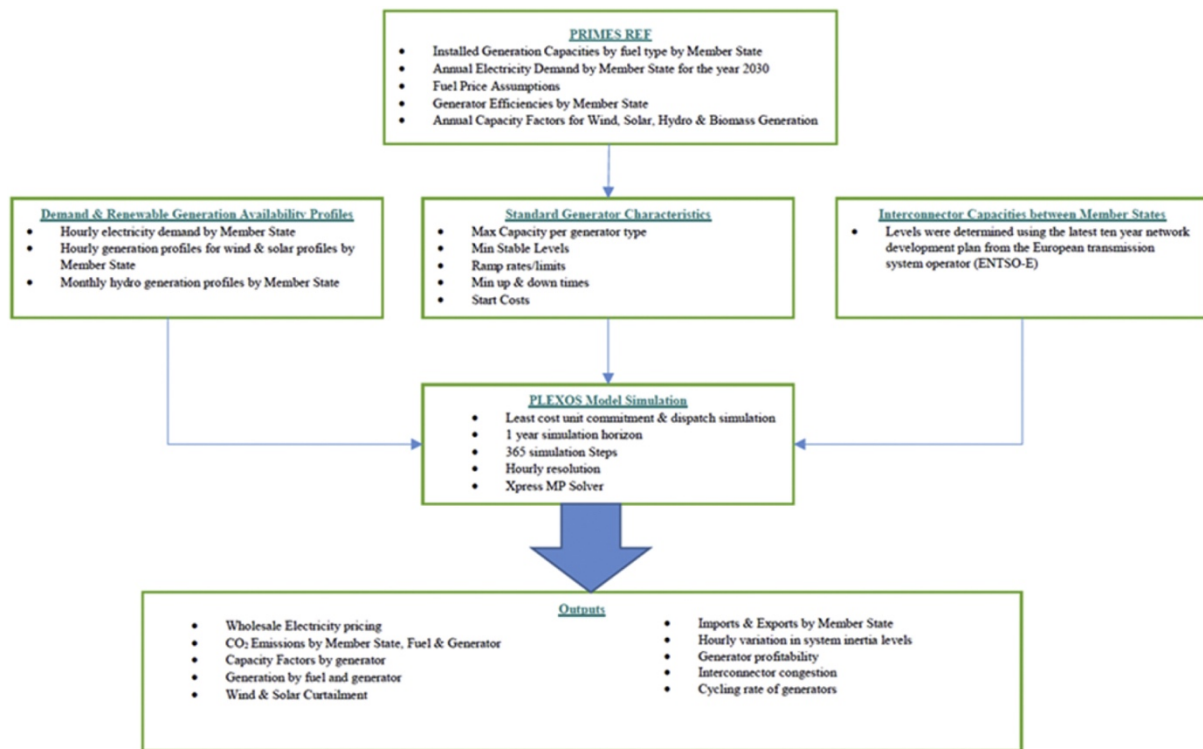


## 9. Appendix:

### 9.1 Technical assumptions to financial model

**Figure 6:** Flow diagram of the reference scenario to outputs for a financial model



Source: Collins et al 2017

Figure 6 illustrates the flow of inputs and outputs from the PRIMES model, which produces the European Commission's Reference Scenario, and the PLEXOS power system model used. The PRIMES Energy System Model is a partial equilibrium model of the European Union's energy system, used for forecasting, scenario analysis and policy impact studies. It is a behavioural model that also explicitly captures the demand, supply and pollution abatement technologies relating to energy use (E3Mlab, 2014). The technology attributes used in the PRIMES model are exogenous with both supply and demand side technologies considered. These technology attributes are reflected by parameters that are based on a variety of up to date reliable sources such as studies, expert judgement and existing databases (European Commission, 2016).

