elengy

Floating LNG Global 2019
13-14 May 2019, Amsterdam

MULTI-USER COMMERCIAL MODELS FOR LNG RECEIVING TERMINALS WITH LIMITED STORAGE CAPACITY

sales@elengy.com

ELENGY LNG TERMINALS

Montoir-de-Bretagne

Start: 1980
Regas: 10 bcm/year
3 Tanks: 360 000 m³
2 Berths: from 20 000 m³ to 267 000 m³ (Q-Max)
Reload, Transshipment, Truck loading

Fos Tonkin

Start: 1972
Regas: 3 bcm/year
1 Tank: 80 000 m³
Berth: from 7 500 m³ to 75 000 m³ (Med-Max)
Truck loading, LNG Bunkering

Fos Cavaou

Start: 2010
Regas: 8.25 bcm/year
3 Tanks: 330 000 m³
Berth: from 15 000 m³ to 267 000 m³ (Q-Max)
Reload, Ship to Ship, Truck Loading 2019
LNG Bunkering 2019
Owned by Fosmax LNG
(Elengy 72,5%, Total 27,5%)
Operated by Elengy

KEY FIGURES

770 000 m³
LNG storage
capacity

17
Million tons
of natural gas regasification capacity / year

14 000
LNG truck loadings
capacity / year

380
employees

SINCE 1965

+9 600
Ship unloading
operations

+85
Ship reloading
operations

+30
Direct transshipments
in Montoir-de-Bretagne terminal

+230 different LNG tankers
have berthed in one of our terminals
= 1/3 of the world fleet

In 2018

151
Ship unloading
operations

19
Ship reloading
operations

21
LNG transshipment
operations

5 843
LNG trucks loaded

127 TWh
unloaded

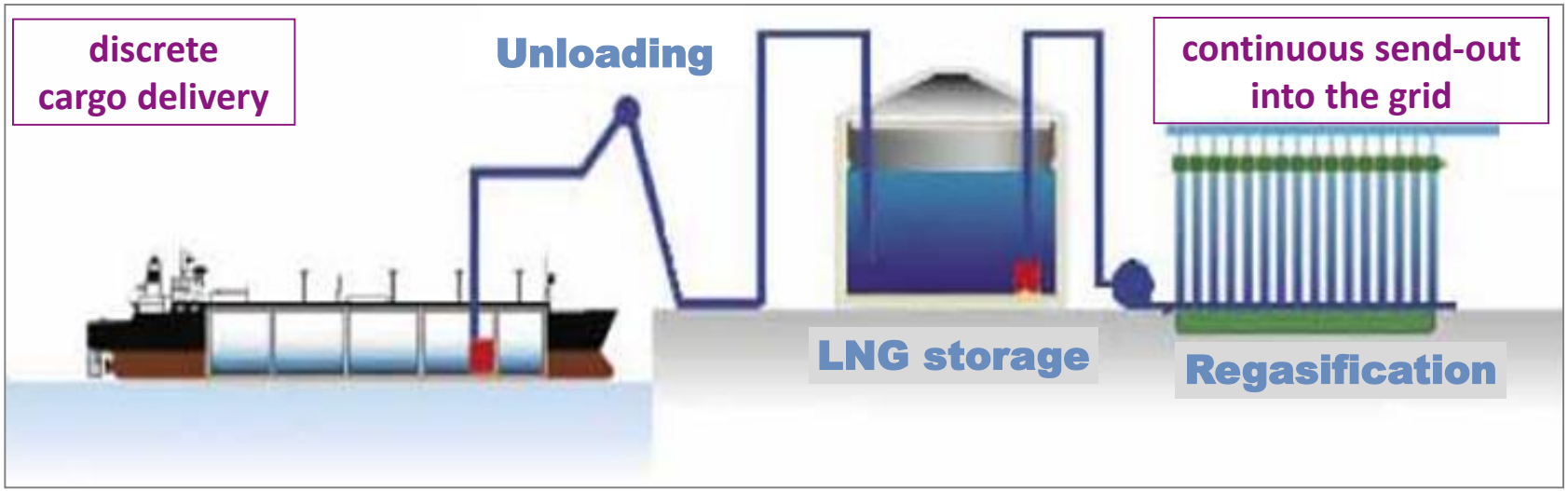
12,5 mt
handled

Regulated income
288 M€
(from third-party access)
**2017 operating revenue*

1.

