

Check the Box: Does Information on the Existence of Public Climate Disclosure Reduce Federal Suppliers' Emissions?

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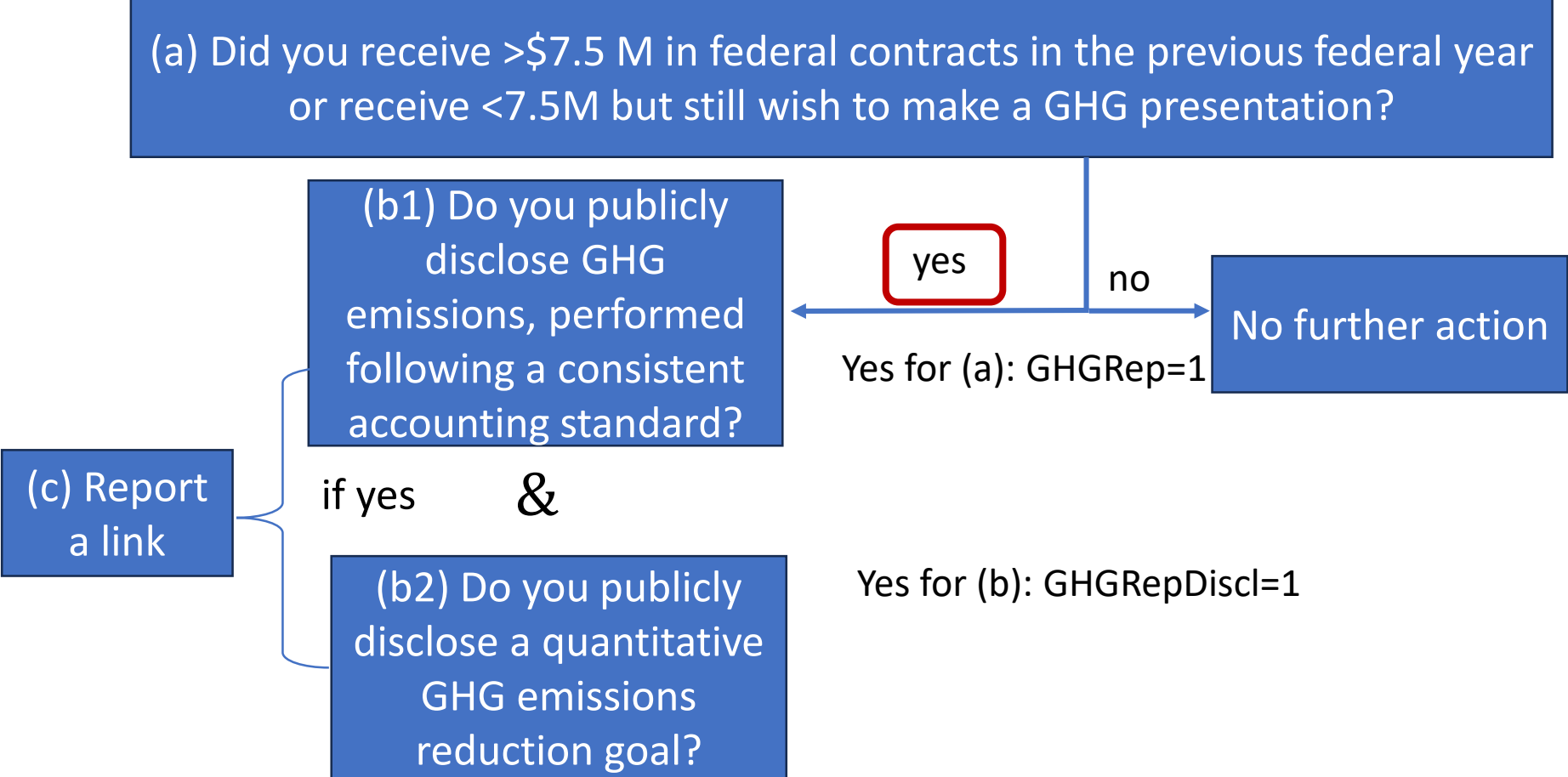
2024 ABFER