In the European Commission's Reference Scenario, results for the installed power generation capacities for each Member State are broken down into various modes of generation such as Hydro, Solids Fired, Oil Fired, Gas Fired, Biomass waste etc. The results issued from PRIMES are aggregate figures. To avoid model bias, aggregate generator portfolios are created using standard generators with standard characteristics (max capacity, min stable factors, ramp rates, min up and down times, maintenance rates, forced outage rates, start costs etc), as opposed to developing portfolios as projected by individual Transmission System Operators. A selection of these characteristics can be seen in Table 3 for thermal generators. Each disaggregated generation capacity was made up by numerous identical generators summing to the total capacity as split by fuel type in the Reference Scenario results. For natural gas fired generation 10% of installed capacity was allocated as Open Cycle (OCGT) to reflect and capture the flexibility of these less efficient plants on the power system with the remainder of natural gas fired plants being modelled as Combined Cycle units (CCGT). Heat rates for the various types of power plant are defined on a Member State by Member State basis, in the Reference scenario results.

**Table 3: The standardised generation characteristics applied<sup>1</sup>**

| Fuel Type            | Capacity (MW) | Start Cost (€) | Min Stable Factor (%) | Ramp Rate (MW/Min) |
|----------------------|---------------|----------------|-----------------------|--------------------|
| Biomass/waste        | 300           | 10000          | 30                    | 30                 |
| Derived gas          | 150           | 12000          | 40                    | 30                 |
| Geothermal heat      | 70            | 3000           | 40                    | 30                 |
| Hydro (lakes)        | 150           | 0              | 0                     | 30                 |
| Hydro (run of river) | 200           | 0              | 0                     | 30                 |
| Hydrogen             | 300           | 5000           | 40                    | 30                 |
| Natural gas CCGT     | 450           | 80000          | 40                    | 30                 |
| Natural gas OCGT     | 100           | 10000          | 20                    | 30                 |
| Nuclear              | 1200          | 120000         | 60                    | 30                 |
| Oil                  | 400           | 75000          | 40                    | 30                 |
| Solids               | 300           | 80000          | 30                    | 30                 |

Table 3 is a list of how each quantity of installed capacity of a given technology was disaggregated i.e. the plant size for each technology disaggregated from the installed capacity.

The start cost of each technology and each technologies min stable factor and ramp rate.

**Table 4: Fuel and carbon price assumptions**

| Fuel Type / Carbon             | 2030 |
|--------------------------------|------|
| Oil (€2010 per boe)            | €90  |
| Gas (€2010 per boe)            | €52  |
| Coal (€2010 per boe)           | €18  |
| Carbon - ETS (€2010 per Tonne) | €40  |

**Demand profiles:** Hourly resolution demand curves were attained from historic ENTSO-E data and linearly scaled to the overall demand estimates outlined in the European Commission’s Reference Scenario. We assume that the peak demand increases by 10% in 2030 relative to 2012 across all Member States, and we linearly scale the demand accordingly.

**Wind, solar and hydro profiles:** Hourly generation profiles for wind power were sourced from Andreas et al. (2016). Solar profiles were created from NREL’s PVWatts® calculator which estimated the solar radiance from assumptions around system location and basic system design parameters for each country. Hydro profiles are decomposed from monthly generation

constraints provided by to weekly and hourly profiles in the optimisation algorithm function in PLEXOS®. Pumped hydro energy storage is also simulated in this model.

**Table 5:** Cost Assumptions for combined cycle gas turbine (CCGT) power plant

|                               |                |
|-------------------------------|----------------|
| Capital Cost (450 MW)         | €382.5 million |
| Expected Technical Lifetime   | 20 Years       |
| % total cost in Debt          | 70%            |
| % total cost in Equity        | 30%            |
| Loan term in years            | 20             |
| No of loan payments per annum | 12             |
| Debt                          | €267.8 million |
| Equity                        | €141.7 million |
| Variable O&M (€/MWh)          | €20            |
| Fixed O&M (% of CAPEX)        | 2.5%           |

The capital allowances and corporate taxes used are sourced from (El-Sibaie, 2018; European Commission, 2018) .