INTERACTIONS BETWEEN CARGO SIZE, STORAGE, SEND-OUT, SCHEDULING PROCESS

MANAGING LNG FLOWS & STORAGE



Physical flow management

Ensuring that schedule is compatible with terminal technical limits (mini/maxi storage capacity, mini/maxi send-out…)

Commercial flow management

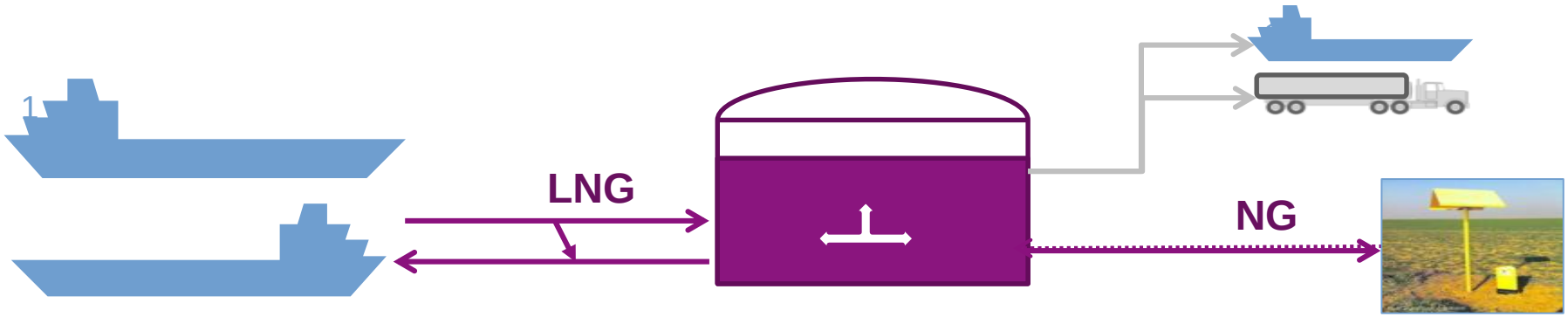
Ensuring that contractual commitments are compatible with every-day available physical capacities (storage, send-out)

INCOMPATIBLE PARAMETERS TO TAKE INTO ACCOUNT SUCH AS:

Upstream

LNG Storage

Downstream



- Optimization of berthing utilization
- Upstream flexibility
- Unloading scheduling : annual/monthly programs
- Normative cargo size or universal berthing right?
- Coexistence of different type of services (unloading, reloading, transshipment, small scale)

- **Dedicated storage capacity allocated to shippers, or Shared storage mandatory for terminal operation**
- How to preserve stored gas in case of operations?
- Boil-off gas management & zero LNG send-out

- Downstream gas market: what modulation tools (underground storages, line-packing, pipegas imports, …)? what usages?
- Nomination of shippers' send-out
- Flexibility/visibility on send-out profiles
- Is reverse flow acceptable under conditions?

BENEFITS OF ONSHORE REGAS TERMINALS & FSRU's

Onshore Terminals	FSRUs
Provides a more permanent solution	Allows for quicker fuel switching
Offers longer-term supply security	Greater flexibility if there are space constraints or no useable ports
Greater gas storage capacity	Requires less capital expenditures (CAPEX)
Requires lower operating expenditures (OPEX)	Depending on location, fewer regulations
Option for future expansions	-

source: IGU - 2019 World LNG Report

DO YOU SEE ANY DIFFERENCE?

