

Realização



Patrocínio Master



# Corredor Azul Paulista uso do GNL no transporte de carga

Profa. Dra. Dominique Mouette

Apoio



Patrocínio Silver

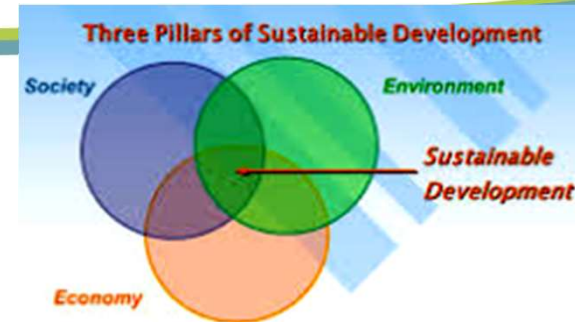


Patrocínio Gold

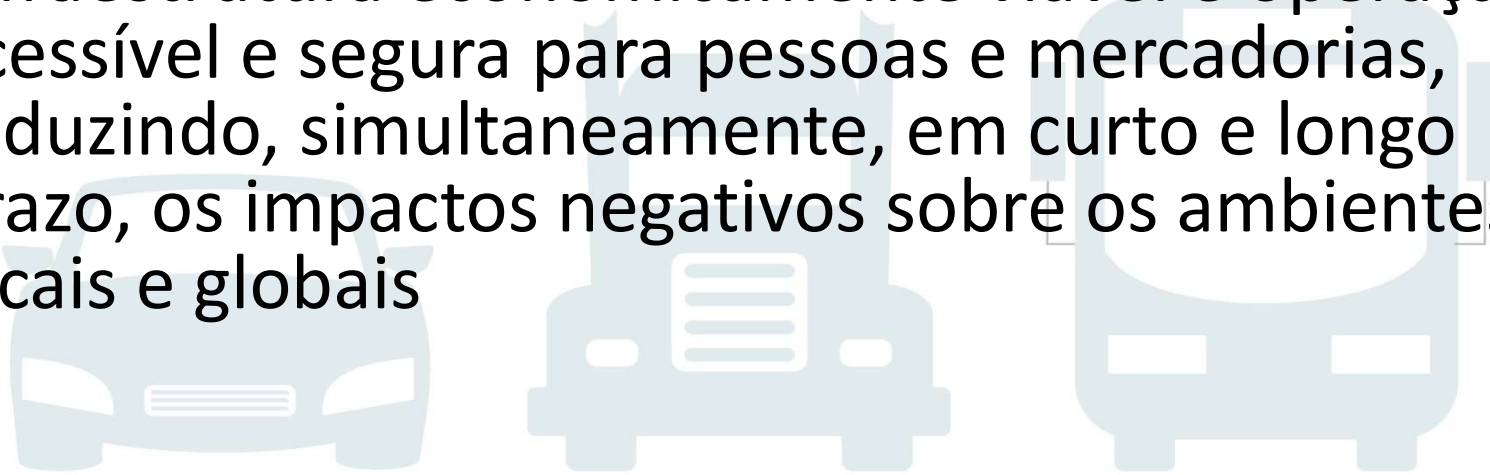




Triple Bottom Line

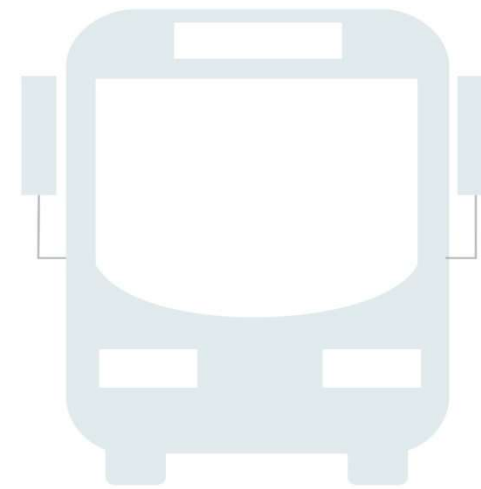
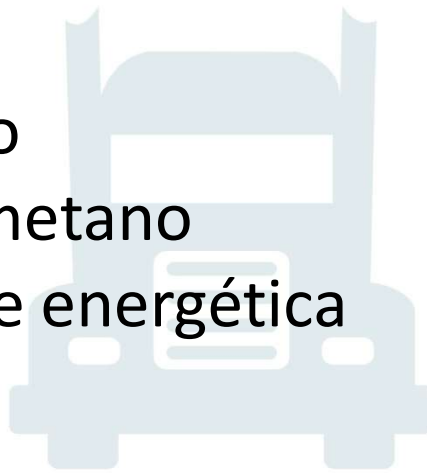


- **O transporte sustentável de baixo carbono** fornece infraestrutura economicamente viável e operação acessível e segura para pessoas e mercadorias, reduzindo, simultaneamente, em curto e longo prazo, os impactos negativos sobre os ambientes locais e globais