## 9.2 Sensitivities and comparison of member states

Table 6 and 7 quantifies the revenue streams in monetary terms that generators would need to receive annually to achieve the attributed IRR. Table 8 and 9 extrapolates those required revenues into long run marginal costs.

**Table 6.** Capacity Payments €/MW/p.a. (Excluding Infrastructure Legacy Risks)

| €/MWh/p.a. | 4%                             | 6%                             | 8%                             | 10%                            |
|------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Country    | Capacity Payment out of market | Capacity Payment out of market | Capacity Payment out of market | Capacity Payment out of market |
| AT         | €6,187                         | €16,168                        | €26,707                        | €37,695                        |
| BE         | €0                             | €0                             | €0                             | €0                             |
| BG         | €25,082                        | €34,160                        | €43,787                        | €53,946                        |
| CY         | €67,703                        | €73,971                        | €80,912                        | €88,536                        |
| CZ         | €0                             | €0                             | €6,052                         | €17,605                        |
| DE         | €0                             | €0                             | €0                             | €0                             |
| DK         | €0                             | €0                             | €0                             | €0                             |
| EE         | €53,630                        | €61,046                        | €69,086                        | €77,744                        |
| ES         | €81,255                        | €88,260                        | €95,980                        | €104,371                       |
| FI         | €71,940                        | €82,466                        | €93,547                        | €105,017                       |
| FR         | €11,037                        | €19,097                        | €27,841                        | €37,165                        |
| GR         | €61,212                        | €69,626                        | €78,653                        | €88,216                        |
| HR         | €76,425                        | €83,495                        | €91,202                        | €99,547                        |
| HU         | €65,691                        | €72,889                        | €80,717                        | €89,175                        |
| IE         | €89,745                        | €99,039                        | €108,874                       | €119,227                       |
| IT         | €49,524                        | €57,736                        | €66,579                        | €76,004                        |
| LT         | €89,414                        | €97,436                        | €106,054                       | €115,260                       |
| LU         | €51,247                        | €58,524                        | €66,504                        | €75,159                        |
| LV         | €74,709                        | €81,064                        | €88,089                        | €95,791                        |
| MT         | €0                             | €0                             | €0                             | €0                             |
| NL         | €0                             | €0                             | €0                             | €0                             |
| PL         | €12,482                        | €22,749                        | €33,532                        | €44,778                        |
| PT         | €85,953                        | €92,173                        | €99,058                        | €106,639                       |
| RO         | €27,844                        | €37,127                        | €46,946                        | €57,280                        |
| SE         | €0                             | €0                             | €0                             | €0                             |
| SI         | €80,189                        | €86,277                        | €93,046                        | €100,506                       |
| SK         | €50,151                        | €57,444                        | €65,367                        | €73,915                        |
| UK         | €59,717                        | €67,997                        | €76,867                        | €86,348                        |

**Table 7. Capacity Payments €/MW/p.a. (Including Infrastructure Legacy Risks)**

| €/MWh/p.a. | 4%               | 6%               | 8%               | 10%              |
|------------|------------------|------------------|------------------|------------------|
| Country    | Capacity Payment | Capacity Payment | Capacity Payment | Capacity Payment |
| AT         | €13,164          | €23,252          | €33,847          | €44,901          |
| BE         | €0               | €0               | €0               | €0               |
| BG         | €24,484          | €33,554          | €43,166          | €53,296          |
| CY         | €67,703          | €73,971          | €80,906          | €88,514          |
| CZ         | €0               | €0               | €6,039           | €17,563          |
| DE         | €0               | €0               | €0               | €0               |
| DK         | €0               | €0               | €239             | €11,906          |
| EE         | €56,575          | €64,031          | €72,101          | €80,779          |
| ES         | €82,835          | €89,866          | €97,575          | €105,969         |
| FI         | €55,284          | €65,550          | €76,349          | €87,615          |
| FR         | €16,027          | €24,171          | €32,938          | €42,308          |
| GR         | €60,645          | €69,051          | €78,031          | €87,567          |
| HR         | €76,425          | €83,495          | €91,195          | €99,523          |
| HU         | €66,867          | €74,082          | €81,918          | €90,373          |
| IE         | €102,461         | €111,925         | €121,915         | €132,402         |
| IT         | €51,522          | €59,765          | €68,605          | €78,035          |
| LT         | €89,969          | €97,999          | €106,617         | €115,811         |
| LU         | €55,449          | €62,793          | €70,816          | €79,503          |
| LV         | €76,988          | €83,374          | €90,421          | €98,136          |
| MT         | €0               | €0               | €0               | €0               |
| NL         | €0               | €0               | €0               | €0               |
| PL         | €7,401           | €17,591          | €28,290          | €39,443          |
| PT         | €87,088          | €93,323          | €100,230         | €107,808         |
| RO         | €30,114          | €39,428          | €49,268          | €59,609          |
| SE         | €0               | €0               | €0               | €0               |
| SI         | €80,467          | €86,558          | €93,324          | €100,773         |
| SK         | €53,299          | €60,635          | €68,590          | €77,160          |
| UK         | €63,918          | €72,254          | €81,174          | €90,687          |