Motivation

- The role of governments in fighting climate change
 - Traditional tools: carbon taxes, emission limits, etc
 - An emerging tool: green government procurement
 - The U.S. federal government is the **largest customer** of the corporate sector (30% of public firms)
 - Federal suppliers are often **heavy carbon emitters** (3 times of average absolute emissions compared to non-suppliers)
- It is important to understand *how* the government can reduce supply chain emissions
 - We examine the first climate disclosure-related regulation in federal procurement

FAR 52.233-22: Public disclosure of greenhouse gas emissions and reduction goals – representation

GHG representation: Proposed on May 25, 2016; Effective since December 19, 2016



Eg 1: Lockheed Martin Corporation

Public Disclosure of Greenhouse Gas Emissions and Reduction Goals- Representation

As prescribed in 23.804(b), insert the following provision:

Public Disclosure of Greenhouse Gas Emissions and Reduction Goals- Representation (Dec 2016)

(a) This representation shall be completed if the Offeror received \$7.5 million or more in Federal contract awards in the prior Federal fiscal year. The representation is optional if the Offeror received less than \$7.5 million in Federal contract awards in the prior Federal fiscal year.

(b) Representation [Offeror is to check applicable blocks in paragraphs (b)(1) and (2).]

(1) The Offeror (itself or through its immediate owner or highest-level owner) **DOES**, publicly disclose greenhouse gas emissions, i.e., makes available on a publicly accessible Web site the results of a greenhouse gas inventory, performed in accordance with an accounting standard with public available and consistently applied criteria, such as the Greenhouse Gas Protocol Corporate Standard.

(2) The Offeror (itself or through its immediate owner or highest-level owner) **DOES**, publicly disclose a quantitative greenhouse emissions reduction goal, i.e., make available on a publicly accessible Web site a target to reduce absolute emissions or emissions intensity by a specific quantity or percentage.

(3) A publicly accessible Web site includes the Offeror's own Web site or a recognized, third-party greenhouse gas emissions reporting program.

(c) If the Offeror checked "does" in paragraphs (b)(1) or (b)(2) of this provision, respectively, the Offeror shall provide the publicly accessible Web site(s) where greenhouse gas emissions and/or reduction goals are reported:

<http://www.lockheedmartin.com/us/who-we-are/sustainability.html>

<http://www.lockheedmartin.com/us/who-we-are/sustainability.html>

GHGRep=1

GHGRepDiscl=1

Eg 2: L3 Technologies, Inc

Public Disclosure of Greenhouse Gas Emissions and Reduction Goals- Representation

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(b) Representation [Offeror is to check applicable blocks in paragraphs (b)(1) and (2).]

(1) The Offeror (itself or through its immediate owner or highest-level owner) **DOES NOT** publicly disclose greenhouse gas emissions, i.e., makes available on a publicly accessible Web site the results of a greenhouse gas inventory, performed in accordance with an accounting standard with publicly available and consistently applied criteria, such as the Greenhouse Gas Protocol Corporate Standard.

(2) The Offeror (itself or through its immediate owner or highest-level owner) **DOES NOT** publicly disclose a quantitative greenhouse emissions reduction goal, i.e., make available on a publicly accessible Web site a target to reduce absolute emissions or emissions intensity by a specific quantity or percentage.

(3) A publicly accessible Web site includes the Offeror's own Web site or a recognized, third-party greenhouse gas emissions reporting program.

(c) If the Offeror checked "does" in paragraphs (b)(1) or (b)(2) of this provision, respectively, the Offeror shall provide the publicly accessible Web site(s) where greenhouse gas emissions and/or reduction goals are reported:

(blank)

GHGRep=1

GHGRepDiscl=0

Eg 3: Xerox Corporation

Public Disclosure of Greenhouse Gas Emissions and Reduction Goals- Representation

As prescribed in 23.804(b), insert the following provision:

Public Disclosure of Greenhouse Gas Emissions and Reduction Goals- Representation (Dec 2016)

(a) This representation shall be completed if the Offeror received \$7.5 million or more in Federal contract awards in the prior Federal fiscal year. The representation is optional if the Offeror received less than \$7.5 million in Federal contract awards in the prior Federal fiscal year.