Sodegaura LNG terminal (TokyoGas) – 1973, 35 Bcm, 2 660 000 m³

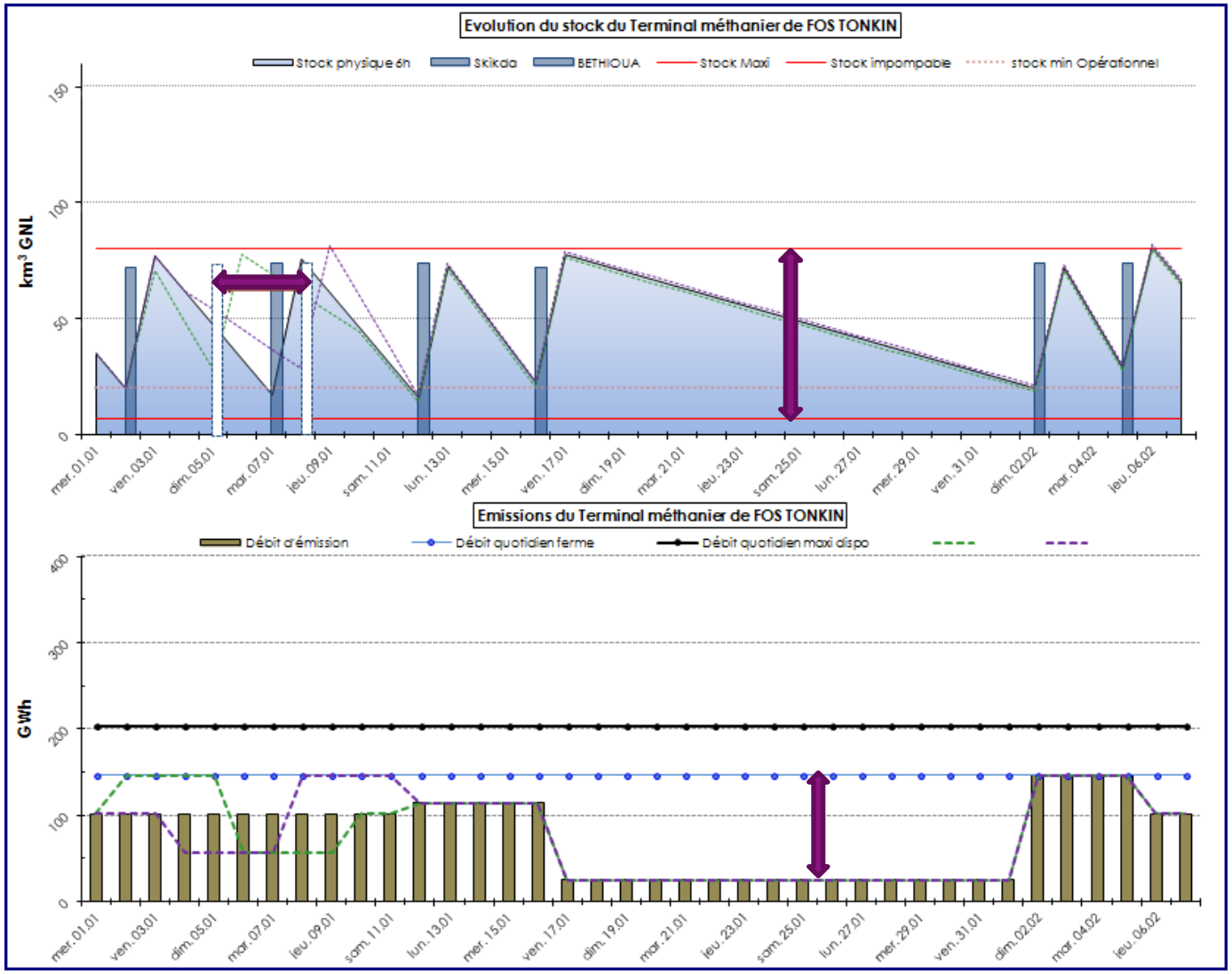
⇨ **Fos Tonkin storage RATIO = 27**

↳ 1/3 compared with Sodegaura (76)

Fos Tonkin LNG terminal (Elengy) – 1972, 3 Bcm, 80 000 m³

FSRU CASE STUDY ⇒ FOS TONKIN ONSHORE TERMINAL!