**Table 8.** Market prices and long run marginal costs (Excluding Infrastructure Legacy Risks)

| IRR     |                         | 4%                     | 6%                     | 8%                     | 10%                    |
|---------|-------------------------|------------------------|------------------------|------------------------|------------------------|
| Country | Marginal Price Received | Long Run Marginal Cost | Long Run Marginal Cost | Long Run Marginal Cost | Long Run Marginal Cost |
| AT      | €87                     | €88                    | €91                    | €93                    | €96                    |
| BE      | €111                    | €84                    | €86                    | €88                    | €91                    |
| BG      | €82                     | €89                    | €92                    | €95                    | €97                    |
| CY      | €96                     | €253                   | €268                   | €284                   | €302                   |
| CZ      | €79                     | €76                    | €78                    | €80                    | €82                    |
| DE      | €123                    | €97                    | €100                   | €103                   | €106                   |
| DK      | €117                    | €106                   | €108                   | €111                   | €114                   |
| EE      | €117                    | €161                   | €167                   | €174                   | €181                   |
| ES      | €103                    | €229                   | €239                   | €251                   | €264                   |
| FI      | €81                     | €97                    | €100                   | €102                   | €105                   |
| FR      | €119                    | €125                   | €130                   | €135                   | €140                   |
| GR      | €102                    | €136                   | €141                   | €146                   | €151                   |
| HR      | €85                     | €156                   | €163                   | €170                   | €178                   |
| HU      | €97                     | €154                   | €161                   | €167                   | €175                   |
| IE      | €87                     | €119                   | €122                   | €126                   | €130                   |
| IT      | €95                     | €120                   | €124                   | €128                   | €133                   |
| LT      | €80                     | €128                   | €133                   | €137                   | €142                   |
| LU      | €92                     | €129                   | €134                   | €140                   | €146                   |
| LV      | €99                     | €280                   | €295                   | €312                   | €331                   |
| MT      | €129                    | €85                    | €87                    | €90                    | €92                    |
| NL      | €128                    | €92                    | €95                    | €98                    | €102                   |
| PL      | €89                     | €92                    | €95                    | €97                    | €100                   |
| PT      | €96                     | €568                   | €602                   | €640                   | €681                   |
| RO      | €98                     | €107                   | €110                   | €113                   | €117                   |
| SE      | €142                    | €111                   | €114                   | €118                   | €122                   |
| SI      | €84                     | €526                   | €560                   | €597                   | €638                   |
| SK      | €98                     | €134                   | €139                   | €145                   | €151                   |
| UK      | €90                     | €116                   | €120                   | €124                   | €128                   |