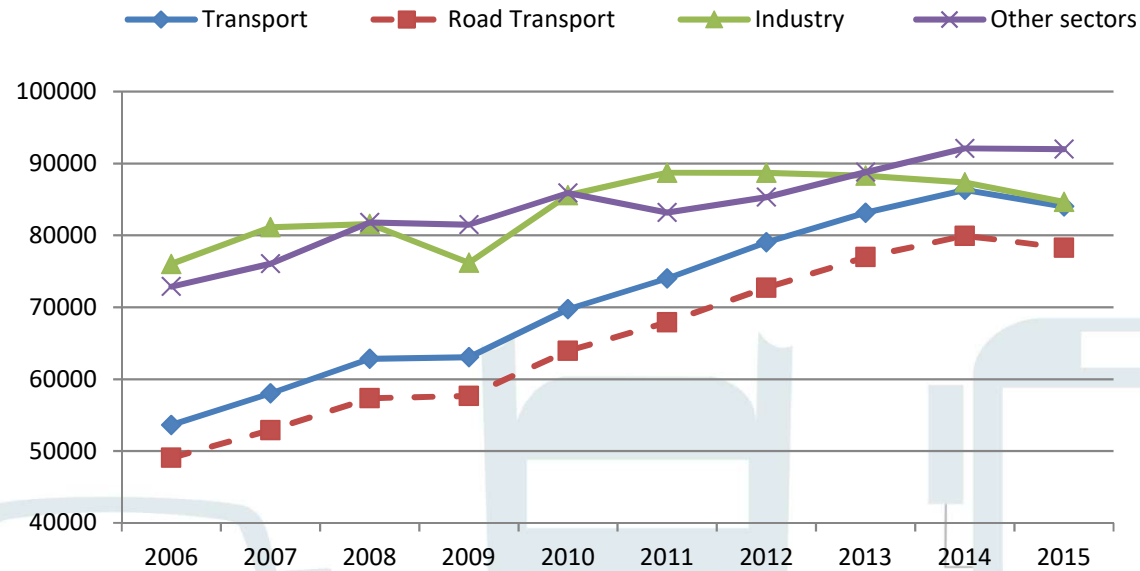


## Por que GNV?

- Consumo de Diesel pelo Setor
- Elevadas Emissões
- Disponibilidade Energética
- Tecnologia Madura
- Menor Custo
- Energia de Transição
- Gás Natural ou Biometano
- LNG –alta densidade energética



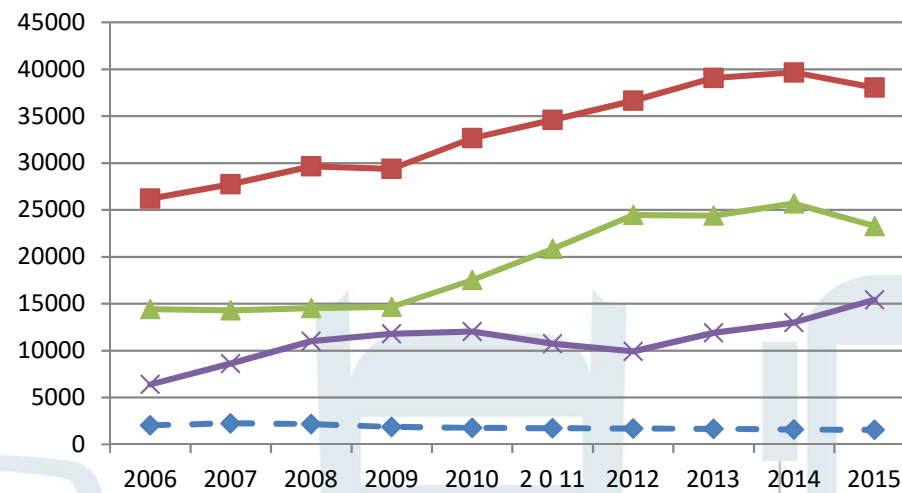
## Transportes e Energia



Evolução do Consumo Final de Energia por Setor MME (2016).

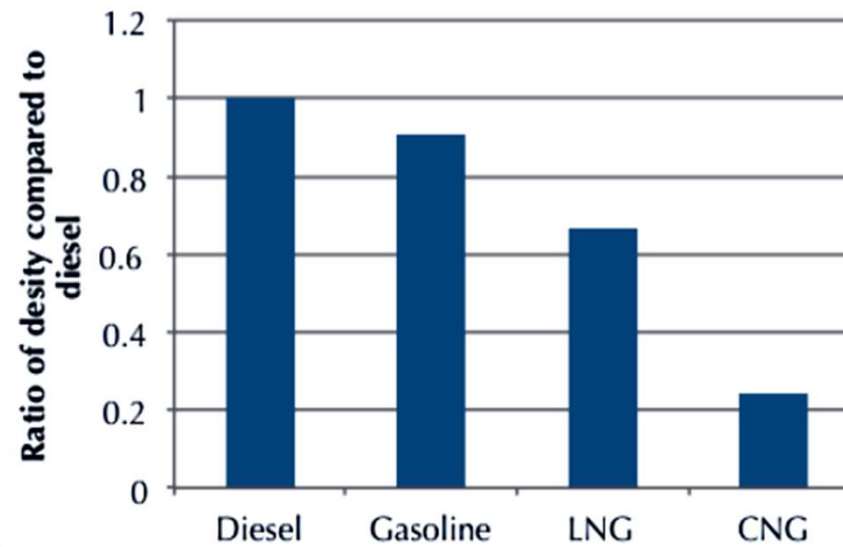
# Transportes e Energia

—◆— Natural Gas —■— Diesel Oil —▲— Gasoline —×— Ethanol



Consumo de Energia no setor Rodoviário, MCT (2016)





Densidade Energética por Combustível



# GNC e GNL

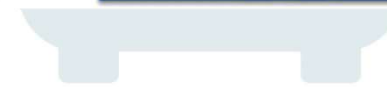
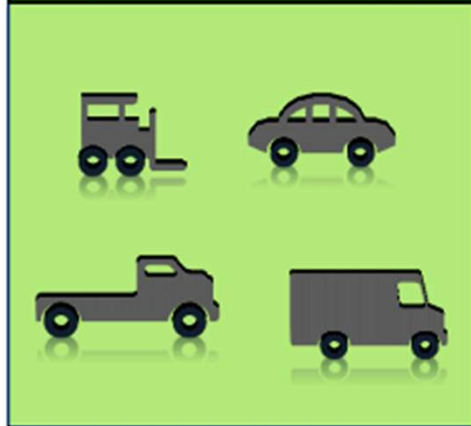
*light-duty  
automotive & industrial*

