Electric Week IKEA Event	Sept 15, 2018	EV Stakeholders	EV demonstrations and education.
Economic Alliance Port Region - Gulf Coast Industry Forum	Sept 2018	Industry and Stakeholders	Education about NG fuel and vehicles.
NGV America Road Rally	Nov 2018	NG Stakeholders	Demonstration of Vehicles in annual National NGV America Road Rally. Location TBD.
Clean Cities Technologies Conference	Nov 2018	All Stakeholders	Clean Cities event featuring panelists representing all stakeholders. Education about the various fuel types and funding.
Stakeholder Meeting	Q4 2018	All Stakeholders	
Annual Survey	Q4 2019	All Stakeholders and Fleets	

#### *Coordinator Travel and Training Plan\**

<b>Conference/ Meeting Name</b>	<b>Date</b>	<b>Location</b>
Clean Cities National Leadership Peer Review	Summer 2018	TBD
South Central Regional Clean Cities Conf.	Fall 2018	TBD

\*Some of these events may be attended by stakeholders/members if the coordinator cannot attend.

#### **SECTION V: BUDGET SUMMARY**

##### *Coalition Funding*

DOE Clean Cities – 2/1/18 – 1/31/19	\$45,000.00
LOC Funds	\$30,000.00
UPWP Air Quality TxDOT	\$65,000.00
<b>Expected Balance - December 2015</b>	<b>\$140,000.00</b>

### Coalition Expenses

<b>Focus Area</b>	<b>Expenditures</b>	
Administration	Coordinator Travel Expenses	\$4,000
Administration	Personnel Budget	\$110,000
Outreach	Marketing	\$11,000
Outreach	Clean Cities Technologies Conference	\$15,000
<b>Expected Expenditures through FY 2016</b>		<b>\$140,000</b>

This budget assumes staff time continues to be covered by existing grants outside of the Coalition's operating budget.

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