⇒ Storage = 80 000 m³ vs average cargo size = 72 000 m³ !



- **Upstream flexibility is only possible with impact on send-out profile**
- **Upstream flexibility depends on send-out range max/min + zero send-out option**
- **Earlier re-scheduling notice = softer impact**

2.

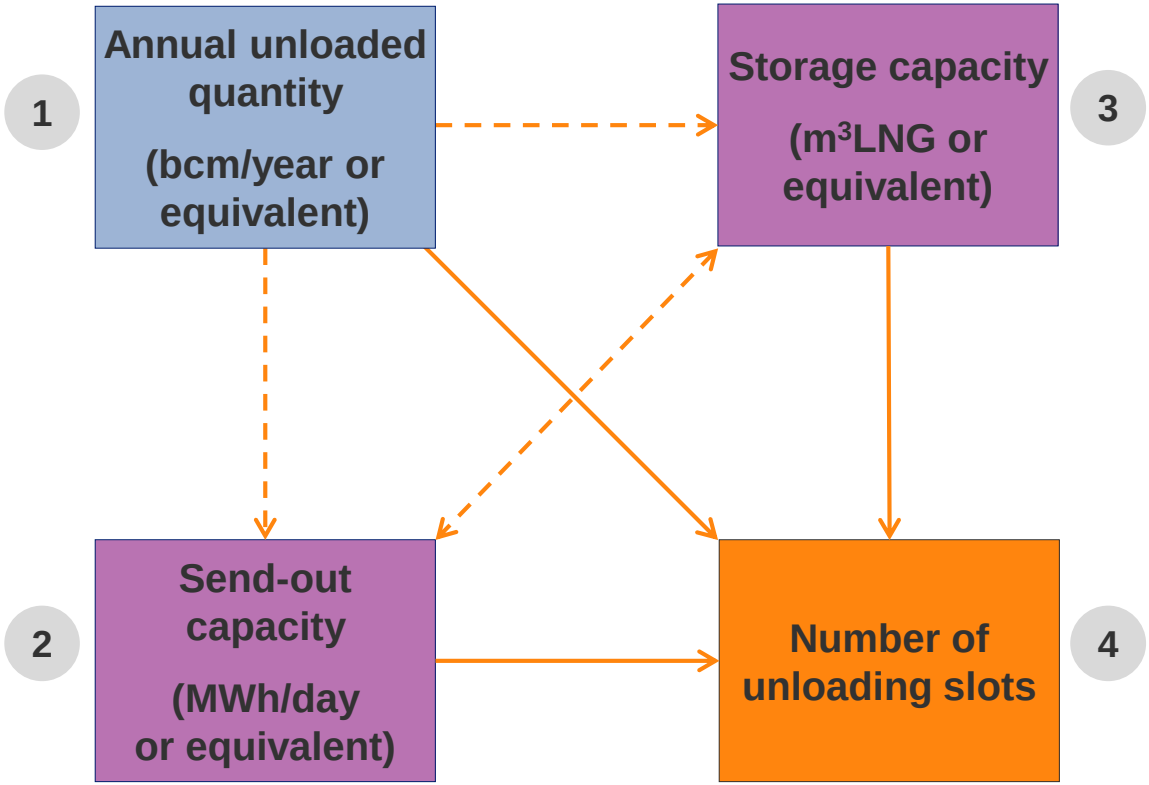
EXISTING COMMERCIAL MODELS FOR THIRD PARTY ACCESS TO LNG RECEIVING TERMINALS

- PRO AND CONS

DIFFERENT LNG TERMINAL MODELS CO-EXIST IN EUROPE

prerequisite = **multi-user Tolling models**

⇒ Terminal operator provides an infrastructure service and does not trade the commodity