*bus &  
vocational trucks*

*heavy-haul  
transport*

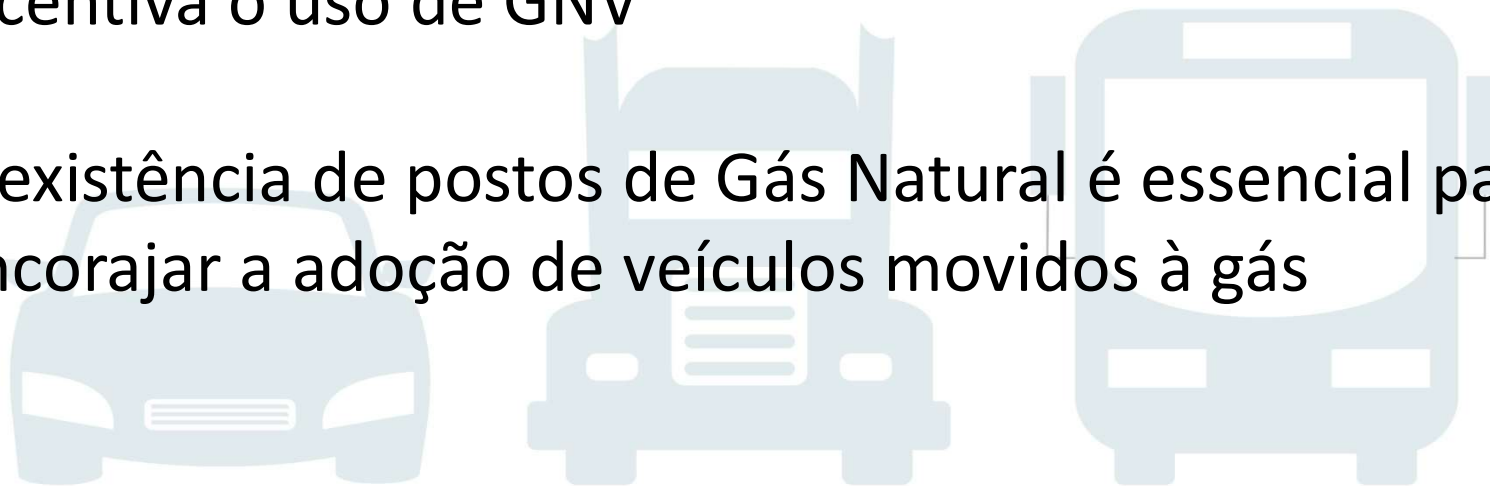
CNG

LNG



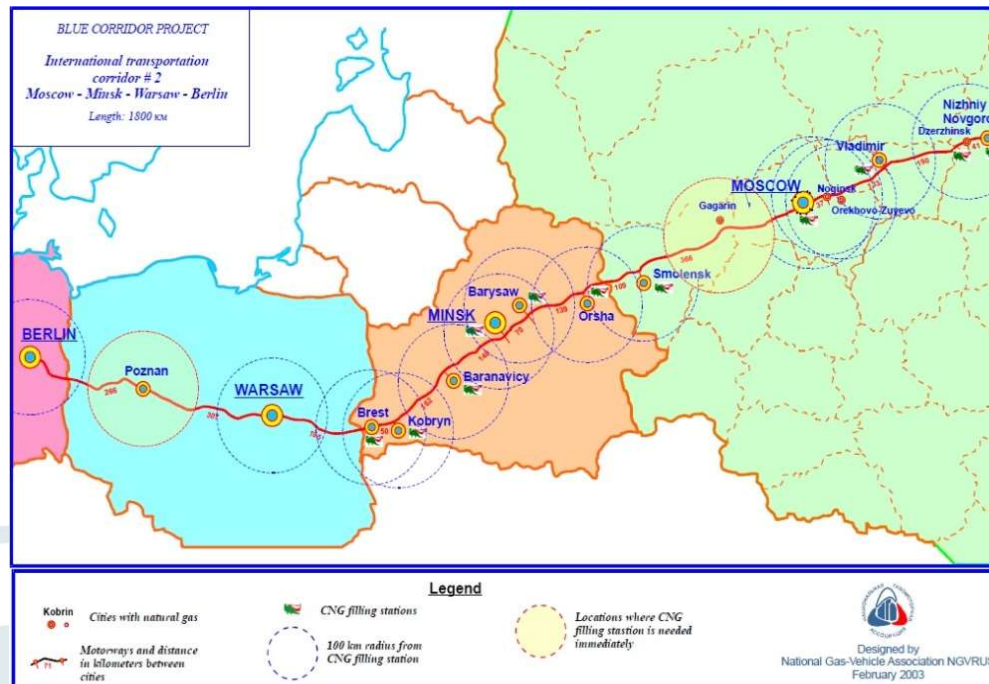
## CORREDOR AZUL

- Corredores Azuis são **rotas de transporte rodoviário que utiliza GNC ou GNL como combustível**
- Incentiva o uso de GNV
- A existência de postos de Gás Natural é essencial para encorajar a adoção de veículos movidos à gás

