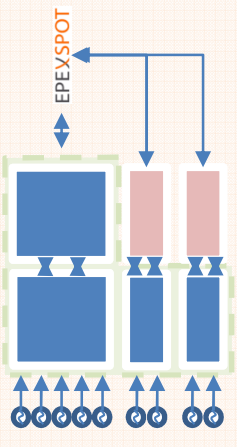


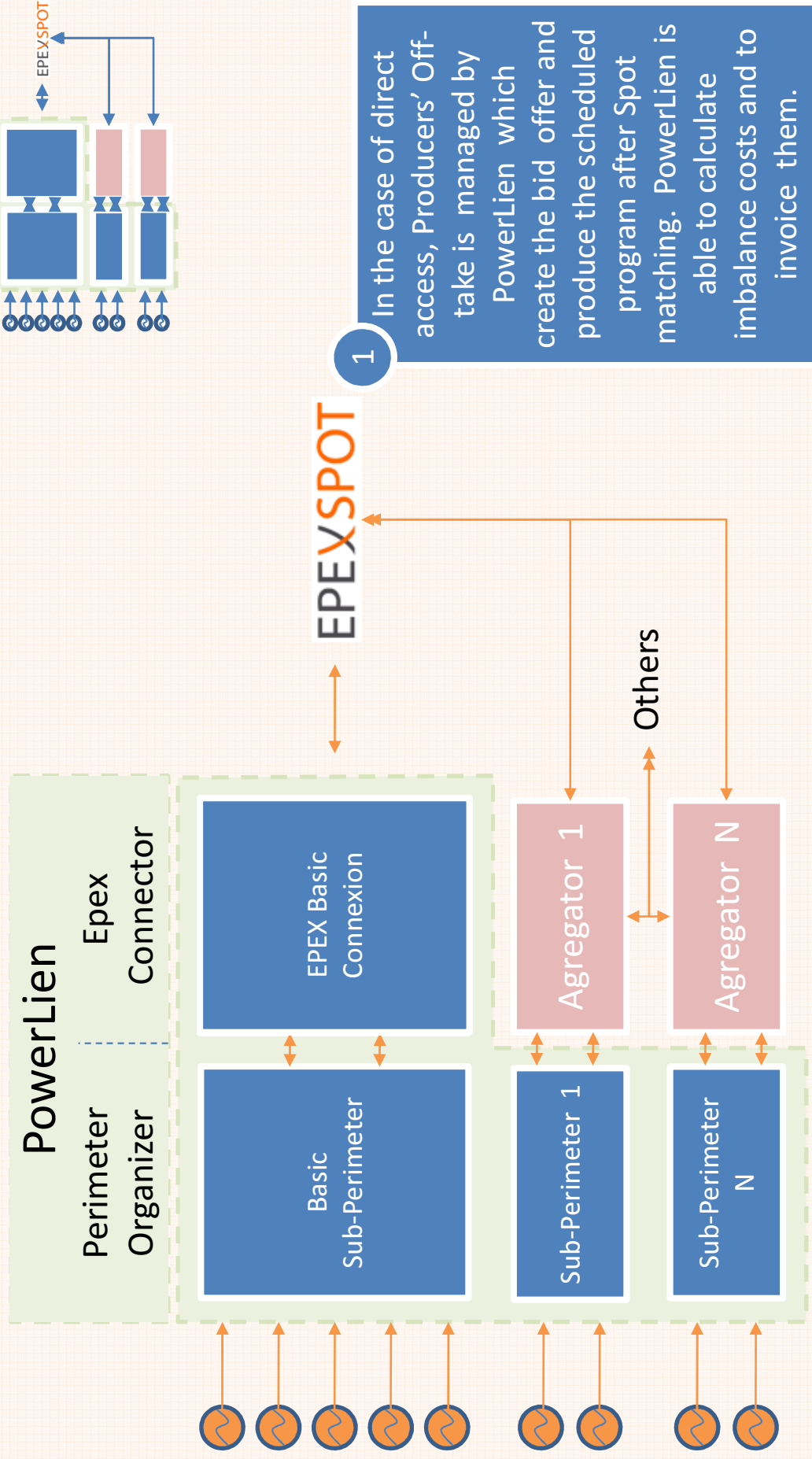
# PowerLien Concept

Paris, 29th October 2010

# PowerLien Concept

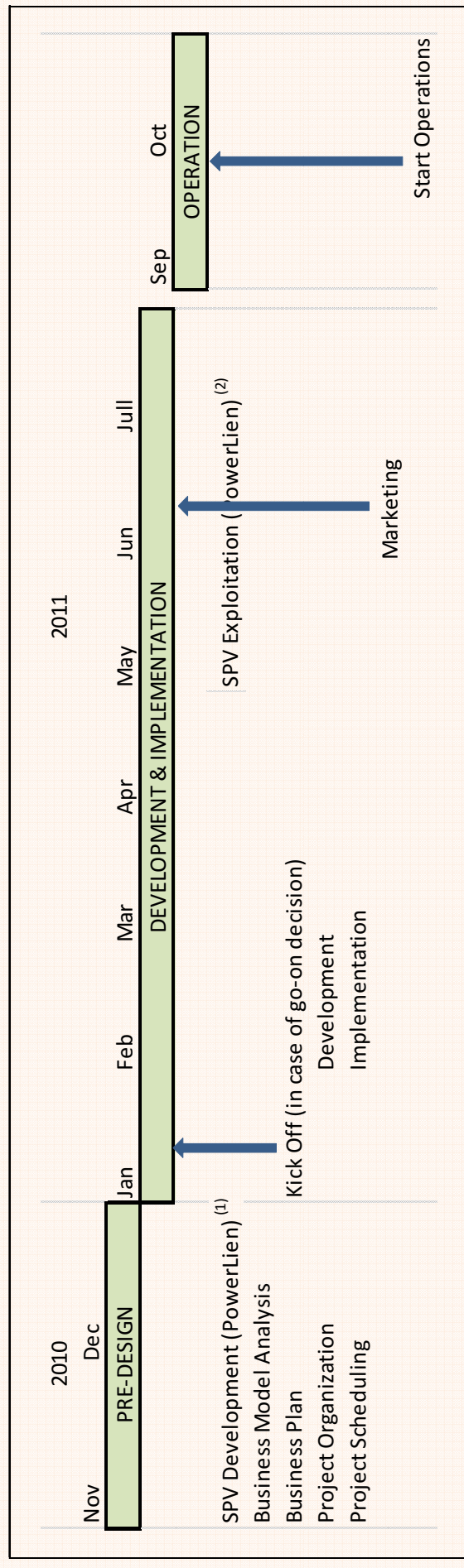
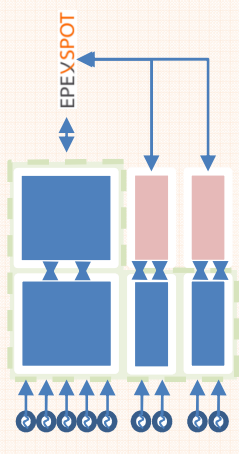


- PowerLien is an open platform to facilitate market access to medium/little producers in France
- PowerLien will provide the platform to access to French spot market (i) directly, for individual producers, and (ii) as an pure imbalance perimeter organizer for Aggregators.
- Potential Market (France): with the termination of feed in tariffs rights (Tarif d'obligation d'achat), certain sorts of medium size producers are obliged to find a new way to commercialize their off take, this is the case for:
  - Mini-hydraulic (2.000 MW, 2.000 installations)
  - CHP installations (7.000 MW, 1.500 Installations )
  - Dispatchable decentralized producers (800 MW, ? Installations)
  - Back up facilities (? MW, ? Installations)
- In the future, once this open access will be on place, we could expect regulatory changes to oblige other decentralized producers (Wind farms, PV, etc) to go through Spot market.



2 For indirect access, PowerLien works as imbalance perimeter organizer. It has to be decided whether the producers are allocated in PowerLien perimeter or are in Aggregator's one.

# PowerLien Scheduling

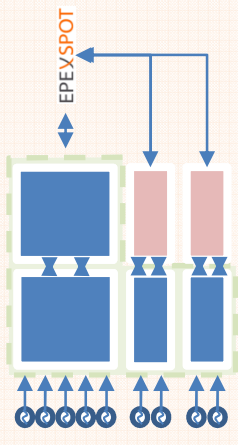


(1) AH Link Solutions + Powernext (or EPEX)

(2) AH Link Solutions + Powernext (or EPEX) + Others (RTE, ERDF, Hydraulic associations; etc)

With the creation of a dedicated SPV, for next two months the PowerLien business case will be analyzed technically, legally and from regulation point on view. At same time a first evaluation on market gap will be done. A project structure and organization will be defined. The go ahead decision has to be taken next January