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(c) If the Offeror checked "does" in paragraphs (b)(1) or (b)(2) of this provision, respectively, the Offeror shall provide the publicly accessible Web site(s) where greenhouse gas emissions and/or reduction goals are reported:

(blank)

GHGRep=0

GHGRepDiscl=0

RQ: Does making the GHG representation reduce suppliers' emissions?

YES

- Suppliers reduce emissions after making GHG representations.
- Greater reductions when
 - (1) suppliers have stronger economic incentives in contracting with the government
 - (2) contracting officers can better process suppliers' climate disclosure using information obtained through the representation

Green federal procurement

2009: Obama –federal leadership in environmental, energy, and economic performance

2015: Obama - planning for federal sustainability

2016/12/19: GHG representation

2018: Trump – efficient federal operations. “2(h): track and report green house gas emissions”

2021: Biden – catalyzing clean energy industries and jobs through federal sustainability

Since 2017:

- (1) the GHG representation remains in effect
- (2) federal agencies continue their emission reduction efforts
- (3) public procurement still applies the “best value” approach that incorporates sustainability factors

Theoretical prediction

- Why do suppliers **reduce more emissions** after making the representation?
- The representation may increase their perceived risks of emissions:

(1) increase suppliers' awareness of federal green preference.

Quote from a government official:
"This representation is essentially the government telling suppliers that we look at emissions"

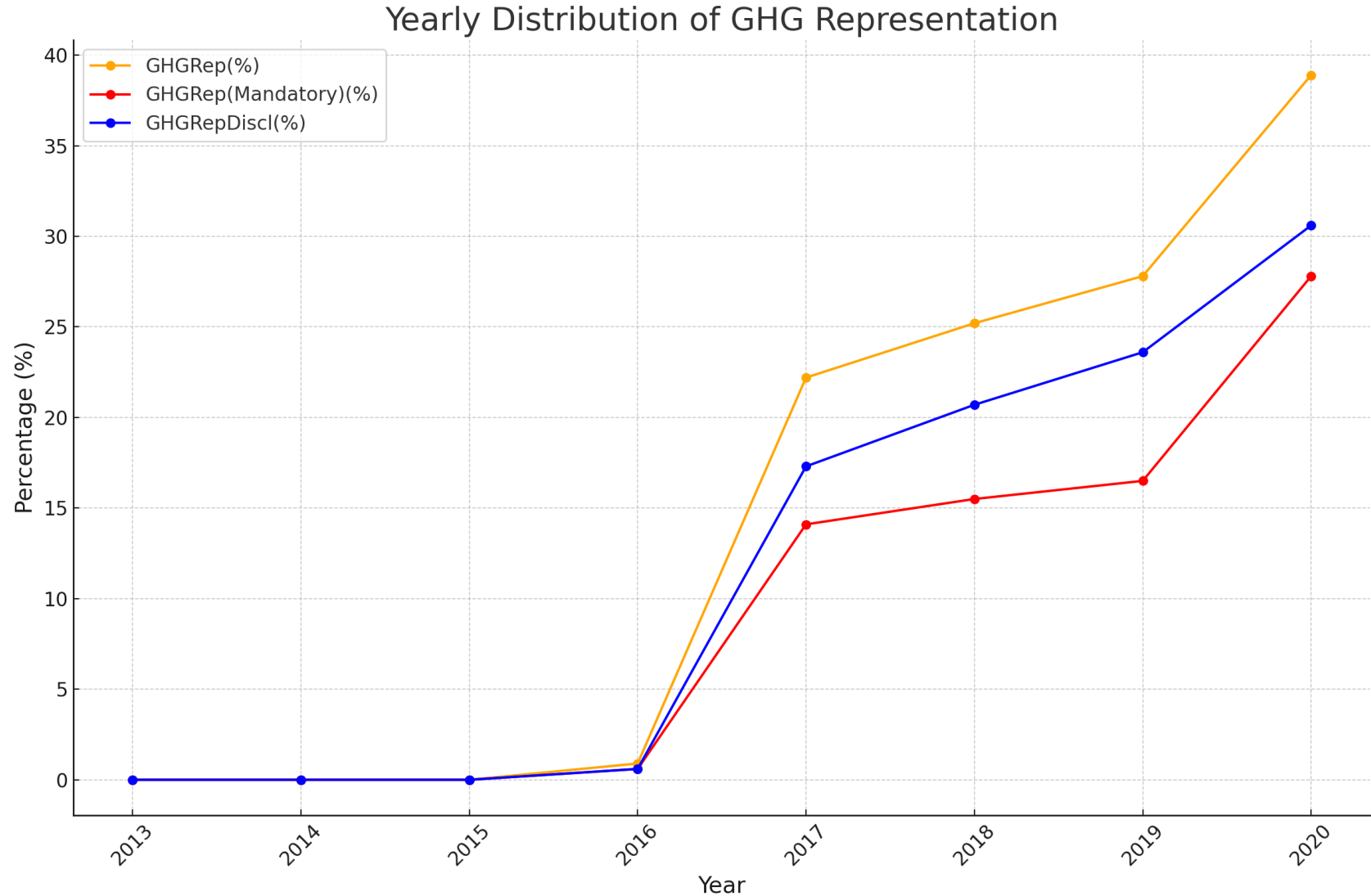
(2) contracting officers can better process suppliers' climate disclosure.