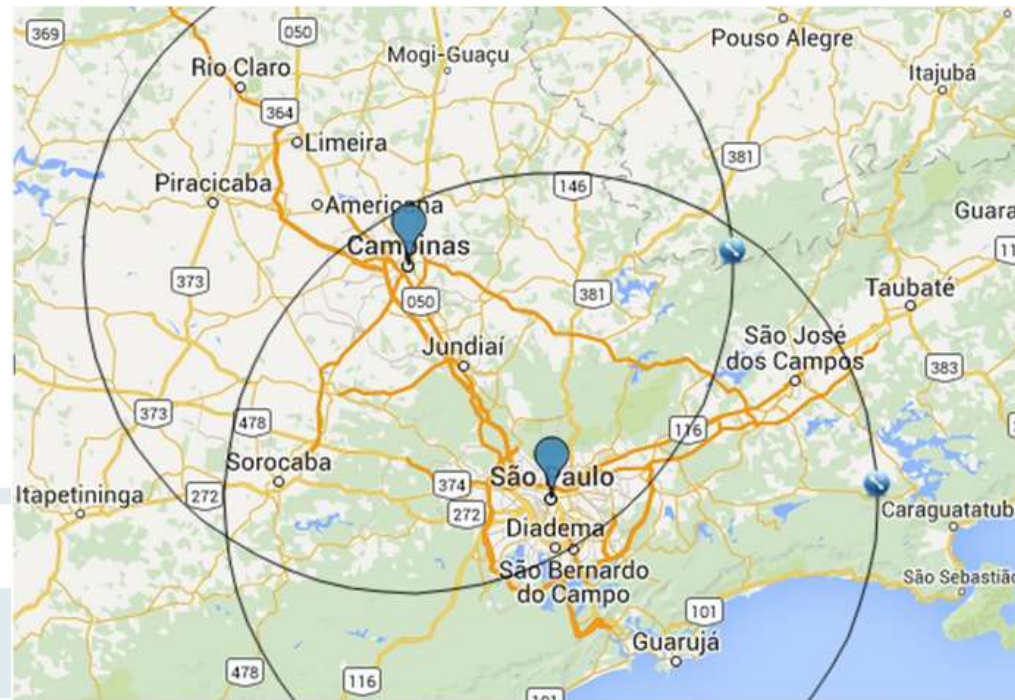




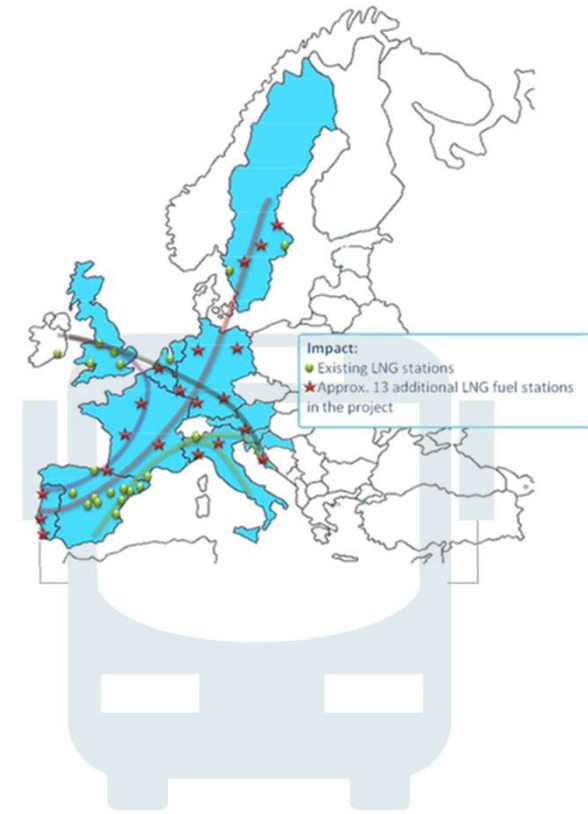
# Corredor CNG – Europa



# Corredor S. Paulo Campinas

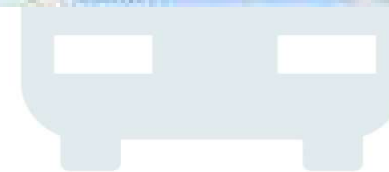


# Corredora LNG Azul Europa



## LNG “Rally” 2017

- Comboio de Caminhões
- 5700 Km
- 2 semanas

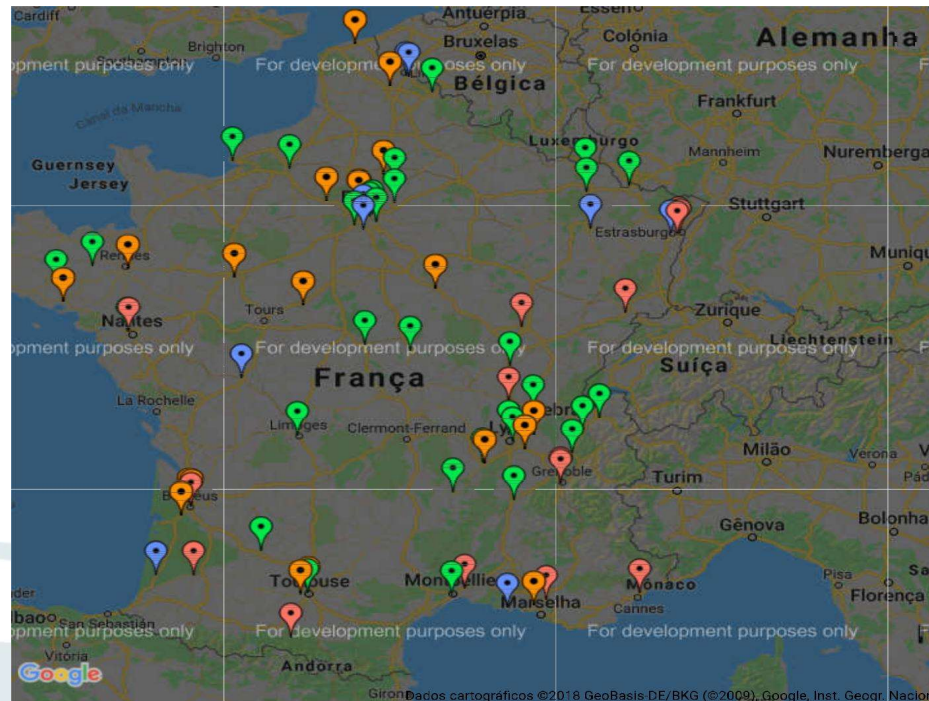




# Reino Unido



## Postos na França



● GNL

● GNC

● Biometano

● Programado (bi)