M1. Concept driven by the **annual unloaded quantity**

M2. Concept driven by the **send-out** capacity

M3. Concept driven by the **storage** capacity

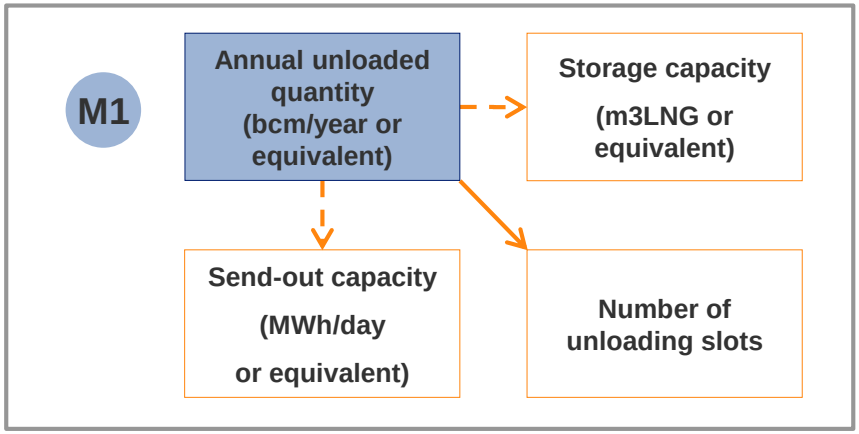
M4. Concept driven by the number of unloading **slots**

MODEL 1 - « ANNUAL QUANTITY »

Priority is given to the upstream of the terminal (output of the liquefaction plant) ⇒ Home for LNG

Principles

- Customer subscribes an annual unloaded quantity
- This quantity gives access to a number of delivery dates
- Firm or flexible send-out and/or storage capacities might be proposed with this service



Strengths

- Easy of use for customers with Take-or-Pay contracts with liquefaction plants
- Maximization of utilization rate of the terminal

Weaknesses

- Requirement of flexibility from the operator regarding re-scheduling
- Lack of visibility on the send-out

MULTI-USER TERMINAL USER AGREEMENT (1/2)

KEY TERMS & CONDITIONS:

- ✓ *(new project)* **Conditions precedent / start-up**
- ✓ **Description of service, allocation rules, other specific services, …**
- ✓ **TPA regulated or exempted, UIOLI rules, secondary market, …**
- ✓ **Tariff, minimum payment obligation (ship-or-pay), invoicing**
- ✓ **Scheduling rules, priorities (unloading vs reloading, …), laytime**
- ✓ **Maintenance, unavailability & remedies, FM, safety**
- ✓ **Transparency**
- ✓ **Access to downstream network**
- ✓ **Liability, change of law, regulatory risk, …**
- ✓ **Credit terms, termination, contract revision, …**
- ✓ **Gas specification**
- ✓ **Measurement, metering**
- ✓ **Ship approval**

MULTI-USER TERMINAL USER AGREEMENT (2/2)

STRUCTURE

Can be a standard contract with same Terms & Conditions for all Users (except for Subscription, etc.):

- ✓ **GTCs common to all Users covering all (most) services**
- ✓ **Specific Conditions including:**
  - Services selected by User
  - Capacity, term, …
  - Any specific extensions / limitations
  - Tariff with any breakdown between particular Services
- ✓ **Operational conditions common to all Users**
  - Ship-related procedures
  - Measurement, metering, quality

3.

CASE STUDY - TERMINAL SHARING AGREEMENT IN FORCE WITH FRENCH REGULATED TERMINALS

FRENCH REGULATED TERMINALS' MODEL

ELENGY COMMERCIAL MODEL:

Regulation ⇒ non-discrimination

Maximizing the LNG reception capacity [model M1]

Open and direct Access:

↳ no need for partnership with existing shipper for access and storage!

- **Terminal Sharing Agreement**
  - All terminal's functions are shared (storage, send-out)
  - Bundle product (from unloading till regas ⇒ implicit / operational storage)

- **High peak regas capacity and zero send-out option**
  - Maximising cargos schedule ⇒ many dates, any size
  - Send-out flexibilities & Reloading capabilities

- **Physical send-out as regular as possible**

- **Allocation's rule: "First Committed, First Served"**

- **Any contract duration:** intra-annual / annual / pluri-annual

[UPSTREAM] SCHEDULING FLEXIBILITY & LNG DELIVERIES RESHAPING

Adjust cargo size & delivery dates

Long term booking: allocated 1/12th per month (or specific months)
Date & quantity (no normative cargo size, no “slot” concept)