**Table 9.** Market prices and long run marginal costs (Including Infrastructure Legacy Risks)

| IRR     |                         | 4%                     | 6%                     | 8%                     | 10%                    |
|---------|-------------------------|------------------------|------------------------|------------------------|------------------------|
| Country | Marginal Price Received | Long Run Marginal Cost | Long Run Marginal Cost | Long Run Marginal Cost | Long Run Marginal Cost |
| AT      | €87                     | €90                    | €93                    | €95                    | €98                    |
| BE      | €111                    | €82                    | €85                    | €87                    | €90                    |
| BG      | €82                     | €89                    | €92                    | €94                    | €97                    |
| CY      | €96                     | €253                   | €268                   | €284                   | €302                   |
| CZ      | €79                     | €76                    | €78                    | €80                    | €82                    |
| DE      | €123                    | €98                    | €101                   | €104                   | €108                   |
| DK      | €117                    | €112                   | €114                   | €117                   | €120                   |
| EE      | €117                    | €163                   | €170                   | €176                   | €183                   |
| ES      | €103                    | €231                   | €242                   | €254                   | €267                   |
| FI      | €81                     | €94                    | €96                    | €98                    | €101                   |
| FR      | €119                    | €128                   | €133                   | €138                   | €143                   |
| GR      | €102                    | €136                   | €141                   | €146                   | €151                   |
| HR      | €85                     | €156                   | €163                   | €170                   | €178                   |
| HU      | €97                     | €155                   | €162                   | €168                   | €176                   |
| IE      | €87                     | €124                   | €127                   | €131                   | €134                   |
| IT      | €95                     | €121                   | €125                   | €129                   | €134                   |
| LT      | €80                     | €129                   | €133                   | €138                   | €142                   |
| LU      | €92                     | €132                   | €137                   | €143                   | €149                   |
| LV      | €99                     | €285                   | €301                   | €318                   | €336                   |
| MT      | €129                    | €85                    | €87                    | €90                    | €92                    |
| NL      | €128                    | €93                    | €96                    | €99                    | €102                   |
| PL      | €89                     | €91                    | €94                    | €96                    | €99                    |
| PT      | €96                     | €574                   | €608                   | €646                   | €688                   |
| RO      | €98                     | €108                   | €111                   | €114                   | €117                   |
| SE      | €142                    | €106                   | €109                   | €113                   | €117                   |
| SI      | €84                     | €528                   | €561                   | €598                   | €639                   |
| SK      | €98                     | €136                   | €142                   | €147                   | €154                   |
| UK      | €90                     | €118                   | €122                   | €126                   | €130                   |