## Estados Unidos



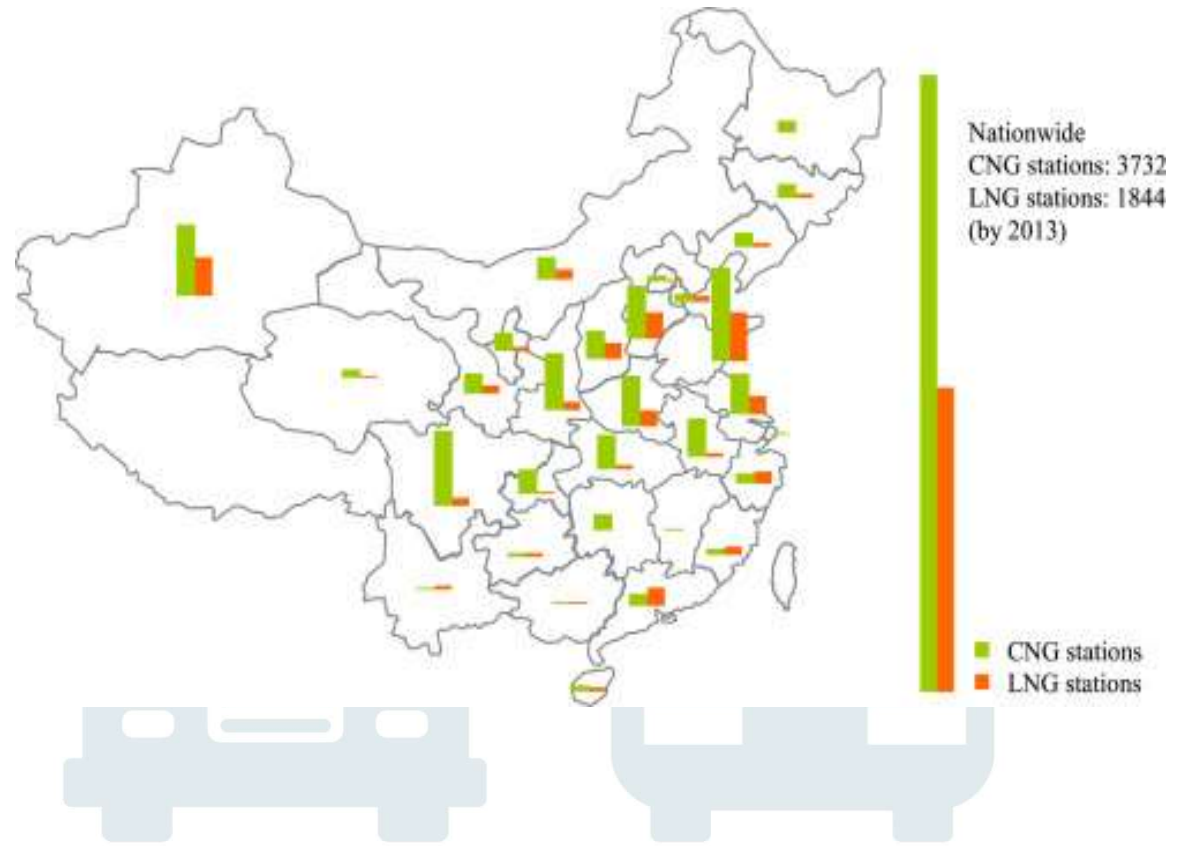
1.741 CNG stations

144 LNG stations (38 em planejamento)

# China

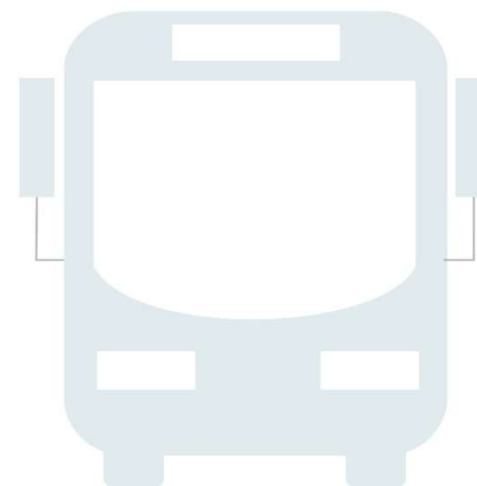
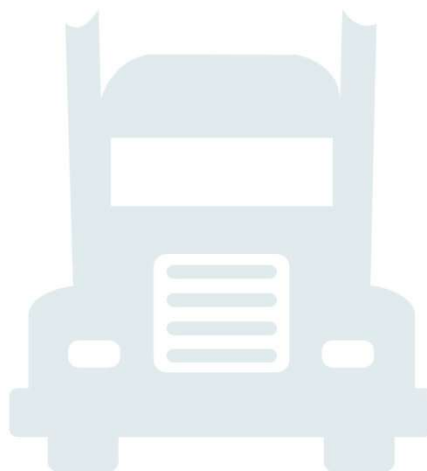
veículos vendidos