Rescheduling: Annual Schedule, Monthly Program, Intra-Monthly re-scheduling

[DOWNSTREAM] TERMINAL SHARING RULES & SEND-OUT RATIO

MONTHLY SEND-OUT RATIO:

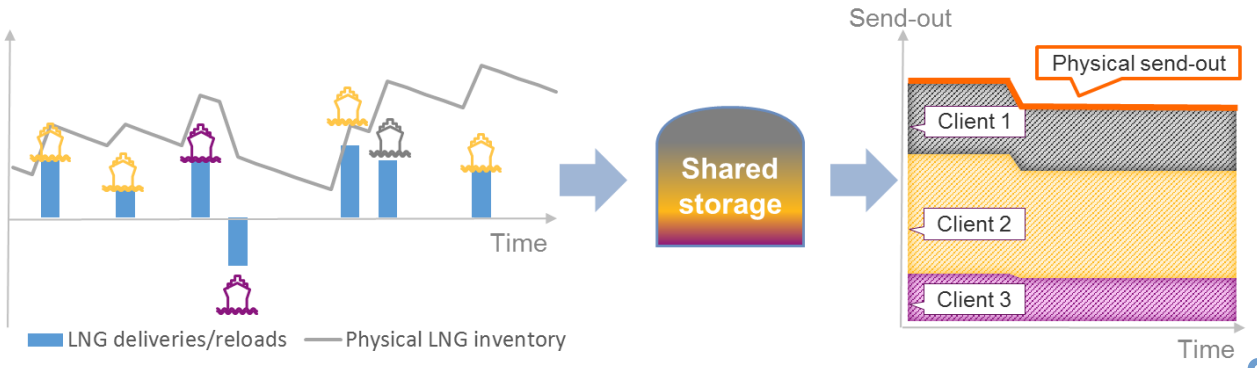
1. Terminal physical send-out set according to the delivery schedule
2. Physical send-out split among the customers according to their **Ratio** calculated from:
   - Client's LNG inventory level
   - Operations scheduled by the client

$$\frac{\Delta \text{ LNG inventory + deliveries – reloads}}{\Sigma \text{ all shippers}}$$

➔ Re-scheduling rules & Compensation mechanism among shippers (protection from other shippers variations)

➔ Overdraft Authorisation (to allow short-term negative LNG inventory)

➔ …



SEND-OUT FLEXIBILITY

Monthly schedule ⇒ RATIO

- Shippers can express their wishes inc. end of month inventory level

Weekly flex

1. Each week, operator gives a **tunnel of available flexibility**
2. Clients **counter-nominate** by injection/withdrawal in/from their dedicated storage

Daily flex

- Shippers can express flexibility wishes each day for the day after

Within-Day renomination

(experimental)

1. Each day, operator gives a **tunnel of firm available flexibility**
2. Clients can **change their send-out nomination for the day**

Uniform send-out option

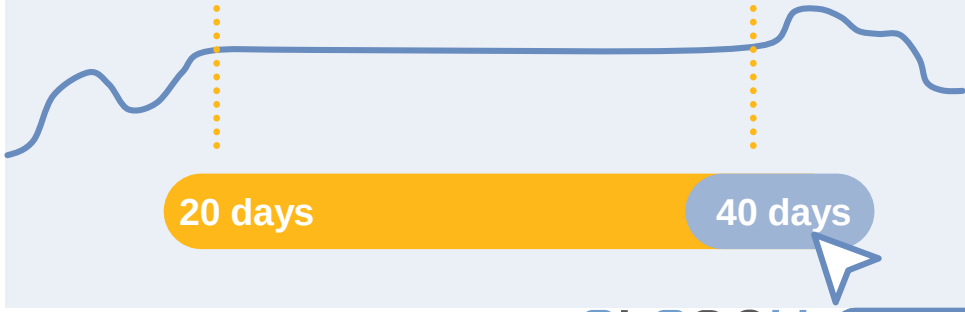
(*alternatively*)