## Target Market (MiniHydro)



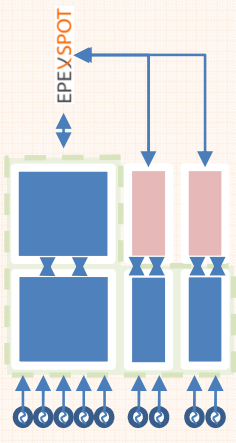
Mini-Hydro Existing park  
2008<sup>(\*)</sup>

|                   | #<br>Installations | Installed<br>Capacity<br>MW | Production<br>GWh |
|-------------------|--------------------|-----------------------------|-------------------|
| Group EDF         | 359                | 808                         | 2 774             |
| Group GdF-Suez    | 66                 | 191                         | 657               |
| ELD               | 43                 | 45                          | 155               |
| Nouveaux Entrants | 22                 | 39                          | 134               |
| Independents      | 1 359              | 994                         | 3 415             |
| <b>Total</b>      | <b>1 849</b>       | <b>2 077</b>                | <b>6 352</b>      |

(\*) source analyse SEA sur données INSEE

If we don't consider EdF and GdF suez installations , the potential market for Mini Hydro segment reach 1400 installations with a yearly production of 3.600 GWh. The most of them are affected with the termination of feed in tariffs

# Target Market (CHP)



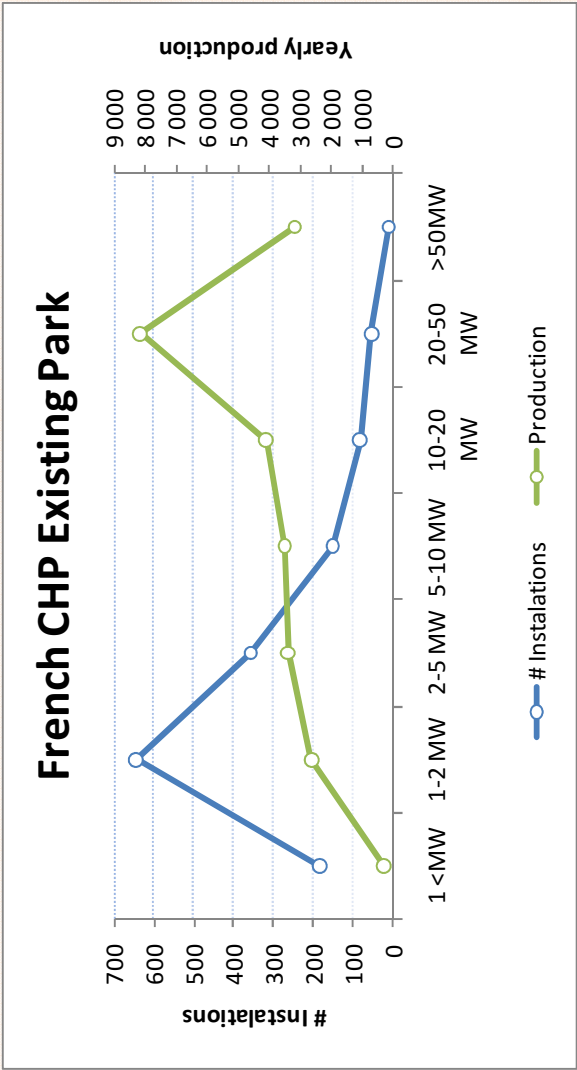
CHP Existing park 2003 (\*)

|                             | # Installations | Installed Capacity MW | Production GWh |
|-----------------------------|-----------------|-----------------------|----------------|
| Steam Turbines              | 267             | 1 914                 | 7 320          |
| Gas Turbines                | 227             | 3 268                 | 13 375         |
| Internal Combustion Engines | 994             | 1 488                 | 4 567          |
| Total                       | 1 488           | 6 670                 | 25 262         |

(\*) source analyse SEA sur données Ministère de l'Economie et CREDEN 2003

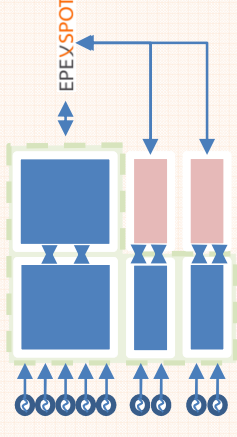
80% of CHP installations under 12 MW will terminate feed in tariff scheme before 2013