- 2009 - 500
- 2014 - 43.000



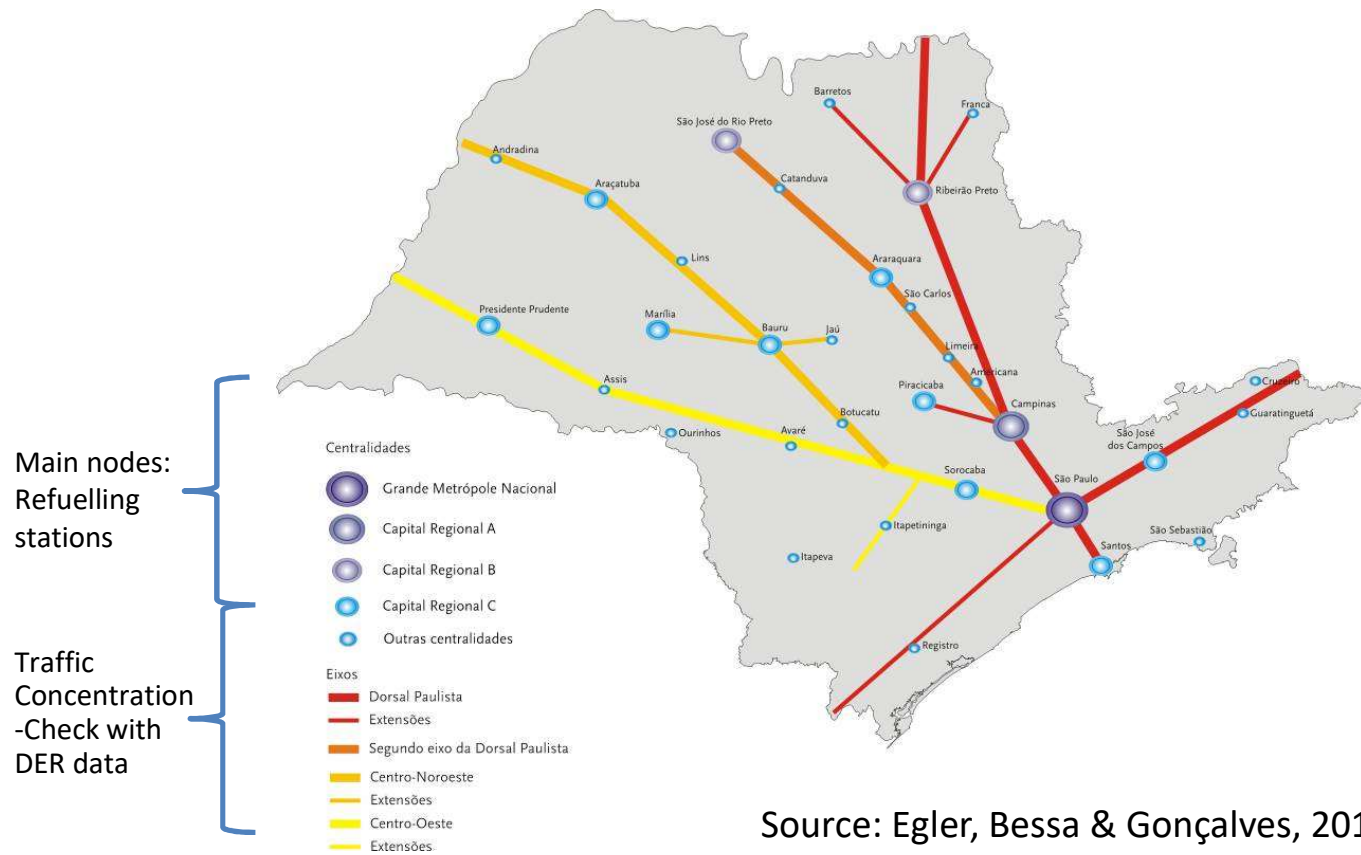


# Corredor Paulista

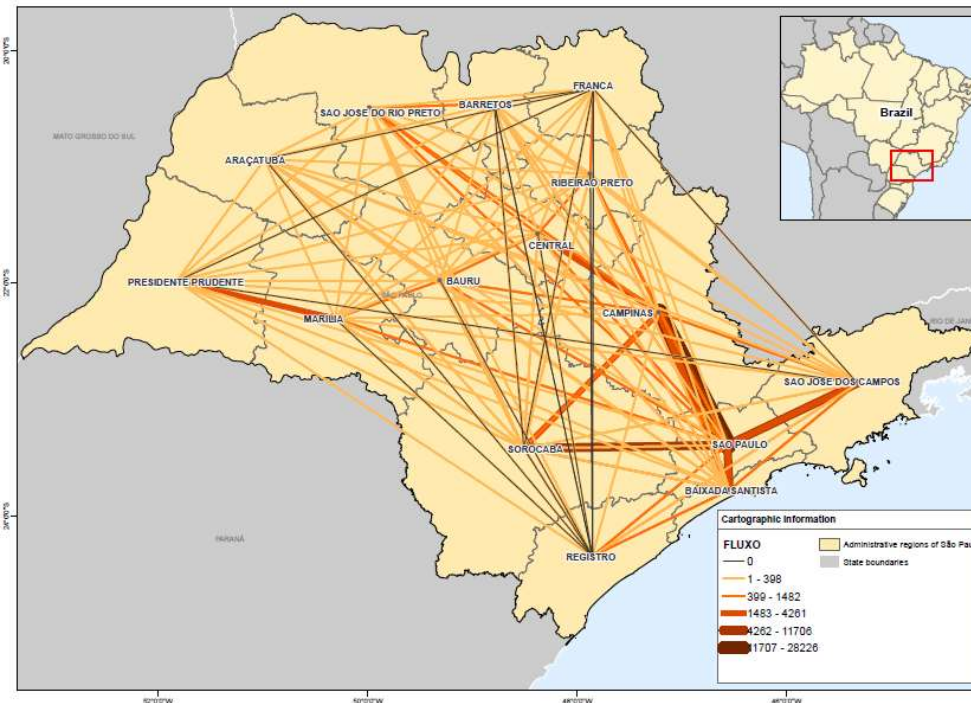


# Corredor Azul

# Definição



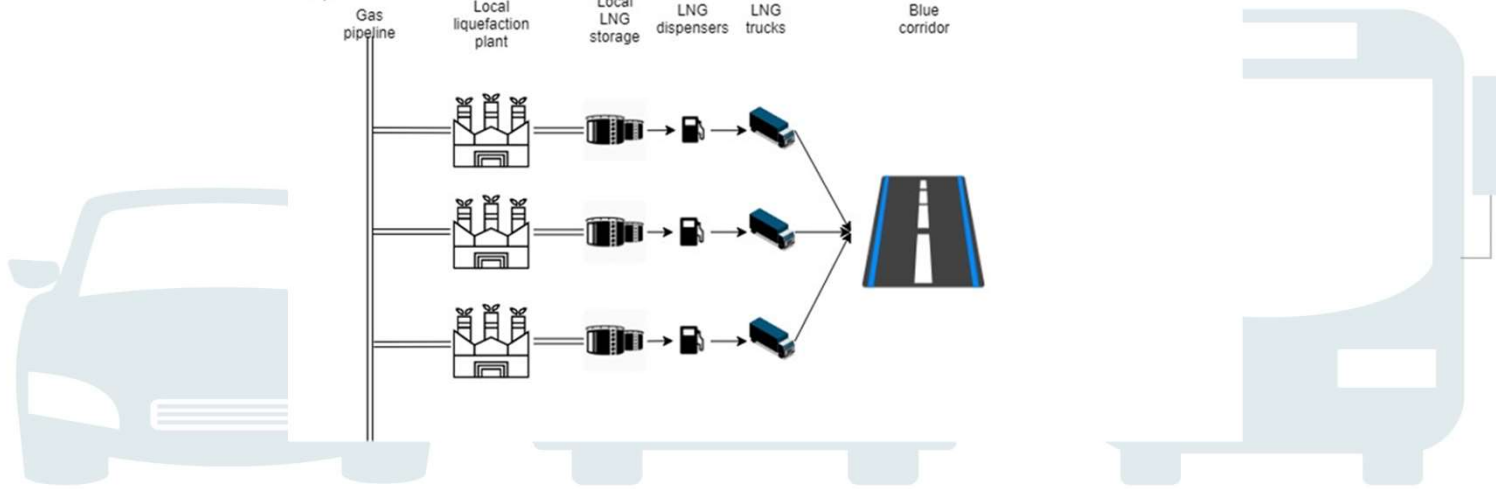
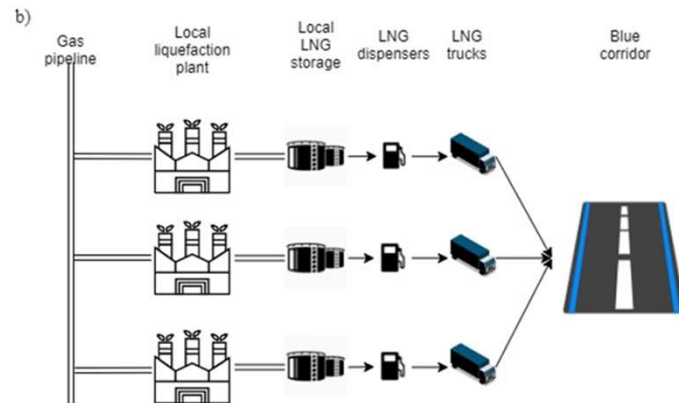
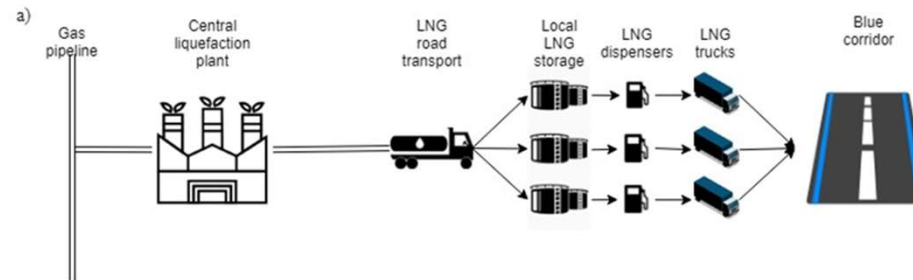
# O/D Carga em SP