**Table 10.** Annual Revenue Streams for Gas-Fired Generators in 2030 (Excluding Infrastructure Legacy Risks)

| IRR     | 4%           |                        |                 | 6%           |                        |                 | 8%           |                        |                 | 10%          |                        |                 |
|---------|--------------|------------------------|-----------------|--------------|------------------------|-----------------|--------------|------------------------|-----------------|--------------|------------------------|-----------------|
| Country | Energy Only  | Out of Market Payments | % Out of Market | Energy Only  | Out of Market Payments | % Out of Market | Energy Only  | Out of Market Payments | % Out of Market | Energy Only  | Out of Market Payments | % Out of Market |
| AT      | €144,146,493 | €2,474,892             | 2%              | €144,146,493 | €6,467,387             | 4%              | €144,146,493 | €10,682,709            | 7%              | €144,146,493 | €15,078,064            | 9%              |
| BE      | €197,998,200 | €0                     | 0%              | €197,998,200 | €0                     | 0%              | €197,998,200 | €0                     | 0%              | €197,998,200 | €0                     | 0%              |
| BG      | €117,144,883 | €10,032,814            | 8%              | €117,144,883 | €13,663,924            | 10%             | €117,144,883 | €17,514,873            | 13%             | €117,144,883 | €21,578,381            | 16%             |
| CY      | €16,623,033  | €27,081,379            | 62%             | €16,623,033  | €29,588,396            | 64%             | €16,623,033  | €32,364,812            | 66%             | €16,623,033  | €35,414,355            | 68%             |
| CZ      | €175,228,821 | €0                     | 0%              | €175,228,821 | €0                     | 0%              | €175,228,821 | €2,420,706             | 1%              | €175,228,821 | €7,042,027             | 4%              |
| DE      | €152,833,239 | €0                     | 0%              | €152,833,239 | €0                     | 0%              | €152,833,239 | €0                     | 0%              | €152,833,239 | €0                     | 0%              |
| DK      | €180,449,908 | €0                     | 0%              | €180,449,908 | €0                     | 0%              | €180,449,908 | €0                     | 0%              | €180,449,908 | €0                     | 0%              |
| EE      | €56,401,922  | €21,451,911            | 28%             | €56,401,922  | €24,418,206            | 30%             | €56,401,922  | €27,634,272            | 33%             | €56,401,922  | €31,097,655            | 36%             |
| ES      | €26,654,888  | €32,502,037            | 55%             | €26,654,888  | €35,303,802            | 57%             | €26,654,888  | €38,392,161            | 59%             | €26,654,888  | €41,748,219            | 61%             |
| FI      | €137,991,632 | €28,776,007            | 17%             | €137,991,632 | €32,986,207            | 19%             | €137,991,632 | €37,418,983            | 21%             | €137,991,632 | €42,006,628            | 23%             |
| FR      | €84,695,036  | €4,414,990             | 5%              | €84,695,036  | €7,638,784             | 8%              | €84,695,036  | €11,136,522            | 12%             | €84,695,036  | €14,865,816            | 15%             |
| GR      | €72,855,979  | €24,484,990            | 25%             | €72,855,979  | €27,850,426            | 28%             | €72,855,979  | €31,461,132            | 30%             | €72,855,979  | €35,286,269            | 33%             |
| HR      | €36,562,803  | €30,569,836            | 46%             | €36,562,803  | €33,397,894            | 48%             | €36,562,803  | €36,480,988            | 50%             | €36,562,803  | €39,818,653            | 52%             |
| HU      | €44,241,171  | €26,276,317            | 37%             | €44,241,171  | €29,155,721            | 40%             | €44,241,171  | €32,286,918            | 42%             | €44,241,171  | €35,670,137            | 45%             |
| IE      | €97,768,285  | €35,897,860            | 27%             | €97,768,285  | €39,615,503            | 29%             | €97,768,285  | €43,549,406            | 31%             | €97,768,285  | €47,690,989            | 33%             |
| IT      | €74,603,599  | €19,809,432            | 21%             | €74,603,599  | €23,094,406            | 24%             | €74,603,599  | €26,631,688            | 26%             | €74,603,599  | €30,401,714            | 29%             |
| LT      | €60,031,403  | €35,765,640            | 37%             | €60,031,403  | €38,974,308            | 39%             | €60,031,403  | €42,421,619            | 41%             | €60,031,403  | €46,103,849            | 43%             |
| LU      | €50,797,420  | €20,498,935            | 29%             | €50,797,420  | €23,409,783            | 32%             | €50,797,420  | €26,601,767            | 34%             | €50,797,420  | €30,063,763            | 37%             |
| LV      | €16,418,381  | €29,883,719            | 65%             | €16,418,381  | €32,425,547            | 66%             | €16,418,381  | €35,235,410            | 68%             | €16,418,381  | €38,316,232            | 70%             |
| MT      | €202,644,624 | €0                     | 0%              | €202,644,624 | €0                     | 0%              | €202,644,624 | €0                     | 0%              | €202,644,624 | €0                     | 0%              |
| NL      | €150,983,577 | €0                     | 0%              | €150,983,577 | €0                     | 0%              | €150,983,577 | €0                     | 0%              | €150,983,577 | €0                     | 0%              |
| PL      | €152,319,122 | €4,992,811             | 3%              | €152,319,122 | €9,099,776             | 6%              | €152,319,122 | €13,412,964            | 8%              | €152,319,122 | €17,911,182            | 11%             |
| PT      | €7,033,004   | €34,381,034            | 83%             | €7,033,004   | €36,869,105            | 84%             | €7,033,004   | €39,623,073            | 85%             | €7,033,004   | €42,655,461            | 86%             |
| RO      | €120,698,000 | €11,137,711            | 8%              | €120,698,000 | €14,850,942            | 11%             | €120,698,000 | €18,778,573            | 13%             | €120,698,000 | €22,912,116            | 16%             |
| SE      | €145,291,399 | €0                     | 0%              | €145,291,399 | €0                     | 0%              | €145,291,399 | €0                     | 0%              | €145,291,399 | €0                     | 0%              |
| SI      | €6,132,701   | €32,075,735            | 84%             | €6,132,701   | €34,510,746            | 85%             | €6,132,701   | €37,218,444            | 86%             | €6,132,701   | €40,202,316            | 87%             |
| SK      | €54,149,143  | €20,060,338            | 27%             | €54,149,143  | €22,977,582            | 30%             | €54,149,143  | €26,146,632            | 33%             | €54,149,143  | €29,565,891            | 35%             |
| UK      | €79,473,492  | €23,886,622            | 23%             | €79,473,492  | €27,198,630            | 25%             | €79,473,492  | €30,746,850            | 28%             | €79,473,492  | €34,539,200            | 30%             |