1.400 Installations under 20 MW with a yearly production of 14 TWh would be a initial reachable target





# PowerLien Revenues Overview (BASE)



## Target Market:

|                              | Total Market |              |               |              | Accessible Market <sup>(a) (b)</sup> |                    |              |            | Penetration (Over accessible Market) |                    |              |              |
|------------------------------|--------------|--------------|---------------|--------------|--------------------------------------|--------------------|--------------|------------|--------------------------------------|--------------------|--------------|--------------|
|                              | Installat.   | Capacity     | Production    | Hours Eq.    | Installations                        | Installed Capacity | Production   | Share %    | Share %                              | Installed Capacity | Production   | Share %      |
| #                            | MW           | h            | GW/h          | #            | MW                                   | h                  | GW/h         | h          | h                                    | MW                 | h            | h            |
| Mini Hydro <sup>(1)</sup>    | 1 849        | 2 077        | 6 352         | 3 058        | 1 424                                | 77%                | 1 078        | 52%        | 58%                                  | 356                | 270          | 926          |
| Dispatchables <sup>(2)</sup> | 400          | 800          | 160           | 200          | 400                                  | 100%               | 160          | 100%       | 100%                                 | 100                | 200          | 40           |
| Back Up Prod. <sup>(2)</sup> | 0            | 0            | 0             | 0            | 0                                    | 100%               | 0            | 100%       | 100%                                 | 0                  | 0            | 0            |
| CHP <sup>(3)</sup>           | 1 488        | 6 669        | 25 262        | 3 788        | 1 293                                | 87%                | 5 788        | 87%        | 86%                                  | 129                | 579          | 2 178        |
| <b>Total</b>                 | <b>3 737</b> | <b>9 546</b> | <b>31 774</b> | <b>3 329</b> | <b>3 117</b>                         | <b>83%</b>         | <b>7 666</b> | <b>80%</b> | <b>81%</b>                           | <b>585</b>         | <b>1 048</b> | <b>3 144</b> |

(1) source analyse SEA sur données INSEE

(2) pas des donnees, estimations AHS

(3) source analyse SEA sur données Ministère de l'Economie et CREDES 2003

(a) Les installations Mini Hydro du groupes EdF et GdF-Suez ne sont pas accessibles

(b) 100% d'installations entre 1 et 50 MW

## BASE Scenario

## PowerLien Yearly Revenues

PowerLien Access Fees

|            |              |
|------------|--------------|
| Member Fee | 1 000 €/Year |
| Var. Fees  | 0,5 €/MWh    |

|               | Member Fees | Variable Fees | PowerL.          |
|---------------|-------------|---------------|------------------|
| #             | €/Year      | GW/h          | Reven.           |
| Mini Hydro    | 356         | 926           | 819 002          |
| Dispatchables | 100         | 40            | 120 000          |
| Back Up Prod. | 0           | 0             | 0                |
| CHP           | 129         | 2 178         | 1 218 100        |
| <b>Total</b>  | <b>585</b>  | <b>3 144</b>  | <b>2 157 102</b> |

## Impact in Producers

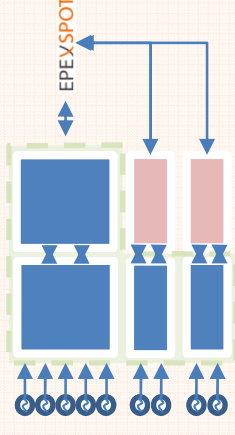
| Market Price | PowerLien Cost |
|--------------|----------------|
| Base         | 50 €/MWh       |
| Peak         | 65 €/MWh       |
| Super Peak   | 100 €/MWh      |

|               | Price | Production | Revenues | PowerLien Cost | % Rev. |
|---------------|-------|------------|----------|----------------|--------|
| €/MWh         | MWh   | €/Year     | €/Year   | €/Year         | % Rev. |
| Mini Hydro    | 50    | 2 601      | 130 057  | 2 301          | 1,8%   |
| Dispatchables | 100   | 400        | 40 000   | 1 200          | 3,0%   |
| Back Up Prod. | 100   | 0          | 0        | 1 000          | 1,1%   |
| CHP           | 50    | 16 841     | 842 073  | 9 421          | 1,1%   |