# Malha Viária x gasoduto

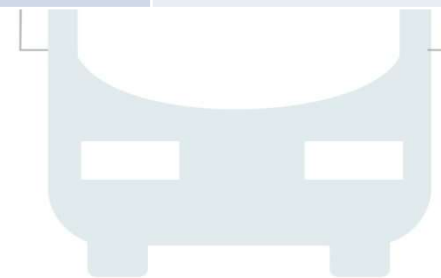
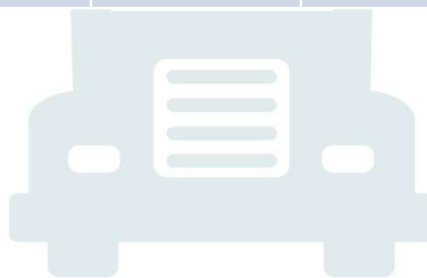


# Liquefação do Gás Natural



## Cenários

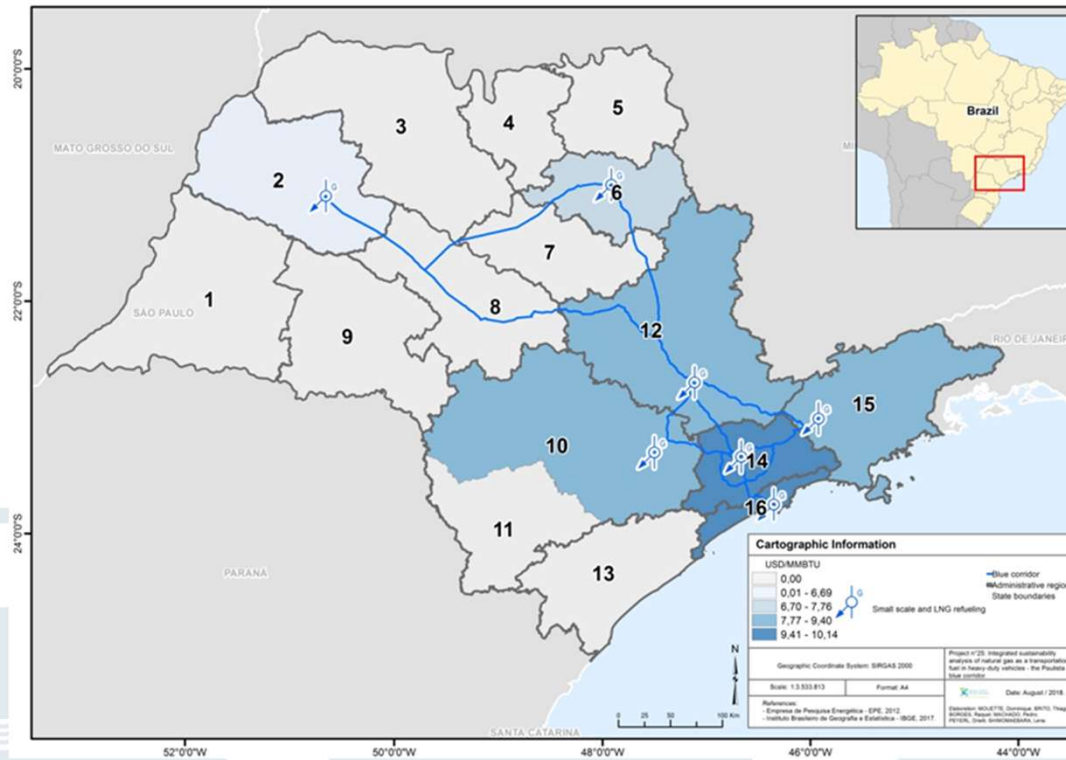
Cenário	Regiões	Viagens /Dia	LNG produção (mtpa)	Liquefação
Ampliado	Todas (16)	199.655	0,97	Central
				Hybrid
Restrito	7 regiões (2-6-10-12-14-15-16)	145.737	0,71	Central
				Local







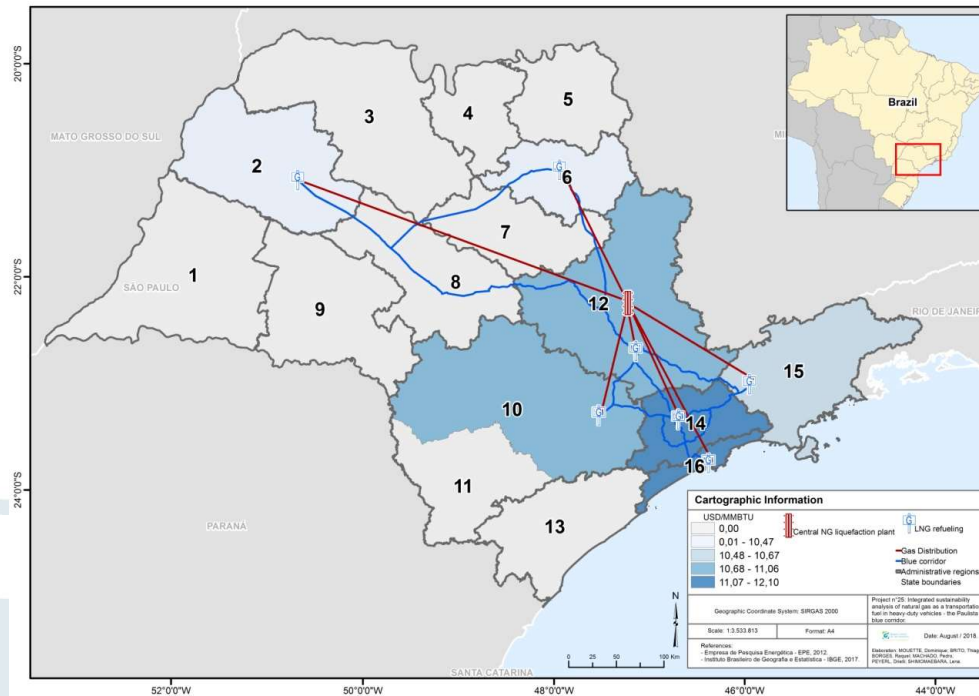
# Liquefação Pequena Escala - Área Restrita