Option to be subscribed until Monthly Schedule request [0.07 €/MWh]

FLAT SEND-OUT DURING 20 TO 40 DAYS
(SHIPPER DECISION)

Limited to:

1/month /client	12 TWh/year in total	20% of total capacity of the given month



CONCLUSION

FRENCH REGULATED TERMINALS' MODEL IS FULLY ADAPTABLE TO FSRU CASE FOR MULTI-USER ACCESS

HOME FOR LNG ⇒ MODEL M1 GIVES PRIORITY TO THE UPSTREAM OF THE TERMINAL AND IS SUITABLE TO LOW STORAGE CAPACITY

ELENGY WILL BE PLEASED TO SUPPORT YOUR PROJECTS IN THIS AREA

LNG EXPERTISE & TRAINING

- Services to project owners, to fasten each step of projects thanks to a recognized operator experience:
  - ✓ Engineering studies
  - ✓ EPC selection
  - ✓ permitting
  - ✓ Commissioning
  - ✓ …

- O&M expertise:
  - ✓ organization definition
  - ✓ Set-up of operating procedures according to best practices
  - ✓ gas quality management
- LNG Carriers vetting

Support to Greenfield/ Brownfield construction Projects

Technical services

Support to Acquisition Projects

TPA and commercial Consulting

INTEGRATED SERVICES

Full-fledged O&M offer

LNG training

- ✓ **LNG and safety**
- ✓ **LNG fire fighting**
- ✓ **Truck loading**
- ✓ **…**

Multidisciplinary Due Diligence

- Implementing a Terminal User Agreement
- Commercial scheduling

PIONEERING THE LNG INDUSTRY SINCE 1965

www.elengy.com

@Elengy

Smart LNG

Download our app!

GET IT ON Google Play

Available on the App Store

Commercial contact: sales@elengy.com

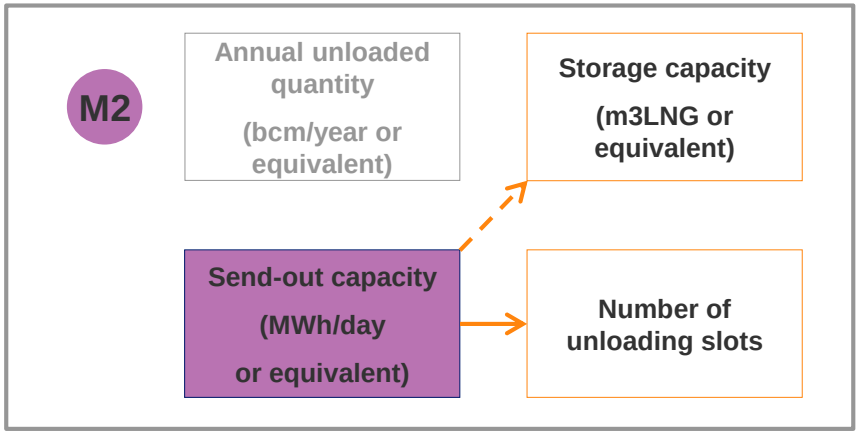
BACK-UP

MODEL 2 - « SEND-OUT CAPACITY »

In a scheme driven by the send-out capacity, customer is buying visibility – and eventually flexibility – regarding send-out.

Principles

- Subscription of a send-out capacity which gives a number of delivery dates
- In certain situations, possibility to subscribe additional storage capacity or monthly firm/flexible send-out capacity



Strengths

- Visibility and even flexibility on the output of the terminal for the shipper
- Visibility for the operator regarding windows of arrival