**Table 11. Annual Revenue Streams for Gas-Fired Generators in 2030 (Including Infrastructure Legacy Risks)**

| IRR     | 4%           |                        |                 | 6%           |                        |                 | 8%           |                        |                 | 10%          |                        |                 |
|---------|--------------|------------------------|-----------------|--------------|------------------------|-----------------|--------------|------------------------|-----------------|--------------|------------------------|-----------------|
| Country | Energy Only  | Out of Market Payments | % Out of Market | Energy Only  | Out of Market Payments | % Out of Market | Energy Only  | Out of Market Payments | % Out of Market | Energy Only  | Out of Market Payments | % Out of Market |
| AT      | €144,146,493 | €5,265,797             | 4%              | €144,146,493 | €9,300,626             | 6%              | €144,146,493 | €13,538,621            | 9%              | €144,146,493 | €17,960,438            | 11%             |
| BE      | €197,998,200 | €0                     | 0%              | €197,998,200 | €0                     | 0%              | €197,998,200 | €0                     | 0%              | €197,998,200 | €0                     | 0%              |
| BG      | €117,144,883 | €9,793,610             | 8%              | €117,144,883 | €13,421,472            | 10%             | €117,144,883 | €17,266,353            | 13%             | €117,144,883 | €21,318,537            | 15%             |
| CY      | €16,623,033  | €27,081,365            | 62%             | €16,623,033  | €29,588,396            | 64%             | €16,623,033  | €32,362,246            | 66%             | €16,623,033  | €35,405,737            | 68%             |
| CZ      | €175,228,821 | €0                     | 0%              | €175,228,821 | €0                     | 0%              | €175,228,821 | €2,415,576             | 1%              | €175,228,821 | €7,025,207             | 4%              |
| DE      | €152,833,239 | €0                     | 0%              | €152,833,239 | €0                     | 0%              | €152,833,239 | €0                     | 0%              | €152,833,239 | €0                     | 0%              |
| DK      | €180,449,908 | €0                     | 0%              | €180,449,908 | €0                     | 0%              | €180,449,908 | €95,593                | 0%              | €180,449,908 | €4,762,253             | 3%              |
| EE      | €56,401,922  | €22,630,159            | 29%             | €56,401,922  | €25,612,449            | 31%             | €56,401,922  | €28,840,369            | 34%             | €56,401,922  | €32,311,556            | 36%             |
| ES      | €26,654,888  | €33,133,893            | 55%             | €26,654,888  | €35,946,225            | 57%             | €26,654,888  | €39,029,961            | 59%             | €26,654,888  | €42,387,417            | 61%             |
| FI      | €137,991,632 | €22,113,404            | 14%             | €137,991,632 | €26,220,018            | 16%             | €137,991,632 | €30,539,719            | 18%             | €137,991,632 | €35,046,040            | 20%             |
| FR      | €84,695,036  | €6,410,791             | 7%              | €84,695,036  | €9,668,352             | 10%             | €84,695,036  | €13,175,089            | 13%             | €84,695,036  | €16,923,392            | 17%             |
| GR      | €72,855,979  | €24,258,094            | 25%             | €72,855,979  | €27,620,341            | 27%             | €72,855,979  | €31,212,415            | 30%             | €72,855,979  | €35,026,792            | 32%             |