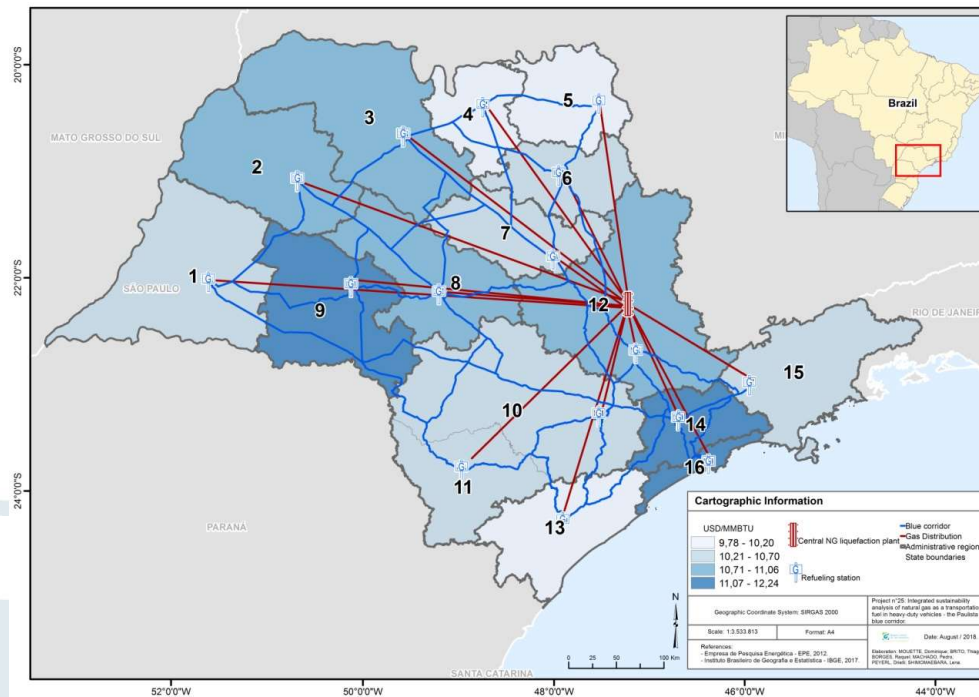




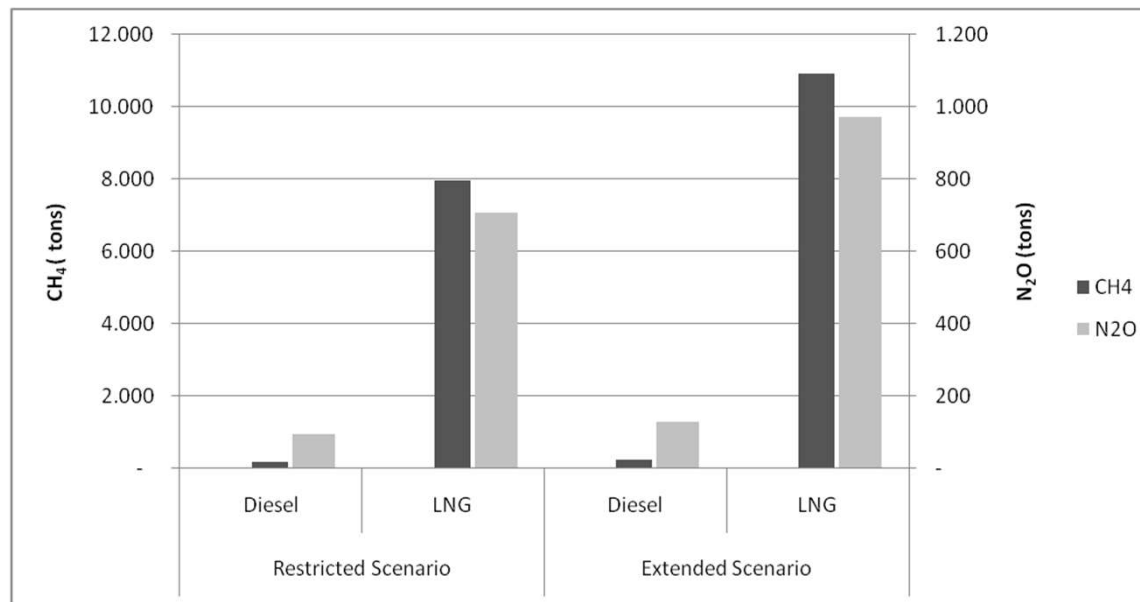
# Liquefação Central - Restrito



# Liquefação Central - Ampliado



# Emissões GEE



- CO<sub>2</sub> : 20% redução
- CO<sub>2</sub>-eq : 5% redução

- CH<sub>4</sub> : 4126% incremento
- N<sub>2</sub>O : 652% incremento





## **Autores**

**Dominique Mouette,  
Drielli Peyerl  
Thiago Brito  
Lena Shimomaebara**

**Pedro Gerber Machado  
Denis Fraga  
Raquel Borges**

CONTATOS: DOMINIQUE MOUETTE, [dominiquem@usp.br](mailto:dominiquem@usp.br)  
PEDRO GERBER MACHADO, [ppgerber@gmail.com](mailto:ppgerber@gmail.com)



Research Centre  
for Gas Innovation

cleaner energy for a sustainable future



Research Centre  
for Gas Innovation

cleaner energy for a sustainable future

**THANK YOU**



[facebook.com/GasInnovation](https://facebook.com/GasInnovation)



[twitter.com/rcgipage](https://twitter.com/rcgipage)



[www.usp.br/rcgi](http://www.usp.br/rcgi)