Significant information processing frictions:

- Capacity-constrained contracting officers
- Heterogeneous climate disclosure

Data source: SAM.gov,
USA spending;
Aggregate entity level
to parent company
level;

Among GHG
representations: 62%
are mandatory; 81%
indicate disclosure.



Main Results

Within-firm Design:

GHGEmission: combined scopes 1 and 2 emissions

Robust with alternative emission measures: decile rank of absolute emissions, emission intensity, Trucost exact value of emissions, CDP emissions

Dependent Variable =	Log(<i>GHGEmission</i>)			
	(1)	(2)	(3)	(4)
<i>GHGRep</i>	-0.132** (-2.349)	-0.138*** (-2.800)		
<i>GHGRep(Mandatory)</i>			-0.130** (-2.148)	-0.148*** (-2.801)
<i>GovContractValue/Sale</i>		-0.372 (-1.085)		-0.402 (-1.202)
Log(<i>Assets</i>)		0.694*** (9.074)		0.696*** (9.111)
Log(1+ <i>Age</i>)		-0.323 (-0.949)		-0.304 (-0.920)
<i>ROA</i>		0.369* (1.934)		0.395** (2.062)
<i>Leverage</i>		0.314* (1.709)		0.324* (1.754)
<i>AssetGrowth</i>		-0.249*** (-6.104)		-0.253*** (-6.231)
<i>Tangibility</i>		-0.067 (-0.196)		-0.029 (-0.083)
Log(1+ <i>AnalystN</i>)		-0.020 (-0.388)		-0.028 (-0.548)
Log(1+ <i>InstN</i>)		0.029 (0.452)		0.032 (0.502)
Log(1+ <i>SRIPProposalsN</i>)		-0.028 (-0.696)		-0.031 (-0.787)
<i>GRIReport</i>		-0.016 (-0.288)		-0.017 (-0.309)
<i>PriorGHGPubDis</i>		-0.043 (-0.714)		-0.044 (-0.740)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	2046	2046	2046	2046
Adjusted R-squared	0.974	0.977	0.974	0.977

Endogeneity

a. Larger contractor effects?

Control for contract size or contract size \times post, and match based on supplier characteristics

b. Strategic representation?

Interviews with GSA officials: unlikely;

Compare mandatory-rep with voluntary-rep and mandatory-norep; use mandatory as an instrument

c. confounding external factors?

Staggered first-time representation: no pre-trend; stacked design

CS 1 – Suppliers' economic incentives

Stronger effects when (1) suppliers have a greater reliance on government contracts; (2) suppliers face greater uncertainty in getting government contracts

Dependent Variable = <i>HighReliance</i> =	Log(<i>GHGEmission</i>)			
	<i>HighGovContractValue/Sale</i>		<i>MajorGovCustomer</i>	
	(1)	(2)	(3)	(4)
[1] <i>GHGRep-HighReliance</i>	-0.159*** (-3.043)		-0.238*** (-4.283)	
[2] <i>GHGRep-LowReliance</i>	-0.075 (-1.033)		-0.116** (-2.202)	
[1] <i>GHGRep(Mandatory)-HighReliance</i>		-0.166*** (-3.027)		-0.258*** (-4.453)
[2] <i>GHGRep(Mandatory)-LowReliance</i>		0.047 (1.026)		-0.112* (-1.885)
<i>(2-tailed) p-value: [1]=[2]</i>	0.243	0.000	0.019	0.025
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	2046	2046	2046	2046
Adjusted R-squared	0.977	0.977	0.977	0.977