CONFIDENTIEL

AH Link Solutions

# PowerLien Revenues Overview (HIGH)



## Target Market:

|                              | Total Market |                       |                |              | Accessible Market <sup>(a)</sup> <sup>(b)</sup> |            |                       |            | Penetration (Over accessible Market) |            |              |                       |
|------------------------------|--------------|-----------------------|----------------|--------------|-------------------------------------------------|------------|-----------------------|------------|--------------------------------------|------------|--------------|-----------------------|
|                              | Installat. # | Installed Capacity MW | Production GWh | Hours Eq. h  | Installations #                                 | Share %    | Installed Capacity MW | Share %    | Production GWh                       | Share %    | Installat. # | Installed Capacity MW |
| Mini Hydro <sup>(1)</sup>    | 1 849        | 2 077                 | 6 352          | 3 058        | 1 424                                           | 77%        | 1 078                 | 52%        | 3 704                                | 58%        | 570          | 431                   |
| Dispatchables <sup>(2)</sup> | 400          | 800                   | 160            | 200          | 400                                             | 100%       | 800                   | 100%       | 160                                  | 100%       | 160          | 320                   |
| Back Up Prod. <sup>(2)</sup> |              |                       |                | 0            | 0                                               | 100%       | 0                     | 100%       | 0                                    | 100%       | 0            | 0                     |
| CHP <sup>(3)</sup>           | 1 488        | 6 669                 | 25 262         | 3 788        | 1 293                                           | 87%        | 5 788                 | 87%        | 21 776                               | 86%        | 517          | 2 315                 |
| <b>Total</b>                 | <b>3 737</b> | <b>9 546</b>          | <b>31 774</b>  | <b>3 329</b> | <b>3 117</b>                                    | <b>83%</b> | <b>7 666</b>          | <b>80%</b> | <b>25 640</b>                        | <b>81%</b> | <b>1 247</b> | <b>3 066</b>          |

## HIGH Scenario

(1) source analyse SEA sur données INSEE

(2) pas des donnees, estimations AHS

(3) source analyse SEA sur données Ministère de l'Economie et CREDEN 2003

(a) Les installations Mini Hydro du groupes EdF et GdF-Suez ne sont pas accessibles

(b) 100% d'installations entre 1 et 50 MW

## PowerLien Yearly Revenues

|                       |              |
|-----------------------|--------------|
| PowerLien Access Fees |              |
| Member Fee            | 1 000 €/Year |
| Var. Fees             | 0,5 €/MWh    |

|               | Member Fees # | €/Year           | Variable Fees GWh | €/Year           | PowerL. Reven.   |
|---------------|---------------|------------------|-------------------|------------------|------------------|
| Mini Hydro    | 570           | 569 600          | 1 482             | 740 803          | 1 310 403        |
| Dispatchables | 160           | 160 000          | 64                | 32 000           | 192 000          |
| Back Up Prod. | 0             | 0                | 0                 | 0                | 0                |
| CHP           | 517           | 517 200          | 8 710             | 4 355 200        | 4 872 400        |
| <b>Total</b>  | <b>1 247</b>  | <b>1 246 800</b> | <b>10 256</b>     | <b>5 128 003</b> | <b>6 374 803</b> |

## Impact in Producers

|              |           |
|--------------|-----------|
| Market Price |           |
| Base         | 50 €/MWh  |
| Peak         | 65 €/MWh  |
| Super Peak   | 100 €/MWh |

|               | Yearly Producer Revenues |                | PowerLien Cost  |            |
|---------------|--------------------------|----------------|-----------------|------------|
|               | Price €/MWh              | Production MWh | Revenues €/Year | % Rev.     |
| Mini Hydro    | 50                       | 2 601          | 130 057         | 2 301 1,8% |
| Dispatchables | 100                      | 400            | 40 000          | 1 200 3,0% |
| Back Up Prod. | 100                      | 0              | 0               | 1 000      |
| CHP           | 50                       | 16 841         | 842 073         | 9 421 1,1% |



# PowerLien Project Team

## Antonio Haya

20 Years experience in electricity business. Former CEO of Endesa France. Former Business Development manager of E.ON France. Board Member of Powernext for 6 years.

## Pierre Caruel

Certified Chartered Accountant – experience as Financial Officer in France (15 years) – Chemicals activities (Degussa France – 13 years) and Power activities (SNET – 2 years)

## F. D.

25 years experience on Energy markets. Last 11 years on French Power market developing a profitable customer portfolio on industrial segment

## Felix Lopez

17 years experience on IT. CIO of a SME for 6 years. From 1999, Project Manager and System Administrator in Endesa, SNET and E.ON. Specialist on ETRM (Energy Trading and Risk Management) Systems.

## Outsourcing

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- Coordination
- Publics Affairs
- Business Case
- Shareholder relationships/Agreement

- Finances
- Administration
- Back Office,
- Risk management
- Taxes

- Commercial
- Market Analysis
- Regulation
- Tariffs/Pricing

- Project Coordinator
- IT Systems

- Legal
- Systems Development
- Metering
- Forecast software