| HR      | €36,562,803  | €30,569,821            | 46%             | €36,562,803  | €33,397,894            | 48%             | €36,562,803  | €36,477,906            | 50%             | €36,562,803  | €39,809,238            | 52%             |
| HU      | €44,241,171  | €26,746,844            | 38%             | €44,241,171  | €29,632,666            | 40%             | €44,241,171  | €32,767,165            | 43%             | €44,241,171  | €36,149,293            | 45%             |
| IE      | €97,768,285  | €40,984,250            | 30%             | €97,768,285  | €44,769,903            | 31%             | €97,768,285  | €48,766,026            | 33%             | €97,768,285  | €52,960,733            | 35%             |
| IT      | €74,603,599  | €20,608,738            | 22%             | €74,603,599  | €23,905,920            | 24%             | €74,603,599  | €27,442,011            | 27%             | €74,603,599  | €31,214,052            | 29%             |
| LT      | €60,031,403  | €35,987,784            | 37%             | €60,031,403  | €39,199,495            | 40%             | €60,031,403  | €42,646,636            | 42%             | €60,031,403  | €46,324,218            | 44%             |
| LU      | €50,797,420  | €22,179,631            | 30%             | €50,797,420  | €25,117,026            | 33%             | €50,797,420  | €28,326,393            | 36%             | €50,797,420  | €31,801,129            | 39%             |
| LV      | €16,418,381  | €30,795,345            | 65%             | €16,418,381  | €33,349,556            | 67%             | €16,418,381  | €36,168,409            | 69%             | €16,418,381  | €39,254,300            | 71%             |
| MT      | €202,644,624 | €0                     | 0%              | €202,644,624 | €0                     | 0%              | €202,644,624 | €0                     | 0%              | €202,644,624 | €0                     | 0%              |
| NL      | €150,983,577 | €0                     | 0%              | €150,983,577 | €0                     | 0%              | €150,983,577 | €0                     | 0%              | €150,983,577 | €0                     | 0%              |
| PL      | €152,319,122 | €2,960,509             | 2%              | €152,319,122 | €7,036,362             | 4%              | €152,319,122 | €11,315,812            | 7%              | €152,319,122 | €15,777,068            | 9%              |
| PT      | €7,033,004   | €34,835,328            | 83%             | €7,033,004   | €37,329,147            | 84%             | €7,033,004   | €40,092,169            | 85%             | €7,033,004   | €43,123,090            | 86%             |
| RO      | €120,698,000 | €12,045,617            | 9%              | €120,698,000 | €15,771,208            | 12%             | €120,698,000 | €19,707,201            | 14%             | €120,698,000 | €23,843,441            | 16%             |
| SE      | €145,291,399 | €0                     | 0%              | €145,291,399 | €0                     | 0%              | €145,291,399 | €0                     | 0%              | €145,291,399 | €0                     | 0%              |
| SI      | €6,132,701   | €32,186,739            | 84%             | €6,132,701   | €34,623,276            | 85%             | €6,132,701   | €37,329,531            | 86%             | €6,132,701   | €40,309,180            | 87%             |
| SK      | €54,149,143  | €21,319,492            | 28%             | €54,149,143  | €24,253,820            | 31%             | €54,149,143  | €27,435,907            | 34%             | €54,149,143  | €30,863,928            | 36%             |
| UK      | €79,473,492  | €25,567,017            | 24%             | €79,473,492  | €28,901,798            | 27%             | €79,473,492  | €32,469,605            | 29%             | €79,473,492  | €36,274,758            | 31%             |