Weaknesses

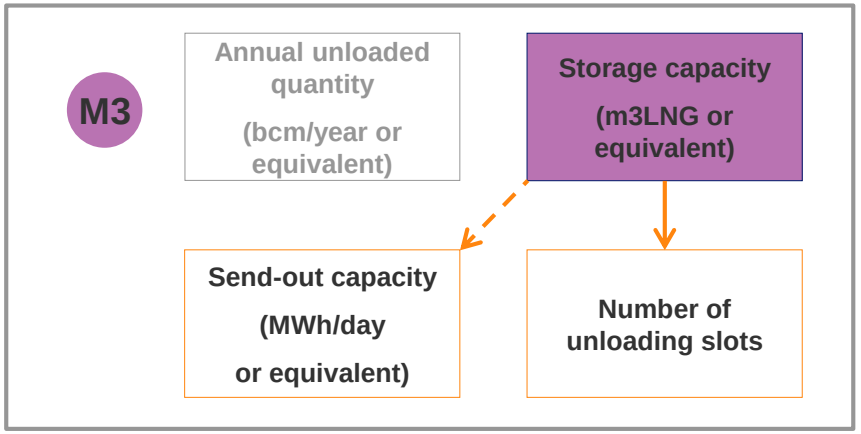
- Rigid in terms of re-scheduling
- Need for operational flexibility regarding scheduling of window of arrival and storage management

MODEL 3 - « STORAGE CAPACITY »

In a scheme driven by the storage capacity, the objective is not to maximize the terminal utilization rate but its flexibility.

Principles

- Customer subscribes a storage capacity
- This storage capacity gives right to firm/flexible send-out capacity



Strengths

- Easy to manage for the operator
- Storage management for the shipper maximizing the value of regasified LNG
- Can be simulated as an option by the shipper (comparable to a storage)

Weaknesses

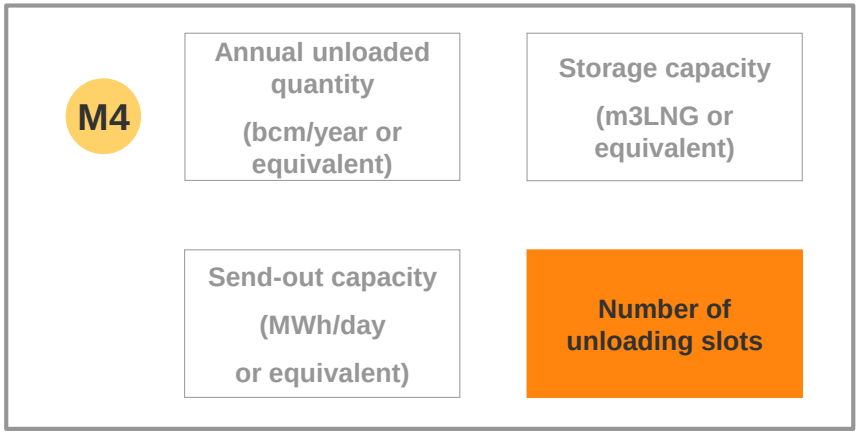
- Risk of under-utilization of the terminal
- Need for large storage capacities

MODEL 4 - « SLOTS »

This concept offers standardized products ⇒ easy going as a base case, but greater complexity and additional costs for the shipper when unconventional requests.

Principles

- An unloading slot is defined by a cargo size and a send-out capacity
- It is possible to commercialize additional storage and send-out capacity.



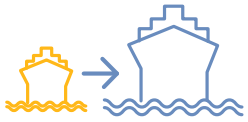
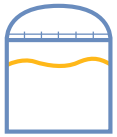
Strengths

- Visibility for unloading slots and send-out
- Simplicity of operation for the terminal
- Additional revenue for every additional request

Weaknesses

- Lack of flexibility
- Additional cost for the customer when cargo size exceeds normative one
- Operational complexity for non standard requests

ELENGY'S REGASIFICATION SERVICE

Concept	Associated mechanism
 **Scheduling flexibility**	Intra-annual LNG deliveries reshaping Monthly & intra-monthly rescheduling (size, date)
 **Time flexibility**	Subscription Account (intra annual make-up)
 **Geographical Flexibility**	Pooling of intra-monthly capacity from one terminal to another
 **Dedicated storage**	Annual dedicated storage Monthly dedicated storage
 **Send-out flexibility**	Monthly schedule (ratio) Uniform send-out option Weekly/Daily flex Within-Day renomination Zero send-out (Montoir)