Dependent Variable = <i>HighUncertainty</i> =	Log(<i>GHGEmission</i>)			
	<i>LowSingleBid</i>		<i>HighVariability</i>	
	(1)	(2)	(3)	(4)
[1] <i>GHGRep-HighUncertainty</i>	-0.165*** (-2.810)		-0.200*** (-2.868)	
[2] <i>GHGRep-LowUncertainty</i>	-0.087** (-1.982)		-0.096* (-1.866)	
[1] <i>GHGRep(Mandatory)-HighUncertainty</i>		-0.171*** (-2.744)		-0.186** (-2.582)
[2] <i>GHGRep(Mandatory)-LowUncertainty</i>		-0.077 (-1.523)		-0.103* (-1.903)
<i>(2-tailed) p-value: [1]=[2]</i>	0.099	0.157	0.115	0.236
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	2046	2046	2040	2040
Adjusted R-squared	0.977	0.977	0.977	0.977

CS 2 – Contracting Officers’ information processing

Stronger effects when (1) the GHG representation indicates disclosure and provides an accessible link (wayback archive); (2) contracting officers have lower capacity constraints and can better benchmark suppliers’ emissions

Dependent Variable = HighUseful =	Log(<i>GHGEmission</i>)			
	<i>GHGRepDiscl</i>		<i>GHGRepDisclValid</i>	
	(1)	(2)	(3)	(4)
[1] <i>GHGRep-HighUseful</i>	-0.161*** (-2.998)		-0.177*** (-3.327)	
[2] <i>GHGRep-LowUseful</i>	-0.034 (-0.483)		-0.071 (-1.141)	
[1] <i>GHGRep(Mandatory)-HighUseful</i>		-0.159*** (-2.884)		-0.184*** (-3.199)
[2] <i>GHGRep(Mandatory)-LowUseful</i>		-0.056 (-0.435)		-0.061 (-0.857)
<i>(2-tailed) p-value: [1]=[2]</i>	<i>0.091</i>	<i>0.444</i>	<i>0.074</i>	<i>0.093</i>
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	2046	2046	2046	2046
Adjusted R-squared	0.977	0.977	0.977	0.977

Dependent Variable = HighCOProcessing=	Log(<i>GHGEmission</i>)			
	<i>LowNUEICO</i>		<i>HighPctUEIGHGRep</i>	
	(1)	(2)	(3)	(4)
[1] <i>GHGRep-HighCOProcessing</i>	-0.209*** (-3.828)		-0.155*** (-3.148)	
[2] <i>GHGRep-LowCOProcessing</i>	-0.067 (-1.258)		-0.134** (-2.014)	
[1] <i>GHGRep(Mandatory)-HighCOProcessing</i>		-0.200*** (-3.724)		-0.214*** (-4.303)
[2] <i>GHGRep(Mandatory)-LowCOProcessing</i>		-0.096** (-2.005)		-0.082 (-1.271)
<i>(2-tailed) p-value: [1]=[2]</i>	<i>0.028</i>	<i>0.046</i>	<i>0.775</i>	<i>0.047</i>
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	1284	1284	1284	1284
Adjusted R-squared	0.979	0.979	0.979	0.979

Additional results on suppliers' trade-offs

- Concentrated on [Scope 2 emissions](#); No evidence of emission-shifting
- **Future contracting benefits**: suppliers making the representation are more likely to remain as a federal supplier and receive more contracts in the future
- No evidence of worse financial performance

Reduced information processing costs or enhanced disclosure?

Descriptive evidence:

- Over 90% of the website links existed at least 180 days before the first time when suppliers made the representation
- The content of the website homepage remains similar when compared with a prior version

Takeaways

- A simple *disclosure representation* improves the effectiveness of green public procurement
- Disclosure *processing* frictions distorts green public procurement
- The role of *customers* in the real effects of CSR disclosure regulations

Thank you!

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